



7-6 Industri-plex 00-1
 Institutional Controls
 AS-BUILT Records for
 ANDERSON Regional
 Transportation Center
 Superfund Records Center
 SITE: Industri-plex
 BREAK: 7-6
 OTHER: 257987

ANDERSON RTC COVER MODIFICATION AS-BUILT

INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS 01801

BATG PROJECT NO. 20-100

Prepared For:

THE MASSACHUSETTS PORT AUTHORITY
CAPITAL PROGRAMS DIVISION
ONE HARBORSIDE DRIVE SUITE 200S
EAST BOSTON, MASSACHUSETTS 02128-2909

Prepared By:

BATG ENVIRONMENTAL, INC.
150 RECREATION PARK DRIVE, SUITE 5
HINGHAM, MASSACHUSETTS 02043
(781) 740-2078 FAX (781) 740-2079

JULY 10, 2001

VOLUME 1 OF 2

The Middlesex Corporation

TRANSMITTAL

No. MO474

30A Atlantic Ave
Woburn, MA 01801

Phone: 781-935-0779

PROJECT: Anderson Regional Transportation Ctr

DATE: 7/27/01

TO: US Environmental Protection Agency
Office of Site Remed. & Restor.
1 Congress Street, Suite 1100 (HBO)
Boston, MA 02114-2023

REF: ARTC Cover Modification

ATTN: Joe LeMay, P.E.

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input checked="" type="checkbox"/> Shop Drawings	<input checked="" type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input checked="" type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input checked="" type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
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ITEM	PACKAGE	SUBMITTAL	DRAWING	REV.	ITEM NO.	COPIES	DATE	DESCRIPTION	STATUS
SUB	01050	002		001		1	7/27/01	Title: Final Project Documentation Desc: Anderson RTC Cover Modification As-Built	NEW

Remarks:

CC: Anna Mayor - MADEP; Ken Johnson - Mass Port; Bill Bregoli - MBTA,
[REDACTED] Bill Palmieri - S&W, Tetra Tech Nus; ISR

Signed:


Desiree Patrice



July 10, 2001

BATG Project No.: 20-100

Mr. Kenneth F. Johnson Jr. P.E.
The Massachusetts Port Authority
Capital Programs Division
One Harborside Drive Suite 200S
East Boston, Massachusetts 02128-2909

RE: ANDERSON RTC COVER MODIFICATION AS-BUILT
 WOBURN, MASSACHUSETTS

Dear Mr. Johnson:

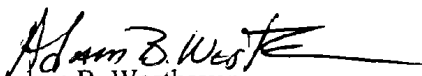
On behalf of the Middlesex Corporation, (TMC) BATG Environmental, Inc. (BATG) is pleased to submit the attached Anderson RTC Cover Modification As-Built Report detailing construction modifications of the RTC Alternative Cover, at the Industrial-Plex Site located in Woburn, Massachusetts. This As-Built Report provides a site history of previous work, a summary of work performed by TMC, a summary of remediation requirements, and a summary of documentation including decommissioning, material testing, and construction monitoring. A final set of as-built drawings is included in Appendix M to this document.

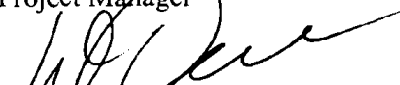
This submission is made in fulfillment of the requirements of the Massachusetts Port Authorities (MPA's) Specification Section 01566 Part 1.10 Re-Certification of Disturbed Areas for the MPA's Project Number 1.727 Woburn Regional Transportation Center. Please note that this report covers portions of the Industrial-Plex Site that are identified as the Regional Transportation Center and is included in the Project Limits of Work. This As-Built Report provides a basis for re-certifying the completion of a portion of the remedial action for soil, sediments, and air in conformance with the Consent Decree, Civil Actions 89-0195-MC and 89-0196-MC.

Should you have any questions or require additional information or clarification, please do not hesitate to contact the undersigned at 781-740-2078.

Very truly yours,

BATG Environmental, Inc,


Adam B. Westhaver
Project Manager


Dennis D'Amore, P.E., LSP, PhD
Licensed Site Professional



ANDERSON RTC COVER MODIFICATION AS-BUILT

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Distribution:

- 1 Copies – Joe LeMay, U.S. EPA
- 2 Copy – Anna Mayor, MADEP
- 1 Copy – The Massachusetts Port Authority
- 1 Copy – The Massachusetts Bay Transportation Authority
- 1 Copy – Stone and Webster Engineering
- 1 Copy – The Middlesex Corporation
- 1 Copy – Tetra Tech Nus, Inc.
- 1 Copy – ISRT c/o Maverick Construction Management



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1.0 INTRODUCTION

The Massachusetts Port Authority (MPA) along with the Massachusetts Bay Transportation Authority (MBTA) and The Massachusetts Highway Department (MHD) awarded the construction contract for the Woburn Regional Transportation Center (WRTC) to The Middlesex Corporation (TMC) of Littleton, Massachusetts. The Project is identified as MPA Project Number 1.727 and is a continuation of the development of the former Industri-Plex Site. The Notice to Proceed for the MPA Project was effective as of January 18, 2000 with five specific milestones throughout the duration of the project. Construction of the transportation facility began in March 2000 and was complete in April 2001 (refer to Appendix A for actual project schedule). In January 2001 Massport notified The Middlesex Corporation that the name of the facility would be "Anderson Regional Transportation Center." For the purposes of this report, "WRTC" and "ARTC" will be used interchangeably to identify the project.

The Regional Transportation Center services multi-modal transportation needs for intercity/commuter rail service, Logan Express and local bus service, and park-and-ride for carpool/vanpool users. The facility includes a Station Building for ticketing, baggage and passenger services ("Station Building"), surface-parking capacity for patrons and employees, loading platforms for Logan Express and local buses, and a new egress roadway. The Regional Transportation Center also includes a new high-level platform commuter rail station, which required the relocation of the existing northbound track, construction of a by-pass track with freight spur, and two new interlockings.

Project specifications identified the potential for arsenic, lead, and chromium contamination as well as animal hide residues in soil located within the project area. The specifications also identified the potential for organics and inorganics to be present in the groundwater. Previous reports and the project specifications identify four classes of property associated with the Industri-Plex site. These are:

- Class A Class A Land has uncontaminated soil and potentially contaminated ground water requiring appropriate management.
- Class B Class B Land contains potentially contaminated soil and ground water requiring any landowner to establish health and safety plans, soil and ground water sampling plans, and disposal plans before disturbing underlying soil or ground water.
- Class C Class C Land contains contaminated soil and ground water and contains an engineered protective cover. In addition to the requirement of Class B property, this class also requires that any intrusive work include the reinstatement of the cover.

Class D Land contains odorous animal hide residue, contaminated soil and contaminated ground water. No disturbance may occur to this classification of property without the approval of USEPA and Massachusetts DEP.

The project included construction activities on two of the four classes of land, specifically, Class B and Class C Land. The boundaries of all the four property classes have been reproduced from the project specifications with a construction overlay depicting the areas where construction activities by Middlesex took place. Please refer to Figure 1 in the Supplemental Certification Report for details. TMC's scope of work is defined in Section 1.2 of the Special Provisions of Contract 1.727 shown below. A more detailed description of Middlesex's construction activities with respect to intrusive work is detailed in Section 1.1.3.

A. Work within the railroad track right-of-way:

(1) Sitework and preparation for trackwork

- a. miscellaneous demolition and/or protection of existing structures west of the proposed by-pass track, to the extent necessary for the work
- b. modify existing conduit pullboxes located west of the southbound track as necessary to allow access after the by-pass track is constructed
- c. relocate active (or remove abandoned) electric distribution/service poles, cables, etc. where required for trackwork
- d. excavate and properly dispose of regulated/classified soils and hazardous materials to the extent necessary for work of this Contract, including installation of new underdrain, utilities, conduit systems, foundations, and sub-ballast in preparation for ballast and trackwork to be performed by Others (refer to paragraph 1.3 of this Section)
- e. excavate and dispose of unregulated/unclassified soils to the extent necessary for work of this Contract, including installation of new underdrain, utilities, conduit systems, foundations, and sub-ballast in preparation for ballast and trackwork to be performed by Others (refer to paragraph 1.3 of this Section)
- f. excavate and dispose of ledge materials to the extent necessary for work of this Contract, including installation of sub-ballast in preparation for ballast and trackwork to be performed by Others (refer to paragraph 1.3 of this Section)
- g. furnish and install geotextile fabric where necessary to extend, modify or repair the existing geotextile fabric where disturbed
- h. furnish and install bituminous concrete slab under all new trackwork within the limits of the Superfund site, and under switches and turnouts as required
- i. furnish and install subballast material to the required subgrade elevation, and ballast material to within six (6) inches of the proposed bottom of ties, for trackwork to be performed by Others
- j. furnish and install chain link fence as required along the railroad right-of-way
- k. furnish and install new underdrain pipe along the relocated northbound track
- l. furnish and install fiber-cast trench, and electrical conduits complete with pull-ropes to be used by Others for track and signal wiring
- m. furnish and install borrow fill as required for finish grade in areas not affected by trackwork
- n. furnish and install "clean sleeves" extending below the protective barrier into regulated soils, to allow

foundations be furnished and installed by Others for signal control houses, signal cabinets, signal heads

o. furnish and install "clean sleeves" extending below the protective barrier into regulated soils, construct foundations and support structures, and sign panels for free-standing, across-track station signage

(2) Commuter rail platform, ramps, stairs, and pedestrian bridges

a. construct cast-in-place reinforced concrete foundation footings and piers for platform, stairs, and pedestrian bridges

b. furnish and install precast concrete girders for platform

c. furnish and install precast concrete deck panels for platform

d. furnish and install tactile warning edge strips along platform edges

e. furnish and install treated timber rub-strips along platform edges

f. furnish and install galvanized steel framing for platform canopies, ramp, stairs, and pedestrian bridges, including supporting structures as required

g. furnish and install galvanized steel gutters and downspouts for canopies over the platform, ramp, stairs, and pedestrian bridges

h. furnish and install galvanized preformed metal overhead protection system for canopies over the platform, ramp, stairs, and pedestrian bridges

i. furnish and install stainless steel guardrails/handrails for platform

j. furnish and install stainless steel handrails for platform ramp, stairs, and pedestrian bridges

k. furnish and install vinyl coated steel mesh missile barrier side panels for ramp, stairs, and pedestrian bridges

l. furnish and install bench units, windscreen units, sign and map-case units for the platform

m. furnish and install trash receptacles for the platform

n. furnish and install signage and graphics (including supports and foundations as required) for platform, ramp, stairs, and pedestrian bridges, and across track locations

o. furnish and install lighting (including fixtures, poles and/or mounting devices, conduit/raceways, wiring, controls, etc.) for platform, platform canopies, ramp, stairs, and pedestrian bridges

p. furnish and install variable message signs, public address loudspeakers, emergency call box, police automatic ring-down telephone, and closed-circuit television cameras (including fixtures, poles and/or mounting devices, conduit/raceways, wiring, controls, etc.) to service the platform, ramp, stairs, and pedestrian bridges

q. construct an enclosed storage room under the platform stairs, with brick faced concrete block walls and hollow metal door including hardware, complete with ventilation and lighting

(3) Environmental services within the right-of-way

a. provide Licensed Site Professional (LSP) on-site during earthwork operations

b. provide laboratory testing services as necessary

B. Work on the "site-side" of the former Industri-Plex site:

(1) Sitework

a. perform all surface preparation and earthwork necessary (including clearing, grubbing, re-grading and/or re-compaction) for the work of this Contract

b. excavate and properly dispose of regulated/classified and hazardous materials to the extent necessary for work of this Contract, including but not limited to installation of storm drainage and sanitary sewer systems, utilities, conduit systems, full depth roadway/sidewalk construction along Atlantic Avenue, foundations for light poles, signage, fencing, guardrail, and other miscellaneous foundations.

c. excavate, backfill and/or properly dispose of unregulated/unclassified soils to the extent necessary

- for work of this Contract, including but not limited to site grading, installation of storm drainage and sanitary sewer systems, other utilities, conduit systems, building, structures, miscellaneous foundations, etc.
- d. excavate and dispose of ledge materials to the extent necessary for work of this Contract
 - e. excavation of bituminous concrete pavement along Atlantic Avenue, including full depth bituminous excavation and bituminous removal by the cold-planing method, to accommodate reconstruction and/or bituminous overlays
 - f. furnish and install geotextile fabric where necessary to extend, modify or repair the existing geotextile fabric where disturbed
 - g. furnish and install gravel fill and gravel base to required subgrade
 - h. furnish and install slope protection as required by the documents
 - i. furnish and install bituminous concrete pavement, bituminous concrete overlays
 - j. furnish and install pavement markings, including parking stall and roadway striping, and directional markings
 - k. furnish and install fixed directional and/or informational signage, including supports and supporting structures
 - l. furnish and install granite curb and edging
 - m. furnish and construct concrete sidewalks
 - n. furnish and install storm drainage system (including piping, catch basins, manholes, etc. as noted) to be tied into existing storm drain system
 - o. furnish and install sanitary sewer system (including piping, manholes, etc. as noted) to be tied into existing sanitary sewer system
 - p. furnish and install underground conduit systems as noted, for work of this Contract, and as empty conduit with pull ropes for work by Others (refer to paragraph 1.3 of this Section)
 - q. install water main using pipe, gates and boxes furnished by the City of Woburn (refer to paragraph 1.3 of this Section)
 - r. furnish and install chain link fence, decorative fence, and steel guardrails as required
 - s. furnish and install site lighting, including poles, fixtures, foundations, conduit, pull-boxes, wiring, etc.
 - t. furnish and construct reinforced/non-reinforced concrete foundations, pads, and miscellaneous site structures (including but not limited to transformer pad, electrical pullboxes/manholes, foundations for canopy structures, pay station shelters, signs, etc.)
 - u. furnish, fabricate and erect galvanized steel framed structures for bus and vanpool canopies, and pay station shelters
 - v. furnish and install galvanized steel gutters and downspouts for canopies over the bus and vanpool platforms
 - w. furnish and install galvanized preformed metal overhead protection system for canopies over the bus and vanpool platforms, and galvanized metal protective cover for pay station shelters
 - x. furnish and install digital clocks, variable message signs, public address loudspeakers, emergency call box, and closed-circuit television cameras (including fixtures, poles and/or mounting devices, conduit/raceways, pull-boxes wiring, controls, etc.) to service the bus/vanpool platforms, and the parking lot areas
 - y. furnish and install direct buried and concrete encased underground conduit systems as required for installation of lighting, communications, security systems under this contract, and for parking and revenue control equipment to be furnished and installed by Others (refer to paragraph 1.3 of this Section)
 - z. furnish and erect a pre-engineered site storage building including reinforced concrete foundations, slab-on-grade, steel framed structure with insulated metal side and roof panels, doors and hardware, electric power and lighting.

- (2) Environmental services for "site-side" construction
 - a. provide Licensed Site Professional (LSP) on-site during earthwork operations
 - b. provide laboratory testing services as necessary

C. Station Building

- a. furnish and construct reinforced concrete foundations and concrete slabs (including both slab-on-grade and elevated slabs)
- b. furnish, fabricate and erect structural steel, including rolled shapes, tube shapes, cold-formed shapes, and metal decking
- c. furnish, fabricate, and install miscellaneous metals and ornamental ironwork
- d. furnish and construct brick and block masonry walls
- e. furnish and perform all rough and finish carpentry work
- f. furnish and perform all waterproofing, sealant, and caulking work
- g. furnish and install roofing, including all necessary flashings
- h. furnish and install floor and wall tiles
- i. furnish and install wood and metal doors and frames, complete with hardware
- j. furnish and install wood and metal windows and frames, including bullet-resistant units where required
- k. furnish and install toilet fixtures, toilet partitions, and toilet accessories
- l. furnish and perform all painting work
- m. furnish and install/perform all other finish work required or necessary for the Building
- n. furnish and install an hydraulic elevator, including all appurtenances and controls
- o. furnish and install the fire suppression system, complete with all necessary piping, valves, sprinkler heads, controls, alarms, etc.
- p. furnish and install all plumbing work
- q. furnish and install all mechanical/hvac work, including a gas-fired, hot-air heating system, forced ventilation, and air-cooled air conditioning system
- r. furnish and install all electrical power, lighting, and communications that are not specifically noted as being by Others.

1.1 Site Description

The following Site Description, Site Design History and Summary of Previous Work for the Anderson Regional Transportation Center (i.e. the Industri-Plex Site) was excerpted from the Final Report on RTC Cover Certification dated April 1998 by Golder Associates. The Industri-Plex site is a 245-acre area in Woburn, Massachusetts, located approximately 12 miles northwest of Boston. The site is bounded to the east by Interstate 93, to the south by Interstate 93/State Route 95/128, the Boston Edison Power Company right of way Number 9 is located to the southwest and the western third of the site is transected by the MBTA railway. Previous remedial design and activities at this site included the capping of impacted soil utilizing both permeable (soil and geotextile) and impermeable (soil and geomembrane) covers, and the installation of bituminous concrete along the railway section of the property. The permeable cover system caps approximately sixty-acres of upland soil and hide piles impacted with high concentrations of heavy metals and decomposing organic wastes. An impermeable cover was designed and utilized for a four-acre hide pile, which included a high permeability gas collection layer, an active gas

collection system, and a thermal oxidation unit for treatment. Additionally, remedial design/actions required the capping of approximately five-acres of contaminated streams and wetland sediment and seven-acres of wetlands restoration.

1.1.1 Site and Design History

Since the mid-1800s, the Industri-Plex site has been used primarily by companies producing chemicals for textile, leather, and paper. By 1929, the Merrimac Chemical Company, which occupied the Industri-Plex Site, had become one of the leading producers of insecticides and other chemicals in the U.S. The Merrimac Chemical plant included 90 buildings on 417 acres, many of which were within the current Industri-Plex Site. Early operations included disposal of wastes in pits or low-lying wetlands. Liquid wastes were discharged into streams and later sewers. As a result, heavy metal wastes from the chemical operations contaminated site soils and wetland sediments.

From 1934 to 1969, the property was used by several companies to manufacture glues and gelatins from animal hides. Animal hide waste products from the rendering process were disposed of in mounds of hide piles on-site. A developer purchased the plant property in the early 1970's intending to build a complex of industrial buildings (hence Industri-Plex) and began grading operations. During hide pile excavation of one the piles, noxious gases and odors attributable to the decomposing hide wastes were released. The distinctive odor became known as the "Woburn Odor." Complaints from local residents and encroachment on wetland areas stopped further development of the site.

In 1982, following investigation of the Site, the EPA added the Industri-Plex Site to the Superfund list. The EPA completed a Remedial Investigation and Feasibility Study to identify contaminants of concern and develop a scope of work for cleanup of the Site. The Remedial Investigation identified arsenic, lead, and chromium in Site soils and wetland sediments as well as impacts to groundwater and odors due to hydrogen sulfide and methyl mercaptans emitted from the hide piles. Abandoned buildings and waste lagoons were also present on the Site. Along with Massachusetts Department of Environmental Protection (MADEP), the EPA issued a Record of Decision (ROD) in 1986 outlining the remedial alternatives and their preferred remedy for the Site.

In a 1989 Consent Decree between the EPA, MADEP and the current and former property owners, two Trusts were established which set in motion the remediation and reuse of the Industri-Plex Site. The Industri-Plex Remedial Trust was formed to prepare and implement the remedy according to the ROD. The Industri-Plex Custodial Trust was formed to hold, manage, and sell a portion of the Site.

Golder Associates, Inc. (Golder) was selected in 1989 by the Remedial Trust to design the remediation for the Industri-Plex Site. The remedial design included pre-design investigations of the soils, wetlands, air, and groundwater.

The pre-design investigations included sampling analysis and studies to determine the extent of contamination and, in accordance with the Consent Decree, to evaluate cover types. Designs were needed to prepare the ground surface for cover. The remedial design included:

- Plans for the demolition of decommissioning of abandoned buildings, railroad tracks, underground utilities, a personnel tunnel, and over 120 existing observations wells and piezometers used during the preliminary investigation.
- Plans for controlling odors, fugitive dusts, and surface water runoff during construction to prevent off-site impacts.
- Evaluation of, and considerations for the future stability of, the hide pile slopes.
- Plans for collecting and treating waste gases in a Thermal Oxidation Unit.
- Plans for dredging, remediating, and revitalizing streams and wetlands.

The remedial design for contaminated soils and air included both permeable (soil and geotextile) and impermeable (Soil and Geomembrane) covers. A permeable cover system was designed for 60 acres of up-land soils and hide piles contaminated soils and clean cover material, a clean grading fill, and topsoil with vegetation. An impermeable cover was designed for a four-acre hide pile (East Hide Pile), which was an active odor source. The impermeable cover included a high permeability gas collection layer, geomembrane, cover grading fill, topsoil, and vegetation. An active gas collection system was designed to collect gases trapped by the impermeable cover and convey the gases to a thermal oxidation unit for treatment.

Site remediation required capping approximately five acres of contaminated streams and wetland sediment. Approximately seven acres of wetland enhancement, restoration, and creation were designed to compensate for wetland losses. Normandeau Associates, Inc. of Bedford, New Hampshire, designed the wetland mitigation plans.

A revised final (100%) Design Report was issued on May 8, 1992. Approval for the 100% Design Report was issued by the EPA in consultation with the MADEP on May 18, 1992. Subsequent addenda were issued for the 100% Design including:

Addendum 1 issued May, 1992

EPA/MADEP Approval March 11, 1993

Addendum 2 issued June, 1992	EPA/MADEP Approval March 11, 1993
Addendum 3 issued May 14, 1993	EPA/MADEP Approval May 27, 1993
Addendum 3 revision 1 August 27, 1993	EPA/MADEP Approval May 27, 1993
Addendum 3 revision 2 October 18, 1993	EPA/MADEP Approval May 27, 1993

While remediating the property was the first priority for the Industri-Plex Site Remedial Trust, a plan was started for reusing portions of the site, which included the RTC. The Custodial Trust and Remedial Trust began discussions with planners from the Massachusetts Bay Transportation Authority (MBTA), Massachusetts Department of Environmental Protection (MADEP), Massachusetts Port Authority (Massport), and Massachusetts Highway Department (MHD). Because a conventional design would not accommodate future development on the Site, an alternative cover was needed to allow future development.

The objectives of the alternate cover were to provide a cover that would meet the performance requirements of the ROD and would permit the future construction and operations of the Regional Transportation Center (RTC) in clean conditions. The alternative cover design was developed by a team of Golder and Vanasse, Hangen, Brustlin, Inc. (VHB) based on a conceptual design of the RTC prepared by VHB. To allow clean construction of the RTC, it was necessary to identify all features of the RTC, which would potentially require breaching the cover when installed. Because it was critical that all such facilities be identified prior to finalizing the alternate cover design, VHB's conceptual design was completed in sufficient detail to show locations of parking facilities, buildings, passenger platforms, drainage structures, light standards, guard rails, and other structures which might cause disruption of the cover during future installation. The alternative cover design included installation of stormwater management facilities such as drainage culverts and the sedimentation detention basin, which will ultimately be incorporated into the RTC stormwater management system. For other structures such as guardrails and light standards, the cover section was thickened to allow installation without contacting contaminated soils. Test borings to support the future design of foundations for the station, rail platform, and parking garage were completed before the alternative cover was installed.

A final RTC Plan prepared by VHB and Golder was submitted to the agencies, the EPA, and the MADEP on July 26, 1996 and received final approval October 1, 1996.

After the cover has been accepted, there will be legally established limits or Institutional Controls on the use of the properties. These limits will both:

- Preserve the continued effectiveness of the remedial actions in order to protect human health and the environment and

- Permit the greatest possible use and enjoyment of the Site.

1.1.2 Summary of Previous Work

The remediation of the Industri-Plex Site, in accordance with the 100% Design Plans and Specifications, began in August 1992 when the Remedial Trust entered into an agreement with a general remediation contractor, Chemical Waste Management, Inc. Remediation Services Group (CWM) of Princeton, New Jersey. The scope of the 100% Design included the areas now included as the RTC Alternate Remedial Cover. Initial demolition of above ground structures on the ISRT site began under a preparatory, non-intrusive work scope that preceded formal approval of the Remedial Action Work Plan (RAWP). CWM submitted the RAWP to the EPA on October 5, 1992. The RAWP included plans for implementing the Site Remedial Action. The contractor began remediating the Industri-Plex site on December 2, 1992 after the EPA approved an interim RAWP for area requiring remediation west of the MBTA railroad tracks. Elements of the remedy included:

- Soil, asphalt and wet area covers west of the MBTA railroad
- Soil covers along the MBTA railroad and east of the railroad
- Stream remediation east of the MBTA railroad
- Utility Corridor for Commerce Way
- Wetland Creation and Enhancement
- Hide Pile Stabilization and cover
- East Hide Pile FML, gas collection and treatment

At the close of 1995, much of the design cover had been installed with the exception of a cover for the properties known as the Janpet Property, a portion of the Woburn Industrial Associates Inc. Property, and a portion of the Boston Edison right of way. The East Central Hide Pile was completed near the end of 1995, but was re-opened in 1996/97 to accommodate the excavation of contaminated waste spoils from the Aberjona River Drainway. The re-opening of the hide pile and excavation were required as part of the remedial action at the Site. The East Central Hide Pile currently remains open to accommodate other Site excavated spoils related to the remedial action. Most of the wetland stream remedy was completed with the exception of the Enhanced Wetland/Created Wetland connection, Aberjona River Drainway adjacent to the East Central Hide Pile and at the south end of the Atlantic Avenue Drainway. Plantings of wetland areas were needed along the Created Wetland berm and the Atlantic Avenue Drainway.

As part of the soil remedy, a geotextile had been placed beneath 16 inches of soil cover. The geotextile included as the soil remedy for the RTC Alternate Remedial Cover was attached to the existing soil remedy geotextile for continuous soil remedy of the Industri-Plex Site Cover limits.

Work within the limits of the RTC Alternate cover limits during the construction period 1992-1995 progressed as follows with the following approximate dates:

Initial control survey of the ISRT site including the RTC portion	1992-1995
Initial clearing of trees and surface vegetation	1992-1993
Submittals required by specifications	1992-1994
Well decommissioning within areas included in RTC	2/93-12/93
Design changes impacting aspects of RTC	1992-1995
Geophysical Investigation by Golder Associates, Inc.	5/93
Above ground structure demolition	1992-1993
Demolition of Concrete foundation slabs – Custodial Trust Property	Fall 1993
Construction of Groundwater Treatment Building	2/94-3/94
Construction of temporary dam in Atlantic Avenue Drainway	3/94
Demolition of various structures, pipes, manholes – Woburn Industrial Associates Property	5/94-8/94
Removal of buried metal anomalies – Woburn Industrial Associates Property	7/94-9/94
Placed and compacted on-site soils beneath cover along Presidential Way-east	11/93-8/95
Placed geotextile over existing or on-site soils along Presidential Way-east	11/95
Excavated, placed geotextile and backfilled with clean soil-north end of clean Utility corridor Commerce Way Extension	9/94-12/94
Removal of the wood chips and recycling operations from Janpet Property	12/94
Placed geotextile over compacted/proof rolled on-site soils along Presidential Way (east and west)	4/95-10/95
Decommissioned gas tanks – Janpet Property	10/95
Demolished coal silo – Janpet Property	10/95
Removed cover from coal tunnel	10/95
Excavated, placed geotextile, and backfilled south end of clean utility corridor Commerce Way Extension	10/95
Removed oil and cleaned out 3 UST's – Janpet Property	11/95
Excavation and treatment of oily soil, under state requirements	7/96-9/96

Existing buildings and foundations on Janpet Property served as equivalent cover in accordance with the Consent Decree. However, these structures were demolished to make the RTC site developable. The following structures were demolished in April/May, 1996:

Boiler House and attached shed

200 foot smoke stack

Remnant Building

Quonset Hut

Asbestos and drummed materials were removed prior to demolition of the structures. The certification of the asbestos disposal, monitoring, and air monitoring are documented in the following reports by Global Waste Management: "Janpet Property Building Closeout," no date; and "Environmental Monitoring", dated June 11, 1996.

Once the asbestos and drummed materials had been removed, the Boiler House, Quonset Hut and Remnant Building were demolished. Steel rebar and beams were removed from the Boiler House and recycled as scrap. The brick rubble from the Boiler House was placed and compacted in the basement of the Boiler House and the coal tunnel. The remaining brick was distributed in the designated demolition debris area. The Quonset Hut walls were removed from the Site and recycled as scrap. The reinforced concrete walls of the remnant building were broken and the reinforcing bar steel was separated and removed from the Site as scrap. The approximately 200-foot smoke stack was demolished using explosives on May 12, 1996. The stack fell in an easterly direction into a drop zone that was filled with foam and sprayed with water from a hydrant to contain the dust. The stack concrete debris was broken up and the rebar was separated, decontaminated and removed from the Site. The stack brick was loaded onto dump-trailers beds double-lined with poly sheet and removed from the Site for disposal as asbestos-contaminated materials. Disposal records are included in the Global Waste Management report "Janpet Property Building Closeout." By the end of May 17, 1996, all brick debris from the stack demolition had been shipped off the Industri-Plex Site. The stack ash was temporarily staged in a stockpile south of the stack location. The ash was eventually placed in the easternmost of the three underground storage tanks (UST's) and mixed with concrete backfill on September 17, 1996. Oily soil left over from work performed in 1992-1995 had been staged on the concrete slab and was treated by United Retek using a Portland cement stabilization process. Oily soil tailings were coated with a dry Portland cement mix, disposed in the three UST's, and encased in grout.

In March 1996, the Trust requested that Golder prepare a Commercial Remedial Cover (CRC) design and bid package for a base remedial cover such that the RTC could be constructed as per the existing September, 1995 RTC

design after the revised RTC Alternate Cover design of July 26, 1996 was issued by Vanasse, Hangen, Brustlin, Inc. and Golder Associates, Inc. for the Industri-Plex Site Remedial Trust.

The work to construct the RTC Alternate Cover during the 1996-1997 construction season included:

- Demolishing the existing buildings, stack, and miscellaneous concrete structures, and removing debris and vegetation;
- Pumping and filling concrete UST's, coal tunnel, and stack foundation;
- Excavating a surface water detention basin, rerouting and existing drainway, and dredging an existing drainway;
- Placing and compacting on-site soils beneath the clean soil cover;
- Placing a geotextile fabric or geomembrane over existing soils;
- Lining an excavated detention basin and the rerouted drainway with geomembrane;
- Construction clean corridors for drainage features and future service utilities;
- Placing and compacting imported clean cover fill soils;
- Constructing a surface drainage pipe and box culvert system, detention basin, and sedimentation structure;
- Covering the compacted soils with a protective stone surface;
- Placing plantings; and
- Vegetating topsoiled areas.

On May 23, 1996, the CRC contractor and later the RTC contractor, LRS, arrived on Site. This report certifies work which includes implementing the soil remedy for the RTC Alternate Cover. Information from both the 1992-1997 RTC Alternate Cover construction season.

Project Participants

1992-1995 Construction Seasons

Chemical Waste Management Remediation Services Group (CWM-RSG) of Princeton, New Jersey, provided general remediation contracting from 1992-1995. The name of CWM-RSG was changed to Rust Remedial Services, Inc. on January 1, 1993 when Rust, Inc acquired CWM-RSG. A final name change occurred in May 1995 when OHM acquired Rust Remedial Services, Inc. The name Chemical Waste Management was retained as the legal name of the contractor throughout the construction of the remedy of ISRT.

Several subcontractors assisted CWM-RSG with specific tasks during the remedial work. Rust Environmental and Infrastructure, Surveying services were performed by Earth Tech, Inc., formerly HMM Associates, Inc. of Concord, Massachusetts from 1992-1993 and Meridian Land Services, Inc. of Milford, New Hampshire from 1993-1995. Eastmont Environmental, Inc. of Walpole, Massachusetts conducted perimeter air monitoring. Beatti Enterprises of Lancaster, New Hampshire assisted with initial clearing and grubbing of the Site. Decommissioning of the wells and piezometers was performed by Maher Environmental Services, formerly D.L. Maher Company, of Reading, Massachusetts. Earth Tech, Inc. formerly HMM Associates, Inc. of Concord, Massachusetts and Coastal Environmental, Inc. of Princeton, New Jersey assisted with construction of wetlands and installation of wetland vegetation. Midway Paving of Chelmsford, Massachusetts or their subcontractors performed paving work for the Site during 1992-1995. Barbella Environmental Technology, Inc. of Whitehouse, New Jersey assisted in the Hide Pile remediation and installation of a culvert in a section of the former Wetland 2A. Installation of the 60 mil textured HDPE East Hide Pile cover was performed by National Seal Company of Galesburg, Illinois. Toxikon Laboratories of Woburn, Massachusetts, and 21st Century Environmental, Inc. of Bridgeport, New Jersey assisted the Contractor with water and soil analytical testing. Reliable Fence Company of Woburn, Massachusetts installed chain link fence on the Site.

Halliburton NUS (HNUS) of Wilmington, Massachusetts, provided EPA oversight of the remedial work. Representatives of the EPA and the MADEP met with the Trust at least monthly (approximately) throughout the 1992-1995 Remedial Action to oversee the performance of the work.

Golder provided resident engineering and quality assurance (QA) monitoring for the Remedial Action for September 1992 until December 1995. Normandeu Associates, Inc. provided review and oversight of wetland plantings for Golder Associates, Inc. Golder Construction Services, Inc. provided on-site construction management services for the Trust from March 1995 through December 1995.

The Trust contracted with Professional Services, Inc. of Canton, Massachusetts to perform soil moisture/density testing of compacted soils, soil laboratory testing, asphalt and concrete testing. PSI also performed on-site QA from August 1993 through December 1995.

1996-1997 Construction Services

LRS Enviro-Services, Inc. of Hampton, New Hampshire, provided general remediation contracting from 1996-1997. Several subcontractors assisted LRS with specific tasks during the RTC Alternate Cover construction. Surveying services were performed by Meridian Services, Inc. of Milford, New Hampshire. Environmental Health, Inc. of Harris, New Hampshire performed laboratory analysis of the air monitoring samples. TerreCon of Lunenburg, Massachusetts performed pre and post blast monitoring. Maine Drilling and Blasting, Inc. of Gardiner, Maine provided blasting for rock excavation. Installation of the 60 mil textured HDPE in the Atlantic Avenue Drainway was performed by Environmental Network of Weare, New Hampshire. Installation of the 6- mil textured KDPE in the Detention Basin was performed by Chenango Contracting, Inc. of Johnson City, New York.

EPA oversight of the remedial work was provided by Halliburton NUS (HNUS) of Wilmington, Massachusetts.

Representatives of the EPA and MADEP met with the Trust at least monthly (approximately) throughout the construction of the RTC Alternate Cover to oversee the performance of the work.

Golder Associates, Inc. provided Resident Engineering and QA monitoring for the RTC Alternate Cover from May 1996 to November 1997. Normandeu Associates, Inc. provided review and oversight of wetland plantings for Golder Associates, Inc. Golder Construction Services provided on-site construction management services for the Trust from April 1996 through January 1997.

The Trust contracted with de maximis to provide on-site project management from 1996-1997. The Trust contracted with Professional Services Industries, Inc. of Canton, Massachusetts to perform soil moisture/density testing of compacted soils, soil laboratory testing, concrete testing, and asphalt testing from 1996-1997. The Trust contracted directly with Global Waste Management, Inc. of Woburn, Massachusetts to perform the demolition of the brick Boiler Houses, Stack, and Quonset Hut. The Trust contracted with soil vendors McDonough, Stockbridge, and Pitcherville to supply clean imported cover soil and topsoil during the construction season of 1996-1997. Toxikon performed the Trust's surface water sample laboratory analysis. The Trust contracted with Demeter of Everett, Massachusetts to perform pavement replacement.

1.1.3 Summary of Intrusive Work Performed by The Middlesex Corporation

The Middlesex Corporation located in Littleton, Massachusetts was the General Contractor for the RTC Project. Several subcontractors assisted Middlesex with specific tasks during the intrusive work construction activities. Primary sitework subcontractors are identified as follows: Aggregate Industries performed activities associated with the installation of bituminous concrete. Algar Construction built concrete foundations and slabs for the building and platform, and constructed concrete paved roadways. City Lights Electrical Company, Inc. installed underground conduit for lighting and signs. Commonwealth Guardrail installed guardrails and fencing. Folan Waterproofing and Construction installed joint caulking inside the building, in the sidewalk and along the platform. Hall Sheetmetal Works, Inc. installed HVAC piping. K.M. DaPonte installed sidewalks and curbing. United Rentals Highway Technologies (formerly Liddell Brothers Inc.) installed sign posts, signs and pavement markings. The Turfmaster Corporation provided landscape loam, bark mulch, plants and trees. Tibur Landscaping installed the underground irrigation utilities.

Locations where Middlesex performed intrusive work are detailed in the following Sections and in Appendix J. Proposed locations, methods, and anticipated quantities for all intrusive work were identified on Site/Civil Drawings C-28 through C-31 of the Contract Drawings prepared by Stone & Webster for construction of the Regional Transportation Center in Woburn, Massachusetts (MPA Project No. 1.727). There were no deviations from the intrusive work methods outlined in the Contract Drawings and Specifications. The BSC Group performed field survey activities and developed as-built drawings for all intrusive work locations. The As-built drawings include horizontal control as well as vertical control. Elevations were obtained for the existing geotextile, newly installed geotextile engineered barrier elevations, and final grade elevation. Based on this information, a "depth of cover" can be calculated. The As-built drawings are presented in Appendix M Record As-Built Drawings. Estimated pay quantities for excavation of regulated material were detailed on Drawing C-31 (total 965 cy). Actual pay quantities for regulated material removed by Middlesex is shown in Appendix J (total 2533.4 cy). Pay quantities were "neat line" in-place volume measurements per Contract 1.727 and did not account for overexcavation and soil swell. Taking into account these factors, an estimated total of 4800 tons of regulated material was excavated, placed into a dump truck, and transported to the Soils Management Area (SMA) in accordance with the approved Work Plan. When regulated material excavation for the project was complete, the material was disposed of in the East Hide Pile (located on the northeast portion of the site boundary). Construction activities associated with all intrusive work are identified in the daily field reports listed chronologically by date in Appendix D.

Intrusive work and removal of Class C soils during construction of the ARTC was performed in one of five ways:

1. Intrusive Work for Pole Foundations (construct “clean sleeves”)
2. Intrusive Work for Trenches (construct “clean corridors”)
3. Intrusive Work for Structures
4. Intrusive Work for Track Crossings/Utilities
5. Intrusive Work for Road or Track Subgrade Preparation

See Section 2.3.3 Intrusive Excavation Soil Management for further description of intrusive work. Construction of the ARTC was broken down into three areas: Site, Building, and Right-of-Way (ROW). Intrusive work in these areas included the following:

1.1.3.1 Site Work – Intrusive Work

- Installation of lightpole bases and sign foundations in “clean sleeves”
- Atlantic Avenue Reconstruction
- Install electrical and communication systems in “clean corridors”
- Construct concrete foundations for site canopies
- Construct new water lines in “clean corridor”
- Construct guardrail or fence in “clean corridor”
- Construct new curb and sidewalk along Atlantic Ave in “clean corridor”

Installation of the new sanitary sewer system at the Site was not intrusive. Site, utility, and intrusive work was performed by The Middlesex Corporation; specialty subcontractors outlined in the first paragraph of Section 1.1.3 performed associated construction work.

A “clean utility corridor” constructed prior to Contract 1.727 was utilized (refer to Contract Drawings C-9 through C-12) to bring in main electrical and communication duct banks and manholes from the end of Atlantic Ave to the proposed Station Building location; no regulated material was encountered during this work.

1.1.3.2 Building Construction – Intrusive Work

- Construction activities associated with the building construction were not intrusive work (i.e. below the geotextile membrane).

1.3.3 Railway Construction – Intrusive Work

- Installation of signal foundations in “clean corridors”
- Installation of electrical and signal conduit parallel and perpendicular to tracks in ‘clean corridors”
- Installation of piping and structures for track underdrain system in “clean corridors”
- Construction of platform foundations
- Construction of track subgrade for Southbound Bypass and new Northbound track.

Track construction was performed by Amtrak; The Middlesex Corporation performed all subgrade preparation work.

The sequence of track work was as follows:

- (1) build new Southbound Bypass Track on west side of existing Southbound track.
- (2) Put Southbound trains on new Southbound Bypass Track and put northbound trains on former Southbound track
- (3) Remove former Northbound track to allow construction of platform
- (4) Construct new Northbound track east of new platform.

2.0 REMEDIAL REQUIREMENTS

The following Section details plan and specification requirements for conducting remedial action of soil, sediments and air at the Woburn Regional Transportation Center (i.e. the Industri-Plex Site). These requirements were ascertained from the Final Report on RTC Cover Certification dated April 1998 by Golder Associates and the Project Specifications for the MPA Project Number 1.727. In partial satisfaction of the Consent Decree, a 100% Design Report, Part I” was prepared in 1991 for the Industri-Plex Site in Woburn, Massachusetts. The design included plans and specifications for conducting remedial action of soil, sediments, and air at the Industri-Plex Site. The Alternative Cover Design for the RTC was prepared based on the 100% Design Report Plans and Specifications and was subsequently approved by the EPA on October 1, 1996. The design consisted of two volumes of specifications, entitled “Specifications, Regional Transportation Center Alternative Cover Design, Volume I of I and Volume II of II” and one set of 27 drawings entitled, “Alternative Cover Design, Regional Transportation Center, Woburn, Massachusetts.” The objectives of the design were two-fold. 1.) To meet the performance requirements of the Consent Decree, a minimum cover thickness of sixteen (16) inches is required which is consistent with the 100% Design Report Requirements. 2.) To design a cover system that will allow for future construction and operation of the Regional Transportation Center.

Intrusive work activities performed by Middlesex met the performance requirements of the Consent Decree and were performed in accordance with the Project Specification requirements. Intrusive work procedures included preparation, penetration, and restoration requirements for all intrusive work activities and are detailed in the following Sections. Materials associated with intrusive work as well as any material brought onto the site that may effect the environmental stability of the site was tested prior to delivery to the site in order to meet Consent Decree requirements as well as Project Specification requirements. Please reference Appendix F.1 for testing results.

2.1 Construction Modification of the WRTC Alternative Cover

2.1.1 Submittals

Middlesex submitted catalog cuts, shop drawings, and samples of materials as required to Stone & Webster for review and approval. A summary of the submittals associated with sitework activities can be referenced in Appendix B. Certificates of Compliance for all materials furnished for use during sitework construction are found in Appendix F.6.

2.1.2 Design Changes

There were no changes associated with intrusive work activities; all work was performed as outlined in the Contract Documents. However, there was an increase in the amount of work considered intrusive in the Right-of-Way. As Request For Information (RFI) #010 states (see Appendix K), excavation of soils within the Superfund site limits that did not have an alternate cover were to be excavated and handled as regulated material. This was not clearly identified in the Scope of Work as defined by Massport Contract 1.727 and resulted in an increased quantity of regulated material excavated during construction of the Anderson RTC. RFI #010 also identifies that a discrepancy was noted during excavation in the Right-of-Way with respect to the location of existing geotextile fabric. Additional geotextile fabric was placed by The Middlesex Corporation as a result. RFI #016 states that during excavation for the Southbound Bypass track, the existing geotextile fabric was discovered approximately 12 to 18 inches higher than expected. To rectify this, Middlesex was directed to remove the existing geotextile fabric, regrade the regulated material, and replace the geotextile fabric.

2.1.3 Survey Control

Middlesex hired The BSC Group to provide layout and elevation information during construction as required, and electronically record survey data detailing the extent of disturbed/reestablished cover modifications. BSC also recorded information required for preparation of As-Built documentation required by Massport. All locations where intrusive work took place were horizontally and vertically located on two planes: the location of the new geotextile, and the location where the new geotextile met the existing geotextile. All as-built records were prepared similar to those in the Final Report on RTC Cover Certification dated April 1998. Massport will be responsible for

recording as-built records/drawings with the Registry of Deeds as a modification to the Institutional Controls, after the Institutional Controls have been inaugurated. Documentation of the survey as-built drawings/records may be referenced in Appendix M.

2.2 Geotextile Cover Modification Requirements

The project specifications contained requirements for preparation, penetration, and restoration of the engineered cover or equivalent cover in accordance with the Consent Decree. The Cover Modification Requirements are designed to be consistent with those requirements for the excavation activities that were conducted on the Class B and C properties and are detailed as follows:

Prior to excavating any soil in Class B and C areas, the following procedures were strictly adhered to:

- The owner's Engineer, HSO, EPA and DEP, were notified a minimum of 72 hours before any intrusive action prior to removing any clean cover material; and
- Clean cover material above the geotextile fabric was carefully removed without damaging the underlying geotextile fabric for minimum of 3 feet beyond the edge of the anticipated penetration. This was accomplished by excavating to within 12 inches of the geotextile fabric and then hand digging down to the geotextile fabric. Once the geotextile fabric was located, machine excavation with continual inspection resumed. The clean cover material was segregated and stockpiled separately for reuse when the penetration was closed.

The following procedures were conducted during intrusive excavation activities:

- The existing geotextile fabric was cleaned, cut, and secured out of the path of the excavation. Any soil removed from the underside of the geotextile fabric cover was brushed into the work area beneath the geotextile fabric;
- Soil underlying the geotextile fabric cover, equivalent cover, or Class B soils (where class B soils are not placed back in the original excavation) was removed in accordance with the requirements of the approved RTC Work Plan and accepted RTC Health and Safety Plan;
- Soil removed from the excavation below the geotextile fabric cover, equivalent cover, or Class B soils (where class B soils are not placed back in the original excavation) was stockpiled in the Soil Management Area.

After regulated material was excavated, the following procedures were conducted:

- To the maximum extent possible, soil removed from trench excavations was reused for backfill to establish appropriate sub-grade elevations below the geotextile fabric cover;
- Any borings penetrating the cover were grouted to the elevation of the geotextile fabric; all drill cuttings taken from below the elevation of the cover were managed according to the procedures for soil excavated from Class B and C areas;
- New geotextile fabric that met project specification requirements was placed over the excavation;
- New geotextile fabric was lapped and seamed to the existing geotextile with not less than 3-inch overlap;
- All new geotextile fabric, engineered cover, new equivalent cover, new utilities, new structures, various layers of backfill material and final grade was horizontally and vertically located through survey in accordance with the project specifications;

- Where equivalent cover was removed a new equivalent cover or engineered cover was installed;
- To the maximum extent possible, the clean cover material generated from the preparation phase of the operation was used to backfill the excavation above the geotextile to re-establish the grade prior to excavation;
- Following the completion of the excavation, Middlesex prepared as-built records/drawings delineating horizontally and vertically the re-installed or modified Cover to the Superfund Remedy, utilizing the existing survey controls on the Superfund Site. Any new utilities, new structures, various layers of backfill material and final grade are included in the as-built drawings prepared by BSC, found in Appendix M.

For all excavations within Class C Land where the geotextile fabric was disturbed or penetrated, the contractor installed new geotextile fabric to separate regulated soils from clean fill. The contractor located and exposed the edge of old geotextile fabric surrounding the excavation. At minimum, the old geotextile fabric surrounding the excavation was exposed 6-inches to allow for new geotextile fabric to be installed and sewn together with a minimum 3-inch overlap. All excavations were horizontally and vertically located to include the new geotextile fabric, utilities, and structures, and prepared proper As-Built Records similar to the RTC Alternative Cover, Cover Certification Report, April 1998.

2.2.1 Geotextile Materials Documentation

Middlesex contracted with American Engineering Fabrics, Inc. located in New Bedford, Massachusetts to supply the geotextile-engineered barrier. Project Specifications call for both a six-ounce and sixteen-ounce geotextile fabric. The six-ounce fabric was used around the perforated PVC track underdrain pipe to prevent the infiltration of fines and will not be referred to further in this report. The sixteen (16) ounce geotextile fabric was used to cover on regulated material. Specifications require that the fabric be a permeable, non-woven, needle punched, polypropylene or polyester fabric, which will allow percolation, and weigh 16 ounces per square yard. The Specifications require that the minimum values in Table 1 apply for an average roll.

Table 1

Property	Test Methodology	Minimum Requirements
Mass per unit area	ASTM D5261	16oz/sy
Grab Strength	ASTM D4532	350 lbs
Trapezoidal Tear Strength	ASTM D4533	110 lbs
Burst Strength	ASTM D3786	700 psi
Puncture Strength	ASTM D4833	200 lbs
Thickness	ASTM D5199	180 mils
Apparent Opening Size	ASTM D4751	Acceptable Range: US sieve no. 70-100

Middlesex personnel installed the geotextile fabric barrier. In accordance with the project specifications, the geotextile fabric seams were continuously sewn. Sewing machine utilized was a Union Special industrial sewing machine (see Appendix H for additional information on sewing machine). Seams were lapped at a minimum of six (6) inches at the seams prior to sewing but sewn no closer than two (2) inches from the edge of either geotextile

sheet, and the thread utilized was in contrast (i.e., thread color) to the geotextile fabric. Once installation of the geotextile fabric barrier was completed in each individual section, the geotextile was backfill/covered with a minimum of six (6) inches of gravel borrow to prevent ultraviolet light damage. The areas disturbed or replaced with geotextile fabric material was surveyed by BSC clearly identifying the locations. Appendix J identifies each location where the geotextile fabric was disturbed and/or replaced. Appendix G includes the geotextile manufacturer's QA/QC program, shipping logs and sample tickets for rolls of geotextile used at the ARTC site, and the approved shop drawing/submittal identifying minimum average roll values for the geotextile.

2.3 SOILS MANAGEMENT

Middlesex's Intrusive Excavation Management Plan included specified management procedures for soil and water generated from the construction activities performed in Class B and C properties. The plan was divided into specific excavation procedures that were followed for the soils on both Class B and Class C properties. The plan also addressed potential water generation during excavation activities and through storm-water action. Each procedure is presented in detail below. Soil from Class B and C properties contained volatile organic compounds, primarily benzene and toluene, as well as arsenic, lead and chromium at elevated levels. Soils that had constituent concentrations exceeding the EPA Requirement Threshold Levels of 40 milligrams per kilograms (mg/Kg) benzene, 500 mg/Kg toluene, 300 mg/Kg arsenic, 600 mg/Kg lead, and 1,000 mg/Kg chromium or the MADEP Threshold Levels of 40 mg/Kg benzene, 500 mg/Kg toluene, 30 mg/Kg arsenic, 300 mg/Kg lead, and 1,000 mg/Kg chromium were placed in the SMA prior to disposal in the east hide pile located on the northeast portion of the site.

2.3.1 Excavation Procedures for Class B Properties

Middlesex's Intrusive Excavation Management Plan included excavation of Class B Property soils. As previously indicated in Section 1.0, Class B Property Soils contain potentially contaminated soil and groundwater requiring any landowner to establish health and safety plans, soil and groundwater sampling plans, and disposal plans before disturbing underlying soil or groundwater. Middlesex addressed the Class B Property requirements through the establishment of a Site-specific Health and Safety Plan and the development of soil and groundwater sampling plans (detailed in the approved Work Plan dated March 2000) prior to intrusive activities. Class B Property Soils do not have an engineered protective cover therefore; Middlesex managed all soils in Class B Properties as "intrusive soils" (i.e. soils containing constituent levels above the MADEP and EPA "Action Levels" or below the engineered protective cover) detailed in Section 2.3.

2.3.2 Excavation Procedures for Class C Properties

Middlesex's Intrusive Excavation Management Plan also included the excavation of Class C Property soils. As previously indicated in Section 1.0, Class C Property Soils contain contaminated soil and groundwater beneath an engineered protective cover. In addition to the requirements of Class B Property, Class C Property requires that any intrusive work include the reinstatement of the engineered protective cover. Middlesex managed all soils beneath the engineered protective cover in Class C Properties as "intrusive soils" (i.e. soils containing constituent levels above the MADEP and EPA "Action Levels" or below the engineered protective cover) detailed in Section 2.3.

2.3.3 Intrusive Excavation Soil Management

Soils removed from Class B and Class C intrusive areas and/or suspected of containing contamination above "Action Levels" (i.e., soils situated beneath the geotextile fabric in Class C Properties or any soils situated on Class B Properties) were managed in accordance with Middlesex's Intrusive Excavation Management Plan, excavated, and transported to the SMA in accordance with the approved Work Plan and accepted Health and Safety Plan.

All intrusive work in Class B Property included the following general activities. Areas where excavation activities were taking place were taped-off with caution tape to form an exclusion zone. One end of the exclusion zone was open to accommodate the decontamination trailer. The decontamination trailer would back into this space and Middlesex personnel would enter and exit the exclusion zone through the decontamination trailer. Prior to excavation activities a dump truck was positioned next to the exclusion zone. A sheet of 6-mil polyethylene sheeting was temporarily placed on the ground between the dump truck and the excavation within the exclusion zone. The excavating equipment would swing the boom into the exclusion zone and commence excavation activities. The soils generated were placed directly into the dump truck and transported to the SMA. Poly sheeting was used to wrap the excavator bucket or bucket auger during transportation to the next excavation location.

Intrusive work during construction of the ARTC was performed in one of the following five ways. See Appendix J for all locations where the geotextile fabric was disturbed and/or replaced.

2.3.3.1 Intrusive Work for Pole Foundations:

Location: Site

GENERAL SEQUENCE: Excavation was done with an auger. The existing stone and/or ordinary borrow was removed to the existing fabric and hauled to a stockpile on site for "clean" /reusable material. The fabric was cut and opened to expose regulated soil. Excavation continued to required depth, and regulated material was removed to a

containment cell. A corrugated pipe sleeve was placed vertically in the excavation to protrude approximately six inches above the existing geotextile. New fabric was wrapped and lap spliced up unto the corrugated pipe sleeve. The void between the sleeve and the excavation was filled with lean concrete (2000 psi) from Wakefield Concrete and ¾" crushed stone from Aggregate Industries. At the bottom of the excavation (inside the pipe sleeve) three inches of ¾ - inch stone from Aggregate Industries was placed. A precast light pole or sign foundation was placed on the stone bedding. The void between the pipe sleeve and the limit of excavation was filled with compacted gravel borrow.

EXAMPLE: A "clean corridor" was constructed for installation of a new utility pole at the northwest end of Atlantic Avenue. The "clean corridor" was constructed as outlined above for installation of light pole foundations.

2.3.3.2 Intrusive Work for Trenches:

Location: Site and Right-of-Way

GENERAL SEQUENCE: Excavate existing stone or ordinary borrow above existing geotextile along the length of the proposed trench, and stockpile for potential re-use. Hand excavate in trench to locate existing geotextile. Cut and open existing geotextile to expose regulated material. Excavate regulated material to required depth (stockpile regulated material in containment cell). Place new geotextile at lower elevation, lap edges of new geotextile with existing geotextile, and sew fabrics together along the length of the trench. Proceed with installation of utility conduits and piping, or fence and guardrail installation, or curb installation as required.

EXAMPLES: A portion of excavation for the track underdrain system was intrusive (see Appendices J for descriptions and Appendix M for locations). The track drain runs along the northbound track from stations 659+96 to stations 677+50. Installation of electrical conduits for lighting in the Short Term (North) Parking Lot required some removal of regulated material.

2.3.3.3 Intrusive Work for Structures

Location: Site and Right-of-Way

GENERAL SEQUENCE: Excavate existing stone or ordinary borrow above existing geotextile, and stockpile for potential re-use. Hand excavate to locate existing geotextile. Cut and open existing geotextile to expose regulated material. Excavate regulated material to required depth (stockpile regulated material in containment cell), six inches below bottom of proposed structure. Place new geotextile at lower elevation, lap edges of new geotextile with existing geotextile with not less than 18-inch overlap, and sew fabrics together. Proceed with installation of precast or cast-in-place concrete structure or foundation.

EXAMPLES: Excavation for construction of track signal bungalows (stations 867+80 and 877+00) along the northbound rail was intrusive work. The top "clean material" was stripped, exposing existing geotextile fabric;

remaining excavation to required depth was in regulated material and handled accordingly. New geotextile fabric was installed and sewed to existing geotextile fabric. Excavation for track underdrain system structures was intrusive: a leaching basin at sta 659+30 Right, as well as two drain manholes at stations 659+96 and 677+50 Right required that the existing geotextile fabric grade be lowered for new construction.

In the ROW for platform foundation construction, existing cover on regulated material included a layer of bituminous concrete. Track ballast was removed to the bituminous concrete layer at each proposed foundation location from station 667 + 50 to station 677 + 00. At each location, the bituminous concrete was cut and excavation of regulated material followed. After installation of new geotextile fabric, Ready-mix concrete (4000 psi, or 5000 psi) from Wakefield Concrete was used for platform foundations construction and foundations were backfilled with A.R.E.A 4 ballast from Aggregate Industries.

2.3.3.4 Intrusive Work for Track Crossings/Utilities:

Location: Right-of-Way

GENERAL SEQUENCE: Excavate ballast down to top of existing bituminous concrete and stockpile for re-use. Track ties were supported as required during trenching for utility installation. Sawcut and remove existing bituminous concrete, and cut back geotextile fabric. Remove contaminated soil to required depth; stockpile in containment cell. Place new geotextile fabric along bottom and side walls of trench; install utility conduit, bedding, and backfill material; place and compact 4 inches of bituminous concrete level with existing bituminous concrete cover; re-install ballast to support track and ties. Conduit crossings were constructed at approximately 15 locations (refer to Appendix M As-Built for locations). Excavation went to depths approximately 42 inches from top of rail.

EXAMPLES: GRS conduit and pull boxes for track signals were installed in a north-south direction, parallel to the tracks along the east track slope, and under the tracks for track crossings. The Middlesex Corporation performed all excavation. GRS conduit installation was performed by City Lights Electric. The installation of pull boxes required Middlesex to excavate to the required elevations into the track slope. This excavation however did not penetrate the existing cover therefore it was not intrusive.

2.3.3.5 Intrusive Work for Road or Track or Sidewalk Subgrade Preparation:

Location: Site and ROW

GENERAL SEQUENCE: Excavate existing stone or ordinary borrow above existing geotextile (or bituminous concrete layer in ROW), and stockpile for potential re-use. Hand excavate to locate existing geotextile or bituminous concrete. Remove bituminous concrete (if applicable), cut and open existing geotextile to expose regulated material. Excavate regulated material to required depth for new subgrade preparation (stockpile regulated material in containment cell). Place new geotextile at lower elevation, lap edges of new geotextile with existing geotextile with not less than 18-inch overlap, and sew fabrics together. Construct new road, track or sidewalk subgrade.

EXAMPLE: EXCAVATE FOR SOUTHBOUND BYPASS: The Middlesex Corporation moved the existing ballast and widened using backhoes from stations 683+50 to station 687+00 to depth averaging approximately 24 inches. An area of rock was jack hammered, handled as regulated material and stockpiled in a containment cell on site for later disposal. Excavation continued to existing geotextile fabric. Excavation below the fabric was in regulated soil and was handled as follows: The fabric was cut open and pulled back to expose the regulated material. The regulated material was excavated to the required elevation. Regulated material was removed and stockpiled in one of the containment cells on site for later disposal. New fabric was installed to the full width of the excavation and sewn to the existing geotextile fabric. Aggregate Industries paved a four (4) inch thick bituminous layer over the fabric. New ballast was installed on the bituminous concrete cover. The A.R.E.A 4 ballast was purchased from Aggregate Industries.

EXAMPLE: EXCAVATE SUBGRADE FOR NEW NORTHBOUND TRACK: The Middlesex Corporation at areas north and south of the platform performed excavation of sub-grade for new northbound track construction. Excavation was done along the existing northbound track at stations 660 + 00 to station 664 +35 and station 679 + 50 to station 683+60. The existing ballast was stripped in these areas with backhoes and stockpiled for later re-installation. The gravel borrow was stripped off to the existing fabric. The depth of cover varied from 1'-6" to 3'-0". After the excavation, the area was graded and new fabric was placed across the entire excavated area and sewed to existing fabric. Four inches of bituminous concrete from Aggregate Industries was used for cover on the geotextile fabric and A.R.E.A 4 ballast was placed over the bituminous concrete.

EXAMPLE: ATLANTIC AVENUE RECONSTRUCTION: The Middlesex Corporation performed full-width road reconstruction of Atlantic Avenue. The original Atlantic Avenue location did not have an "alternative cover" or geotextile barrier. The existing asphalt pavement and gravel subgrade were removed to required depths for reconstruction. Excavated material was handled as regulated material and stockpiled in a containment cell. New fabric was placed and lapped up onto existing fabric. New Gravel Borrow was placed on the fabric and Aggregate

Industries paved with two courses of bituminous concrete. Granite curb from Fletcher Granite was installed by KM DaPonte; K.A DaPonte also constructed concrete sidewalks (concrete provided by Wakefield Concrete).

2.3.4 Soil Management Area (SMA)

The SMA was located in a 140-foot by 20-foot area at the northern edge of the property. This area was later enlarged (with the EPA's consent) to encompass an approximately 100-foot by 100-foot SMA located adjacent to the original SMA. Both locations included the use of Jersey barriers for containment. The original 140-foot by 20-foot SMA was placed on twelve inches of graded sand/stone dust, divided into six (6) sections and pitched towards the sump pump area located in the middle of the SMA. The SMA area was then overlain with 40-mil HDPE liner, which was lapped over the Jersey barriers and secured. A second layer of sand/stone dust was placed on the HDPE liner and a second HDPE liner and addition sand/stone dust was placed in the SMA area. Each individual section was covered with tarp and secured at the end of the workday and at the conclusion of the week to prevent the infiltration of stormwater into the SMA area. The second SMA area (i.e. 100-foot by 100-foot SMA) was placed on the bituminous pavement parking lot approximately 50-feet south of the original SMA. This SMA was constructed and operated in the same manner as the original SMA area however; the soils were managed in one large holding cell.

2.3.5 Decontamination Pad

Two decontamination pads were set up on the project site for the life of the project. One decontamination pad was located at the Soil Management Area and a second mobile decontamination pad was positioned at various locations throughout the site. The second mobile decontamination pad was utilized to decontaminate equipment that came into contact with impacted media during intrusive activities. The portable decontamination set-up consisted of a rack body truck and trailer, which was positioned in a manner such that all personnel entering or exiting the exclusion zone areas entered and exited the rack body during decontamination procedures identified in the accepted RTC Health and Safety Plan. The decontamination pad located adjacent to the Soils Management Area was approximately 10 feet by 30 feet. Trucks or equipment that came into contact with potentially contaminated soil were cleaned before leaving the SMA. The decontamination pad was bermed along the sides using splash guards/curtains and the base was pitched to a stone sump area for the convenient removal of rinsate water.

2.3.5.1 *Soil Management Area Decontamination Pad*

The Soil Management Area decontamination pad was located in the northern portion of the property and was constructed as detailed below:

- i. Concrete pilings were placed around the perimeter of the decontamination pad and overlain with a wooden buffer
- ii. A layer of 40-mil polyethylene or HDPE nylon reinforced sheeting was placed within the decontamination area
- iii. A metal bridge grating was placed on top of the concrete pilings and 40-mil polyethylene or HDPE nylon reinforced sheeting
- iv. Perimeter splash guards/curtains were placed within the decontamination area to contain any splash water
- v. A crushed gravel ramp was placed installed leading up to the metal bridge grating and decontamination pad area
- vi. A stone sump area was placed in the Soil Management Area to collect stormwater and pump the collected water to the fractionation tank

The mobile decontamination pad was utilized on-site when construction equipment came into contact with potentially impacted soil. The mobile decontamination pad was constructed as detailed below.

- i. Wood blocking was placed in an approximately 20 by 20 area and overlain with 20-mil polyethylene sheeting and secured
- ii. Wooden planking were placed in the mobile decontamination pad to support construction equipment
- iii. Splash guards were erected using saw horses and 4x8 plywood or equivalent
- iv. Wash water generated was collected via an appropriately sized pump and transferred to the mobile decontamination unit, which was discharged into the excavation prior to installing the geotextile fabric barrier

2.3.5.2 *Mobile Decontamination Trailer*

A mobile decontamination trailer was utilized during site intrusive activities. Site intrusive activities are detailed in Section 2.2. The mobile decontamination set-up consisted of a rack body truck or equivalent and a trailer as detailed below. The mobile decontamination trailer backed up to the intrusive activity area and polyethylene was rolled out into the exclusion zone. Personnel entered and exited the exclusion zone through the mobile decontamination trailer.

- i. The rack body truck contained a generator; barrels for clean water and dirty water, water pump and associated work equipment.
- ii. The trailer contained an impacted water basin, clean rinse basin, dry PPE removal basin, PPE collection barrel and associated work equipment.

2.3.5.3 *Dust Suppression*

Dust suppression activities consisted of a water truck wetting the areas within the project site and water misting of the excavation areas. Dust suppression activities are further detailed in Section 2.5.4.

2.4 FACILITY DOCUMENTATION FOR OFF-SITE DISPOSAL

2.4.1 Materials Shipping Records

During construction activities, Middlesex excavated soils located above the geotextile fabric barrier that did not meet physical requirements for backfill material. Middlesex's environmental consultant, BATG, collected representative soil samples of the soil stockpile. BATG mobilized at the RTC Project Site and collected one (1) representative soil sample. The soil sample was collected by BATG personnel using appropriate glassware, place in an ice cooler and transported via courier to Contest Laboratories, a Massachusetts certified Laboratory located in East Longmeadow, Massachusetts. The soil sample was analyzed in accordance with the disposal criteria set forth by the Woburn Landfills permit requirements. Analytical data indicated that the constituent contained in the soil sample met the disposal criteria requirements for the Woburn Landfill. On April 14, 17, 18, 19, 20, 21, 25, 26, 27, 2001 Middlesex transported the soils under a Materials Shipping Record (MSR) to the Woburn Landfill, located in Woburn, Massachusetts. The total tonnage removed from the site to the Woburn Landfill totaled 1,897.25 tons. Please reference Appendix E for weight slips and MSR copies. Since regulated soils or hazardous waste was not removed from the site, Bills of Lading and/or Hazardous Waste Manifests were not utilized for tracking purposes.

2.4.2 Soil Management Area Soils Placed in East Hide Pile

Soil that was stored in the containment cells on site was transferred to the Hide Pile for disposal. The work is described in the document titled "East Side Underdeveloped Property Certification Report" and was supervised by Maverick Construction Management, Inc. Refer to Appendix F.8 for Containment Cell Laboratory Analytical Documentation for the material stored temporarily in the containment cells.

2.5 CONSTRUCTION CONTROLS MONITORING

In accordance with the Project Specifications, Middlesex was required to provide controls to maintain a safe work environment and to protect the public health and safety. These controls included initial baseline air monitoring and subsequent air monitoring whenever the geotextile fabric barrier was intruded as well as analytical testing of all soils excavated and placed in the Soils Management Area or designated for removal to an off-site receiving facility. Please reference Section 3.0 for Analytical Documentation, Appendix D.2. for Baseline Air Monitoring test results and Appendix D.3 for daily log reports containing air-monitoring data. The primary purpose of the protective

permeable covers is to prevent direct contact with regulated/contaminated soils. The primary purpose of the protective impermeable cover is to prevent direct contact with contaminated soils, infiltration of precipitation, and/or release of gas. On the RTC property, there are primarily permeable covers. The Atlantic Avenue Drainway (south of Atlantic Avenue) and within the RTC Detention Basin contain impermeable covers preventing direct contact with contaminated soils and preventing infiltration of precipitation and groundwater. A protective cover was not installed within Class B Land. However, in accordance with the Project Work Plan, Middlesex considered the soil within Class B Land as contaminated, and implemented the proper Health and Safety protocols when working in these areas.

2.5.1 Exclusion Zone and Exclusion Zone Perimeter

Monitoring for volatile organic compounds (VOCs) and particulate matter was performed continuously by Middlesex personnel in the exclusion zone to characterize and quantify any airborne release of contaminants during excavation, sampling, transport and disposal of contaminated soil. A photoionization detector (PID) calibrated to background/upgradient conditions, was used to monitor the breathing zone, the excavation trench, and all geological samples for the presence of VOCs. A Combustible Gas Indicator equipped with an oxygen alarm, and lower explosive level, carbon monoxide and hydrogen sulfide sensors was used to monitor the excavation for the presence of combustible gases. Total particulate content was measured using a Miniram, RAM-1, or equivalent. All soil and soil piles from the excavation were monitored using a PID to detect the emission of volatile vapors.

The exclusion zone perimeter was continuously monitored (i.e., every 15 minutes) for VOCs and particulates during activities that disturbed contaminated materials. Middlesex personnel logged the results of the monitoring every 15 minutes. Please reference Appendix D for daily field reports, baseline air monitoring logs, equipment calibration logs and daily air monitoring logs. Vapor suppression activities (i.e., minimize or stop soil disturbance, and application of vapor suppression materials) and dust suppression activities (i.e., water trucks, water mist over excavation) were utilized as required.

2.5.2 Fence Line Monitoring

In accordance with the accepted RTC Health and Safety Plan, when "Action Levels" in the exclusion zone are exceeded, Middlesex was to initiate monitoring the ambient air for VOC's and toxic soil particles as fugitive dust along the nearest downwind perimeter fence line. Monitoring was to always be performed at downwind locations along the fence line of the construction site on an hourly basis until Action Levels in the Exclusion Zone are no longer exceeded. Level D protection was to be utilized by personnel conducting Fence Line monitoring with the

contingency to upgrade the level of protection based on the Action Levels outlined in Table 9-2 of the accepted RTC Health and Safety Plan. When hourly monitoring indicated an exceedance of either of the two "Action Levels" (VOCs, Dust) presented in Table 9-2 of the accepted RTC Health and Safety Plan, Middlesex was to implement vapor control measures and/or dust suppression measures as necessary. The SSHO was to direct Middlesex to upgrade to the next level of P.P.E. protection and continue field activities. "Action Levels" during construction activities were not exceeded therefore; vapor and/or dust suppression activities were not implemented.

The PID and RAM-1 (or equivalent) was used to monitor the fence line for particulate matter and VOC levels. Air monitoring equipment was capable of measuring and recording a minimum dust particle concentration of 50 ug/m³ with a probability of detection of 95%. Middlesex established background VOC levels at the site using a photoionization detector (PID). The background concentrations were based on a minimum of one week sampling during the work shift(s). The "Action levels" of VOCs at the fence line of the site were 5 ppm above background, sustained for one minute, as measured by the PID. "Action Levels" during construction activities were not exceeded therefore; vapor and/or dust suppression activities were not implemented.

2.5.3 Action Levels

Instrumentation included the PID for total VOCs; Length-of-Stain indicator tubes for benzene; a Miniram, RAM-1 or equivalent, for particulates and a Combustible Gas Indicator equipped with an oxygen, lower explosive level, carbon monoxide and hydrogen sulfide sensor for Confined Space Entry. The "Action Levels" in the accepted RTC Health and Safety Plan applied to all site work during the duration of activities at the Site. "Action Levels" for direct-reading instruments were provided in Table 9-1 of the accepted RTC Health and Safety Plan (Ambient Air Monitoring Plan for Worker Protection in Exclusion Zone and Perimeter) and Table 9-2 (Ambient Air Monitoring Plan for General Public and Other Off-Site).

2.5.4 Vapor and Dust Control Plan

If "Action Levels" were exceeded for either vapor or dust, engineering practices were to be implemented to control the problem. This would have included the use of vapor suppression activities (i.e., minimize or stop soil disturbance, and application of vapor suppression materials) or blowers to remove vapors and/or dust suppression activities (i.e., water trucks, water mist over excavation). "Action Levels" during construction activities were not exceeded therefore; vapor and/or dust suppression activities were not implemented.

3.0 ANALYTICAL REQUIREMENTS

3.1 Analytical Requirements for Excavated Soil Testing

The original requirements for analytical testing of materials that were excavated and placed in the SMA called for sampling and analyses procedures in accordance with the project specifications and the approved Sampling and Analyses Plan. These documents specified the collection and analysis of soils every 100 cu. yd. for benzene, toluene, arsenic, lead and chromium. "Action Levels" as detailed for each chemical constituent is shown below in the Table 2.

EPA ACTION LEVELS			MCP ACTION LEVELS	
Chemical	Concentration (PPM)	Source	Concentration (PPM)	Source
Benzene	40	MCP (S-1, GW-2)	40	MCP (S-1, GW-2)
Toluene	500	MCP (S-1, GW-2)	500	MCP (S-1, GW-2)
Arsenic	300	ROD	30	MCP (S-1, GW-2)
Lead	600	ROD	300	MCP (S-1, GW-2)
Chromium	1,000	ROD	1,000	MCP (S-1, GW-2)

Class B Property and Class C Property soils located beneath the geotextile fabric were excavated and placed in the SMA. Soil samples were collected by Middlesex's environmental consultant, BATG and analyzed for the constituents specified in Table 2. Analytical results indicated that the majority of the soils contained constituents that failed toxicity characteristic leachate procedure (TCLP), which by definition deemed the material a hazardous waste. The EPA was concerned from a liability standpoint with moving the hazardous waste contained in the SMA from the Industri-Plex Superfund Site to a receiving facility. Therefore, the EPA and Massport decided that it would be in the best interest for all parties involved to keep all soil that was excavated from both Class B Properties and Class C Property soils, located beneath the geotextile fabric, within the Industri-Plex Superfund Site boundaries. Upon completion of all excavation activities, the soils contained in the SMA were placed directly in the hide pile located northeast of the Transportation facility. The soils were then covered with 16-oz geotextile fabric which was sewn into the existing engineered protective cover. Existing loam was placed back on the geotextile and hydroseeded. Middlesex performed the work under the supervision of Maverick Construction Management Services, Inc. With the decision to have all excavated soils within the Class B Properties and Class C Properties remain on-site, analytical testing for off-site disposal was terminated. Please reference Appendix F.8 for Analytical documentation for the analyses performed during the initial sampling events.

*Cost
waste
at site*

3.2 Water Generated from Dewatering Operations

The approved Project Work Plan specified that all water generated from dewatering operations on Class B, or C properties would be contained for subsequent characterization in accordance with the approved Sample and Analysis Plan listed in Table 3.

Chemical	Concentration (PPM)	Source
Benzene	0.7	Specifications
Toluene	5.0	Specifications
Arsenic (Total)	0.190	Specifications
Lead (Total)*	0.030	Specifications
Chromium (total)	0.210	Specifications
Turbidity	85 NTU	Specifications

The water management system was composed of a fractionation tank for storage of water removed from the excavation and the collection of stormwater that collected in the sump areas of the SMA. The approved Work Plan specified that water meeting the "Action Levels" as specified in the project specifications may be discharged on-site into a stormwater catch basin. During intrusive excavation operations Middlesex generated small quantities of water during decontamination activities. The small quantities of decontamination water were placed in the excavation prior to the installation of the geotextile fabric, eliminating the need to discharge the decontamination water through an on-site catch basin. Tarps covering the SMA soil stockpiles eliminated the generation of stormwater from the sump areas located in the SMA.

3.3 Geotechnical Information of Materials Brought onto WRTC Site

The materials used for cover above the geotextile fabric barrier on the WRTC Industri-Plex Site included fill soil, gravel borrow, road structural fill (i.e. sub-base), ballast, top soil and landscaping materials. Materials obtained from off-site sources were tested in accordance with project specifications prior to delivery to the job site. Materials meeting the project specification requirements were utilized as part of the WRTC development.

3.3.1 Railroad Ballast Testing

Middlesex installed stone ballast at the platform foundation footings (from station 667+50 to 677+00). It was also used at the entire length of the new Northbound, under the southbound By-Pass track and at conduit crossings. All

new stone ballast was tested in accordance with and to conform to AREA Size No. 4 per AREA Chapter 1 Part 2, Table No.3 as modified by the MBTA's specifications MS No.9248. Aggregate Industries supplied the ballast (and all stone products) and was identified as an approved source for use at the Industri-Plex site, therefore no testing was performed.

3.3.2 Ordinary Borrow

Middlesex placed over 22,000 cy of ordinary borrow during construction of the WRTC. Ordinary borrow was used primarily to fill the site as needed to reach required parking lot subgrade elevations. It was also used to form subgrade in wet areas, backfill utility trenches, and fill beneath the Station Building slab. Ordinary borrow came from a pit in Littleton, MA owned at the time by The Middlesex Corporation. All ordinary borrow brought on-site conformed to the Consent Decree requirements, and 1988 Massachusetts Highway Department Standard Specifications for Highways and Bridges, including its Supplemental Specifications dated December 23, 1998 (hereinafter referred to as "Standard Specification") Sections Section M1 and Borrow Materials, Subsection M1.01.0. Refer to Appendix F.1 for Quality Control Documentation and Appendix F.4 for Soil Inspection Reports.

3.3.3 Gravel Borrow

Middlesex placed approximately 21,000 cy of gravel borrow within the project limits. Gravel borrow was used as subgrade material for all parking lots, roadways, concrete sidewalks, concrete roadways and was used as subgrade for the concrete floor slab of the Station Building. Gravel Borrow was furnished by The Middlesex Corporation (above-referenced pit in Littleton, MA) and Robert Francis Construction of Wilmington, MA (source: Cummings Properties). All gravel borrow brought on-site conformed to the Consent Decree requirements, and Standard Specification Sections Section M1 and Borrow Materials, Subsection M1.03.0, Type B. Refer to Appendix F.1 for Quality Control Documentation and Appendix F.4 for Soil Inspection Reports.

3.3.4 Granular Bedding Material

Granular bedding was not utilized on this project.

3.3.5 Gravel for Pipe Backfill

Ordinary Borrow or Gravel Borrow (above) was used to backfill utility pipes if the material excavated for utility installation was not suitable for re-use.

3.3.6 Crushed Stone

Middlesex installed ¾-inch crushed stone for surface treatment along slopes east of the northbound rail: stations 659+ 00 to station 668+00., station 675+00 to 676+60 and 678+60 to 687+00. Stone for surface treatment was also used between fence and curb in the Short Term (north) parking lot. ¾inch crushed stone was also used under precast light pole bases, and used as backfill around corrugated pipe sleeves for light pole foundation. All ¾-inch stone was provided by Aggregate Industries and conformed to the Standard Specification Sections Section M2, Aggregates and Related Materials, Subsection M2.01.4.

3.3.7 Stone for Slope Protection

Middlesex installed four to six inch surge stone for slope protection: on slopes adjacent the northbound rail at stations 668+05 to 675+00, and on the re-shaped abutment adjacent the southbound rail station 685+76 to 686+76. Surge stone was also used behind the fence for slope protection at the south end of the site (Long Term Parking Lot). All four-inch stone for slope protection met the following requirements: 50% by weight shall be larger than four inches, the diameter of the maximum stone size in the mixture shall be six-inches. The stone also met AASHTO Test 103 for ledge rock with no losses greater than 10 % after twelve cycles and an abrasion test ASTM C535 with not more than 40% losses after 500 revolutions, and a minimum specific gravity of 2.5 in accordance with ASTM C127. Surge stone was provided by Aggregate Industries.

3.3.8 Crushed Stone for Underdrain

Middlesex installed ¾-inch crushed stone around the 12 inch perforated track underdrain along the northbound rail -- station 659+99 to 677+00. All crushed stone for underdrain brought on-site conformed to the Standard Specification Sections Section M2, Gradation M2.01.4 and was furnished by Aggregate Industries.

3.3.9 Stone for Field Stone Masonry

Field stone was used along Presidential Way (exiting the short term parking lot) to construct two masonry walls. The walls are approximately 162 feet long on the north side and 178 feet long on the south side. The walls are about 3-1/2 feet tall. All field stone masonry brought on-site conformed to the Standard Specification Sections Section M9, Miscellaneous Materials, Subsection M9.04.4 and was furnished by Aggregate Industries.

3.3.10 Cement Concrete

Cement concrete was used for sidewalk construction, concrete roadway construction and all platform and building foundations. All cement concrete brought on-site conformed to the Contract Specification for the various different mix designs required (see Appendix L for mix designs and usage). All cement concrete was furnished by Wakefield Concrete; see Appendix F.2 for concrete quality control documentation. All reinforcing steel for cement concrete was furnished by Barker Steel. See Appendix F.3 for rebar placement inspection reports.

3.3.11 Bituminous Concrete

Bituminous concrete was installed at parking lots and roadways, and installed on geotextile fabric over regulated material during construction of the southbound by-pass track and the new northbound rail. Bituminous concrete was also used for an access ramp to the Right-of-Way from station 668+00 to 669+50. All bituminous concrete brought on-site conformed to the Standard Specifications, Section 400, Sub-base, Base Courses, Shoulders, Pavements and Berms and was furnished and installed by Aggregate Industries. Refer to Appendix L for mix designs and usage, and Appendix F.5 for Asphalt Inspection Reports.

3.3.12 Planting Soil, Seeding, Planting

A Middlesex Corporation subcontractor, (The TurfMaster Corporation of Tyngsboro, Massachusetts), installed planting soil, seeding, and plants on the project. The areas receiving these items were: #1) Plantable Berms on Presidential Way from Station 109+50 Right to station 121+50 Right as well as Station 110+50 Left to 118+70 Left. #2) Approximately 550 feet of Plantable berm on the North End of the Parking Lot. #3) Parking lot Landscape Islands. #4) Parking lot plantable soil and seed areas. #5) Parking facility perimeter plantable soil and seed areas along guardrail and fence areas.

The plantable soil that has been placed was a mixture of Ordinary Borrow (50% by volume), Peat Moss from Morse Brothers of Windham, Maine (25% by volume), and Agresoil Compost from Agresource Inc. of Amesbury, Massachusetts (25% by Volume). Ordinary Borrow for Plantable Soil Borrow was the same material referenced in item 3.3.2 above. The content and tests performed for the project specification compliance and for compliance with the Consent Decree were performed by the Soil and Plant Tissue Testing Laboratory, West Experiment Station, University of Massachusetts in Amherst, Massachusetts.

Halka Nurseries Inc. of Englishtown, New Jersey and Bigelow Nurseries Inc. of Northborough, Massachusetts furnished plantable materials. These materials were placed in: #1) Parking lot islands. #2) Northend parking lot berm. #3) Presidential Way berms. A complete list of planting materials provided as part of Massport 1.727 is as follows:

TABLE 4
Landscaping/Planting Materials Summary
Anderson Regional Transportation Center

Contract item #	Description	Quantity Installed	Units
2900.401	MANUFACTURED PLANTING SOIL	3439	CY
2900.411	DWARF FOTHERGILLA 8" TO 24"	593	EA
2900.412	VIRGINIA ROSE 8" TO 24"	641	EA
2900.413	BEACH PLUM 24" DTO 30"	152	EA
2900.414	RED CHOKEBERRYBUSH 24" TO 30"	84	EA
2900.415	SUMMERSWEET 24" TO 30"	33	EA
2900.416	AMERICAN CRANBERRY VIBURNUM	75	EA
2900.417	ARROWOOD VIBURNUM 24" TO 30"	146	EA
2900.418	COMMON WITCHAZEL 30" TO 36"	67	EA
2900.419	CORNELIAN CHERRY 30" TO 36"	67	EA
2900.420	COMPACT INKBERRY 24" TO 30"	269	EA
2900.424	HALKA HONEYLOCUST TREE 4" TO 4.5"	71	EA
2900.431	AMUR MAPLE TREE MULTI-STEMMED	6	EA
2900.432	RED MAPLE TREE MULTI-STEMMED	6	EA
2900.433	HERITAGE BIRCH TREE 7' TO 8'	12	EA
2900.434	HERITAGE BIRCH TREE 12'TO14'	3	EA
2900.435	PIN OAK TREE	24	EA
2900.444	MT HOOD & KING ALFRED DAFFODILS	2470	EA
2900.445	MINIATURE DAYLILY, SILOAM LITTLE ANGEL	485	EA
2900.451	TREE UNDERDRAINAGE TEST PITS	1	EA
2900.461	SHREDDED PINE BARK MULCH	340	CY
2900.501	SEEDING	65756	SF
2900.601	SODDING	0	SF
2900.701	EROSION CONTROL MATTING	0	SF

Morse Brothers of Windham, Maine provided Bark Mulch prime grade. This material was placed around all planting material described above.

All of the planting soil, seeding, and plantable materials brought on site conformed to the Project Specification Requirements detailed in Section 02900. Please reference Appendix I for the documented information. All planting soil, seeding and planting brought on-site conformed to the Project Specification Requirements detailed in Section 02900.

3.4 Miscellaneous Analytical Testing

Middlesex collected one (1) groundwater sample from an existing box culvert located at station 674+95 on the west side of the southbound rail-line. The EPA directed Middlesex to analyze the groundwater sample for asbestos. Analytical results indicated that the groundwater sample did not contain asbestos. Please reference Appendix F.7 for the documented report.

5.0 DECOMMISSIONING ACTIVITIES

The following structures were decommissioned during construction of the WRTC (see also Appendix C):

5.1 UTILITY POLE

Decommissioned: New Sleeve-4/21/00, Excavation/Fabric-4/21/00 and 4/24/00 Remove Pole Stub-4/28/00.

Location Aid: Former cul-de-sac at the end of Atlantic Avenue by entrance of the WRTC.

Description: As per the project specifications, a new utility pole was installed at the end of Atlantic Avenue by entrance of the WRTC by Boston Edison. Middlesex installed a "clean sleeve" for the new utility pole, which was installed by Boston Edison. Individual utility companies relocated the associated utilities from the old pole to the new pole. Boston Edison cut the old pole at surface grade; Middlesex removed the remaining stub during the excavation of the utility corridor.

5.2 CATCH BASIN AND DRAINAGE PIPE

Decommissioned: Catch Basin and Drainage 6/5/00.

Location Aid: Former cul-de-sac at the end of Atlantic Avenue by entrance of the WRTC.

Description: As per the project specifications, all material located beneath the bituminous concrete was considered to be regulated material. Middlesex excavated and built new catch basin ("CB-2") over the existing pipe; excavator removed soil around existing catch basin. The catch basin was removed, crushed and placed in the soil management area along with the soils removed from around the catch basin. The plastic drainpipe was removed, decontaminated/cleaned and place in a dumpster for disposal.

5.3 CATCH BASIN AND DRAINAGE PIPE

Decommissioned: Catch Basin and Drainage 4/5/00.

Location Aid: New WRTC entrance road and east side of long term parking lot.

Description: As per the project specifications, Middlesex excavated around the existing catch basin. The catch basin was removed and transported to Middlesex's Littleton Office for reuse. Middlesex plugged the east end of the pipe with brick and cement. An approximately three and one half-foot section of the pipe near its intersection with the culvert was removed. The plastic drainpipe was removed and place in the dumpster for disposal. All associated work was performed above the geotextile protective barrier.

5.4 STEEL PLATES AND DRAINAGE CULVERT

Decommissioned: Catch Basin and Drainage Pipe 8/7/00, 8/8/00, and 8/9/00.

Location Aid: Short term parking lot and landscaped island in front of the station building.

Description: As per the project specifications, Middlesex excavated approximately one-foot of cover to expose steel plates on the culvert. The excavated material was stockpiled and used as backfill upon completion of associated work. Middlesex removed the steel plates and framed for

concrete placement from inside the culvert. Middlesex then doweled in rebar and place concrete in accordance with Contract drawing C-26 Detail 14 for new cap on opening.

5.5 FIVE (5) CATCH BASINS AND DRAINAGE PIPE

Decommissioned: Catch Basin and Drainage Pipe 4/27/00.

Location Aid: Short term parking lot south of the station building.

Description: As per the project specifications, Middlesex excavated around the five (5) existing catch basins. The catch basins were removed and transported to Middlesex's Littleton storage yard for reuse. Middlesex also removed approximately one hundred feet of pipe and placed it in the dumpster for disposal. Middlesex constructed a new manhole and connected the existing pipe to the new manhole. All associated work was performed above the geotextile protective barrier.

5.6 SEVEN (7) ELECTRICAL MANHOLE/PULL BOXES

Decommissioned: Electrical Manhole/Pull Boxes 3/27/00.

Location Aid: Railroad right of way West of tracks at station locations: 663+00, 666+00, 669+00, 672+00, 675+10, 678+00, and 681+00.

Description: As per the project specifications, Middlesex removed manhole covers and frames (taken from site by Amtrak for re-use). Middlesex also removed the associated pre-cast concrete top section of the structures and transported them to Middlesex's Littleton storage yard for reuse. Middlesex chipped the top six to twelve inches off the manhole walls using an excavator. The associated rubble was disposed of at the Woburn Landfill. Flowable fill was placed in the manhole as backfill for each individual structure.

5.7 ONE (1) ELECTRICAL MANHOLE/PULL BOX

Decommissioned: Electrical Manhole/Pull Box 3/27/00.

Location Aid: Railroad right of way West of tracks at station locations: 685+40

Description: As per the project specifications, Middlesex removed manhole covers and frames (taken from site by Amtrak for re-use). Middlesex also removed the associated pre-cast concrete top section of the structures and transported them to Middlesex's Littleton storage facility for reuse. The associated rubble was disposed at the Woburn Landfill. Flowable fill was placed in the manhole as backfill for each individual structure.

5.8 DRAINAGE PIPE ASSOCIATED WITH NEW BASIN

Decommissioned: Leaching Basin 5/9/00, Drainage Pipe 5/11/00.

Location Aid: Railroad right of way East of tracks at station locations: 659+00 to 660+00

Description: As per the project specifications, Middlesex broke into the existing drain line and constructed a new leaching basin and connected the east side of the existing drainpipe. Middlesex lowered the existing geotextile protective barrier grade and constructed approximately ninety linear

feet of new drainpipe between the leaching basin and the new drain manhole located on the eastside of the track-line. Middlesex removed the existing drainpipe during excavation and placed it in a dumpster for disposal. The excavated material above the geotextile protective barrier was reused as backfill material. The excavated soils below the geotextile protective barrier were transported to the soils management area.

5.9 LOADING DOCK

Decommissioned: Loading Dock 3/20/00, 3/22/00, and 3/23/00.

Location Aid: Railroad right of way West of tracks at station 670+80

Description: As per the project specifications, Middlesex saw cut the concrete with a wet saw. The soils located in the loading dock were removed and transported to the soil management area along with the associated concrete. Geotextile was temporarily placed above the remaining soils. The geotextile was replaced during the excavation for track widening which Middlesex performed.

6.0 RECORD DRAWINGS

Record Drawings of the as-built conditions of the RTC Alternative Cover, certified by a Massachusetts Land Surveyor (BSC Group), are included in Appendix M. The BSC Group is located in Norwell, Massachusetts and began work at the Industri-Plex in the spring of 2000, providing survey services to Middlesex Corporation. Together with The Middlesex Corporation, BSC has provided As-Built Drawings of the Transportation Facility, included as Appendix N. The BSC Group also provided the Cover Modification As-Built in Appendix M.

7.0 CERTIFICATION

The Anderson Regional Transportation Center at the Industri-Plex Site in Woburn, MA was constructed during the period March 2000 through April 2001 by The Middlesex Corporation and their subcontractors. The EPA in cooperation with the MADEP provided regulatory oversight during all phases of construction activities to ensure that all phases of construction were performed in accordance with the Consent Decree Requirements. BATG was contracted by Middlesex to provide environmental services and LSP oversight for the project as well as provide construction controls for areas where the contract compromised or disturbed the existing geotextile protective barrier. As per Specification requirements, BATG has prepared this Supplement to the existing Final Certification Report on file for this site. The "Final Report on RTC Cover Certification, Industri-Plex Site, Woburn, Massachusetts" dated April 1998, prepared for the Industri-Plex Site Remedial Trust by Golder Associates, Manchester, New Hampshire is available for viewing through Massport Authority. The certification process also requires that survey be performed to certify that sufficient cover is installed above the geotextile protective barrier. The survey clearly identifies the location and elevations of the disturbed and/or replacement of geotextile protective barrier. The survey utilized the same 50-foot grid and coordinate system as used in the survey performed previously by Meridian Land Services, Inc. for as-built conditions of the Alternative Cover Contract. The BSC Group was contracted by Middlesex to perform field survey services and re-certification records preparation and modification in accordance with Meridian's original survey of the alternative Cover Contract.

BATG as the designated re-certification engineer, provides this re-certification* on behalf of The Middlesex Corporation. The re-certification is based upon observation of construction activities, review of construction data, testing activities reliance upon preparation of re-certification as-built record plans by BSC Group and reliance upon representations provided by the contractor and its subcontractors. In BATG Environmental, Inc. professional, based upon the above information provided, the WRTC was constructed and completed in accordance with the approved specifications, drawings, work plans, and approved design changes in compliance with the Consent Decree.

BATG Environmental, Inc.

Adam B. Westhaver
Project Manager

Denis W. D'Amore P.E., L.S.P., Ph.D.
Licensed Site Professional


A professional engineer's re-certification comprises a declaration of his professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it release any other party of their responsibility to abide by contract documents or applicable codes, standards, regulations, and ordinances.

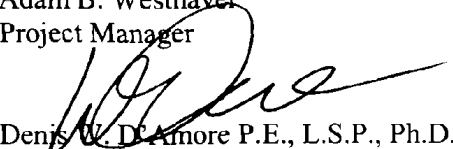
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BATG Environmental, Inc.


Adam B. Westhaver
Project Manager


Denis W. DeAmore P.E., L.S.P., Ph.D.
Licensed Site Professional

*A professional engineer's re-certification comprises a declaration of his professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it release any other party of their responsibility to abide by contract documents or applicable codes, standards, regulations, and ordinances.

APPENDIX A – PROJECT SCHEDULE

Activity ID	Activity Description	Actual Start	Actual Finish	2000												2001			
				J	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
Site Work																			
400	Notice to Proceed	18JAN00	18JAN00	X Notice to Proceed															
405	EPA/DEP Plan Approval	18FEB00	10MAR00	█ EPA/DEP Plan Approval															
02713-001	City of Woburn delivers all 20" water & valves	28FEB00	10MAR00	█ City of Woburn delivers all 20" water & valves															
1721880001	Equipment Mobilization	08MAR00	10MAR00	█ Equipment Mobilization															
410	Begin Construction	10MAR00		◇ Begin Construction															
02200-004	Erosion Control	16MAR00	17MAR00	X Erosion Control															
02200-001	Construct Decon Holding Cell	16MAR00	22MAR00	█ Construct Decon Holding Cell															
02200-0011	Cut/Remove Brush Above Grade	20MAR00	24MAR00	█ Cut/Remove Brush Above Grade															
02200-015	Baseline Perimeter Monitoring	21MAR00	21MAR00	X Baseline Perimeter Monitoring															
02509-006	F&I Ordinary Borrow Site	22MAR00	19MAY00	█ F&I Ordinary Borrow Site															
02200-002	Excavate Util Corridor for Gas, Electr, & Water	27MAR00	14APR00	█ Excavate Util Corridor for Gas, Electr, & Water															
02713-002	Install 20", 8" & 6" Water & Valves	27MAR00	19APR00	█ Install 20", 8" & 6" Water & Valves															
02509-003A	Side Slopes on Presidential Way	29MAR00	16MAY00	█ Side Slopes on Presidential Way															
16119-001	Install Elect & Tele Duct Bank; Atlantic/Trans	04APR00	21APR00	█ Install Elect & Tele Duct Bank; Atlantic/Trans															
03400-002	Install Light Pole Found into Regulated Soil	11APR00	21SEP00	█ Install Light Pole Found into Regulated Soil															
02700-001	Install Sanitary Sewer System along Tracks	17APR00	28APR00	█ Install Sanitary Sewer System along Tracks															
03400-001	Install PCC Electric & Comm. MH & HH	19APR00	04MAY00	█ Install PCC Electric & Comm. MH & HH															
16119-002	Install Conduit & Pull Boxes for Light / Comm.	19APR00	12JUL00	█ Install Conduit & Pull Boxes for Light / Comm.															
02509-002	F&I Gravel Borrow Subbase On-site	20APR00	16JUL00	█ F&I Gravel Borrow Subbase On-site															
02509-003	F&I Gravel Borrow for Presidential Way	24APR00	04MAY00	█ F&I Gravel Borrow for Presidential Way															
02509-001	Backfill Utility Trench with Gravel Borrow	27APR00	10MAY00	█ Backfill Utility Trench with Gravel Borrow															
02400-001	Install Storm Drainage System	01MAY00	31MAY00	█ Install Storm Drainage System															
02713-0021	Test 20", 8" & 6" Water	03MAY00	03MAY00	X Test 20", 8" & 6" Water															
421	Milestone 1: BECO Access for Power (4/3/00)	04MAY00	04MAY00	X Milestone 1: BECO Access for Power (4/3/00)															
02513-017	Short Term Parking Lot Binder	04MAY00	08MAY00	█ Short Term Parking Lot Binder															
02513-027	Binder - North Parking Lot	04MAY00	08MAY00	█ Binder - North Parking Lot															
02513-007	Pave Presidential Way - Binder	08MAY00	09MAY00	█ Pave Presidential Way - Binder															
02685-001	Install 4" DI Gas	08MAY00	11MAY00	█ Install 4" DI Gas															
03300-003	F/R/P Bus/P&R Foundations	15MAY00	02JUN00	█ F/R/P Bus/P&R Foundations															
02513-037	Binder - In Front of Building	13JUN00	14JUN00	█ Binder - In Front of Building															
03300-013	F/R/P Logan Express Canopy	13JUN00	14JUN00	█ F/R/P Logan Express Canopy															
02524-001	Install Granite Curbing	13JUN00	01DEC00	█ Install Granite Curbing															
03300-001	F/R/P Transformer Pad	20JUN00	21JUN00	█ F/R/P Transformer Pad															
03300-002	F/R/P Storage Building Foundation	20JUN00	22JUN00	█ F/R/P Storage Building Foundation															
02513-047	Binder - Long Term Parking	13JUL00	14JUL00	█ Binder - Long Term Parking															
02524-002	Install Granite Curb - Atlantic	18JUL00	21JUL00	█ Install Granite Curb - Atlantic															

Start Date 18JAN00
 Finish Date 04JUN01
 Data Date 10APR01
 Run Date 10APR01 14:52

Early Bar
 Progress Bar
 Critical Activity

405G Sheet 1 of 5
 The Middlesex Corporation
 Anderson Regional Transportation Center
 Actual Project Schedule for Recertification Report



APPENDIX B - SUBMITTALS PERTAINING TO SITE WORK

SUBMITTAL LOG

TITLE - Submittal	Spec. Section	Submittal no	Revision Number	Recvd Date	Sent Date	Return Date
Fastener Data		001	000	5/9/00	5/11/00	5/18/00
Project Schedule & Statement	00000	1				
Job Progress Photos	01050	001	000	4/10/00	4/11/00	
Resume of Surveyor(s)	01050	01	001	1/28/00	2/10/00	2/14/00
Submittal Register	01300	001	01		2/24/00	3/2/00
CPM Schedule (Target & Updates)	01300	002	05		11/2/00	
QC Program	01400	001	01		8/29/00	9/14/00
Environmental Submittals	01561	001	001	5/2/00	5/8/00	6/9/00
On-Site Health/Safety Officer	01561	1.04D	001	2/4/00	2/8/00	2/9/00
Health and Safety Plan	01569	MBTA HASP	000		3/2/00	
Operations & Maintenance Manuals	01700	001	001		3/15/01	4/5/01
O&M MAnuals	01700	002	000	4/3/01	4/5/01	
Demolition Plan	02050	001	00	3/7/00	3/7/00	3/14/00
Marking Tape	02200	001	001	3/10/00	3/13/00	3/17/00
Blasting Plan	02200	002	01	4/14/00	4/14/00	4/20/00
PVC Track Drain Pipe & Fittings	02400	001	000	2/1/00	2/14/00	2/18/00
Drain Manhole/CB Casting	02400	002	01		2/24/00	3/2/00
HDPE Drain Pipe	02400	003	000	1/21/00	2/14/00	2/18/00
Precast CB's & DMH	02400	004	01	3/1/00	3/2/00	3/13/00
Barrel Block CB's & Mortar	02400	005	000	3/2/00	3/2/00	3/13/00
Underdrain MH- E80 loading	02400	006	000	3/16/00	3/16/00	3/24/00
Underdrain - Leaching Manhole	02400	007	000	3/17/00	3/17/00	3/24/00
12" RCP	02400	008	000	3/27/00	3/27/00	4/10/00
Clean out covers	02400	009	000	3/24/00	3/29/00	4/6/00
Barrel Block & Mortar Cert of Compl	02400	CC	000	3/2/00	3/2/00	3/13/00
Fence Shop Drawings	02444	001	003	8/9/00	8/10/00	8/15/00
Fence Product	02444	002	000	6/21/00	6/22/00	8/15/00
Guard Rail Shop Drawings	02451	001	000	4/7/00	4/13/00	4/27/00
Ballast Supplier Info	02504	001	000	3/29/00	4/6/00	4/10/00
Equipment for Placing Ballast	02504	002	000	4/5/00	4/6/00	4/10/00
Ord & Gravel Borrow Sieve Analysis	02509	001	00	3/8/00	3/8/00	3/17/00
Gravel Borrow Sieve & Chem Analysis	02509	002	00	4/12/00	4/13/00	4/27/00
Sand Borrow Sieve Analysis	02509	003	000	4/19/00	4/19/00	4/27/00
6-inch Stone Sieve Analysis	02509	004	000	6/6/00	6/6/00	6/9/00
Concrete Mix Designs	02510	001	000	3/6/00	3/6/00	3/13/00
Concrete Sidewalk	02510	002	000	8/10/00	8/22/00	8/24/00
Joint Sealant	02510	003	00	2/28/01	3/1/01	3/8/01
Bit. Concrete Mix Designs	02513	001	00	3/21/00	3/21/00	4/10/00
Cement Concrete Mix Design	02513	002	000	10/24/00	10/24/00	11/2/00
Pedestal Bases	02577	001	000	12/7/00	12/7/00	12/14/00
PVC Sewer Pipe	02700	001	000	1/21/00	2/14/00	2/18/00
Sewer Casting	02700	002	000	1/4/00	2/14/00	2/18/00
Fernco Coupling	02700	003	000	1/21/00	2/14/00	2/18/00
Sewer Manhole	02700	004	00	2/18/00	2/24/00	3/2/00
Water Piping & Accessories	02713	001	000	1/21/00	2/14/00	2/18/00
Water Main Testing Plans	02713	002	000	3/8/00	3/13/00	3/17/00
Sprinkler Component Submittals	02813	001	003	10/4/00	10/5/00	10/19/00
Sprinkler System Plan	02813	002	000	7/27/00	7/28/00	8/3/00
Zone 11 Layout	02813	003	000	10/4/00	10/5/00	10/19/00
Lawn Sprinkler	02813	004	000	10/12/00	10/13/00	10/19/00
Sprinkler System O&M Data	02813	005	000	3/9/01	4/5/01	4/9/01
16 oz geotextile	02858	001	001	2/11/00	2/14/00	2/18/00
Entrance Sign Posts	02870	001	000	3/17/00	3/17/00	3/29/00

SUBMITTAL LOG

TITLE - Submittal	Spec. Section	Submittal no	Revision Number	Recvd Date	Sent Date	Return Date
6 and 8-ft Benches	02870	002	000	3/27/00	3/29/00	4/6/00
Site Trash Receptacles	02870	003	000	3/27/00	3/29/00	4/6/00
Platform Trash Receptacles	02870	004	000	3/27/00	3/29/00	4/3/00
Bike Rack	02870	005	000	3/27/00	3/30/00	4/10/00
Material Finish	02870	006	000	4/10/00	4/13/00	4/27/00
Decorative Fencing Plan	02870	007	000	4/13/00	4/14/00	5/10/00
Seed Mix	02900	001	001	11/8/00	11/9/00	11/30/00
Plant Materials: Labels, Certs	02900	002	000	10/12/00	10/12/00	10/26/00
Chemicals & Pesticides	02900	003	001	11/7/00	11/9/00	11/30/00
Tackifier	02900	004	000	10/12/00	10/12/00	10/26/00
Bark Mulch Sample	02900	005	000	10/13/00	10/13/00	10/26/00
Chemicals & Insecticides	02900	006	000	10/17/00	10/19/00	10/26/00
Guying & Anchoring Materials	02900	007	000	10/18/00	10/19/00	10/26/00
Fertilizer	02900	008	001	11/9/00	11/16/00	11/30/00
Organic Material	02900			10/4/00	10/6/00	10/19/00
Maintenance Instructions	02900	001	000	1/15/01	4/9/01	
Elastomeric Bearing Pad Dwg & Lit.	03254	001	001	5/10/00	5/11/00	5/18/00
Storage & Station Bldg Rebar	03300	001	01	4/6/00	4/6/00	4/14/00
Ductbank Rebar	03300	002	00	2/18/00	2/24/00	3/2/00
Mix Designs	03300	003	001	3/14/00	3/14/00	3/16/00
Vapor Barrier - Cat Cut	03300	004	00		3/3/00	3/9/00
Add'l Mix Designs	03300	005	000	3/6/00	3/6/00	3/9/00
5000-3/8" Duct bank Conc.	03300	006	000	3/23/00	3/23/00	3/24/00
Construction Joint location	03300	007	000	3/23/00	3/24/00	3/27/00
Fibre Expansion Joints	03300	008	000	3/27/00	3/28/00	3/29/00
Rebar Drawings- Platform Foundation	03300	009	000	4/13/00	4/14/00	4/27/00
Add'l Concrete Mix Design	03300	010	000	6/19/00	6/20/00	6/27/00
Rebar Dwg	03300	011	000	8/10/00	8/15/00	8/17/00
Crack Repair	03300	012	00	2/26/01	2/26/01	3/1/01
Sealer MSDS Sheets	03370	001	000	3/8/00	4/6/00	4/10/00
Elec HH & MH Castings	03400	001	000	2/14/00	2/15/00	2/17/00
Precast Elec/Tel MH's & LPB's & SB	03400	002	02	1/17/01	1/17/01	1/24/01
Corrugated Metal Pipe	03400	003	00	2/28/00	3/15/00	3/24/00
Electric Precast-Special Pullboxes	03400	004	000	3/27/00	3/28/00	3/29/00
Pullbox Covers	03400	005	000	3/24/00	3/29/00	4/3/00
Splash Blocks	03400	006	000	4/4/00	4/19/00	4/27/00
Shop Drawings -Precast Platforms	03410	001	001	5/23/00	6/2/00	6/9/00
Precast Erection Work Plan	03410	002	01	8/25/00	8/25/00	8/31/00
Pre-Cast Repair	03410	003	000	10/12/00	10/12/00	10/17/00
Masonry Submittals	04200	001	03	5/11/00	5/12/00	6/1/00
Zimbabwe Granite	04200	002	01	3/14/00	3/14/00	4/6/00
Brick Test Results	04200	003	00	3/21/00	3/21/00	4/6/00
Reinf. Shop Drawings -Bond Beam	04200	004	000	3/13/00	3/27/00	4/10/00
Cast Stone	04200	005	000	4/21/00	4/21/00	5/4/00
Granite Shop Drawings	04200	006	004	11/9/00	11/9/00	11/15/00
Cast Stone Drawing	04200	007	000	5/16/00	5/17/00	5/25/00
Cast Stone	04200	008	000	6/1/00	6/2/00	6/20/00
Strap Anchor	04200	009	000	6/14/00	6/14/00	6/20/00
Anchor Bolts and Setting Plates	05100	001	00	1/25/00	2/3/00	2/8/00
AB's & Setting Plates: Canopies	05100	002	00	2/23/00	2/24/00	3/2/00
Building Framing Plans	05100	003	01	4/18/00	4/20/00	4/27/00
Shop Drawings-Canopy Framing Plans	05100	004	000	3/1/00	3/13/00	4/6/00
Primer for Building Steel	05100	005	00	3/21/00	3/21/00	3/29/00
Shrink-Resistant Grout	05100	006	000	3/24/00	3/27/00	3/29/00
Welder Procedures	05100	007	000	3/27/00	3/29/00	4/6/00

SUBMITTAL LOG

TITLE - Submittal	Spec. Section	Submittal no	Revision Number	Recvd Date	Sent Date	Return Date
Sealant Data	07460	0001	000	5/9/00	5/11/00	5/18/00
Siding & Soffit Data	07460	001	002	7/14/00	7/27/00	8/8/00
Roofing Submittals	07500	001	001	5/23/00	5/23/00	6/9/00
Morin Corp. Y-36 Roofing	07500	002	000	5/10/00	5/11/00	5/18/00
Roofing	07500	003	000	8/2/00	8/3/00	8/10/00
Flashing Boot	07500	004	000	9/28/00	9/28/00	10/5/00
Shop Drawings-Gutters & Leaders	07500	005	002	12/12/00	12/14/00	12/22/00
Heat-and-Smoke Vent Data	07720	001	000	3/10/00	3/16/00	3/23/00
Door and Frame Shop Drawings	08111	001	001	5/10/00	5/11/00	5/25/00
Access Door Product Data	08305	001	000	7/28/00	7/28/00	8/10/00
Grille Product Data	08340	001	000	4/5/00	4/6/00	4/14/00
Grilles Shop Drawings	08340	001A	001	10/20/00	10/24/00	11/2/00
Entr. Door Shop Dwgs & Color Chart	08460	001	01	3/27/00	4/3/00	4/13/00
Product Data - Metal Windows	08500	001	000	4/5/00	4/11/00	4/27/00
Shop Drawings	08500	002	001	8/4/00	8/8/00	8/15/00
Color and Finish Samples	08500	003	000	5/3/00	5/4/00	5/18/00
Metal Door	08500	004	000	6/30/00	7/6/00	7/18/00
Metal Windows	08500	005	000	9/8/00	9/8/00	9/14/00
Catalog Cuts - Hardware Schedule	08710	001	002	6/28/00	7/8/00	7/13/00
Hardware Samples	08710	002	001	10/12/00	10/13/00	11/2/00
Glass Product Data & Samples	08800	001	02	7/12/00	7/13/00	7/18/00
Product Data	09255	001	001	4/17/00	4/19/00	5/18/00
Trims	09255	002	000	6/6/00	6/6/00	6/15/00
Shop Drawings - Tile Pattern	09300	000	000	5/30/00	5/30/00	5/31/00
Tile Submittal	09300	001	002	3/12/00	3/14/00	4/6/00
Modular Tactile	09360	001	000	3/17/00	3/17/00	3/27/00
Product Data	09511	001	000	4/27/00	4/28/00	5/18/00
Samples	09511	001A	000	4/27/00	4/28/00	5/18/00
Resilient Flooring	09650	001	000	9/21/00	9/28/00	10/12/00
Samples-Flooring	09650	001A	000	9/22/00	9/28/00	10/12/00
Carpet Product Data	09680	001	000	9/22/00	9/28/00	10/12/00
Carpet Samples	09680	001A	000	9/22/00	9/28/00	10/12/00
Product Data - Paint	09900	001	005	12/14/00	12/14/00	12/22/00
Samples	09900	002	000	7/28/00	8/8/00	8/17/00
Verification Samples	09900	003	000	8/31/00	8/31/00	9/7/00
Product Data - Toilet Compartment	10155	001	003	9/5/00	9/6/00	9/14/00
Toilet Partitions - Accessories	10155	002	01	3/2/01	3/2/01	3/8/01
Shop Drawings & Product Data	10200	001	001	5/24/00	5/25/00	6/7/00
Schedule of Signs	10400	001	002	1/18/01	1/19/01	1/24/01
Entrance Sign	10400	002	02	12/1/00	12/4/00	12/14/00
Samples	10400	01	000	5/4/00	5/5/00	6/7/00
Product Data	10425	001	001	10/12/00	10/13/00	11/9/00
Samples for Verification	10425	002	000	10/30/00	11/2/00	11/9/00
Schedule of Signs	10440	001	000	6/2/00	6/6/00	6/7/00
Product Data	10440	001A	001A	8/9/00	8/10/00	8/17/00
Signage - Site	10440	002	000	7/12/00	7/13/00	7/18/00
Clock System	10950	001	00	2/25/00	3/9/00	3/14/00
Fire Extinguishers & Cabinets	10950	002	000	3/16/00	3/16/00	3/23/00
Toilet Accessories	10950	003	001	10/12/00	10/12/00	10/19/00
Speaker Unit at Ticket Window	10950	004	000	3/22/00	3/24/00	4/14/00
Privacy Partitions	10950	005	000	9/13/00	9/14/00	9/21/00
Walk-Off Entry Mat	10950	006	000	10/6/00	10/6/00	10/26/00
Prefab Building	13120	001	01	7/20/00	7/24/00	9/14/00
PE Calculation	13120	002	000	9/20/00	9/21/00	9/28/00
Product Data	13916	001	001	6/14/00	6/22/00	6/27/00

SUBMITTAL LOG

TITLE - Submittal	Spec. Section	Submittal no	Revision Number	Recvd Date	Sent Date	Return Date
Sprinkler Piping Drawings	13916	002	001	7/28/00	8/3/00	8/8/00
Fire Hydrant Flow Test Calc	13916	003	001	7/28/00	8/3/00	8/8/00
Fire Suppression /Calculation	13916	004	000	9/27/00	9/28/00	10/12/00
As-Built - Fire Suppression	13916	005	000	3/1/01	3/1/01	10/12/00
Shop Drawings -Hydraulic Elevator	14240	001	02	7/16/00	7/13/00	8/3/00
Final Copies	14240	002	001	9/20/00	9/21/00	9/28/00
HVAC Submittals	15001	001	00	3/3/00	3/9/00	3/16/00
Genl Plumbing	15002	001	001	3/21/00	3/23/00	3/27/00
Downspout Shoes	15002	002	000	10/3/00	10/4/00	10/17/00
Product data	15420	001	000	10/3/00	10/4/00	10/17/00
Air Curtain - Automatic Doors	15853	001	000	2/23/01	2/23/01	2/27/01
Product Data	15975	001	000	3/30/00	3/30/00	4/10/00
Shop Drawings	15975	001A	000	3/30/00	3/30/00	4/10/00
Rigid PVC	16050	001	00	3/6/00	3/7/00	3/16/00
Conduit Fittings	16050	002	00	3/6/00	3/7/00	3/16/00
Pipe Hangers	16050	003	00	3/6/00	3/7/00	3/16/00
Steel Conduit & Accessories	16050	004	00	3/6/00	3/7/00	3/16/00
Conduit Expansion Fitting	16050	005	000	3/23/00	3/24/00	4/3/00
Wire & Cable Product Data	16050	006	000	3/23/00	3/24/00	4/3/00
Disconnections Devices	16050	007	000	3/23/00	3/24/00	4/3/00
FLEXIBLE CABLE	16050	008	000	3/30/00	3/30/00	4/10/00
Station Building Conduit	16050	009	000	4/10/00	4/11/00	4/20/00
Low Voltage Circuit & wire	16050	010	000	5/16/00	5/16/00	5/18/00
Basic Material & Methods for Elec.	16050	011	000	5/18/00	5/18/00	6/1/00
Basic Materials	16050	012	000	5/30/00	5/30/00	6/6/00
Basic Material	16050	013	000	5/30/00	5/30/00	6/6/00
Basic materials	16050	014	000	6/1/00	6/2/00	6/6/00
Basic Materials for Electrical Work	16050	015	000	9/19/00	9/21/00	9/28/00
Liquidtight Conduit	16050	016	000	11/27/00	11/30/00	12/14/00
Bell & Buzzer	16050	017	000	12/21/00	12/21/00	1/4/01
Product Data	16111	001	000	6/27/00	6/28/00	7/6/00
Conduits	16111	002	000	7/27/00	7/28/00	8/8/00
Precast Trough Submittal	16117	001	00	3/10/00	3/13/00	3/14/00
Misc. Hardware & Metal Items	16119	001	000	5/17/00	5/18/00	6/1/00
Bldg. & Ext. wires and cables	16120	001	000	3/23/00	3/24/00	4/3/00
Electrical Box Catalog Data	16130	001	000	5/18/00	5/18/00	6/1/00
Electrical Boxes	16130	002	000	8/2/00	8/3/00	8/8/00
Catalog Cuts	16190	001	000	5/31/00	5/31/00	6/6/00
Supporting Devices	16190	002	000	6/21/00	6/22/00	6/30/00
Manufacturer's Data - SwitchBoards	16425	001	000	4/6/00	4/7/00	4/20/00
Low Voltage Switchboards	16425	002	000	5/26/00	5/30/00	6/6/00
Product Data - Grounding Rods	16452	001	000	3/23/00	3/24/00	4/3/00
Light Pole Ground Wire to Rod Term	16452	002	000	3/23/00	3/24/00	4/3/00
Coating Material	16452	003	000	3/23/00	3/27/00	4/10/00
Grounding	16452	004	000	5/12/00	5/12/00	5/18/00
Conductor	16452	005	000	5/24/00	5/25/00	6/1/00
Grounding-	16452	006	000	5/30/00	5/30/00	6/6/00
Test Well	16452	007	000	6/6/00	6/6/00	6/9/00
Product Data -Dry Type Transformer	16461	001	000	4/6/00	4/7/00	4/20/00
Product Data -Sentron Panelboard	16475	001	000	4/6/00	4/7/00	4/20/00
Switches And Receptacles	16490	001	000	7/27/00	7/28/00	8/8/00
Light Pole Submittal & FinishSample	16500	001	01	9/8/00	9/8/00	9/14/00
Light Pole - G5	16500	002	001	6/29/00	6/29/00	7/10/00
Fixture Cuts	16500	003	000	4/18/00	4/18/00	5/2/00
Lighting	16500	004	000	6/26/00	6/28/00	7/13/00

SUBMITTAL LOG

TITLE - Submittal	Spec. Section	Submittal no	Revision Number	Recvd Date	Sent Date	Return Date
Mfr's Data for Ltg Ctl System	16500	005	000	7/28/00	7/28/00	8/17/00
Fixture Mounting & Control Devices	16500	006	001	9/25/00	9/28/00	10/17/00
-Fire Alarm & Detect. System	16721	001	003	7/28/00	7/28/00	8/3/00
Cables	16721	002	000	10/2/00	10/4/00	10/17/00
Product Data	16740	001	000	5/24/00	5/25/00	6/1/00
System Supplier - Passenger Assit.	16741	001	001	5/11/00	5/12/00	6/1/00
Passenger Assistance System	16741	002	01	12/11/00	12/12/00	12/15/00
Catalog Cuts - VMS	16742	001	000	4/27/00	4/28/00	5/4/00
Electronic Sign System	16742	002	01	12/11/00	12/12/00	12/15/00
Product Data - PA system	16770	001	002	7/28/00	7/28/00	8/3/00
Public Address System	16770	002	01	12/11/00	12/12/00	12/15/00
Supplier Qualifications-CCTV	16780	001	001	5/11/00	5/12/00	6/1/00
Closed Circuit TV Cameras	16780	002	01	12/11/00	12/12/00	12/15/00

APPENDIX C - DECOMMISSIONED STRUCTURES

SUPPLEMENT TO RTC ALTERNATE COVER
2000
UTILITIES, FOUNDATIONS AND STRUCTURE DECOMMISSIONING

Plan Location Number	Location	Feature	Description	Date Decommissioned
1	Former cul-de-sac at end of Atlantic Ave.	Utility Pole	New utility pole was installed at the end of Atlantic Ave/border of WRTC site. TMC installed "clean sleeve" for it; pole installed by Boston Edison. Utilities were relocated from old pole to new pole by utility companies; Boston Edison cut the old pole off at surface grade. The Middlesex Corporation removed the remaining part of the pole during excavation of utility corridor.	new sleeve-4/21/00 excav/fabric 4/21/00 & 4/24 remove pole stub 4/28/00
2	End of Atlantic Ave.	Catch Basin and Drainage Pipe	All work treated as "Hot" work since only the existing pavement was considered cover on Regulated Material. Excavated and built new Catch Basin ("CB-2") over existing pipe; excavator dug around existing catch basin; chain was used to pull catch basin out. Catch basin was crushed and rubble from it and all soils were hauled to regulated soil containment cell on-site. Plastic drain pipe was removed, decontaminated/cleaned, and put in dumpster for disposal.	8/5/2000
3	New WRTC Entrance Road and East side of Long Term Parking Lot	Catch Basin and Drainage Pipe	Excavator dug around existing catch basin; used chain to pull CB out. CB hauled to Middlesex property in Littleton, MA for re-use. Used cement & brick to plug east end of pipe. Removed approximately 3-1/2 ft section of pipe near it's intersection with culvert. Used cement & brick to plug west end of pipe, and plug hole in culvert where pipe tied in. Plastic drain pipe was put in dumpster for disposal. All work done above existing geotextile.	4/5/2000
4	Short Term Parking Lot and Landscaped Island in front of Station Building	Steel Plates on Drainage Culvert	Excavated approx. 1 foot of cover to expose steel plates on culvert; material was stockpiled and used as backfill when work was complete. Removed steel plates. Framed for concrete placement from inside culvert. Doweled in rebar to culvert and placed concrete in accordance with Contract Drawing C-26 Detail 14 for new cap on opening.	8/7/00, 8/8/00, 8/9/00
5	Entrance to Short Term Parking Lot South of Station Building	Catch Basins (5) and Drainage Pipe	Excavator dug around existing catch basins; used chain to pull CB's out. CB's hauled to Middlesex property in Littleton, MA for re-use. Removed approximately 100 feet of pipe and put in dumpster for disposal. Constructed new Drain Manhole and connected existing pipe to it. All work done above existing geotextile.	4/27/2000
6	Railroad Right-of-Way. West of tracks at sta. 663+00, 666+00, 669+00, 672+00, 675+10, 678+00, 681+00	Electrical Manhole/Pullboxes (7)	Removed manhole frames & covers - taken from site by Amtrak for future re-use. Removed precast concrete top section of each structure - hauled to Middlesex storage site in Littleton for future re-use. Chipped top 6 - 12 inches of manhole walls using excavator. Rubble disposed of at Woburn Landfill. Poured flowable fill in each manhole to backfill the inside of each structure.	3/27/2000

SUPPLEMENT TO RTC ALTERNATE COVER
2000
UTILITIES, FOUNDATIONS AND STRUCTURE DECOMMISSIONING

Plan Location Number	Location	Feature	Description	Date Decommissioned
7	Railroad Right-of-Way, sta. 685+40	Electrical Manhole/Pullboxes (1)	Removed manhole frames & cover - taken from site by Amtrak for future re-use. Removed precast concrete top section of structure - hauled to Middlesex storage site in Littleton for future re-use. Poured flowable fill in each manhole to backfill the inside of each structure. No need to cut structure down - not a grade problem.	3/27/2000
8	Railroad Right-of-Way: East of tracks sta. 659+00 to 660+00	Drainage Pipe	Broke into existing drain line; constructed new Leaching Basin and connected to east side of existing drain pipe. Lowered existing geotextile grade and constructed approx. 90 lf of new drain pipe between Leaching Basin and new Drain Manhole on east side of tracks, removing existing drain pipe during excavation for new pipe. Pipe was disposed of in dumpster. Excavated material above geotextile was reused. Material below geotextile was hauled to on-site regulated soil containment cell.	Leaching Basin 5/9/00 pipe 5/11/00
9	Railroad Right-of-Way: West of tracks sta. 670+80	Loading Dock	Sawcut concrete with wet saw; remove concrete & soil with excavator; truck concrete/soil to on-site regulated soil contaminated cell. Place geotextile (later replaced when excavation for track widening was performed in this area).	3/20/00, 3/22/00, 3/23/00

NOTE: All regulated material excavated on the WRTC Site was hauled and stored in one of several Regulated Soil Containment cells, until it was disposed of in the East Hide Pile.

APPENDIX D - CONTRACTOR CONTROLS

D.1 - DAILY FIELD REPORTS

Project: R.T.G. Water Report No.: 03-24-00-13
 Contractor: The Middlesex Corp Date: 3-24-00
 Owner: MassDOT / MATA Weather: Sunny
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: Complete Demo of Loading Dock, Install water PIPE, Fill & Gd. Presidential Way, site survey

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
① 1 SUPV, 1 FOREMAN, 1 OPER, 2 LAB.	Exc, back TK, 10 wheel loader	Gravel, Fabric	8	Complete Load Demo, Sew New Piece Fabric into Existing
② 2 OPER, 1 LAB, 1 FOR.	Exc, wheel loader, back TK	20" W. PIPE	8	Install 20" W.P. STA. 15+00 - 12+00 & Build.
③ 1 OPER, 1 FEEDER, 1 LAB.	D-5, water TK	Gravel F. II	8	Fill & Gd. Presidential Way.
1 AMTRAK FLAGGER			8	e loading dock demo (Flagging)
1 SURVEYOR	Survey		8	over all site (Survey)

Visitors	Representing	Purpose
_____	_____	_____
_____	_____	_____
_____	_____	_____

Daily Notes:

Activities: ① Complete Demo of Hard/Asphalt Loading Dock and Sew in new Fabric
 ② Install 20" water PIPE starting @ STA 15+00 TO 12+00
 ③ Fill & Grade Presidential Way
 Potential Hazards: unknown contaminated soils @ loading dock demo.
 SAFETY DEFICIENCIES: none observed.
 Corrective Actions: people involved in intrusive work wearing modified level
 (D) Protective clothing

Preparer: Kevin Henthwell Kevin Henthwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 03-27-00-1A
 Contractor: The Middlesex Corp Date: 3-27-00
 Owner: MASSPORT / MBTA Weather: Sunny 40°-50°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: INSTALL 16" WATER MAIN AND SOME INTRUSIVE WORK ALSO.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FOREMAN, 2 OPER.	EXCAVATOR loader	16" W.P., FABRIC	8	Sta. 12+20-11+74 install W.P., exc. cont. fill soil, sew new Fab. lining.
1 PIPE LAYER	BOX TRUCK		8	
1 TRK. DRIVER	TRIAxle		8	
1 TRK DRIVER	10 Wheeler		5	

Visitors	Representing	Purpose

Daily Notes:

Activities: EXCAVATION FOR 16" WATER PIPE, CREW ENCOUNTERED HIGH SPOT IN P.P. RUN. THEY CLEANED FABRIC OFF AND MADE A CUT IN FABRIC AND EXCAVATED OUT 15 CY OF CONTAMINATED SOIL. AIR MONITORING WAS PERFORM THROUGH OUT OPERATION AND CREW WAS DRESSED IN MODIFIED LEVEL D.

SAFETY DEFICIENCIES: NONE OBSERVED

HAZARDS: EXCAVATION, CONTAMINATED SOILS

CORRECTIVE ACTION: EXCAVATION WAS BONCHED PROPERLY, AIR MONITORING PERFORMED DURING INTRUSIVE WORK AND CREW DRESSED IN MODIFIED LEVEL D CLOTHING

Preparer: KEVIN HARTWELL Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 03-30-00-17
 Contractor: TMC Date: 3-30-00
 Owner: MASSPORT / MBTA Weather: Sun & Clds 48°-5
 Project No.: 1.727

Same as one
 to 10+7
 station

Contractor Supervisor(s): Joe Phinney

Description of Work: 16" water main installation

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT		16" water main	9	16" WATER MAIN @ STA 2+67-6+63
2 OPER	Excavation loaded	Hydrant, Gate Val.	9	
1 PIPE LAYER		6" w.m., 16" TCC	9	
1 PIPE LAY./TK DRIVER			9	

Visitors	Representing	Purpose

Daily Notes:

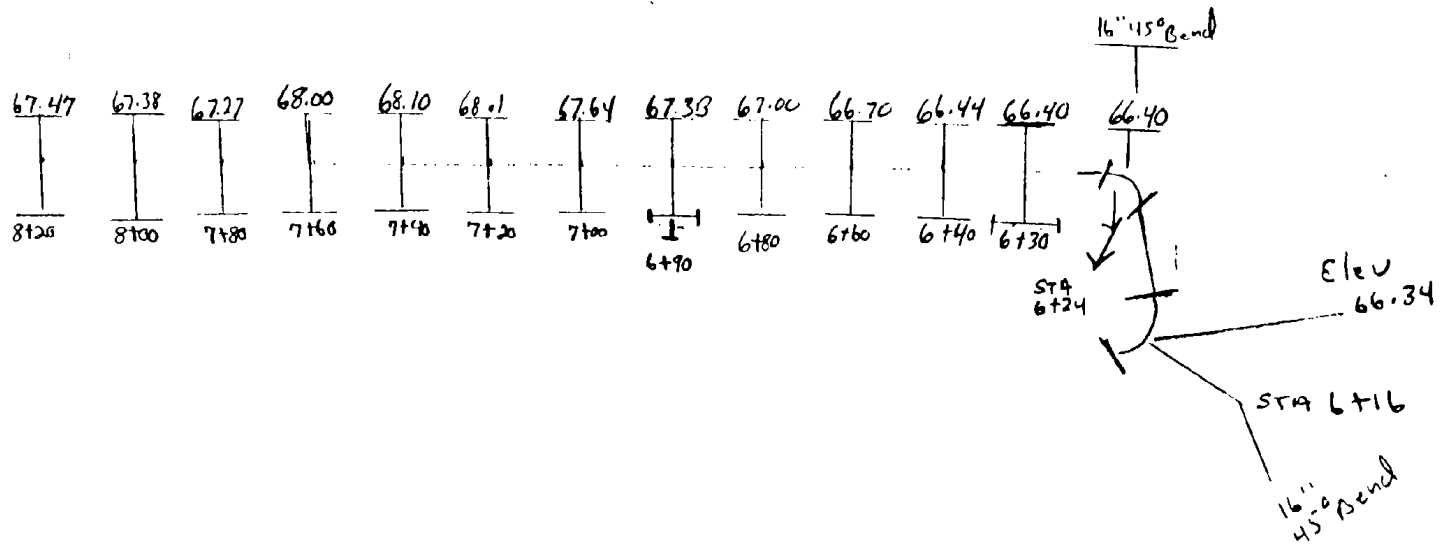
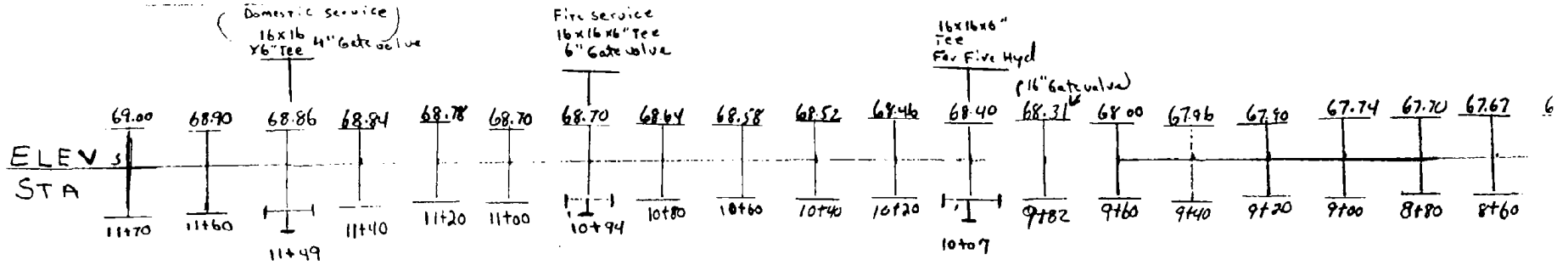
ACTIVITIES: Install 16" water main, 1 Hydrant, 1 GATE VALVE, 1 16" TCC
 14' of 6" main

HAZARDS & SAFETY DEFICIENCIES: CREW ZIPPED FABRIC DURING EXCAVATION
 APPROX STA 8+00.

CORRECTIVE ACTIONS: CREW REPAIR RIP, CREW OF 3 DRESSED IN MODIFIED
 LEVEL (D) CLOTHING AND AIR MONITORING PERFORM THROUGHOUT
 BILL IRWIN FROM TIVUS OBSERVED OPERATION

Preparer: Kevin Hadwell Kevin Hadwell
 Name (Print) Signature

INVERT ELEVATIONS 16" water main



Project: R.T.C. Woburn Report No.: 04-03-00-19
 Contractor: TMC Date: 4-3-00
 Owner: Massport / MBTA Weather: sunny & clds.
 Project No.: 1.727

Contractor Supervisor(s): JE Phancy

Description of Work: installation of 16" & 20" water main.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Form.			10	Install 16" & 20" water pipe
2 OPER.	excavator loader		10	in utility corridor
1 P.P.E Layer		16" & 20" W. PIPE	10	
1 TR DRIVER / LAB	trailer		10	

Visitors	Representing	Purpose

Daily Notes:

Activities: CREW installed 16" & 20" water main from STA 3740 to 2+84. During
 exc for hydrant water line crew repair fabric, Area Repair. ✓
 Hazards & Safety Deficiencies: Intusive work @ rip
 Corrective Actions: 2 man crew @ time of fabric repair, PPE in order modified
 Level D clothing and mobil dean unit in place.

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

Project: P.T.C. Woburn Report No.: 04-10-00-24
 Contractor: TMC Date: 4-10-00
 Owner: Massport / MBTA Weather: Sunny & cool 40 to 50
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: TRACK BYPASS EXCAVATION, DUST CONTROL, TEST PIT @ STA. 664+19

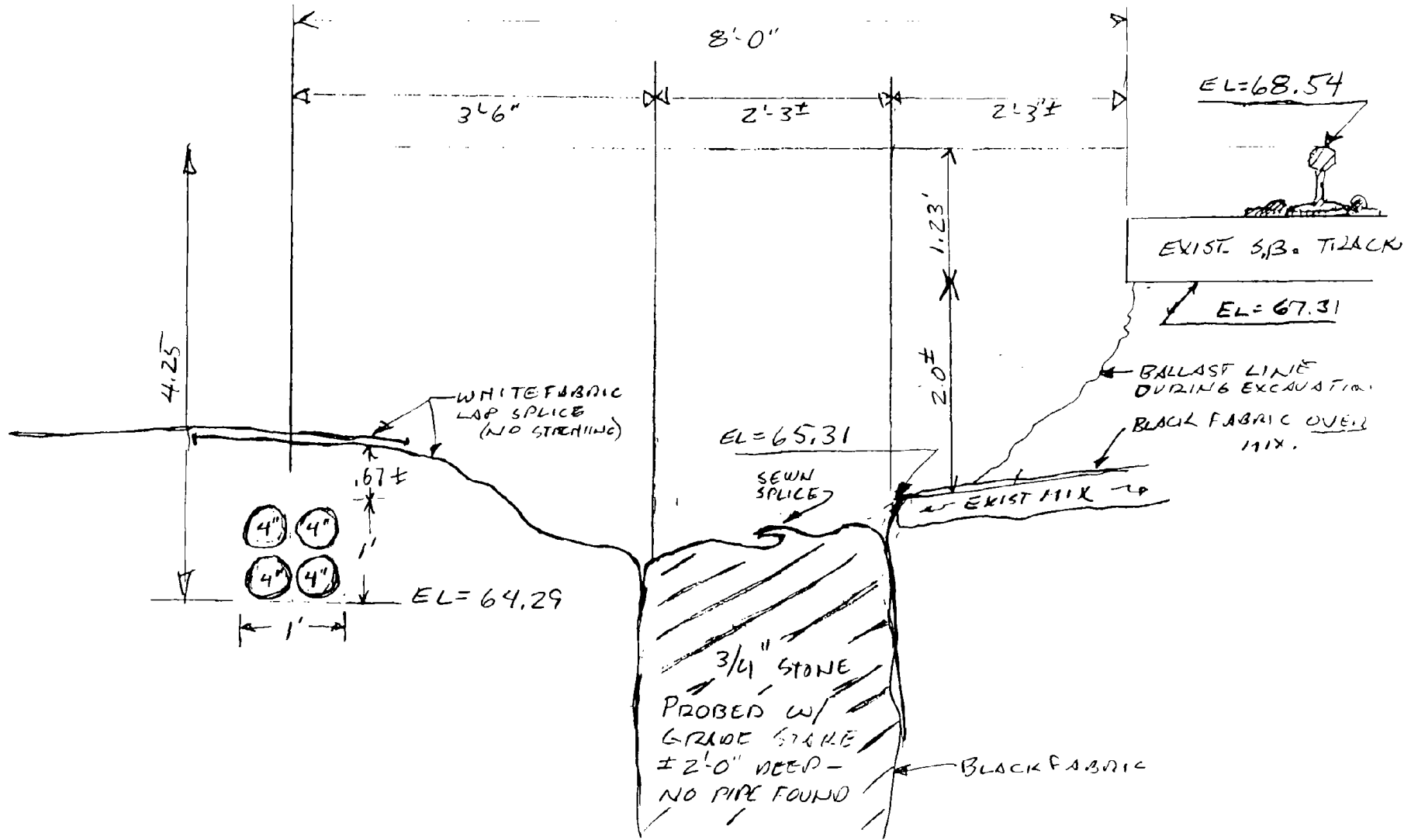
Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT			8	EXCAVATION FOR TRACK BYPASS
1 OPER.	EXCAVATOR		8	@ STA. 671+00 TO 671+60
1 LAB./HAZ LAB			6	TEST PIT EXL. @ 664+00 TO 667+75
1 TR DRIVER / LAB	written record 10 wheelers		5 1/2	TEST PIT INTRUSIVE WORK @ STA. 664+19
1 TR DRIVER	10 wheelers		8	
1 ANTRAK FLAGGER				

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: Complete excavation adjacent to S.B. Rail @ STA. 671+00 TO 671+60
 TEST PIT EXCAVATION TO TO OF FABRIC ADJACENT TO S.B. RAIL @ STA. ± 664+00 TO 667+75
 TEST PIT @ STA 664+19, intrusive work to locate (4) 4" conduit (found & recorded location). 10" DRAINAGE NOT FOUND,
 HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK @ TEST PIT @ STA. 664+19
 CORRECTIVE ACTION: HAZMAT PERSONNEL PERFORMING WORK AND AIR MONITORING DURING INTRUSIVE WORK.

Preparer: Kevin Harwell Kevin Harwell
 Name (Print) Signature



TEST PIT RESULTS. 4.10.00

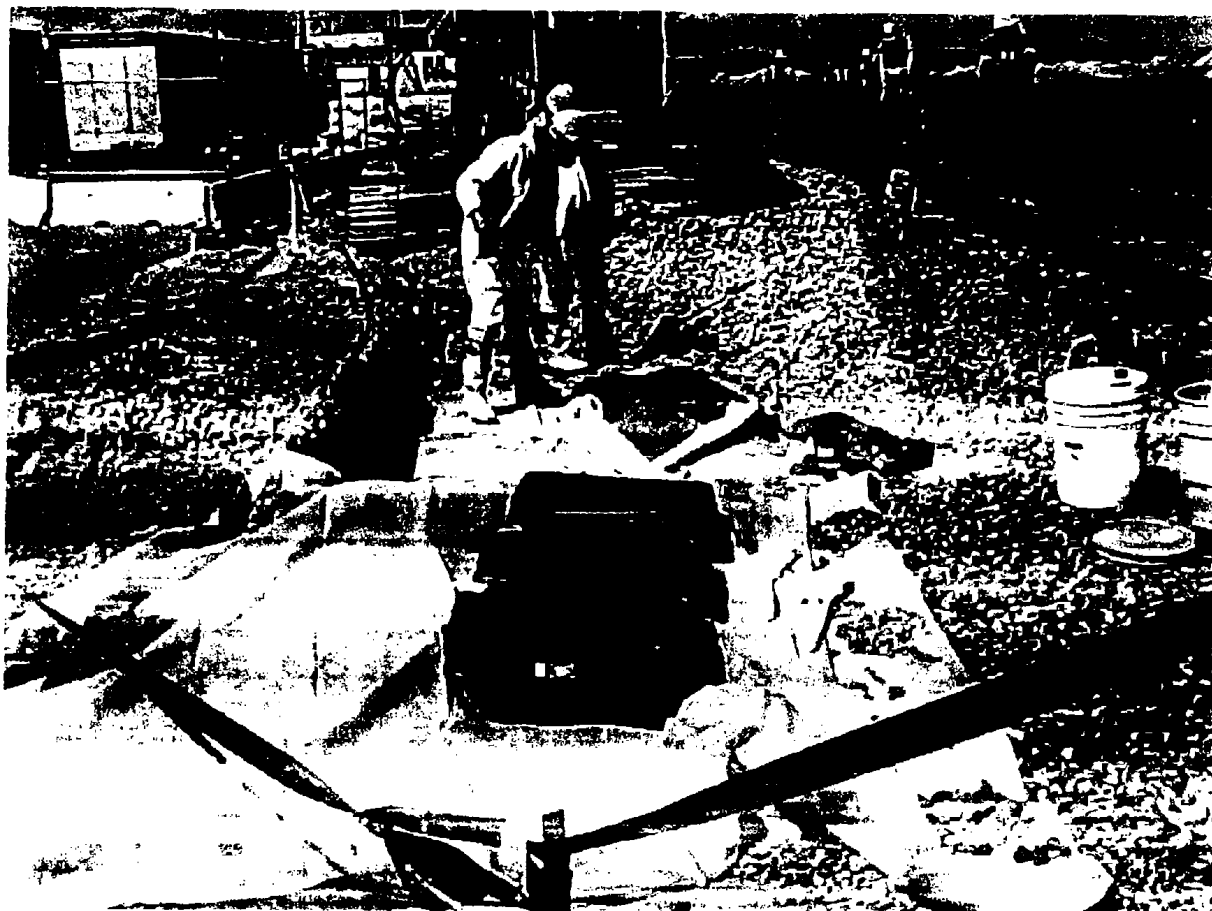
SECTION AT ± 664 + 19

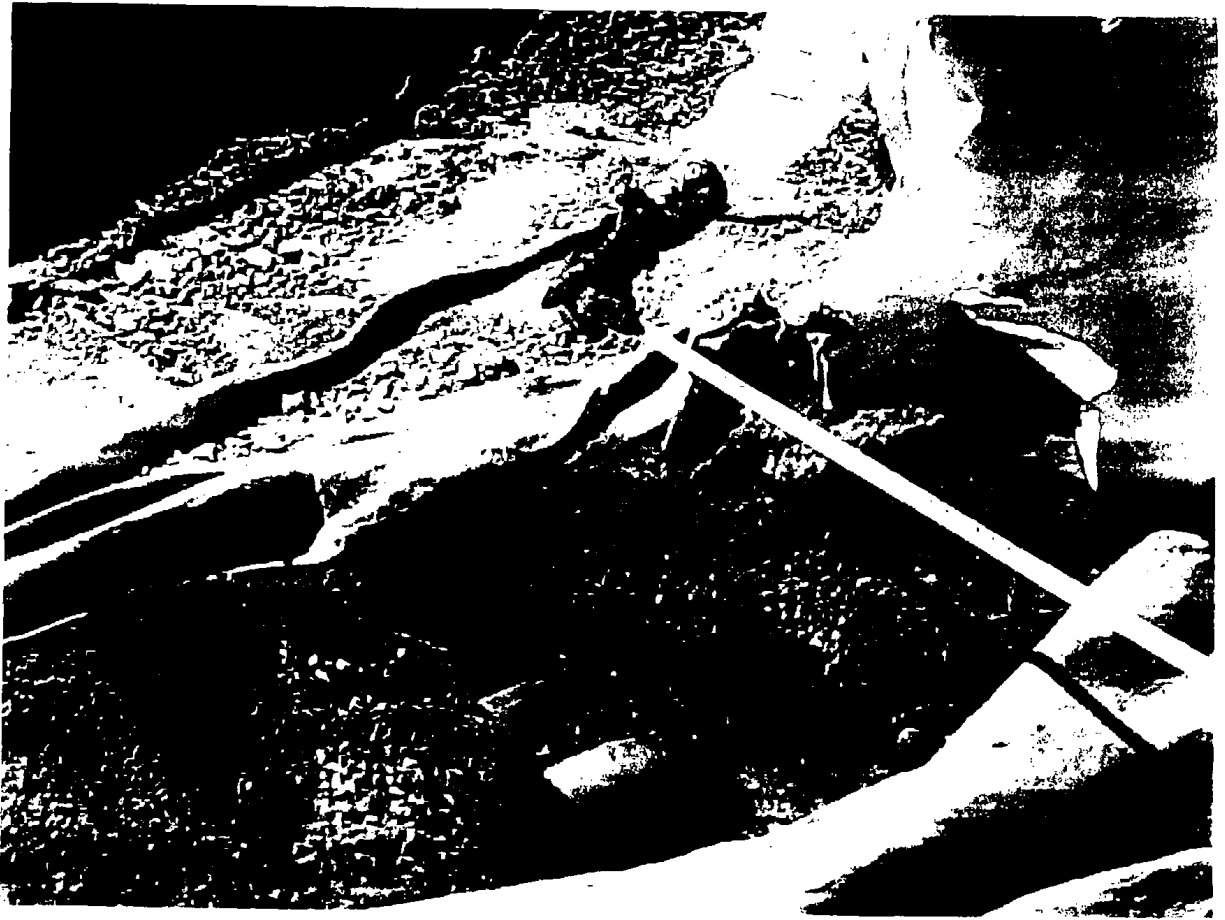
LOOKING NORTH.

SCALE 3" = 1'-0"



Test Pit





Project: P.T.C. Woburn Report No.: 04-10-00-29
 Contractor: TMC Date: 4-10-00
 Owner: MASSPORT / MBTA Weather: Sunny & Cool 40-50°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: EXCAVATION & installation of light pole BASES, Form & Pour ELECT DUCT BANK & INSTALLATION OF TELE & ELECT CONDUIT.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM			11	EXCAVATE & install LHT Pole Base #86
1 LAB	6 wheel DUMP		10	
1 OPER.	BACKHOE		10	
2 LAB			8.5	Form & Pour ELECT DUCT BANK
1 OPER.			8.5	

Visitors	Representing	Purpose
<u>Bill ERWIN</u>	<u>TTNUS</u>	<u>overseeing intrusive work</u>

Daily Notes:

ACTIVITIES: EXCAVATION & installation of LHT BASE #86, EXCAVATED FOR LHT BASE #85, Had to stop NEED EARTH SUPPORT. TMC HIT FABRIC in both Location & made REPAIRS. 2 TEST PITS Performed (1) @ STA. 121+35, (2) STA 120+05
 TMC Formed 240' TELE DUCT BANK, Formed 200' ELECT DUCT BANK, and then Poured 180' TELE DUCT BANK and 120' of ELECT DUCT BANK
 City Lights: installed 4 runs of 4" TELE CONDUIT and 2 runs of 5" CONDUIT

HAZARDS & SAFETY DEFICIENCIES: INTRUSIVE work @ Light Pole Base EXCAVATION

CORRECTIVE ACTIONS: Hazmat Personal making repairs, and Performing Air monitoring during repairs.

Prepared: Kevin Hankwell Kevin Hankwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

4-10-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

CLEAR

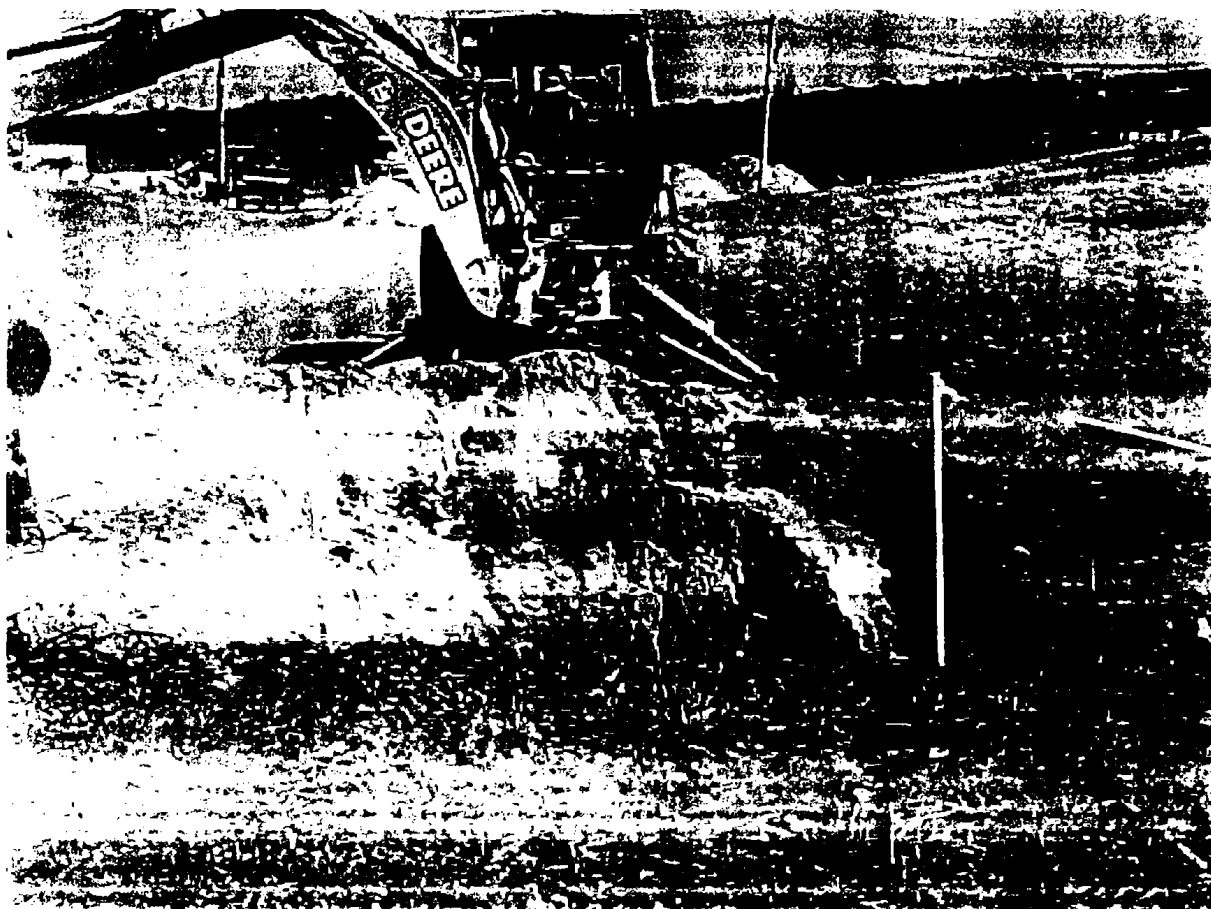
am pm

YES NO

Item #	Description	Quantity	Remarks/Location
2000.00	Exc. + INSTALL LB#86 SLEEVE	1-6 1/2'	STA 121+40 TR E 3' 11" 10.2'
	Exc. for #5	1.46' (NET)	TR (4.25) STA 121+40
3300.91's A	FORM DUCT BANKS	160'	TEL. STA 41+75 - 6+35
		120'	ELE STA 41+75 - 5+95
			TEL STA 3+00 -
		40'	ELE STA 3+00 -
3300.91's B	POUR CONCRETE	27 CY	TEL. STA 4+75 - 6+25 & 3+00 - 3+00
		10 CY	ELE STA 4+75 - 5+95

Scope of Work:

T.M.C.	Excavated for PROPOSED FABRIC @ STA 70.5	5.0' x 13' @ 17R E
	* FABRIC @ STA 70.5	13' R & FABRIC COMES UP TO STA 71.0
	INSTALL 6.5' 36" SLEEVE FOR LB#86	
	Excavated for PROPOSED FABRIC @ STA 71.0	FABRIC @ STA 71.0 * NEED 12' BEACH SAND SOIL WET - NO TRUCKS
	* FABRIC REBAR @ STA 100+05 MR	E FABRIC COMES UP TO ELE 74.7
	12 ST 1" #10 REBAR @ STA 100+05	12L & FABRIC @ STA 100+05
	72 ST 1" #10 REBAR @ STA 100+05	72L & FABRIC @ STA 100+05
	FORMED 160' TEL. DUCT BANK	30" wide x 18" high FROM APRIL STA 41+75 TO 6+35
	FORMED 120' ELE. DUCT BANK	24" wide x 14" high FROM APRIL STA 41+75 TO 5+95
	FORMED 80' TEL. DUCT BANK	39" wide x 16" high FROM APRIL STA 3+00 TO 3+00
	FORMED 80' ELE. DUCT BANK	39" wide x 16" high FROM APRIL STA 3+00 TO 3+00
	POURED 180' TEL. DUCT BANK	CONC. FROM APRIL STA 100+05 TO 100+05
	POURED 120' ELE. DUCT BANK	CONC. FROM APRIL STA 41+75 TO 5+95



Project: R.T.C. Woburn Report No.: 04-11-00-25
 Contractor: TMC Date: 4-11-00
 Owner: MASSPORT / MBTA Weather: Clear 50
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: INSTALL LIGHT POLE BASE SLEEVE

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM			6	INSTALL LIGHT POLE BASE SLEEVES
1 HAZ LAB		1 WHEEL DUMP	10	@ PRESIDENTIAL CAMP
1 OPER		EXCAVATOR, GE. SWAN	10	

Visitors	Representing	Purpose

Daily Notes:

Activities: (TMC) excavated and installed LB#82 SLEEVE @ STA. 114+65 17' R & EXCAVATED FOR LB#83 SLEEVE @ STA. 116+45 17' R &, HIT OBSTRUCTION 2.5' BELOW FABRIC, TMC BACK-FILLED AND SEALED FOR NIGHT.

Hazard / safety deficiencies: INTRUSIVE WORK

Corrective Actions: HAZARDOUS MATERIAL PERSONNEL DOING INTRUSIVE WORK, DRESSED IN MODIFIED LEVE (D) AND AIR MONITORING PERFORMED DURING OPERATION

Preparer: Kevin Hartwell
Name (Print)

Kevin Hartwell
Signature

Project: R.T.C. urban Report No.: 04-11-00-25
 Contractor: TMC Date: 4-11-00
 Owner: MASSPORT/MBTA Weather: Clear 50°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: ^{T&E} EXCAVATE, Form & Pour ELECT. DUCT BANK

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	EXCAVATOR		9.5	EXCAVATE FOR ELECT. & TELE
3 LAB			9.5	Conduit installation in utility TRENCH
				FORM & POUR ELECT. & TELE DUCT BANK in utility TRENCH

Visitors	Representing	Purpose
_____	_____	_____
_____	_____	_____
_____	_____	_____

Daily Notes:

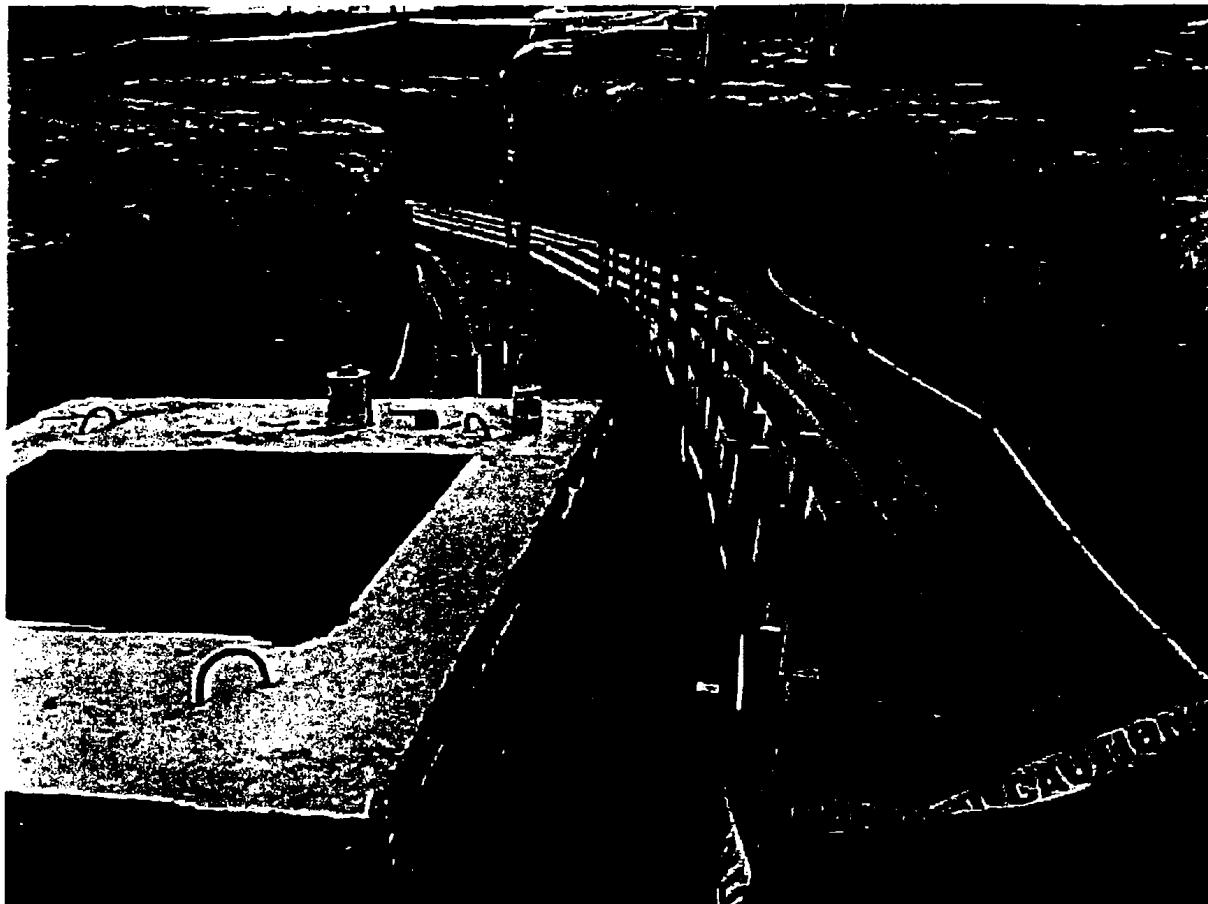
Activity: EXCAVATOR & LABORER (1) For 3hrs EXCAVATED FOR ELECT & TELE CONDUIT INSTALLATION. REST OF CREW FORMING ELECT & TELE DUCT BANK and then the whole crew Poured ELECT & TELE DUCT BANK w/ CONCRETE.

Hazards/Safety Deficiencies: OPEW TRENCH

Corrective Actions: CREW SECURED TRENCH @ END OF DAY WITH CAUTION TAPE.

Preparer: Kevin Hartwell
Name (Print)

Kevin Hartwell
Signature







Project: R.T.C. Woburn Report No.: 04-12-00-26
 Contractor: TMC Date: 4-12-00
 Owner: MASSPORT / MBTA Weather: Cloudy 40°-50°
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: Form & Pour ELECT & TELE DUCT BANK, ELECT & TELE COND. INSTALL

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Laborer		Sheet Pile/CWC	10	Form & Pour ELECT & TELE DUCT
1 Laborer		6d STAKES	10.5	BANK in UTILITY TRENCH
1 Laborer			1	
1 OPER			2.5	
CITY LIGHTS				
FORM, 2 JOURNEYMEN			8	INSTALLING ELECT & TELE CONDUIT

Apprentice Visitors	Representing	Purpose

Daily Notes:

Activities: (TMC) FORMING & POUR ELECT. & TELE DUCT BANK in UTILITY Corridor.
 (2) RUNS OF 5" CONDUIT FROM STA 2+17 TO 2+10 (4) RUNS OF 4" CONDUIT FROM STA 5+78 TO 6+80 TO MH #2

Hazards / SAFETY DEFICIENCIES: NONE OBSERVED

Corrective Actions: NONE NEEDED

Preparer: Kevin Hookwell Signature
 Name (Print)

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ___ of ___

Regional Transportation Center, Woburn, MA

405

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWERT

am pm

YES NO

Item #	Description	Quantity	Remarks/Location
3200.121B	EX. + INSTALL 15" 20 SLEEVE	1 - 6.5'	STA. 114 + 05 17'R E 71.1
	EX. FOR 15" 20 SLEEVE + H-10 + CONC.		STA. 116 + 47 17' L
	EX FOR DUCT BANK	100'	STA 2+00 - 1+00
3300.913A	FORMED DUCT BANK	100'	TEL STA 2+00 - 3+00
		90'	ELF 2+10 (EM-1) - 3+00
3300.913A	POURED DUCT BANK	19.5 cy	TEL 2+30 - 3+60 (130')
		15 cy	ELF 2+10 - 3+80 (170')

Scope of Work:			
T.M.C.	Excavated for 15" 20 SLEEVE FABRIC	ELEV. 72.2	SLEEVE ELEV. 72.7 STA 114+05 17'R E
	INSTALL 6.7' - 36" SLEEVE FOR 15" 20		
	* GEARED 3" WALL LIN. 2" CONC. TIME		
	Excavated for 15" 20 SLEEVE FABRIC	ELEV. 78.4	STA. 116 + 15 17'R E
	* HT. 0.5' ON 2.5' BELOW FABRIC (CONC. + CONC.)		
	FORMED 100' TEL DUCT BANK	24" x 16" x 16" A	FORM. FROM 2+00 TO 3+00
	FORMED 90' ELF DUCT BANK	24" x 16" x 16" A	FORM. FROM 2+10 TO 3+00
	POURED 130' TEL DUCT BANK	19.5 cy @ 5000	CONC. FROM STA 2+30 TO 3+60
	POURED 170' ELF DUCT BANK	15 cy @ 5000	CONC. FROM STA 2+10 TO 3+80
	Excavated DUCT BANK TRENCH	Approx. 6' IN WIDTH X 5' IN DEPTH	
	TRENCHED 100' FROM STA. 1+00 TO 2+00		
CITY LIGHTS	INSTALLED Approx. 130' of	4" RUNS @ 4"	TEL. CONDUIT FROM 2+20 TO 1+50
	INSTALLED Approx. 130' of	4" RUNS @ 5"	ELF. CONDUIT FROM 2+20 TO 1+50

Project: R.T.C. webview Report No.: 0A-12-CC-26
 Contractor: TMC Date: 4-12-00
 Owner: MASSPORT / MBTA Weather: Cloudy 40°-50°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: EXC & SET Light Pole Base sleeves

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
Haz MAT laborer		bulkeler dump	6	EXCAVATE & SET LHT POLE BASE
Haz MAT laborer			10	SLEEVE.
1 OPERATOR		GEISWAL	10	
1 OPERATOR		EXCAVATOR	8	

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC CREW EXCAVATED clean material TO TOP OF FABRIC & STACK-TILED
 Reinforced FABRIC TO EXCAVATED TO Required ELEVATION and SET LHT POLE BASE
 sleeve. BACK filled sleeve w/ Flowable Fill concrete. Sewed FABRIC and BUTTED
 UP TO sleeve.

Hazards / SAFETY DEFICIENCIES: INTRUSIVE WORK.

Corrective Actions: CREW WAS DRESSED IN Modified LEVEL D, Air Monitoring
 Performed during OPERATION

Comments: CREW Followed ALL Procedures Properly.

Preparer: Kevin Harkwell Kevin Harkwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location Regional Transportation Center, Woburn, MA	Job # 405	Today's Date: 4-12-00	page ____ of ____
Superintendent/Foreman T. SWEET	Weather OVERCAST	Temperature am _____ pm 43°	Contract Time Charged? YES NO

Item #	Description	Quantity	Remarks/Location
2200.121 B	EX + INSTALL LB# 83 SLEEVE	1-6.5' SLEEVE	STA. 112+42 17'4" E = 72.8
	EX - INSTALL LB# 84 SLEEVE	1-8.5' SLEEVE	STA. 118+25 17'4" E = 72.22
3300.913 A	FORMED DUCT BANK	130'	ELE. 1+00 - 2+10
		95'	TEL. 1+00 - 2+30
3300.913 B	FORMED DUCT BANK	124'	ELE. DUCT BANK
		111'	TEL. DUCT BANK

Scope of Work:			
T.M.C.	EXCAVATION FOR LB# 83 SLEEVE FABRIC	ELEV. = 78.40 SLEEVE	STA. 116+25 17'4" E
	INSTALLED 6'-36" SLEEVE FOR LB# 83		
	EXCAVATION FOR LB# 84 SLEEVE FABRIC	ELEV. = 80.13 SLEEVE	STA. 118+25 17'4" E
	INSTALLED 8'-36" SLEEVE FOR LB# 84		
	FORMED 130' ELE DUCT BANK	CONC. FROM 1+00 TO 2+10	
	FORMED 95' TEL DUCT BANK	CONC. FROM 1+00 TO 2+30	
	FORMED 130' ELE DUCT BANK	CONC. FROM 1+00 TO 2+10	
	FORMED 95' TEL DUCT BANK	CONC. FROM 1+00 TO 2+30	
CT LIGHTS	INSTALLED 1-30' LIGHT	ELE. COND. FROM 1+00 TO 2+10	
	INSTALLED 1-30' LIGHT	TEL. COND. FROM 1+00 TO 2+30	

Project: R.T.C. WOODROW Report No.: 04-12-00-26
 Contractor: TMC Date: 4-12-00
 Owner: MASSPORT / MISTM Weather: Cloudy 40-50°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: INSTALL HAY BATES, INSTALL J. BARRIER, TEST PIT

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT.			8	INSTALL HAY BATES @ STA. 66075 TO
1 OPER.			8.5	66400
2 LAB		J. BARRIER	8.5 / 6.7	INSTALL BARRIER @ STA 66270 TO
1 HAZ LAB			2	663150
TRUCK DRIVER	LOWHEELER	HAY BATES	8	TEST PIT @ STA. 681157 S.B. RAIL
1 FLAGGER				DCT BANK & V. DENTON

Visitors	Representing	Purpose
_____	_____	_____
_____	_____	_____
_____	_____	_____

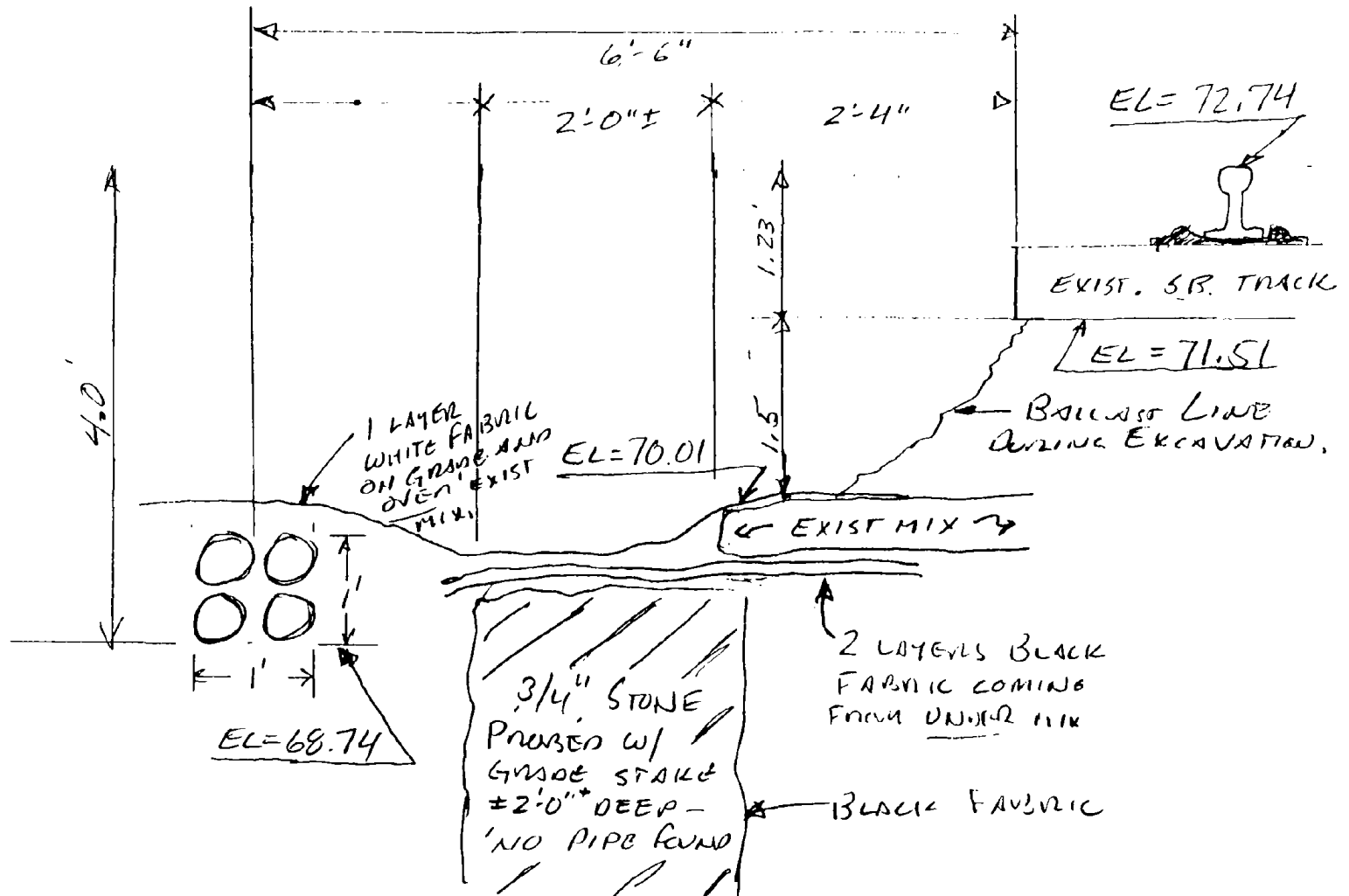
Daily Notes:

Activities: INSTALL HAYBATE ADJACENT TO S.B. RAIL @ STA. 66075 TO 66400, CREW INSTALLED JESSY BARRIER ADJACENT TO S.B. RAIL @ STA. 66270 TO 663150 TEST PIT, CREW EXC DOWN TO TOP OF FABRIC, THEY SET UP DELON, HOT ZONE, DRESSED IN MODIFIED LEVEL (D) PPE, AIR MONITORING DURING OPERATION

Hazards/Safety Deficiencies: INTRUSIVE WORK

Corrective Actions: NONE NEEDED, CREW FOLLOWED ALL PROCEDURES

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature



TEST PIT RESULTS 4.12.00

SECTION AT # 681+37

LOOKING NORTH

SCALE 3/4" = 1'-0"

Project: R.T.C. Web Row Report No.: 04-13-00-27
 Contractor: TMC Date: 4-13-00
 Owner: Massport / MBTA Weather: Cloudy Breezy 50°
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: TEST PIT, silt FENCE & HAYBALES, Jersey BARRIER, TRACK BYPASS EXCAVATION

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(1) Supt. / (1) Haz Supt.		Silt Fence / Hay	8	SEE ACTIVITIES
(1) Haz Labo		Jersey Barrier	1.5	
(1) Laborer			6.5	
(1) Laborer			9	
(1) OPERATOR	Excavator		8	
(1) TRUCK DRIVER	10 wheel		8	R.R. TRACK & R.O.W.

Visitors	Representing	Purpose
(1) FLAGGER		

Daily Notes:

ACTIVITIES: TRACK BYPASS EXCAVATION FROM STA. 667+75 TO 668+00, silt fence & haybales installed, Jersey BARRIER installed FROM STA. 663+50 TO STA. 664+25. TEST PIT @ 667+75 TO LOCATE CONDUIT.

HAZARD / SAFETY DEFICIENCIES: INTRUSIVE WORK @ TEST PIT STA 667+75

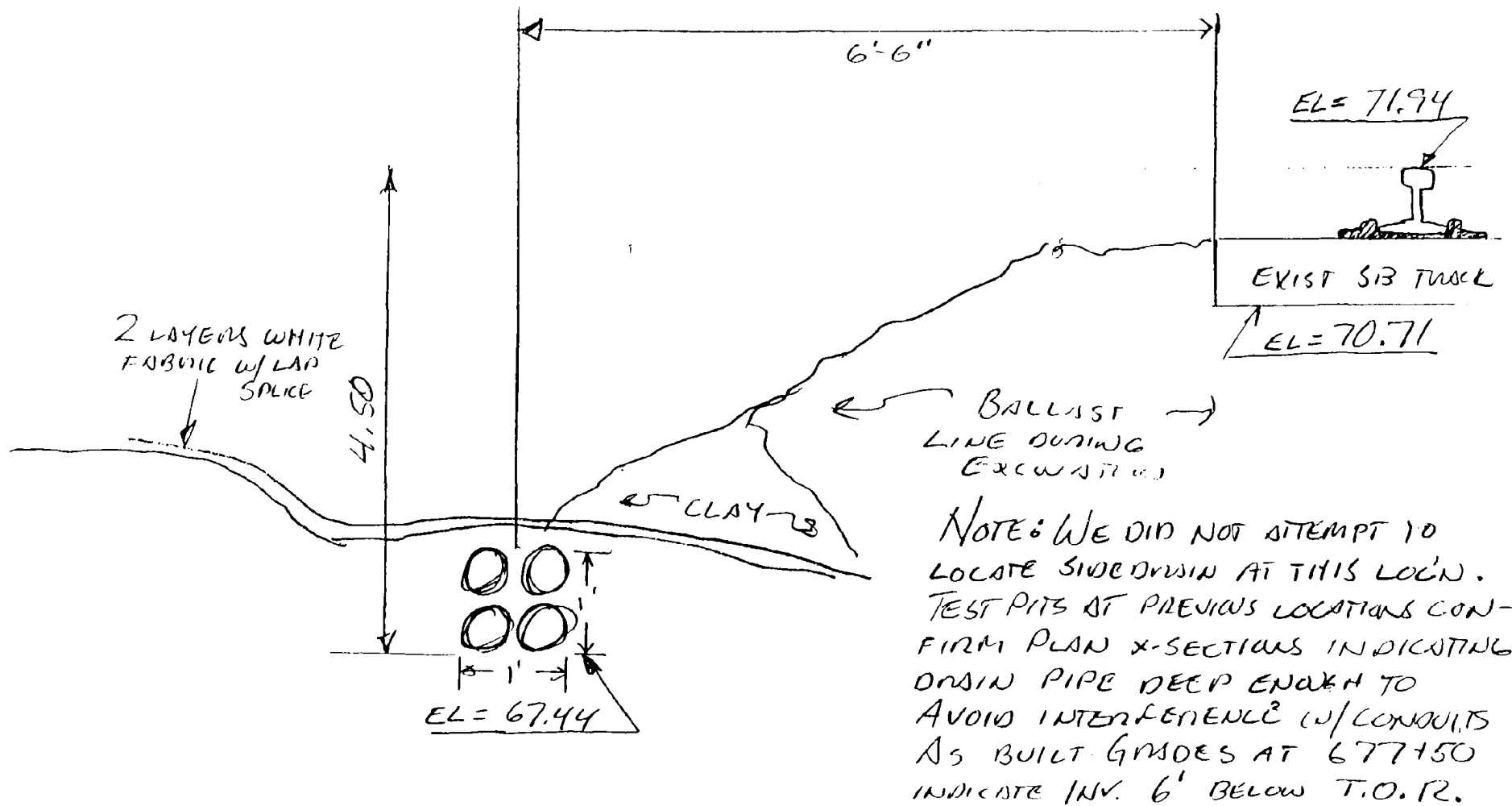
CORRECTIVE ACTIONS: DURING INTRUSIVE WORK (2) MEN DRESSED IN MODIFIED LEVEL (D) PPE, Decon station, Air monitoring performed during intrusive work.

COMMENTS: CREW FOLLOWED PROCEDURES PROPERLY

Preparer:

Kevin Hankwell
Name (Print)

Kevin Hankwell
Signature



TEST PIT RESULTS 4.13.00

SECTION AT 677+25

LOOKING NORTH

SCALE $\frac{3}{4}'' = 1'-0$



Project: R.T.C. Water Report No.: CA-13-00-27
 Contractor: TMC Date: 2-13-00
 Owner: Massport / MBTA Weather: Clear & Breezy
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: Excavation For Hydrants, Manhole Elect installed

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Form	Compressor	M.H. #3	8	Excavate For Hydrants and
1 OPER	Excavator		10.5	set manhole #3
1 OPER	Loader		11	
1 PIPE LAYER	BOX TRUCK		11	

Visitors	Representing	Purpose

Daily Notes:

Activities: Excavation For Hydrants @ STA 3+00 and STA. 7+80 to 10+00. Intrusive excavation @ STA. 1+92 and STA. 6+00. Crew also installed manhole #3 stabilize 260 FT of (B) LINE.

Hazards / Safety DEFICIENCIES: Intrusive work

Corrective Actions: CREW was set up for intrusive work wearing modified level (D) PPE, decan set up, and Airz monitoring during intrusive work

Comments: CREW Followed Procedures Properly

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature



STAB 100

Project: R.T.C. Woburn Report No.: CA-14-CC-28
 Contractor: TMC Date: 4-14-00
 Owner: MASSPORT / MBTA Weather: NICE Sunny 57
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: EXCAVATE REG. MAT., 6" D.I. PIPE, GATE VALVES, 8" D.I. PIPE, and Fittings

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(1) Form			8	SEE ACTIVITIES
(1) O.P.P.E.R	Excavator	PIPE, Fittings	8	
(1) O.P.P.E.R	Loader	Gate valves	8	
(1) P. PE LAYER	Box truck	Hydrant	8	
		REG. Materials	8	

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC EXCAVATED TO TOP OF FABRIC and stock pile clean material, we had to cut fabric to lower grade (intrusive work) from STA. 9+90 to STA. 9+18 8.5' RT OF Hydrant. Install 26' 6" D.I. watermain STA 6+00 to Hydrant 6+00, (1) 6" D.I. watermain from STA. 9+99 to Hydrant STA. 71+87 8.5' RT. INSTALL a 6" GATE VALVE @ STA. Hydrant 6+00 and a 8" GATE VALVE @ STA. 9+97. TMC install 17' of 8" D.I. watermain from STA. 9+90 to STA. 9+97, and 2.5' of 8" D.I. watermain from 8" GATE VALVE @ STA. 9+97 to REDUCER @ STA. 9+99. (1) 6" 90° ELB @ STA 0+02 and (1) 8" 6X8 REDUCER @ STA. 9+99.

Hazards/SAFETY DEFICIENCIES: INTRUSIVE WORK

Corrective Actions: TMC crew during intrusive work was dressed in modified level (D) PPE, mobil detail set up, Air monitoring performed during operations of intrusive work.

Comments: crew performed procedures properly during intrusive work.

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. WCBURK Report No.: 04-14-00-28
 Contractor: T.M.C. Date: 4-14-00
 Owner: MASSPORT / MBTA Weather: Clear sunny 52°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: Excavation, Installation, Flowable Fill for light pole base sleeves
room Presidential wing

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(2) Haz Lab		LHT Base Sleeves	10/9	room exc @ Presidential wing
(2) Lab		Flowable Fill	8.5/9	LHT Base sleeve excavat #85,
(1) OPER		Fabric	8.5	#38, #37
(1) OPER			9	

Visitors	Representing	Purpose

Daily Notes:

Activities: room exc @ Presidential wing 100'x4'x1', install LHT BASE SLEEVES #85, #38, #37. EXCAVATED INTRUSIVE WORK @ LHT BASE SLEEVES, SET SLEEVES, POURED FLOWABLE FILL FOR BACKFILL, SEWED FABRIC, STOCK PILED REG. MAT. IN STORAGE AREA.

Hazards / safety deficiencies: intrusive work

Corrective actions: crew performing intrusive work dressed in Modified level (D) decon station set up, Air monitoring perform during intrusive work

Comments: crew following procedures properly

Preparer: Kevin Hankwell Kevin Hankwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: CA-17-00-29
 Contractor: TML Date: 4-17-00
 Owner: MASSDOT / M3TA Weather: Cloudy & Cool 50°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: 6' D.I. PIPE, Hydrant, Sewer Manhole, Excavated & Made Req. with.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(1) Foreman			9	SEE ACTIVITIES
(1) OPER	EXCAVATOR		9	
(1) OPER	Loader		9	
(1) PIPELAYER	Box TRUCK		9	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: CREW EXCAVATED & INSTALLED (1) Hydrant @ STA. 22+31 (37' RT) and (1) Hydrant @ STA. 55+66 (104' LT OF B). INSTALLED 27' OF 6" D.I. WATERMAIN FROM TREE @ MAIN STA. 3+00 TO Hydrant 22+31 (37' RT). (1) 6" GATE VALVE @ Hydrant STA. 22+31 (37' RT) and (1) 6" GATE VALVE @ Hydrant STA 55+66 (104' LT B). 27' OF 6" D.I. WATERMAIN FROM 90° BEND TO STA 1+92. CREW ALSO EXCAVATED FOR SEWER MANHOLE #2 TO EXISTING (SMH) STA. 7+50 TO 7+69, THIS WAS INTRUSIVE WORK, FABRIC WAS CUT OPEN. GRADE LOWERED TO PROPER ELEVATION, SPLICED AND INSTALLED SMH #2.
 NOTE: THERE WAS NO GROUND WATER

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK

CORRECTIVE ACTIONS: CREW WAS DRESSED IN MODIFIED LEVEL (D), AIR MONITORING DURING OPERATION, AND DECON SET UP.

COMMENTS: CREW WAS OBSERVED FOLLOWING PROCEDURES PROPERLY

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. Weber Report No.: 4-17-00-29
 Contractor: TMC Date: 4-17-00
 Owner: MASSPORT / MBTA Weather: cloudy, cool 50°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: Form subgrade, compaction, survey, dust control

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(2) OPER	Grader Dozer	Gravel Borrow	9	Form subgrade @ Parking lot
(1) OPER / LAB(1)	vib roller		4.5 4.5	Compact subgrade @ P. lot
(1) SURVEYOR	survey		8	site survey
(1) TK DRIVER	water truck	water	8.5	dust control site

Visitors	Representing	Purpose
<u>TRAILER DUMPS (rentals)</u>	<u>TMC</u>	<u>Hauling Gravel Borrow</u>
<u>TMC TRIAXLES</u>	<u>TMC</u>	<u>Hauling Gravel Borrow</u>

Daily Notes:

ACTIVITIES: Trailers and triaxles hauling Gravel Borrow from Littleton to work site. Dozer & Grader forming subgrade, vib roller compaction of subgrade, surveyor provide grade through out site. Laborer spotting loads and helping w/grades.

Hazards / safety deficiencies: TRUCK TRAFFIC

Corrective Actions: laborer helping trucks through site to dump location

Preparer: Kevin Marshall Kevin Marshall
 Name (Print) Signature

Project: R.T.C. Station Report No.: 04-17-00-29
 Contractor: TMC Date: 4-17-00
 Owner: MASSPORT / MBTA Weather: Clouds Cool 50°
 Project No.: 1-727

Contractor Supervisor(s): Joe Thimney

Description of Work: install LHT Base sleeves, Form DUCT BANK

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(2) HAZ Laborers	6 wheel DUMP		11 10	EXCA install LHT BASE SLEEVES
(1) OPER	GEISMAR		9.5	EXCA install LHT BASE SLEEVES
(1) LABORER			9	EXCA install LHT BASE SLEEVES
(1) LABORER			8.5	FORM DUCT BANK
(1) OPER	EXCAVATOR		10	EXC FOR LHT BASE TO TOP OF FABRIC
(1) OPER	B.HOE		8.5	FORM DUCT BANK

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: (1) CREW: EXCAVATOR & LABOR WORKING AHEAD OF HAZ. INTRUSIVE CREW REMOVING CLEAN MATERIAL TO TOP OF FABRIC AND STOCK PILE. INTRUSIVE CREW FOLLOWING AND CUT FABRIC AND AUGER TO REQUIRED ELEVATION @ LHT BASE #60, #61, #65. CREW DID NOT BACKFILL W/ FLOWABLE CONCRETE DUE TO HOLIDAY. (2) MAN CREW FORMING DUCT BANK FROM TELE M.H. #3 TO TELE M.H. #4 AND FROM PAD TO ELECT. M.H. #4.

HAZARDS / SAFETY DEFICIENCIES: NONE OBSERVED

CORRECTIVE ACTIONS: NONE NEEDED.

Preparer: KEVIN HARTWEL
Name (Print)

Kevin Hartwell
Signature

4-17-00

A.I.C.
WOBBURN

SDR 33/1

T@ 590 (5.13) DS ON 592 (4.67)

FS DISK # 610 (4.81)

X# 592 00-00-00 H2 Dist. 1252.17

X# 610 42-40-32 " 1086.64

Te 590 (5.13) DS ON 610 (4.81)

FS# 592 S/N (4.67)

X 00-00-00 H2 Dist 1086.64

X 317-19-25 H2 Dist 1252.17

42-40-32

359-59-57

Te 590 (5.13) DS ON 610 (4.81)

2360 STRC 6.27 TOP CONC T.M.H. STRUCTURE

2364 STRC " " EMH " "

2368 CONC 10.92 BOTTOM " "

2370 CONC " " TMH " "

2372 CL " E OF CONC DITCH OVER CONDUIT

2381 TS " TOP HOLE

2387 TS " " "

2391 BS " BATT HOLE

2395 BS " " "

2401 STR " " "

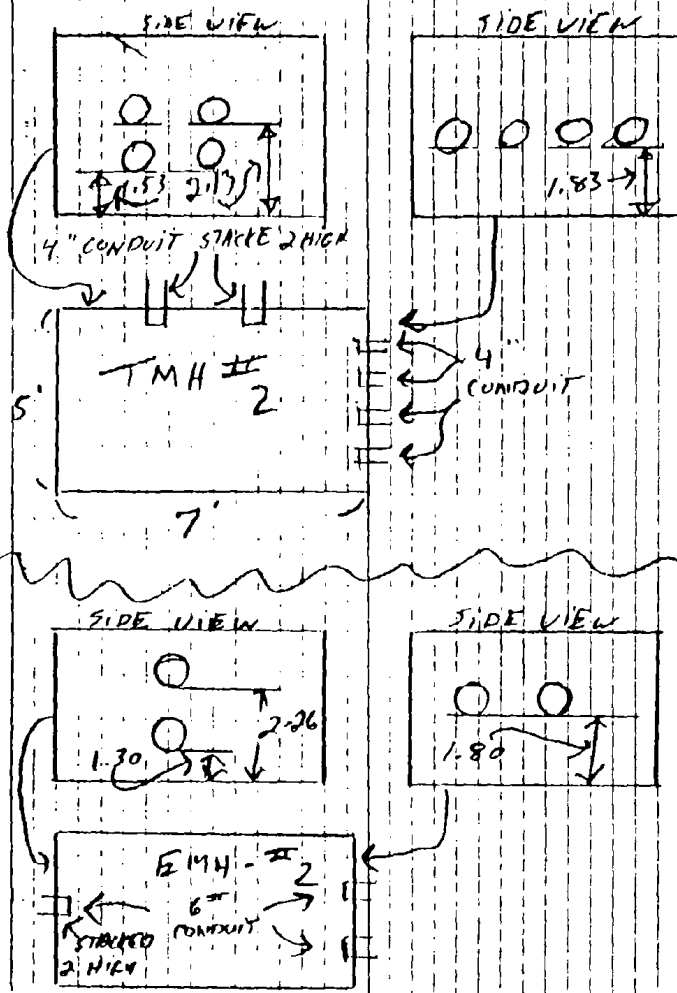
2418 CHECK 4.81 BS ON # 610

4

FILE # 1085101

A JD
P GHN

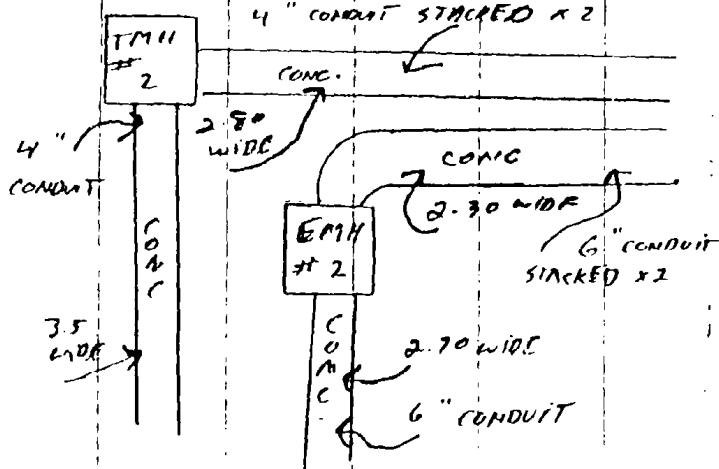
N30/10



4-17-60

4-5862-00
RTC
WOBBURN

7C 1100
SDR 33/1



45°

FILE # 1083101

T 7D
P CHN
N 30/71

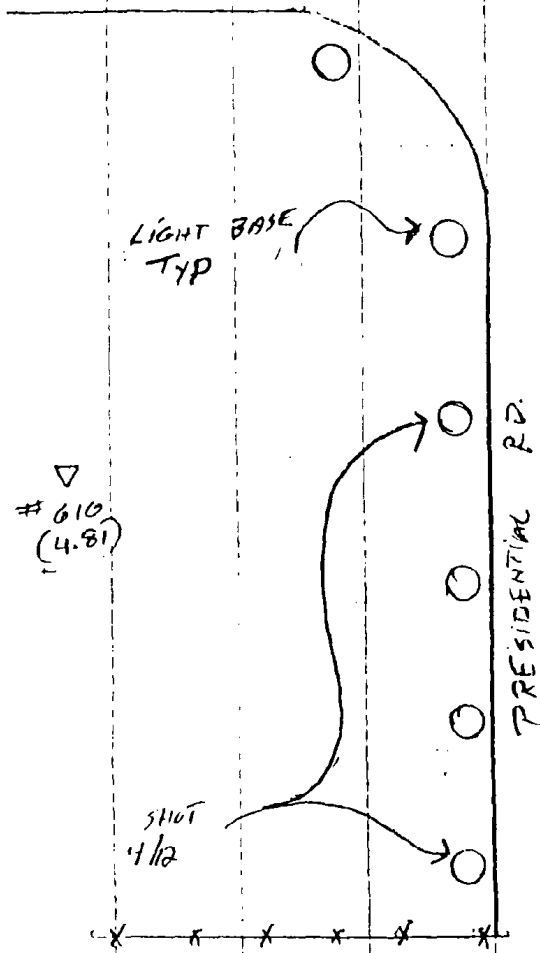
T @ 610 (4.81) CS # 590 (5.13)
FS 592 (4.67)

Item	Quantity	Material	Notes
2419	STRM	6.27	TOP 36" C.M.P. LIGHT BASE
2422	SPOT	6.27	GRND
2429	LP	10.92	BOTT HOLE FOR LIGHT
	ON	FABRIC	EL=71.806
2430	LP	10.92	BOTT LP HOLE ON FABRIC EL=72.80
2431	STRM	6.27	TOP 36" C.M.P. LIGHT BASE
2434	SPOT	6.27	GRND
2449	STRM	6.27	TOP 36" C.M.P. LIGHT BASE
2452	LP	10.92	BOTT LIGHT BASE ON FABRIC
2453	LP	10.92	" " " EL=69.25
2454	STRM	6.27	TOP 36" C.M.P. LIGHT BASE
2457	SPOT	6.27	GRND
2471	STRM	6.27	TOP 36" C.M.P. LIGHT BASE
2474	LP	10.92	BOTT LIGHT BASE EL=68.11
2475	PIPE	10.92	@ JOINT
2476	"	"	8x6 REDUCER
2477	"	"	90° BEND
2478	"	"	90° BEND FOR HYD
2479	WF	"	@ TOP + F WF

4 11 00

4-5862.00
RTC
WOBURN

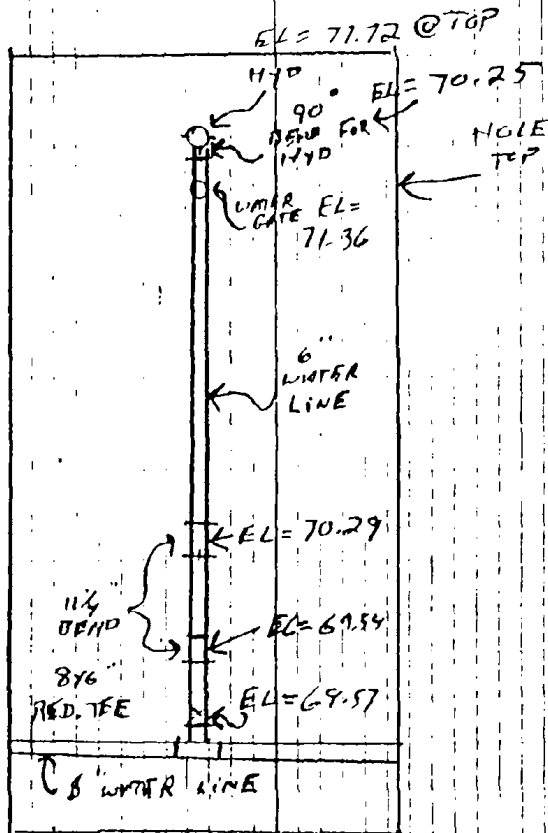
TC 1100
SDR 33/1



FILE #
1009101

A 20
PGNN
N30/72

SEE SHOTS 2527-2553



HYD DETAIL # 3

4-17-00

4-5862.00
RTC
WGBURNTC 1106
SDR 33/1FILE #
10851D1TJD
PGWN
1130/75

AC 590 (3-13) P.S. 610 (481)

2541	BS	6.27	BOT OF DITCH
2551	"	10.92	" " "
2553	HYD	.64	HYD @ TOP
2554	"	"	" " "
2555	PIPE	10.72	@ 90° BEND 6" PIPE
2556	"	"	" " " FOR HYD
2557	WG	"	WATER GATE TOP
2558	E	"	EDGE OF FABRIC PATCH
2564	FABRIC	"	BOT " " "
2565	TS	"	TOP OF DITCH
2569	BS	"	BOT " " "
2579	SPOT	"	BORROW SOIL
2582	CHECK	4.81	BS # 610

SEE DETAILS

HYD
2HYD
1HYD
3HYD
4

 ALBERT
AVE

 MIDDLESEY
TRAILER

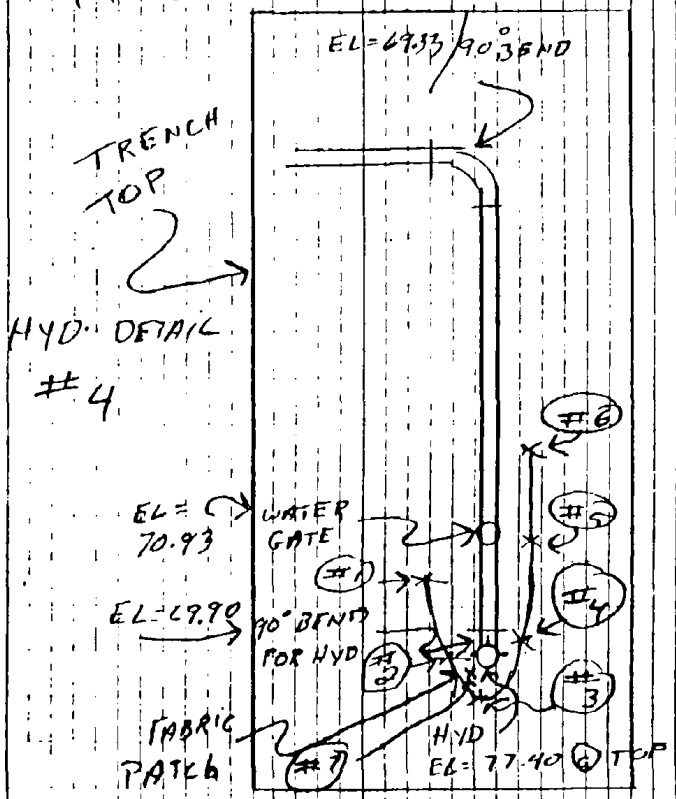
4-17-50
 TC 1100
 SDR 33/1
 45862.00
 RTC
 LOBURN

TC 610	(481) BS on	590 (5.13)
2480	E	10.92 EDGE FABRIC PATCH
2487	FABRIC	" BOTTOM OF FABRIC PATCH
2490	TS	" TOP OF DITCH
2497	BS	" BOTTOM " "
2504	CHECK	5.13 BS # 590

TC 590 (5.13) BS on	610 (4.0)	
2505	HYD	6.27 HYDRANT @ TOP
2506	"	.64 " " "
2507	PIPE	10.92 6" PIPE @ 8 1/2" TEE
2508	"	" 90° BEND FOR HYD.
2509	WG	" WATER GATE @ TOP
2510	E	" EDGE OF PATCH
2515	FABRIC	" BOTTOM " "
2517	TS	" TOP OF DITCH
2521	BS	" BOT " "
2526	SPOT	" BORROW SOIL
2529	FOR PTE	6.27 " "
2532	PIPE	" 6" WATER LINE @ 8 1/2" TEE
2533	"	" " " TOP 1 1/4" BEND
2535	"	" " " 90° BEND FOR HYD
2536	WC	" TOP OF VALVE
2537	TS	" TOP OF DITCH

FILE # 1095101
 A J D
 P CHN
 1130/94

#1 EL = 68.60	#5 FL = 68.23
#2 " 69.00	#6 " 69.41
#3 " 70.11	#7 " 68.20 BOT
#4 " 68.61	



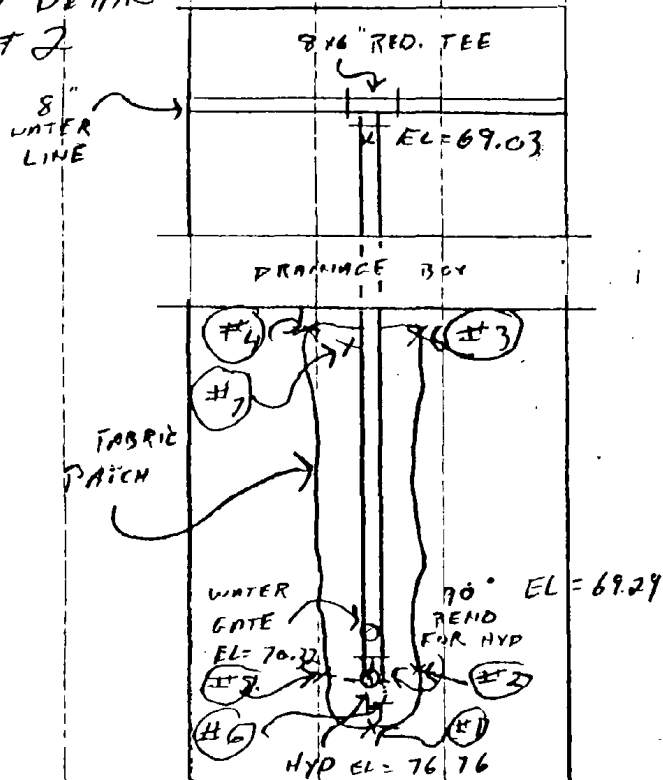
SEE SMOTS 2534-2581

4.17.00

4.5862.00
RTC
WOODBURN

TC 1100
SDR 331

SEE SHOTS # 2506-2526
HYD DETAIL # 2



#1	EL=	70.89	#5	EL=	70.79
2	"	70.62	#6	"	68.45
3	"	70.62	#7	"	68.24
4	"	70.27			

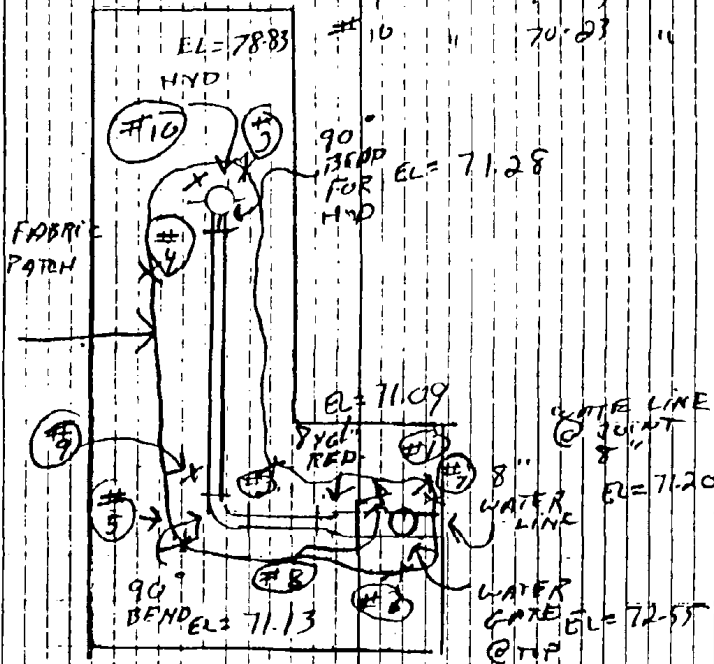
FILE #
1085101

FJD
PGHN

N 30/73

FABRIC PATCH

#1	EL=	70.94	#5	EL=	71.06
2	"	72.80	#6	"	70.15
3	"	73.31	#7	"	70.03
4	"	73.16	#8	"	69.45
			#9	"	70.07
			#10	"	70.23



SEE SHOT # 2505

HYD DETAIL # 1

Project: R.T.C. Woburn Report No.: 04-20-00-32
 Contractor: TMC Date: 4-20-00
 Owner: Massport / MFTA Weather: SUN & CLDS 50°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: EXCAVATION FOR SIGNAL FOUNDATION & CONDUIT, HAUL FILL TO LANDFILL

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(1) SUPT		REG MATERIALS	8	Exc. & install sig. Foundation
(1) OPER	EXCAVATOR	STONE BALLAST	8	Exc. Conduit @ STA. 677+25 to 33
(1) HAZLAB / LAB		Fabric	4	
(1) HAZ LAB	sewing machine	sig. Foundation	2	SEWING NEW FABRIC
(1) TK DRIVER	10 wheeler		8	HAULING REG MAT TO STORAGE
(1) TK DRIVER	10 wheeler		8	CELL #4
(1) TK DRIVER Visitors	10 wheeler			HAULING mat. TO LANDFILL (CLEANUP PURPOSE)
		Representing		

Daily Notes:

ACTIVITIES: CREW OPENED FABRIC and EXCAVATED FOR SIGNAL FOUNDATION @ STA. 677+25-33, ALSO EXC. FOR ^{EXPT.} CONDUIT @ STA 677+25-33. All intrusive material Hauled to storage cell #4. CREW excavated and SET NEW FABRIC, SET sig. FOUN TO grade. Stitch FABRIC TO EXISTING FAB. 2 TRUCKS HAULING clean TRACK BYPASS EXCAVATED material TO Woburn LANDFILL.

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK

CORRECTIVE ACTIONS: DURING INTRUSIVE WORK, CREW DRESSED IN MODIFIED LEVEL DANGER DECON STATION SET UP, AIR MONITORING PERFORMED

Preparer: Kevin Hankwell
Name (Print)

Kevin Hankwell
Signature

Daily Quantity Sheet

Job Name/Location

Job # 405

Today's Date: 4.20.00 page 1 of

Regional Transportation Center, Woburn, MA

405

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

L. Weston

am pm

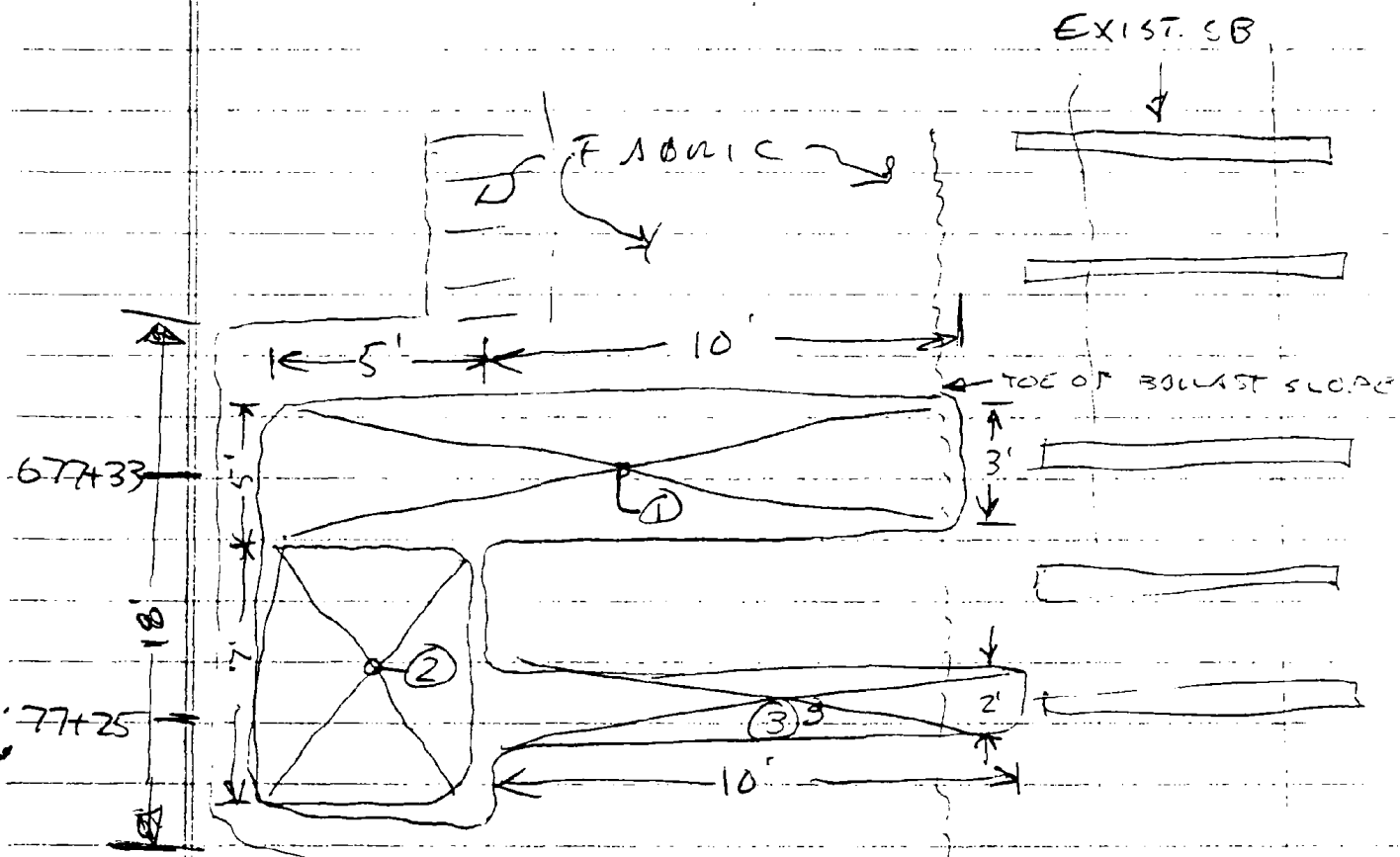
YES NO

Item #	Description	Quantity	Remarks/Location
1/2	2200.121E EX. NON REG MAIL FOR COND. UNDER TRS.	2 CY	EX. FOR CONDUITS & SIGNALS @ 677+25 → 33
2.	1566.000A EXCAV. REG MAIL UNDER TRUCKS	5.7 CY	EX. REVERSE EXISTING FOR CONDUITS & SIGNALS @ 677+25 → 33
3	C0405007 Hired Exc. Arms to SB	726 CY	Hired Blue Clay from Stock Pile to Woburn Land Fill

Scope of Work:

1. WIDENED YESTERDAY'S EXCAVATION FABRIC TO ALLOW LAB FOR SWITCH SPICERS, SEE ATT. SKETCH
2. EXCAVATED REG MAIL TO AN ~~UNDER~~ ELEVATION WHICH PUTS CONDUIT FOUNDATION IN A "CLEAN AREA" SEE ATT. SKETCH.
3. HIRED TRUCKS, 3700 Hauled CLAY FROM STOCK PILE TO LAND FILL.

4-20-00



REG MATLS :

AREA 1

$15' \times 3' \times 10' = 1.4 \text{ cy}$

AREA 2

$7' \times 5' \times 3' = 3.9 \text{ cy}$

AREA 3

$10' \times 2' \times 6' = .4 \text{ cy}$

5.7 cy

ADD'L EXC ABOVE FABRIC -

$4-6 \times 6 \times 2' = 2 \text{ cy}$

FABRIC

AREA 1: INSTALLED

(3) 4" @ 13'-0"

(1) 2" @ 8'-6"

(1) 2" @ 14'-3" (HORIZ. DIST)

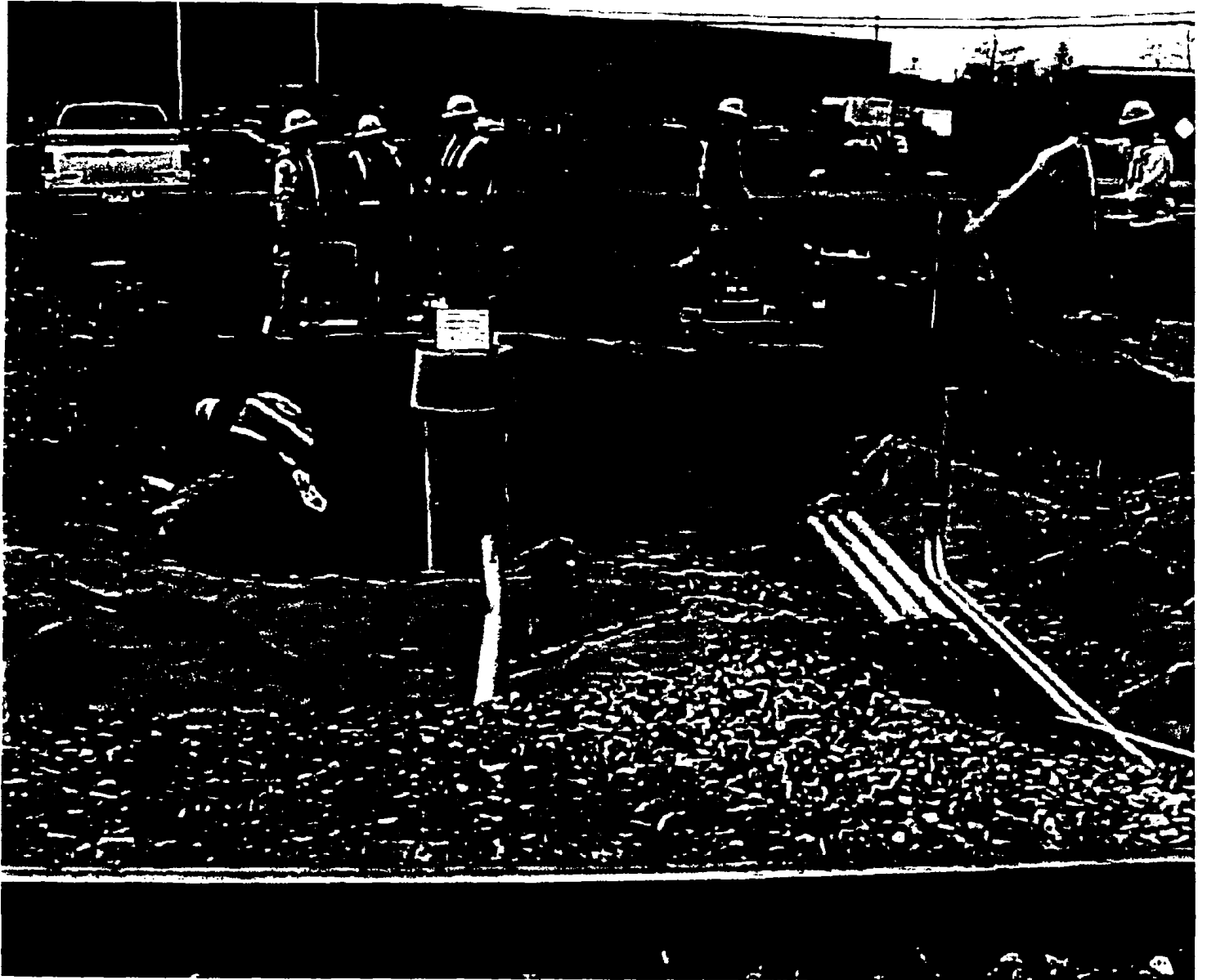
AREA 2 INSTALLED

1 SINGLE FIBRELL-OS.

AREA 3 INSTALLED

(1) 4" @ 10'-0"







Project: R.T.C. webdun Report No.: 04-10-00-32
 Contractor: T.M.C. Date: 4-20-00
 Owner: MASSPORT / MBTA Weather: SUNNY C/ds 50°
 Project No.: 1.727

Contractor Supervisor(s): JOE PHINNEY

Description of Work: EXC AVAIL LHT BASE SLEEVES, EX FOR LHT. CONDUIT, FORM SLOPE PRES W/

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(2) HAZ LAB	6 wheel DUMP		10 8.5	EX & INSTALL LHT BASE SLEEVES
(1) OPER.	GERMAR		8	in PARKING lot
(1) LAB	RACK TRUCK		8	
(2) LAB			8 8	EXCAVATION FOR LHT. CONDUIT
(2) OPER	(2) B. TOES		8 8	in PARKING lot.
(1) OPER	EXCAVATOR		8	FORM SHOULDER SLOPE PRES. WAY

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: (1) CREW EXCAVATED & INSTALLED LHT BASE SLEEVE #36, EXCAVATED FOR LHT BASE #69 and hit obstruction from slab @ ELEV. 6834. EXCAVATED & INSTALL LHT BASE SLEEVE #58. EXCAVATED FOR CONDUIT FOR LIGHTS FROM LB#64 TO LB#62, and FROM LB#70 TO #69. FROM LB#58 TO #60 and to #61 (TOTAL 990')
 EXCAVATION: 990' x 2.17 High x 2' WIDE = 159.13 CY
 CITY LIGHTS INSTALLED 1285' OF (2) INCL ELECT. CONDUIT FROM 5' OFF LHT BASE #66 TO 5' OFF LB#65 TO 5' OFF LB#64 and 5' OFF LB#61 TO 5' OFF LB#60 TO 5' OFF LB#59 TO 40' OFF LB#58

HAZARDS & SAFETY DEFICIENCIES: INTRUSIVE WORK @ LHT BASE SLEEVES

CORRECTIVE ACTIONS: CREW WEARING MODIFIED LEVEL (D) PPE, DECON SET UP, and AIR MONITORING PERFORMED.

Preparer: Kevin Hartwell
 Name (Print)

Kevin Hartwell
 Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

4-20-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

CLEAR

am pm 59°

YES NO

Item #	Description	Quantity	Remarks/Location
1999.999P	Exc. & INSTALL LB# 36 SLEEVE	SLEEVE	BOTTOM ELE. 65.75
1566.000F	*Exc. FOR LB# 69 SLEEVE	HIT CONC. SLAB @	68.34
	Exc. & INSTALL LB# 58 SLEEVE	SLEEVE	BOTTOM ELE 66.35
2200.121B	UTILITY TRENCH Exc. FROM LB# 64 TO	63 TO 66 58 TO 59 TO 60 TO 61 TO 69	

Scope of Work:				
T.MK	Excavated FOR LB# 36 SLEEVE	EXISTING FABRIC @	71.79	NEW FABRIC @ BOTTOM OF SLEEVE 65.75
	INSTALLED 10'-36" SLEEVE	FOR LB# 36		
	Excavated FOR LB# 69 SLEEVE	EXISTING FABRIC @	73.64	
	* HIT OBSTRUCTION (CONC. SLAB) @		68.34	
	Excavated FOR LB# 58 SLEEVE	EXISTING FABRIC @	73.7	NEW FABRIC @ BOTTOM OF SLEEVE 66.35
	INSTALLED 10'-34" SLEEVE	FOR LB# 58		
	TRENCH Exc. FOR 2" ELE COND. FROM LB# 64 TO LB# 63 TO LB# 62, LB# 70 TO LB# 69			
	+ FROM LB# 58 TO LB# 54 TO LB# 60 TO LB# 61 = 990			
	990' x 21" HIGH x 2' WIDE =	159.13CY		
CITY LIGHT	INSTALLED 125' 2" ELE COND. FROM S' @ LB# 66 TO S' @ LB# 65 TO S' @ LB# 64			
	+ FROM S' @ LB# 61 TO S' @ LB# 60 TO S' @ LB# 54 TO S' @ LB# 53			

EXC FOR LHT COND. 7

4-20-00



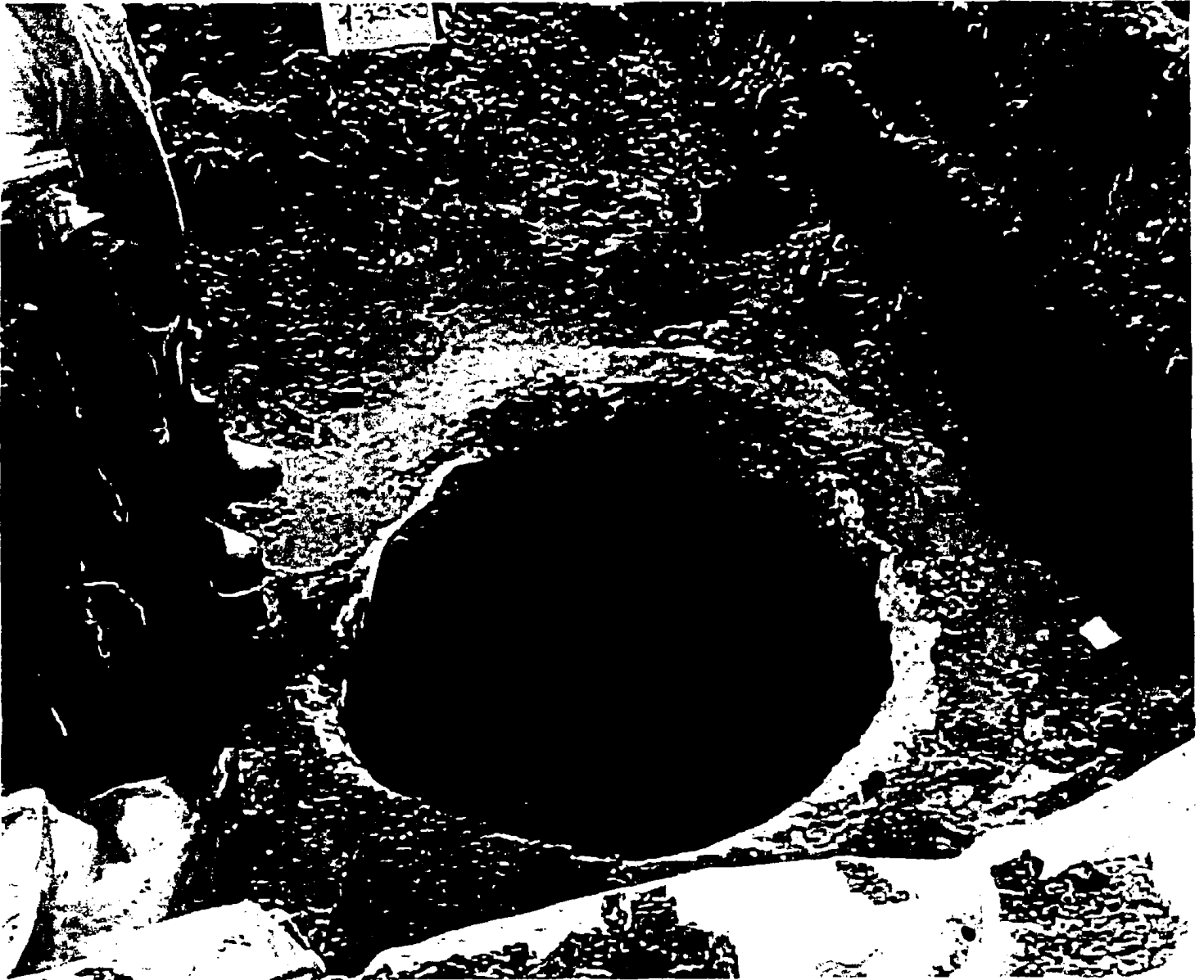
LHT BASE SIEVE #58 4-20-00

#774 1-10



EXC FOR LHT BASE SLEEVE LHT BASE #58

4-20-00



INSTALLATION LHT BASE SLEEVE #36 4-20-00



Foem shoulder slope e Presidential Way

4-20-00



Project: R.T.C. WILSON Report No.: 04-21-CO-33
 Contractor: TRC Date: 4-21-00
 Owner: MASSPORT / MBTA Weather: Rain
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: SEE ACTIVITIES

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(1) FIRM		Utility Pole Sleeve		EXCAVATE & INSTALL U. Pole Sleeve
(2) OPER	Loader Excavator	(2) Tie Back Anchors		& ANCHORS @ ATLANTIC AVE
(1) HAZ LAB	Box Truck	Fabric		
(1) TRC DRIVER	12 wheels			Stock pile 3/4" stone on site

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: @ ATLANTIC AVE, crew excavated and install utility pole sleeve and (2) tie back anchors, installed new fabric, loader stock piling 3/4" stone on site.

HAZARDS/SAFETY DEFICIENCIES: Intrusive work @ utility pole sleeve excavat

CORRECTIVE ACTIONS: MEN DRESSED IN MOD: FIT D LEVEL (D) PPE, Air monitoring performed during operation, Decon set up

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 14-21-CC-33
 Contractor: TMC Date: 4-21-00
 Owner: MASSPORT / MBSTA Weather: RAW 50°
 Project No.: 1-727

Contractor Supervisor(s): Joe Thimney

Description of Work: TRACK BYPASS EXC. EX UNDER TRACK BED FOR COND. INSTALLATION

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(1) SUPT	Comp./S. Hours	STONE BALLAST	8	SEE ACTIVITIES
(1) OPER	B. HCC	CONDUIT, FABRIC	9.5	
(1) HAZLAB / LAB			5.5 4	
(1) OPER	EXCAVATOR		9.5	
(1) TK DRIVER	10 WHEELER	REG MAT	9.5	
(1) TK DRIVER	10 WHEELER	REG MAT	7	
(2) LABORERS	Visitors	Representing	9 1/2	Purpose

Daily Notes:

Activities: (1) crew EXCAVATING TO TOP OF FABRIC FOR TRACK BYPASS, (2nd) crew EXCAVATION UNDER TRACK BED, (1st) they EXC clean material TO TOP OF MIX 'FAB EXC IN REG MAT APPROX 1' BELOW MIX FOR CONDUIT INSTALLATION, FABRIC PLACED and then CONDUIT installed, BACKFILLED in LIFTS w/ J. JACK COMPACTOR, REASSEMBLE TRACK & TIES - Reg mat. stored in storage cell. Amtrak Flagger on site

Hazards / SAFETY DEFICIENCIES: intrusives work

Corrective Actions: MEN DRESSED in modified LEVEL D PPE during intrusives work Air Monitoring during operation, Decan set UP.

Preparer: Kevin Harwell Kevin Harwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job # 405

Today's Date: 4/21/00 page 1 of

Regional Transportation Center, Woburn, MA

405

Superintendent/Foreman

L. WESTON

Weather

Drizzle/Rain
MATE

Temperature

am 40° pm

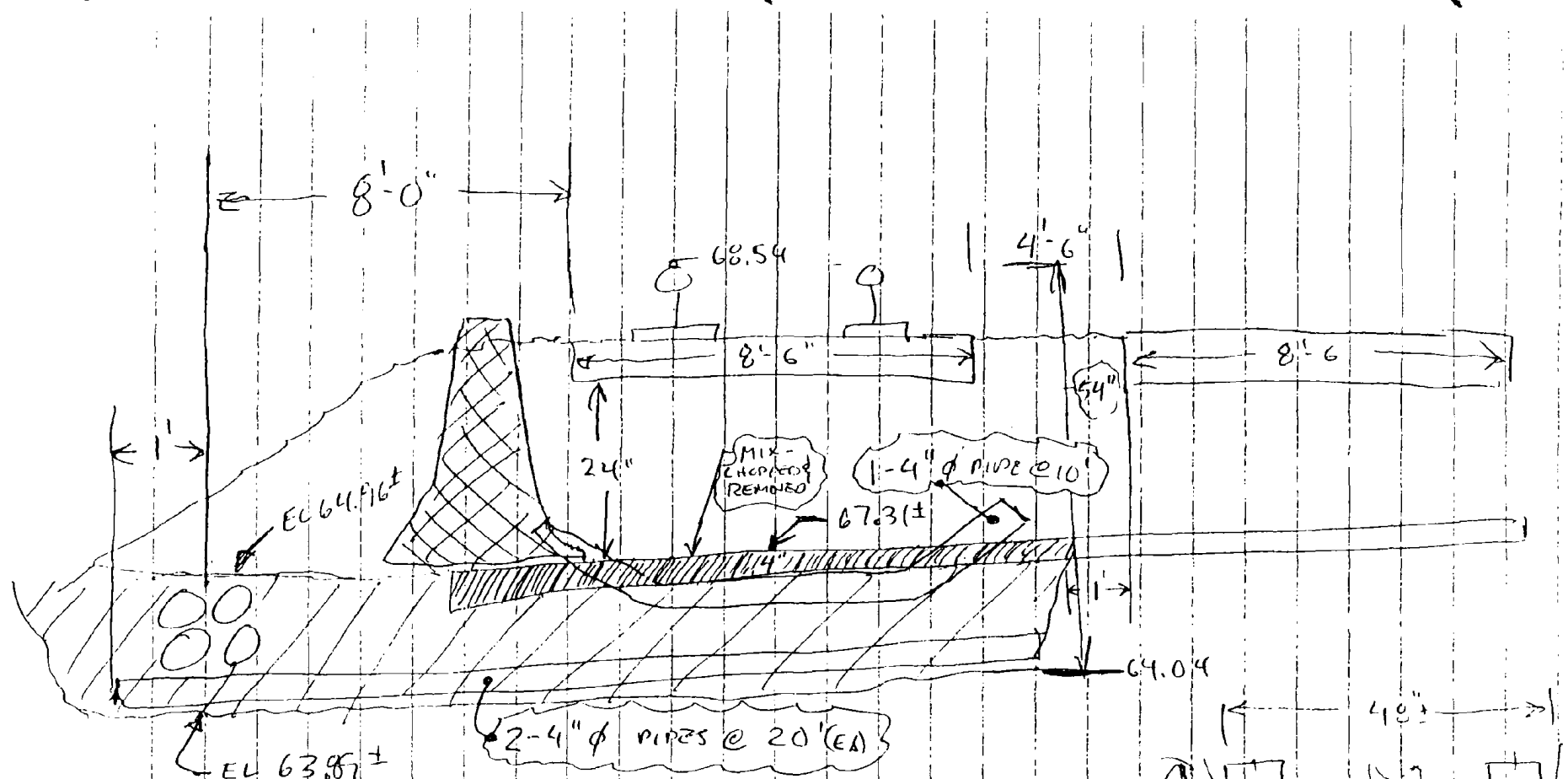
Contract Time Charged?

YES NO

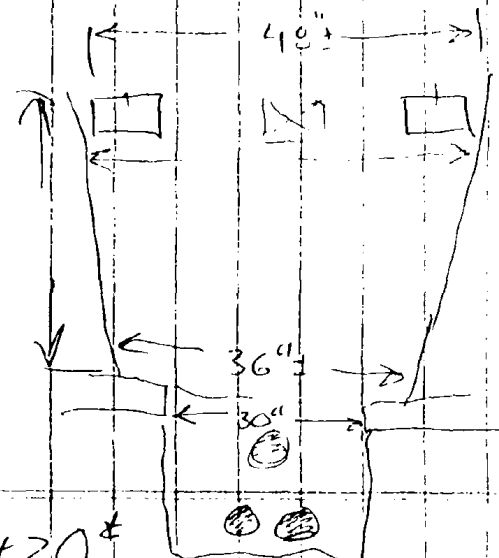
Item #	Description	Quantity	Remarks/Location
1.	C.O. 405007 Exc. Area to SB Track	50'	665+00 → 665+50 (Exc. Area to FANBUK)
2.	C.O. 405007 SHAPE SURFACE OF DIRT TO SB TRACK	70'	665+50 TO 666+10
3.	2200 1216 ERL. NON REG. MATL FROM EXISTING TRENCH	6.5 CY	CONDUIT CROSS TRENCH @ 664+15 ±
4.	1566.000A ERL. REG. MATL FROM BENEATH TRACKS	1.95 CY	Do.
4A	CLEAN SANDY GRAVEL	1.57 CY	DO. INSTALLED IN CONDUIT TRENCH

Scope of Work:

1. REMOVE CLAY TO FANBUK CROSSING
2. SHAPE CLAY TO SURFACE OF EXISTING
3. REMOVE MATL. TO EXPOSE MATE BENEATH SB TRACK
4. REMOVE REGULATED MATL DEEP ENOUGH FOR 4" Ø CONDUITS TO PASS BENEATH EXIST (4) 4" PVC BUNTS. INSTALLED 1.6 CY CLEAN SANDY GRAVEL IN TRENCH TO A-MIXTURE SAND/REG. AND B- TO SUPPORT 4" Ø 10' CONDUIT FOR TRACK LEADS ABOVE 2" 4" Ø IN BOTTOM OF TRENCH



REGULATED MATL $21' \times 1' \times 2'-6" = 1.95 \text{ cy}$
 NOW REGULATED MATL. ~~20'~~ $20' \times 3'-6" \times 2'-6" = 6.5 \text{ cy}$
 CLEAN BOTTOMING INST. $17' \times 1' \times 2'-6" = 1.57 \text{ cy}$

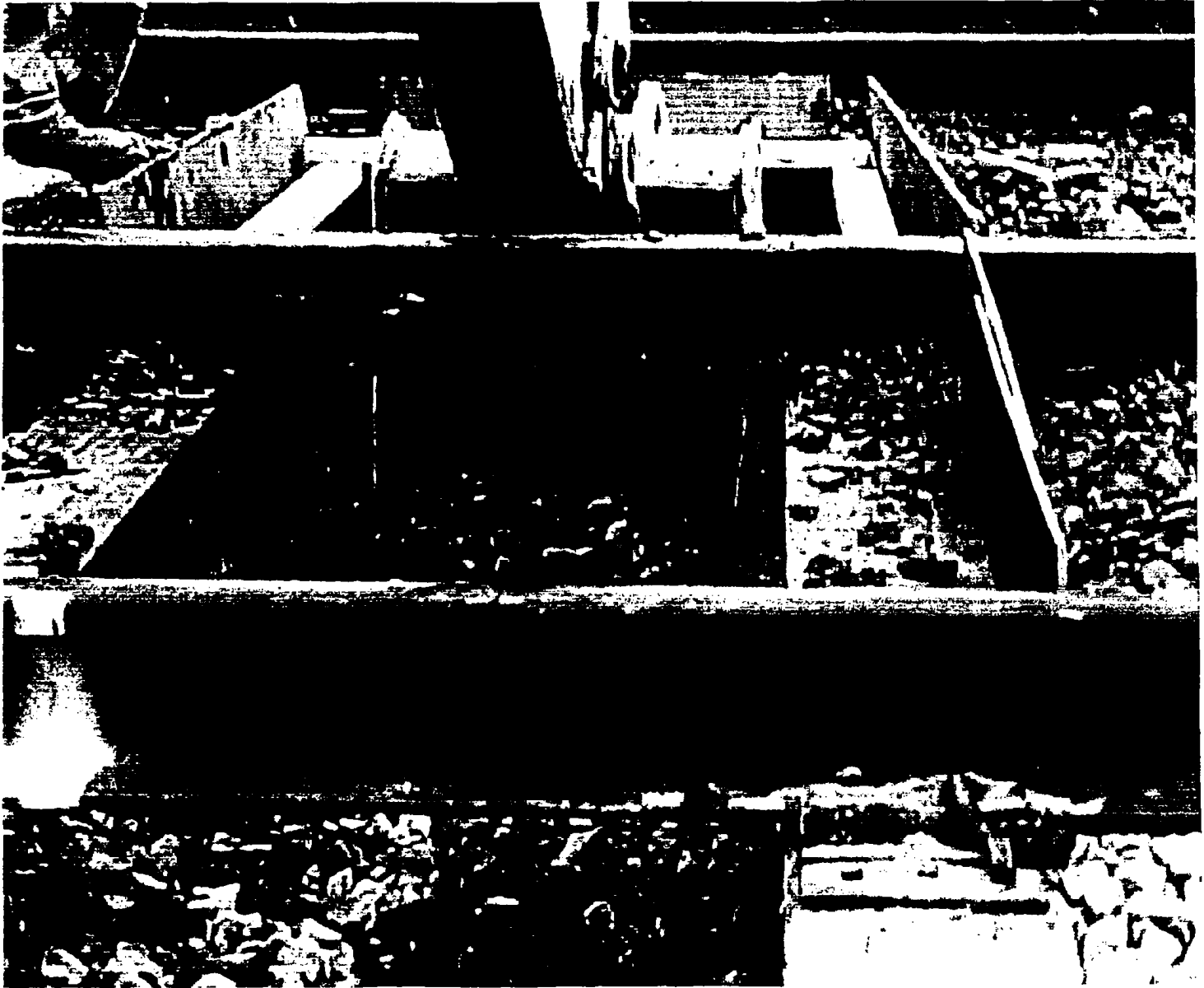


CONDUIT CROSS TRENCH @ 664+20±

4.21.00

LOOKING NO. N.T.S

EXCAVATION UNDER TRACK BED FOR CONDUIT INSTALLATION APPROX STA 664+20



4-21-06

TRACK BYPASS EXCAVATION STARTING @ STA. 665+20



Project: R.T.C. Walden Report No.: 04-21-00-33
 Contractor: TWC Date: 4-21-00
 Owner: MASSPORT / MBTA Weather: RAIN 50°
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: Precast Foundation Exc, Duct Bank Exc.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(2) LAB	2 wheel DUMP	STEEL, FABRIC	11.5	EXCA install LHT BASE STEELS w/ P.T.
(1) OPER	GEISMAR		9	
(2) LAB			9	EXC FOR CONDUIT FOR LHTS in
(1) OPER			9	PROLONG bet.
(1) OPER			9.5	Form slope & Presd. way

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: EXCA installed LB# 62 hit conc. obstruction, EXCA installed LB# 63 hit conc obstruction, EXCA install LB# 57, EXCA install LB# 68
 UTILITY TRENCH EXC. FROM LB# 58 TO #57, EXC. FOR CONDUIT FROM H. H. 1A & 14A TO H.H. 13,
 EXCAVATOR Form shoulder slope & Presidential way.
 City lights: installed 200# 2" ELECT. COND. LB# 58 TO 57, install (2) 5" FROM STA 1100 TO 0+00, install (4) 4" COND. FROM STA. 1100 TO H.H. 1
 HAZARDS/SAFETY DEFICIENCIES: INTRUSIVE WORK
 CORRECTIVE ACTIONS: NEW DRESSING in modified Level (D) PPE, AIR MONITORING during OPER, Decon set up.

Preparer: Kevin Handrell Kevin Handrell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

4-21-00

Superintendent/Foreman

Weather

Temperature

Contract
Time Charged?

RAIN

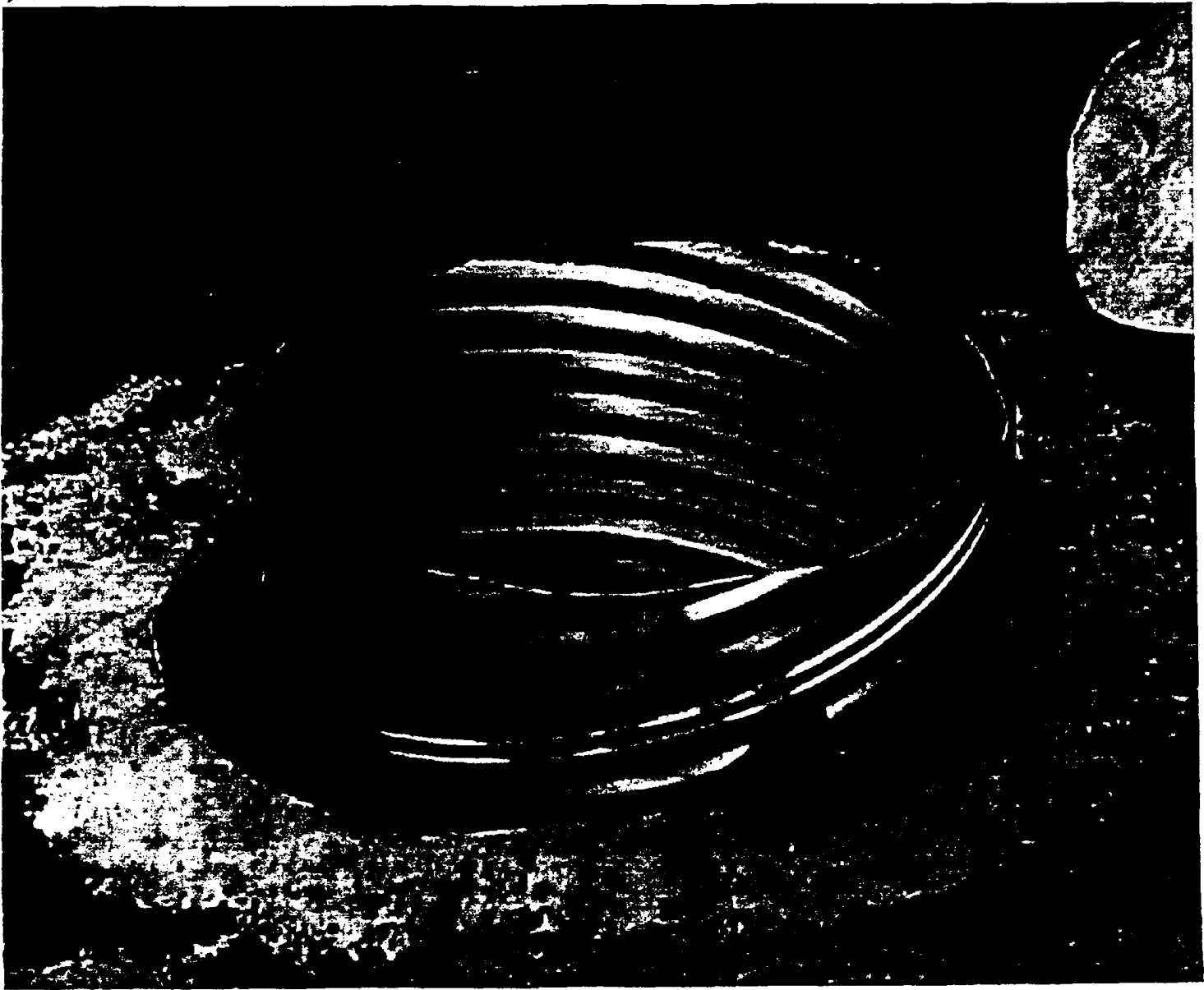
am pm 49°

YES NO

Item #	Description	Quantity	Remarks/Location
1566.000F	Exc. & Install LB# 62 SLEEVE	LONG. SIAB @	70.51 FABRIC @ 71.85
	Exc. & Install LB# 63 SLEEVE	CONG. SIAB @	70.60 FABRIC @ 72.73
	Exc. & Install LB# 57 SLEEVE	BOTTOM ELE.	64.69 FABRIC @ 73.7
	Exc. & Install LB# 68 SLEEVE	BOTTOM ELE	65.25 FABRIC @ 73.1
2200 1A1B	UTILITY TRENCH Exc. FROM	LB# 56 TO 57	EL26-3 TO HH14A TO HH?
	1-2" ELE	200'	
	2-3" ELE	100'	

Scope of Work:			
T.M.C.	Excavated FOR LB# 62 SLEEVE	EXISTING FABRIC @	71.85 NEW FABRIC BOTTOM OF SLEEVE 70.51 (TOP OF SIAB)
	INSTALLED 3'-36" SLEEVE	FOR LB 62	
	Excavated FOR LB# 63 SLEEVE	EXISTING FABRIC @	72.73 NEW FABRIC BOTTOM OF SLEEVE 70.60 (TOP OF SIAB)
	INSTALLED 3'-36" SLEEVE	FOR LB 63	
	Excavated FOR LB# 57 SLEEVE	EXISTING FABRIC @	73.7 NEW FABRIC BOTTOM OF SLEEVE 64.69
	INSTALLED 10'-36" SLEEVE	FOR LB 57	
	Excavated FOR LB# 68 SLEEVE	EXISTING FABRIC @	73.1 NEW FABRIC BOTTOM OF SLEEVE 65.25
	INSTALLED 10'-36" SLEEVE	FOR LB 68	
	TRENCH Exc. FOR 2" ELE COND. FROM	LB# 56 TO LB# 57 (200')	EL26-3 TO HH14A
	360' X 2.17' WIDE X 2' HIGH	57.0 CY	
	TRENCH Exc. FOR 2-3" COND	FROM HH14 & 14A TO HH 13	
	220' X 2.5' WIDE X 0' HIGH	40.7 CY	
CITY LIGHTS	INSTALL 200' 2" ELE COND	FROM LB 56 TO LB 57	
	INSTALL 2-5" ELE COND.	FROM STA 400 TO 400	
	INSTALL 4-4" TE COND.	FROM STA 400 TO 400	

LHT BASE #62



Project: R.T. C. Work Report No.: 09-24-CC-39
 Contractor: TMC Date: 4-24-CC
 Owner: MASSDOT / MBTA Weather: Cloudy 50°
 Project No.: 1727

Contractor Supervisor(s): Jeff Phinney

Description of Work: Excavation for Conduit and Signal Foundation under tracks

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(1) SULT.			2	exc REG material to set signal
(1) OPER	Excavator		2	Foundation @ S.B. Rd. 1
(1) HAZLAB / LAB	COMPRESSOR ^{TMC}		3	exc a install elect conduit
(1) LAB			2	Remove Ballast @ STA 66420
1 TK DRIVER	10 wheel CR		2	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: (1) MAN REMOVE STONE BALLAST @ STA. 66420 - TMC EXCAVATED FOR CONDUIT & GUY LIGHTS INSTALLED (2) RANS OF 4" @ 10' @ STA 66420 - TMC EXCAVATED REG. MAT @ STA. 66500 TO REQUIRED ELEVATION LAYED NEW FABRIC AND STICKED TO EXISTING FABRIC. THEN SET SIGNAL FOUNDATION AND BACKFILLED.

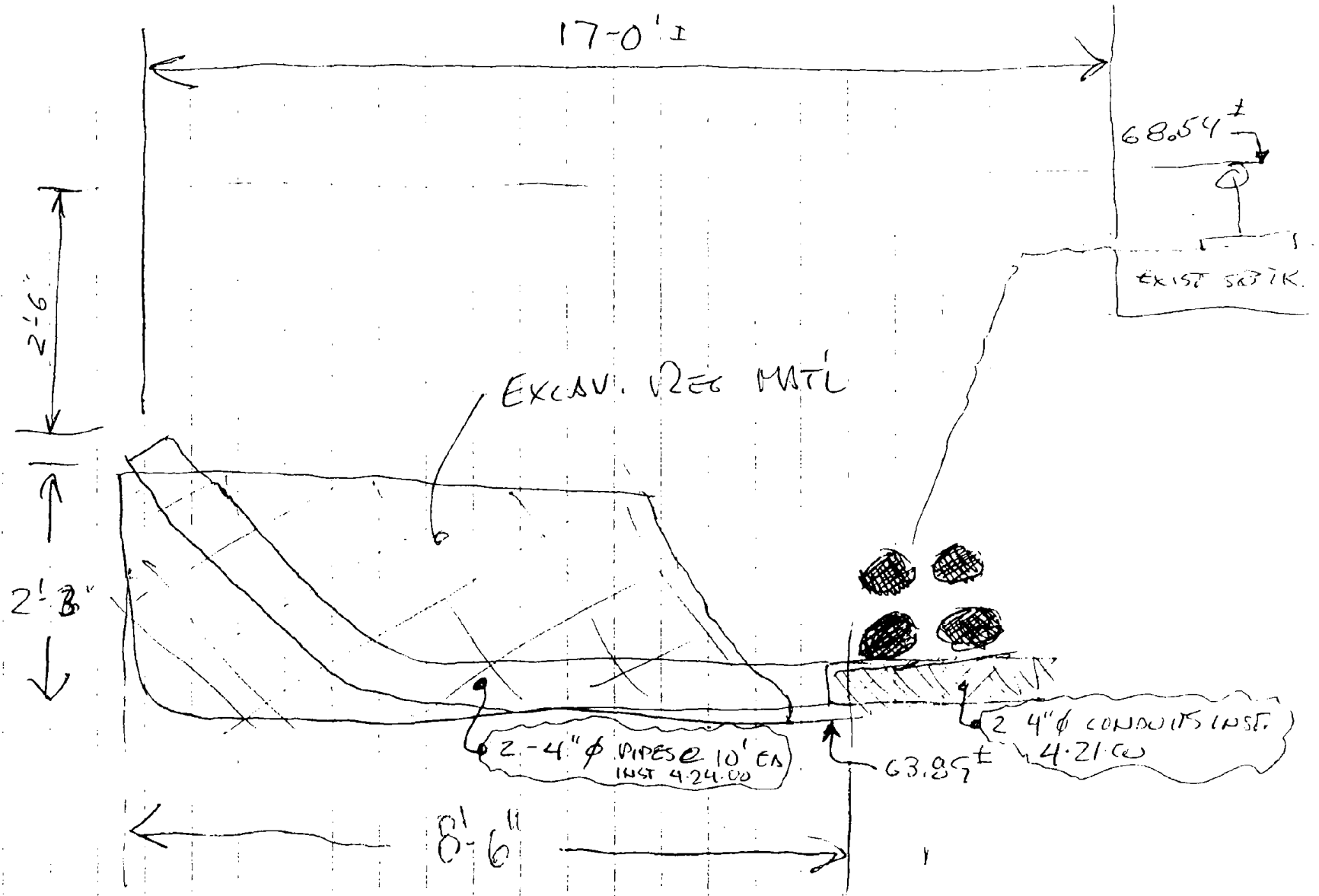
HAZARDS/SAFETY DEFICIENCIES: INTRUSIVE WORK

CORRECTIVE ACTIONS: DURING INTRUSIVE WORK MEN DRESSED IN MODIFIED LEVEL C PPE, AIR MONITORING PERFORMED DURING INTRUSIVE WORK, DEION STATION SET UP.

Preparer:

Kevin Hutchell
Name (Print)

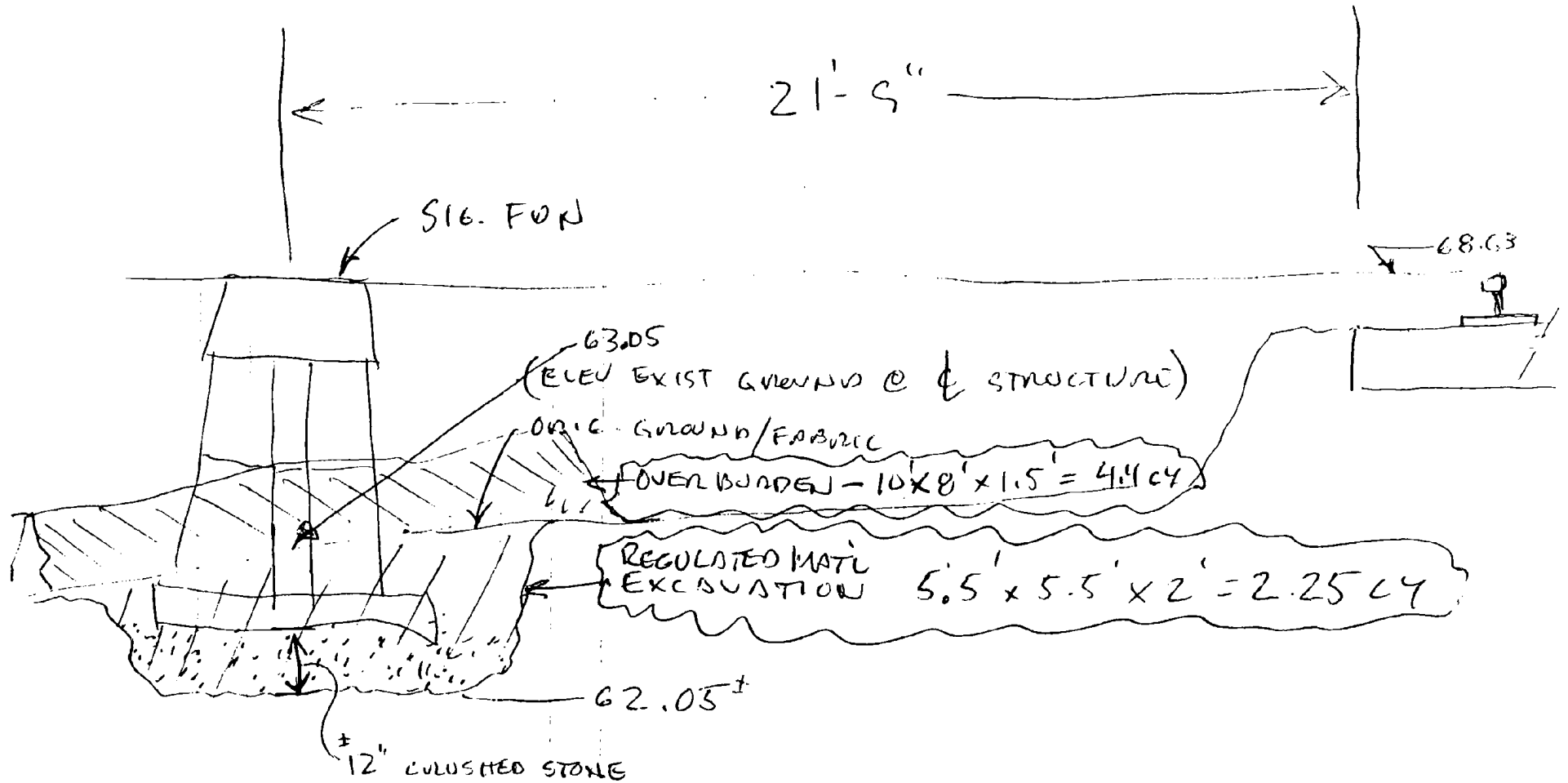
Kevin Hutchell
Signature



REG MAT'L - 2'-3" x 8'-6" x 3" AVG WIDTH = 201. CY

CONDUIT CROSS TRENCH @ 664.70

4.24.00



SIGNAL BOX INST @ 665+00

4,241.00

Fabric installation for signal Foundation STA 665+00



Project: R.T.C. Woburn Report No.: 14-24-CO-31
 Contractor: TM Date: 4-24-00
 Owner: MASSPORT / MBTA Weather: cloudy 50'
 Project No.: 1.727

Contractor Supervisor(s): Joe Phiney

Description of Work: Duct Bank Excavation, install new GEC Fabric @ ATLANTIC AVE

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(1) FORM	BACKHOE	Fabric	9.5	install new GEC Fabric @ ATLANTIC AVE
(2) OPEN	EXCAVATOR DOZER		9.5	
(1) LAB / 1 LAB			9.5	Duct Bank Exc For Conduits @ ATLANTIC AVE
(2) CEIL	Geismar BRACKET		9.5	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: excavated to expose existing fabric @ (U) - DER - SAC ATLANTIC AVE and staked in new fabric 7000 SF.
 Exc 230' ELECT. DUCT BANK for (2) 2" conduit from H.H. 14 to H.H. 15 (36.9cy)
 cleaned out storm washins from ECB-3 to H.H. 14. Excavated 180' ELECT DUCT BANK for (2) 3" cond from H.H. 13 to H.H. 12 (28.9cy). Cleaned out wash outs from H.H. 14 to H.H. 13 and cleaned wash outs @ CB
 CITY LIGHTS: installed 220' (2) - Runs 3" conduit from H.H. 13 to H.H. 14 and install 360' (2) - Runs 2" conduit from ECB to H.H. 14
 HAZARDS / SAFETY DEFICIENCIES: NONE OBSERVED
 CORRECTIVE ACTIONS: NONE NEEDED

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 09-25-00-35
 Contractor: TML Date: 4-25-00
 Owner: MAESPORT / METRA Weather: SUNNY 50°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: TRUCK BYPASS EX., EXCAVATION UNDER TRACKS

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(1) SUDT	COMPRESSOR		8	TRUCK BYPASS EX. & EXCAVATION UNDER TRACKS @ STA. 660+95
(1) OPER / (1) OPER	EXCAVATOR		8.5	
	BACK FILL		5	
(1) HAZ. LAB / LAB		NON REG. & REG MAT	3.5	
			5	
(2) LAB		NON REG. MATERIAL	8.5	
			8.5	
(2) TR DRIVERS	(1) WHEELERS	CONCRETE BYPASS EXC	8	HAUL TRUCK BYPASS EXC.
(1) FLAGGER	FLAG/HORN			

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TRUCK BYPASS EXCAVATION FROM STA. 665+29 TO 668+99, Loaded TRKS & DUMPED @ WOBURN LANDFILL. EXCAVATION UNDER TRACKS @ STA. 660+95, EXC TO TOP OF MIX, w/ EXCAVATION SUPPORTED w/ STEEL PLATES, EXC OF REG MAT BELOW MIX. EXCAVATED TO REQUIRED ELEVATION PLACED FABRIC SET, CONDUIT and BACK FILLED and COMPACTED. REG MATERIAL DUMPED in STORAGE CELL.

Hazards / SAFETY DEFICIENCIES: Intrusive work

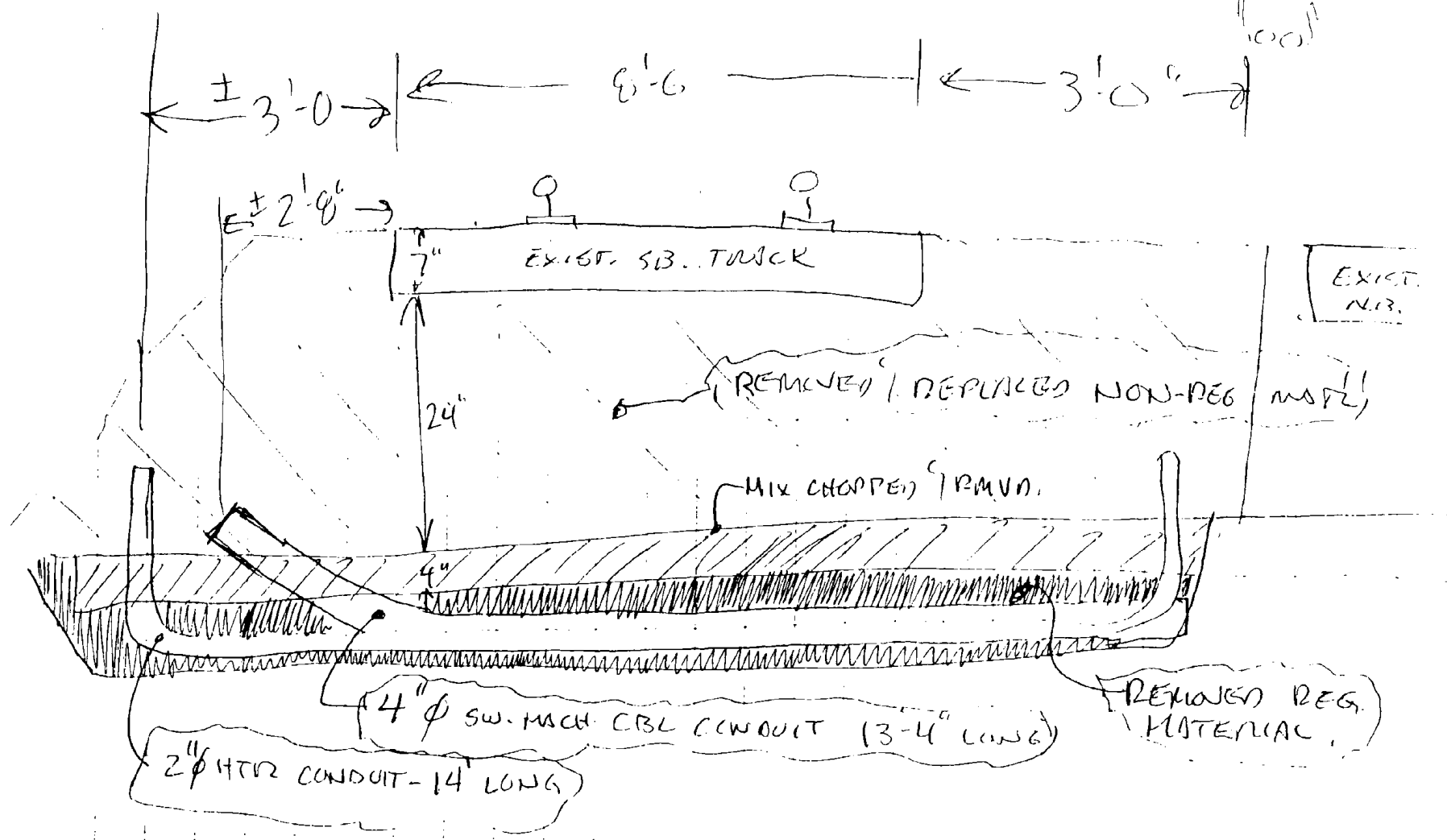
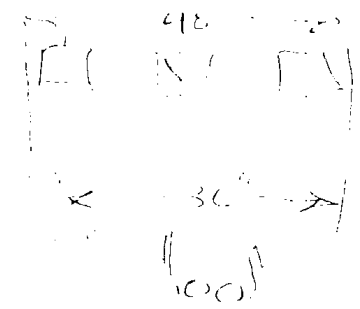
Corrective: During intrusive work crew dressed in Modified LEVEL(D) PPE, mobil Decon set up, Air Monitoring during intrusive work

Preparer: Kevin Hankerill
Name (Print)

Kevin Hankerill
Signature

NON REG EXC. $14'-6" \times 3'-6" \times 3'-0" = 5.6 \text{ cy}$

REG. EXC. $15'-0" \times 6" \times 1'-3" = .35 \text{ cy}$



SECTION @ STA 660+85 ±
4025.00

4-25-00

EXCAVATION UNDER TRACK @ STA. 660+85



TRACK EXC. UNDER S. B. RAIL & CONDUIT

STA. 660+85



12-30 - For P. B. Smith - 1-2 6:30 am

Project: R.T.C. WORK Report No.: 05-01-CO-39
 Contractor: TML Date: 5-1-00
 Owner: MASSPORT/MBTA Weather: Sunny 16°
 Project No.: 1727

Contractor Supervisor(s): JOE PHINNEY

Description of Work: TRACK BYPASS EXCAVATION UNDER FABRIC

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SPT		REG. MATERIAL	8	SEE ACTIVITIES
(2) OPER	DOZER 665322	REG. MAT.	10.5	
(2) HAZ LAB		REG. MAT	10.5	
(1) TK DRILLER	10 Wheeler	REG MAT	9	

Visitors	Representing	Purpose

Daily Notes:

Activities: CREW CUT OPEN FABRIC AND CUT MATERIAL TO SUBGRADE FOR S.B. TRACK BCD. 10 Wheeler Hauling material TO EAST side of JOB and dumped into CELL #5 EXCAVATION FROM STA. 682+00 TO 680+00.

Hazards/Safety DEFICIENCIES: INTRUSIVE WORK.

Corrective Actions: DURING INTRUSIVE WORK CREW WEARING MODIFIED LEVEL "D" PPE Mobil Decan unit set up; Air monitoring performed during all intrusive work

Preparer: KEVIN HARTWELL Kevin Hartwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-1-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

5-1-00

am 5-3 pm

YES NO

Item #	Description	Quantity	Remarks/Location
3300.99A	FORMED DUCT BANK	170'	ELE DUCT BANK STA 0+75 TO TRANS
	FORMED DUCT BANK	60'	TEL DUCT BANK STA 0+10 - TMH
1000.99B	POURED ELE DUCT BANK	19 CY	ELE DUCT BANK
	POURED TEL DUCT BANK	9 CY	TEL DUCT BANK
1999.999D	INSTALL 2 NEW REG MAT CELLS	40' X 80'	ADD TO EXISTING SILL'S
1566.000B	REMOVE REG MAT - FROM EXISTING	300'	STA 660 - 662

Scope of Work:

T.M.C.	FORMED 60' TEL DUCT BANK	3.23' WIDE X 1.33' HIGH	FROM STA 0+10 TO TMH 1
	FORMED 60' ELE DUCT BANK	2' WIDE X 1.33' HIGH	FROM STA 0+75 TO STA 0+10
	FORMED 35' ELE DUCT BANK	2' WIDE X 2' HIGH	FROM STA 9+10 TO TRANS TO 10+00
	FORMED 35' ELE DUCT BANK	1.23' WIDE X 2' HIGH	FROM STA 10+00 TO STA 10+25
	POURED 170' ELE DUCT BANK	19 CY 3/4	5000 COMP. FROM STA 0+75 TO STA 0+10
	POURED 60' TEL DUCT BANK	9 CY 3/4	5000 COMP. FROM STA 0+10
	INSTALL 2 NEW REG. MAT CELLS	40' X 80' EA.	ADD TO EXISTING SILL'S
	CUT EXISTING BANK EXISTING BANK TO CUT TO GRADE & REMOVE REG MAT.		
	CUT & GRADE 300'		CUT EXISTING BANK TO 17' HIGH AT RAIL STA 660 - STA 662

Project: RT.C. WORK Report No.: 05-02-00-40
 Contractor: TMC Date: 5-2-00
 Owner: MASSPORT/MBTA Weather: Rain A.M. - Sunny P.M.
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: TRACK BYPASS EXCAVATION UNDER FIBER C

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
3 HAZ Lab	RACK TV & TRAILER	REG. MAT.	11/105/10	SEE ACTIVITIES
2 OPER	GENERATOR		105/9	
2 TR DRIVERS	(2) LOW WHEELER		9/9	HAULING & DUMP REG MAT IN STORAGE CELL #6
1 FLAGGER	FLAG/STICK			

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: FROM STA. 670+00 TO 671+50 HAZ MAT CREW CUT OPEN FABRIC, and CUT TO SUBGRADE, LOADED LOW WHEELERS w/ REG. MAT and they DUMPED MATERIAL IN STORAGE CELL #6. FROM STA. 671+50 TO STA. TO 676+00 HAZ MAT CREW CUT FABRIC OPEN & GC MAT TO REQUIRED grade. AREA Graded 400'.
 BACKFILLED DIRT BANK FROM TMC # 0150 TO UTILITY POLE STA 0100

HAZARDS/SAFETY DEFICIENCIES: INTRUSIVE WORK

CORRECTIVE ACTIONS: DURING INTRUSIVE WORK CREW DRESSED IN MODIFIED LEVEL 'D' PPE, DECON STATION SET UP, AIR MONITORING PERFORMED DURING OPERATION

Preparer: Kevin Hartwell
 Name (Print)

Kevin Hartwell
 Signature

Project: R.T. Luchessa Report No.: 05-03-00-41
 Contractor: TMC Date: 5-3-00
 Owner: Missouri / MBTA Weather: Sunny 70°
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: Grading/Balancing ROW, BACKFILL DUCT BANK

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
3 HAZ Laborers	RHEL TRUCK Digger/Draile Generator	REG. MATERIALS	10.5	SEE ACTIVITIES
2 OPERATORS	D-3 DZER	4 FABRIC	10.5	
2 TR	10 wheelers		9	
1 Flagger	Flag/Horn		9.5	
1 OPER	B. TOE		9.5	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: HAZ MAT CREW Grading/Balancing ROW. From STA. 670+00 TO STA. 676+00. CREW CUT OPEN FABRIC and graded material to required grade. Folded over cut pieces of fabric, laid new fabric & prep for stitching operation.

BACKFILLED & LAID MAT: TAP on ELECT DUCT BANK From STA. 9+10 TO TRANSFORMER PAD TO STA. 10+00 & TRANS. PAD TO utility shed.

HAZARDS/SAFETY DEFICIENCIES: ~~EXTENSIVE~~ work

Corrective Actions: HAZ MAT CREW DRESSED in Modified LEVEL (D) PPE, Mobil Decon unit setup, Air monitoring performed during operation.

Preparer: Kevin Hawkwell Kevin Hawkwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 05-04-00-42
 Contractor: TMC Date: 5-4-00
 Owner: MASSPORT / MBTA Weather: Sunny 70°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: TRACK BYPASS ECL, Sticking Fabric, Grade / BATTILING R.O.W.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER, 2 LAB	BACKHOE	Gravel Above Fabric	10/8.5/9.5	SEE ACTIVITIES
1 OPER, 1 TC DRIVER, 1 LAB	D-3, 100 wheeler	Fill	10.5/10/9	
3 Lab	Sewing Mach.	Fabric	11/9.5/10	
1 Pinger	Horn		10	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC BACKHOE d 2 laborers widening ABOVE FABRIC FROM STA. 666+50 TO STA. 665+00. TMC Fill & Gd on R.O.W. Adj TO S. BATTIL FROM STA. 670+00 TO STA. 666+50. TMC STICHED FABRIC FROM STA. 670+00 TO STA.

HAZARDS / SAFETY DEFICIENCIES: NONE OBSERVED

CORRECTIVE ACTIONS: NONE NEEDED

Preparer: Kevin Hankwell Kevin Hankwell
 Name (Print) Signature

Project: R.T.C. Work Report No.: 05-05-00-43
 Contractor: TMC Date: 5-5-00
 Owner: MASSPORT / MIRA Weather: Partly Cloudy 73°
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: Excavate & Decon Ledge

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	GEISMAR	REG Mat	8	Exc & Decon Ledge in ROW
1 HAZ LAB		REG mat	8	adj to S.B. Bldg
1 TR DRIVER	10 Wheeler	REG MAT	8	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: GEISMAR & LABORER (HAZ) EXCAVATING & DECONING LEDGE IN S. BOUND R.O.W. FROM STA _____ TO STA _____. ANY LOOSE MATERIAL BEING LOADED & DUMPED IN STORAGE CELL #6.

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK

CORRECTIVE ACTIONS: HAZMAT LABORER DRESSED IN MODIFIED LEVEL (D) PPE, MOBIL DECON UNIT SET UP, AIR MONITORING PERFORMED DURING OPERATION.

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Project: R.T.C. Laburn Report No.: 05-05-00-43
 Contractor: TMC Date: 5-5-00
 Owner: MASSPORT / MBTA Weather: Partly Cloudy 73°
 Project No.: 6727

Contractor Supervisor(s): Jeff Phinney

Description of Work: Exc & install of underdrain/cleanouts, Drainage structure

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Form		12" PIPE, Cleanout	8	SEE ACTIVITIES
1 PIDE LAY / HAZ LAB		conc. drain structure	8.5	
2 OPER	Loader excavator	Fabric, 3/4" stone	8.5	
1 LAB			8.5	
TK DRIVER	6 wheel pump		8	

Visitors	Representing	Purpose

Daily Notes:

Activities: P.P.C crew excavating & install 12" PVC underdrain & cleanouts and had intrusive work to set drainage structure. Crew when installing pipe, excavated, fabric, bed of stone, set pipe, backfill w/ stone, wrapped fabric and covered w/ stone.

HAZARDS / SAFETY DEFICIENCIES: intrusive work

Corrective Actions: 1 HAZ Lab, dressed in modified Level (D) PPE, Decon SET UP, AIR monitoring during operation, excavated Reg. mat stored in cell #5

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Project: R.T.C. work area Report No.: 05-08-00-44
 Contractor: TMC Date: 5-8-00
 Owner: MASSPORT / MBTA Weather: 75°-92°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinary

Description of Work: SEE ACTIVITIES

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM	6 Wheel Dump Excavator		10	SEE ACTIVITIES
2 OPER	loader		10/10	
1 PIPE LAYER	BOX TRUCK		10	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: PIPE CREW RAN 36' OF 12" HDPE PIPE FROM CB# 3 TO EXISTING MANHOLE, 51795, 23' RT, 80' 6" HDPE PIPE FROM CB# 7 STA. 24+61 TOWARD REEF DRAIN @ BID. 21' OF 12" HDPE PIPE FROM CB# 1 TO CB# 7 and 9' 6" OF 12" HDPE PIPE FROM DMH# 1 TO CB# 7 STA 24+61. EXCAVATED and Hauld Req. Material 2.09 CY For CB# 7 STA 24+61 & CB# 3 51795 23' RT

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK

CORRECTIVE ACTIONS: DURING INTRUSIVE WORK LEVEL(D) PPE USED, Decon unit, and Air Monitoring DURING OPERATIONS.

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

Project: P.T.C. Woburn Report No.: 05-08-00-44
 Contractor: TMC Date: 5-8-00
 Owner: MassDOT / MBTA Weather: 78° - 92°
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: SEE ACTIVITIES

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER / 1 HAZ LAB / 1 REPAIR	Generator	Reg. MAT.	30/10	SEE ACTIVITIES
3 Lab	TRUCK TRUCK	Fabric	30/10	
1 OPER / 2 Lab	PIPE	8 1/2" HandHole / Fabric	30/9	
1 OPER / 1 Lab	Excavator	Ordinary Backfill	9.5	

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC cleaning of ledge e to S.B. Rail From STA. 68350 TO 685175.
 TMC installed new fabric in S.B. ROW and staked it From STA. 680100 TO 682100
 TMC also installed 2 HandHoles, H.H. #12 & 12A, Fabric was high so work became intrusive for both HandHoles 12, 12A, they hit concrete slabs & 5' NEED a 4" Frame for adjustment. TMC sewed fabric before installing H.H.
 TMC Excavated for Boston Gas from STA. 18100 TO STA. 19160 ATLANTIC AVE

Hazards / SAFETY / DEFICIENCIES: Intrusive work

Corrective actions: modified Level "D" APE, Decon unit setup, Air monitoring during ^{intrusive} operations

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location: Regional Transportation Center, Woburn, MA Job #: 405 Today's Date: 5-E-00 page ____ of ____

Superintendent/Foreman: T. SWEE Weather: CLEAR Temperature: 78° am 92° pm Contract Time Charged? YES NO

Item #	Description	Quantity	Remarks/Location
CO# 405007	INSTALL NEW FABRIC ROW	200' FROM	STA 680+00 TO 682+00
T E M	CLEAN OFF LEDGE	25' FROM	STA 683+50 TO STA 683+75
3400.161	Exc. TO INSTALL HH12&12A		
1566.006F	* FABRIC TOO HIGH; INTRUSIVE ON 130-4		HH12&12A -1'
	** HIT CONC. SLAB @ -1.5'		NEED TO ORDER 2 -4" FRAMES
1979 1409	SEW NEW FABRIC ON OF CONC. SLAB & INSTALL HH12&12A		
2200.121A	TRENCH Exc. FOR BOSTON GAS	4" GAS LINE	FROM STA 18+00 TO STA 19+60 ATLANTIC AVE 160'

Scope of Work:			
T.M.C.	CUT & SEW IN NEW GEOTEXTILE FABRIC	FROM STA	680+00 TO STA 682+00 200'
	Excavate TO TOP OF LEDGE (SWEEP & CLEAN)	FROM STA	683+50 TO 683+75
	Excavate TO TOP OF FABRIC FOR		HH 12&12A
	Excavate REE MAT FOR		HH12&12A
	SEW IN NEW GEOTEXTILE FABRIC FOR		HH12&12A
	TRENCH Excavate FOR 4" GAS LINE	FROM STA	18+00 TO 19+60 ATLANTIC AVE.
			2' X 3' X 160' = 1355 CY

Project: R.T.C. Woburn Report No.: 05-08-00-49
 Contractor: TMC Date: 5-8-00
 Owner: MASSPORT / MATA Weather: 78° - 92°
 Project No.: 1727

Contractor Supervisor(s): JOE PHURRY

Description of Work: PAVING, subgrading Parking lot

Brandon's

TMC

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
<u>PAVING CREW</u>			<u>10</u>	
<u>1 OPER / 1 OPER / 1 AB</u>	<u>Dozer vib roller</u>		<u>9 / 9</u>	
<u>1 OPER</u>	<u>Grader</u>		<u>9</u>	
<u>1 TK DRIVER</u>	<u>water TK</u>		<u>9</u>	
<u>2 SURVEYORS</u>	<u>survey</u>		<u>28</u>	

Visitors	Representing	Purpose
<u>TRAILERS / TRUCKS</u>	<u>Brandon Trumont</u>	<u>Hauling Mix</u>
<u>TRAILERS</u>	<u>TMC</u>	<u>Hauling Gravel Perrow</u>

Daily Notes:

ACTIVITIES: Brandon Trumont PAVING Binder course north east of building & Parking lot
TMC Forming subgrade south side of Building and Roadway from Presidential to Atlantic. WATER TRUCK DUST control entire site
SURVEYORS: site survey
 HAZARDS / SAFETY DEFICIENCIES: TRUCK TRAFFIC.
 Corrective Action: SPEED thru site restricted.

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 05-09-00-45
 Contractor: TMC Date: 5-9-00
 Owner: MASSPORT / MBTA Weather: Sunny 86°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phoney

Description of Work: Exc & install conduit under S.W. Rail.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT		conc mix	8	SEE ACTIVITIES
1 OPER	B HOE	Ballast	8	
1 HAZ LAB	COMPRESSOR	REG material	8	
1 TIC DRIVER	TRUCK	Fabric		
City lights		conduit		
Flagger	Flag/ Horn		9	

Visitors	Representing	Purpose

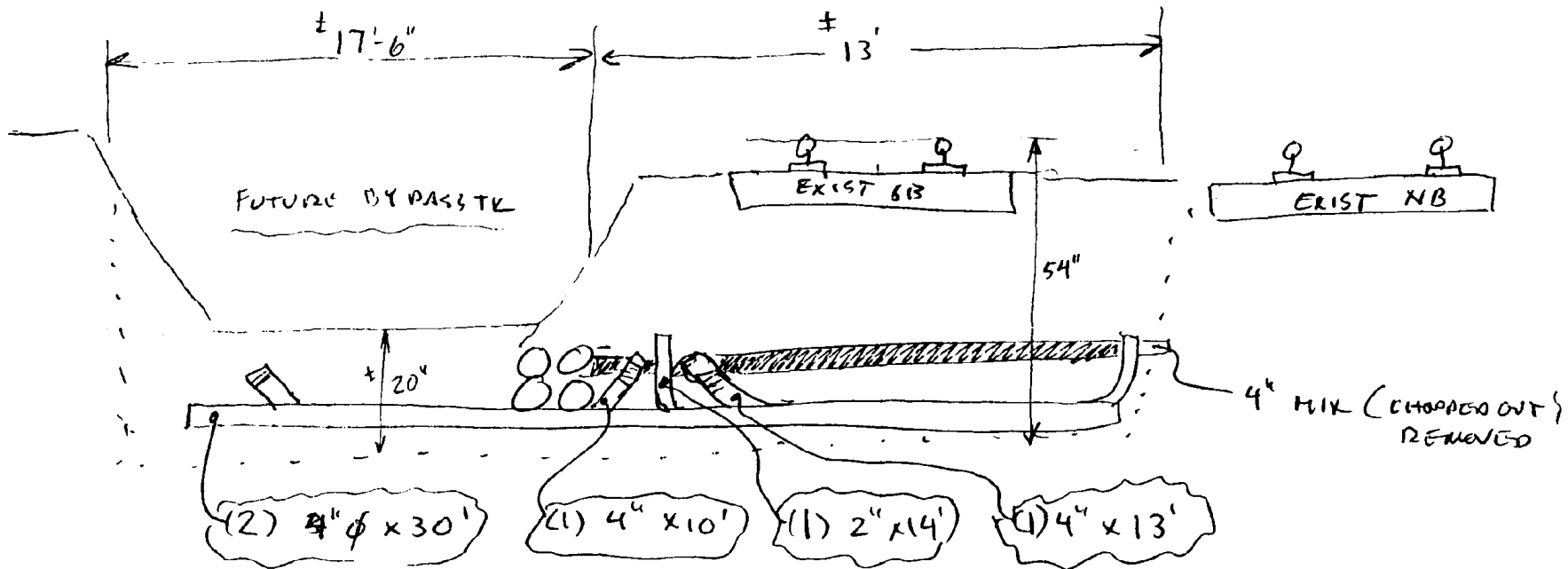
Daily Notes:

ACTIVITIES: TMC @ STA. 681+73 Excavated from center of N & S Bound Rail to outer limit of R.O.W. For conduit installation. They Exc to TOP of mix, JACK Hammered & Remove mix. Work become intrusive; Excavated to Required Elevation and installed Fabric, then installed Conduit, 14' of 2", 2 runs of 4" @ 30', 4" @ 12' and 4" @ 10'. Backfilled Conduit and Compacted, Reinstalled TIE.

HAZARDS/SAFETY DEFICIENCIES: Intrusive work

Corrective Actions: During intrusive work crew Dressed in Modified Level "D" PPE Decon set up, Air Monitoring Performed during operations.

Preparer: Kevin Hankwell Kevin Hankwell
 Name (Print) Signature



REG MATL REMOVED - UNDER SB - $13'-0 \times 30'' \times 16'' = 1.6 \text{ CY}$
 UNDER BP - $17'-6 \times 42'' \times 20'' = 3.8 \text{ CY}$
 @ SIGNAL - $4'-0 \times 3'-0 \times 3'-0/2 = .9 \text{ CY}$
6.3 CY

NEW REG BALLAST EX/REPL - $13' \times 3'-2 \times 36'' = 4.6 \text{ CY}$

SECTION @ STATION 681+62

Project: R.T.L. WEBER Report No.: 05-09-00-45
 Contractor: TMC Date: 5-9-00
 Owner: MASSPORT / MBTA Weather: Sunny 86°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: SEE ACTIVITIES

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER / 2 LAB	EXCAVATOR P. HOE	Handholes	8/8/8	SEE ACTIVITIES
1 FORM	RACKLE	Fabric	10	
1 OPER / 1 TROWEL	Grassman Trowel	Ballast	9/9	
1 OPER / 1 LABOR	EXCAVATOR	Ordinary Boron	9/9	
Bardon Trument PAVE CROW	ROLLER PAVER	MIX FILL	-10	
BOSTON GAS	UTILITY TK	GAS PIPE	8	

Visitors	Representing	Purpose
<u>TRAILERS / TRAXLES</u>	<u>Bardon Trument</u>	<u>HAULING BIT CONG.</u>

Daily Notes:

ACTIVITIES: TMC EXCAVATED and installed Handholes #13, 13A, Also excavated for H.H. 14, 14A, but Fabric too high will perform intrusive work tom. TMC ALSO install NEW Fabric in S.B. R.O.W. and Sewed from STA. 665+00 to STA. 670+00-7500SF
 TMC EXCAVATED Along BARRIER Adjacent to SB Rail, REMOVE existing Ballast For PAVING from STA. 678+30 to STA. 681+45, Replaced Ballast AFTER PAVING completed. TMC TRENCHING For GAS Co. installing of 4" GAS Line FROM STA. 19+60 ATLANTIC AVE TO STA 5+00 utility corridor.
 Bardon Trument Finished Binder course @ Residential way and ALSO PAVED S.B. R.O.W. FROM STA. 665+00 TO 681+30 (500 TONS)
 TMC ALSO BACKFILLED 16" W. M.M.W @ Culvert west side of SB Rail.

HAZARDS / SAFETY DEFICIENCIES: TRAIN TRAFFIC

CORRECTIVE ACTIONS: FLAGMEN

Preparer: Kevin Hantwell Kevin Hantwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-5-00

Superintendent/Foreman

T. SWIFT

Weather

Temperature

am pm 85°

Contract Time Charged?

YES NO

Item #	Description	Quantity	Remarks/Location
10720.100	EXCAVATE MAT. (B&P) ALONG TRACK	500 TONS	FOR EXISTING 22-20-00
	INSTALL NEW GEOTEXTILE FABRIC TO 6'0" +30	500 TONS	3-2-00
	INSTALL NEW FABRIC FROM STA 42+00 TO 47-00	500'	
3400.151	EXC. & INSTALL HH3 & 13A		
	EXC. TO INSTALL HH3 & 13A		
	* FABRIC TO 1' TOO HIGH		
	BACKFILL SAND TO EXCAVATION (END OF 16' WATER LINE)		
2200.1214	TRENCH EXCAVATION FOR 4" GAS LINE		LINE FROM STA 19+60 ATLANTIC AVE TO 5+00
	* INSTALL NEW FABRIC 7.5' X 30'		FROM STA 30+50 ATLANTIC AVE TO 0+50

Scope of Work:			
✓	T.M.C.	EXCAVATED MAT. (B&P) ALONG TRACK	6' DEEP - END S.E. RAIL SWITCH STA 670+30 TO 681-
✓		INSTALLED NEW GEOTEXTILE FABRIC FROM STA 665+00 TO 670+30	7500 SF
		INSTALL BALAST ALONG BARRIER AFTER PAVING	60 TONS
		EXCAVATE & INSTALL HH3 & 13A	
		EXCAVATE TO FABRIC FOR HH 14 & 12A	* FABRIC TOO HIGH
		BACKFILL SAND WELL TO EXCAVATION (END OF 16' WATER LINE)	
		TRENCH EXCAVATION FOR 4" GAS LINE	STA 19+60 ATLANTIC AVE TO STA 5+00
		3' WIDE X 3' DEEP X 480'	106.6 CY
		* INSTALL NEW GEOTEXTILE FABRIC 7.5' X 30'	FROM STA 0+50 TO 0+50
✓	BARDEN TRIMONT	INSTALL BIT. CONG. FROM STA 665+00 TO 681+30	500 TONS

Project: D.T.C. Webern Report No.: _____
 Contractor: TMC Date: _____
 Owner: MASSPORT / MBTA Weather: _____
 Project No.: 1.727

Contractor Supervisor(s): Joe Thumey

Description of Work: Drainage Pipe & Structure installing & Excavation

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM		6" HDPE PIPE	8	SEE ACTIVITIES
2 OPER	Excavator Loader	12" HDPE PIPE	2/9	
1 PIPE LAYER	BOX TC	Catch Basins	9	
		Leach Basin		
		FABRIC		

Visitors	Representing	Purpose
_____	_____	_____
_____	_____	_____
_____	_____	_____

Daily Notes:

ACTIVITIES: PIPE CREW excavated and install CB#12, CB#13 and tied in to existing CB#14. Installed 60' 12" HDPE PIPE, 80' of 6" HDPE PIPE FOR ROOF DRAINS @ BUILDING, and 40' OF 6" HDPE FOR BUS / VAN POOL COOPY. They also excavated for leaching Basin south end of drainage Run, cut through Fabric excavated to required elevation and installed new Fabric and sewed. They will install Basin TOM.

HAZARDS / SAFETY DEFICIENCIES: Intrusive work @ Leaching Basin

Corrective Actions: Modified Level "D" PPE being worn, Decon setup, AIR Monitoring performed during intrusive work

Preparer:

Kevin Handwell
Name (Print)

Kevin Handwell
Signature

Project: R.T.C. Woburn Report No.: 05-11-00-47
 Contractor: TMC Date: 5-11-00
 Owner: MASSPORT / MATA Weather: Cloudy 60°
 Project No.: 1.727

Contractor Supervisor(s): See Phinney

Description of Work: Excavation under track w. Band

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT		conduit fabric	8	SEE ACTIVITIES
1 OPER	RAT 15	ballast	9.5	
1 HAZ LAB	COMPRESSOR	REG MAT	9	
		NON-REG MAT		
1 FLAGGER	Ho:~		11	He covered PIPE CREW & TRACK CREW.

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: AT STA. 665+00 TMC EXCAVATE UNDER TRACK IN NON-REG. MAT and installed 10' of 4" conduit for track wire. AT STA. 660+85 TMC Exc Ballast to top of mix, intrusive work for rest of Exc to require elev. for conduit installation.

HAZARDS / SAFETY DEFICIENCIES: intrusive work

Corrective Actions: Modified Level / "D" PPE, Decon wa. set up, Air Monitor in during operations.

Preparer: Kevin Hankwell Kevin Hankwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job # 405

Today's Date: 5-11-00

page 1 of

Regional Transportation Center, Woburn, MA

405

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

L. WESTALL

am pm

YES NO

Item #	Description	Quantity	Remarks/Location
1. 2504.100	BALLAST, NEW F&I	349.37 TONS	INSTALLED ON B.P. TRK
2. 2504.200A	RMV/REP. BALL @ X-ING	3.56 CY	X-ING @ 660+85 NWS.
3. 1566.000A	RMV REG. MAT'L @ X-ING	1.75 CY	" " " "
4. 2200.121E	EXC. UNDER TIES	2 CF	X-ING @ 665+00 13P
5. 1566.000A	RMV REG MAT'L	N/A	UNLOAD BARRIERS FOR "SUPER CELL" HANDING AREA.

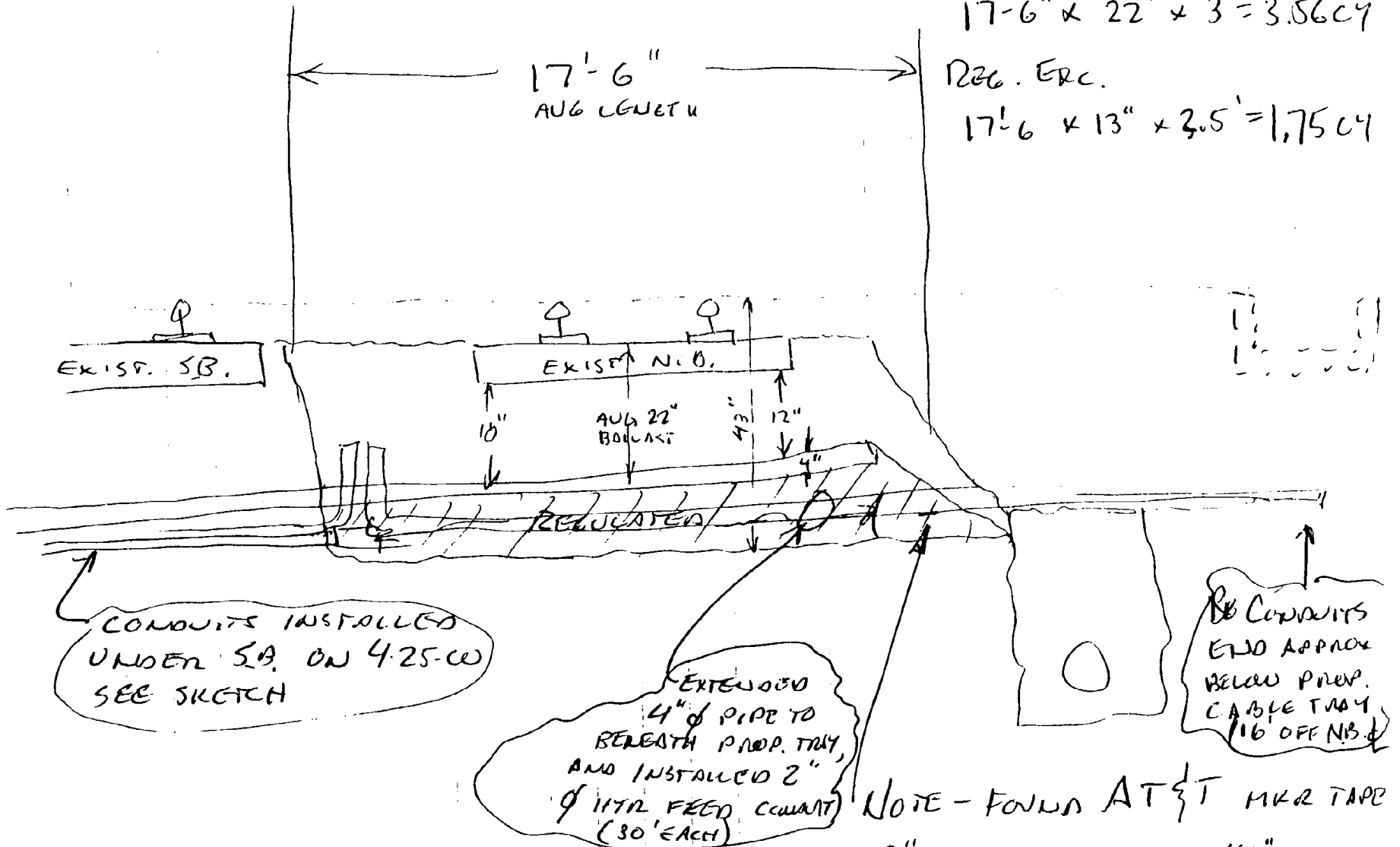
Scope of Work:			
1.	Remove DUMPING NEW BALLAST	CHANGING NEW BALLAST	ALL BYPASS TRAFFIC CONTINUES WORKING FROM 675+00 SOUTH
2.	EXCAVATE BALLAST TO TOP OF MIX FOR NB TRK CONDUIT X-ING,	INST CONDUIT @ B.F.	
3.	EXCAVATE REG. MAT'L BELOW MIX, TRIM TRENCH TO GRADE, INST. FABRIC, SEW TO EXIST FABRIC UNDER SHOULDER.		
4.	MINOR REEXCAV. OF FILL SPREAD OVER FABRIC ON B.P. TRK TO INST 10' 4" CONDUIT JUST BELOW FUTURE PROP. INST. OF PAVING TIES AREA		
5.	BOBBY UNLOADED TRAILERS OF BARRIERS TO BUILD NEW HAZARDOUS CELL.		

BALL. EX:

$$17'-6" \times 22" \times 3" = 3.56 \text{ CY}$$

REB. ERE.

$$17'-6" \times 13" \times 3.5" = 1.75 \text{ CY}$$



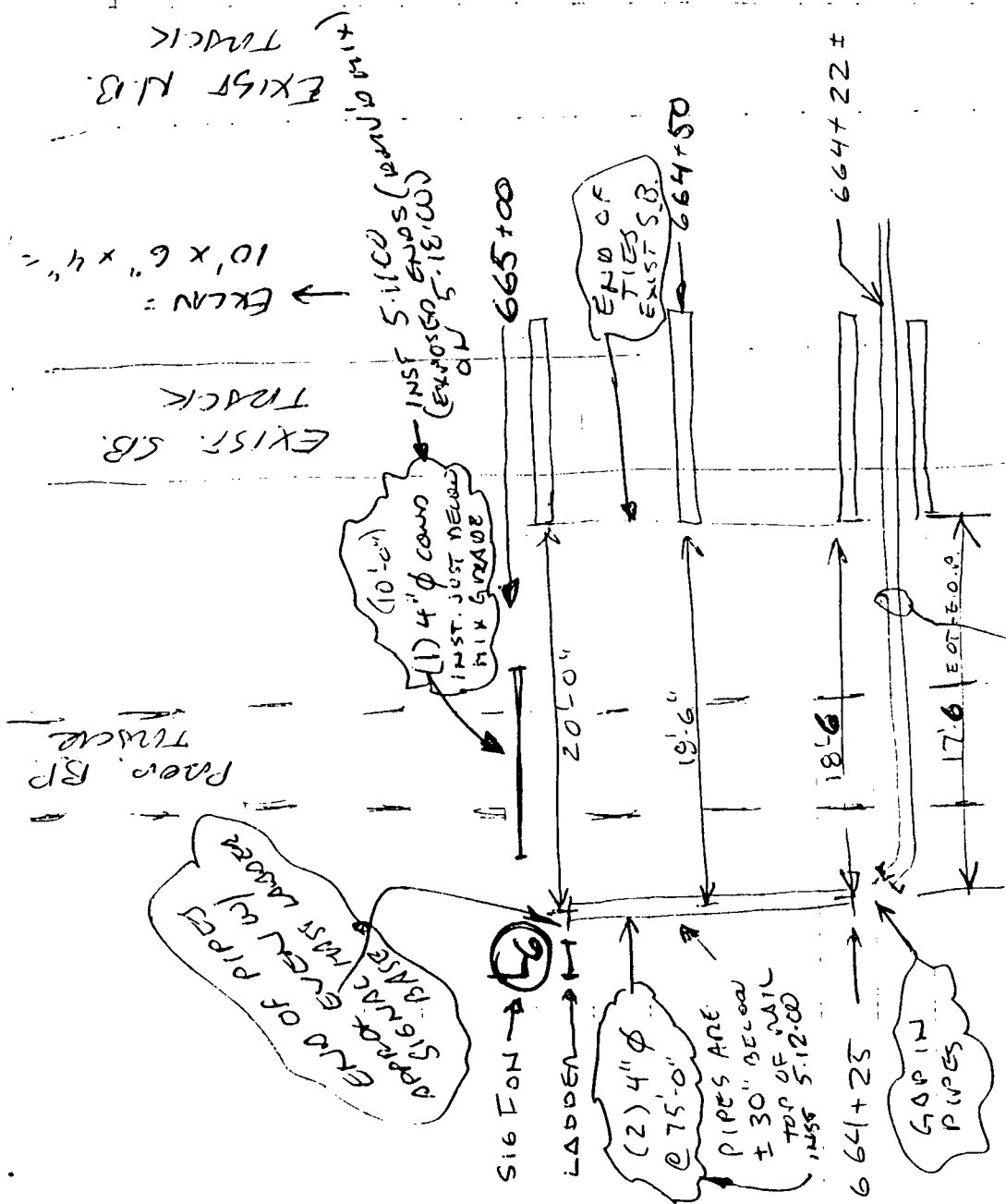
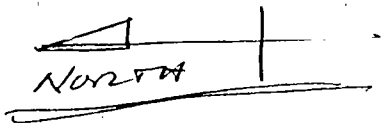
CONDUITS INSTALLED UNDER SB. ON 4-25-00 SEE SKETCH

EXTENDED 4" OF PIPE TO BENEATH PROP. TRAY, AND INSTALLED 2" OF HYD FEED CONDUIT (30' EACH)

REB CONDUITS END APPROX BELOW PROP. CABLE TRAY 16' OFF N.B.

NOTE - FOUND AT 1/2 T MKR TAPE 38" BELOW T.O.R., 40" OFF END OF TIE, LOOKED (SHOVELED) BENEATH IT BUT WE DID NOT FIND F.O. DUCTS.

± 660785
5011000



← CLEAN = 10' x 6" x 4"

EXIST. S.B. TRACK

PAR. BP TRACK

EXIST. N.B. TRACK

INST. 5.11.00 (EXPOSED ENDS) 5.13.00 ON 5.13.00

(1) 4" φ CONDUIT INST. JUST BELOW MIX GRADE (10'-0")

END OF TIES EXIST. S.B. 664+50

END OF PIPES APPROX EQUAL TO SIGNAL INST. LADDER

66

(2) 4" φ @ 75'-0" PIPES ARE ± 30" BELOW TOP OF NATL INST. 5.12.00

GAP IN PIPES

2 4" φ PIPES INST. PREV. (SEE SKETCHES DATED 4.21.00 & 4.24.00)

CONDUITS INST. ~~5.11~~ 5.11 & 5.12.00 FOR TRACK WIRES & SIGNAL @ BP STA 665+00

Project: R.T.C. Widened Report No.: 05-11-00-47
 Contractor: TMC Date: 5-11-00
 Owner: MASSDOT / MBTA Weather: Cloudy 60°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: Exc & Install M.H. & Under drain

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
FOREMAN		12" HDPE PIPE	11	SEE ACTIVITIES
PIPE LAYER	Box TK	Manhole Fabric	11	
2 OPER	Excavator Loader	3/4" STONE	11	
	Finishing Mach.	12" PER. PVC PIPE		
TK DRIVER	10 Wheeler	REG. MAT	8.5	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: PIPE CREW installed 26' HDPE PIPE per order of MBTA TIED IN to existing PIPE FROM Leaching Basin. EXCAVATED TO TOP OF FABRIC @ STA. 659+96 INTRUSIVE WORK TO SET MANHOLE and FOR the 80' of 12" PER. PVC FROM M.H. TO Leaching Basin. sewed in new fabric for M.H. & PIPE, bedded trench w/ stone, SET PIPE, BACKFILLED w/ stone, wrapped fabric and CAPPED w/ stone BSC survey shots on fabric & PIPE.

HAZARDS/SAFETY DEFICIENCIES: INTRUSIVE WORK

Corrective actions: modified level D" PPE, Decon station setup, Air monitoring during intrusive work

Preparer: Kevin Hantwell Kevin Hantwell
 Name (Print) Signature

Project: R.T.C. Webster Report No.: 05-11-00-47
 Contractor: TMC Date: 5-11-00
 Owner: MASSPORT / MBTA Weather: Cloudy 60°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: Trenching For GAS Co., BACKfill (con. structures)

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER / 1 OPER	EXCAVATOR B.HOE		11/2	SEE ACTIVITIES
1 Laborer			11	
1 TL Drive / Lab	70 wheeler		5.5 5.5	
1 Fam			2	
GAS Co. (2 men)	B.HOE		10	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TRENCHING FOR GAS Co. in utility corridor APPROX STA 6100 TO T.E.P. GAS Co installed 4" GAS line and BACKfilled. TMC EX @ GAS MAIN ON ATLANTIC AVE TO TOP OF FABRIC, INTRUSIVE WORK TO REQUIRED ELEV. FOR MAIN. TMC SAVED IN NEW FABRIC, GAS Co. installed MAIN FROM ATLANTIC TO ^{EXISTING} GAS main but did not connect. TMC BACKfill, LEFT TRENCH OPEN FOR CONNECTION COM. BSL TOOK SHOTS ON PIPE & FABRIC. TMC ALSO BACKfilled & COMPACTED CB # 6, 7. City Lights install conduit e.H.H. #1444, 131

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK

CORRECTIVE ACTIONS: modified level "D" PPE, Decon set up, AIR monitoring DURING OPERATIONS.

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

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Regional Transportation Center, Woburn, MA

405

5-11-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

RAIN/

54°

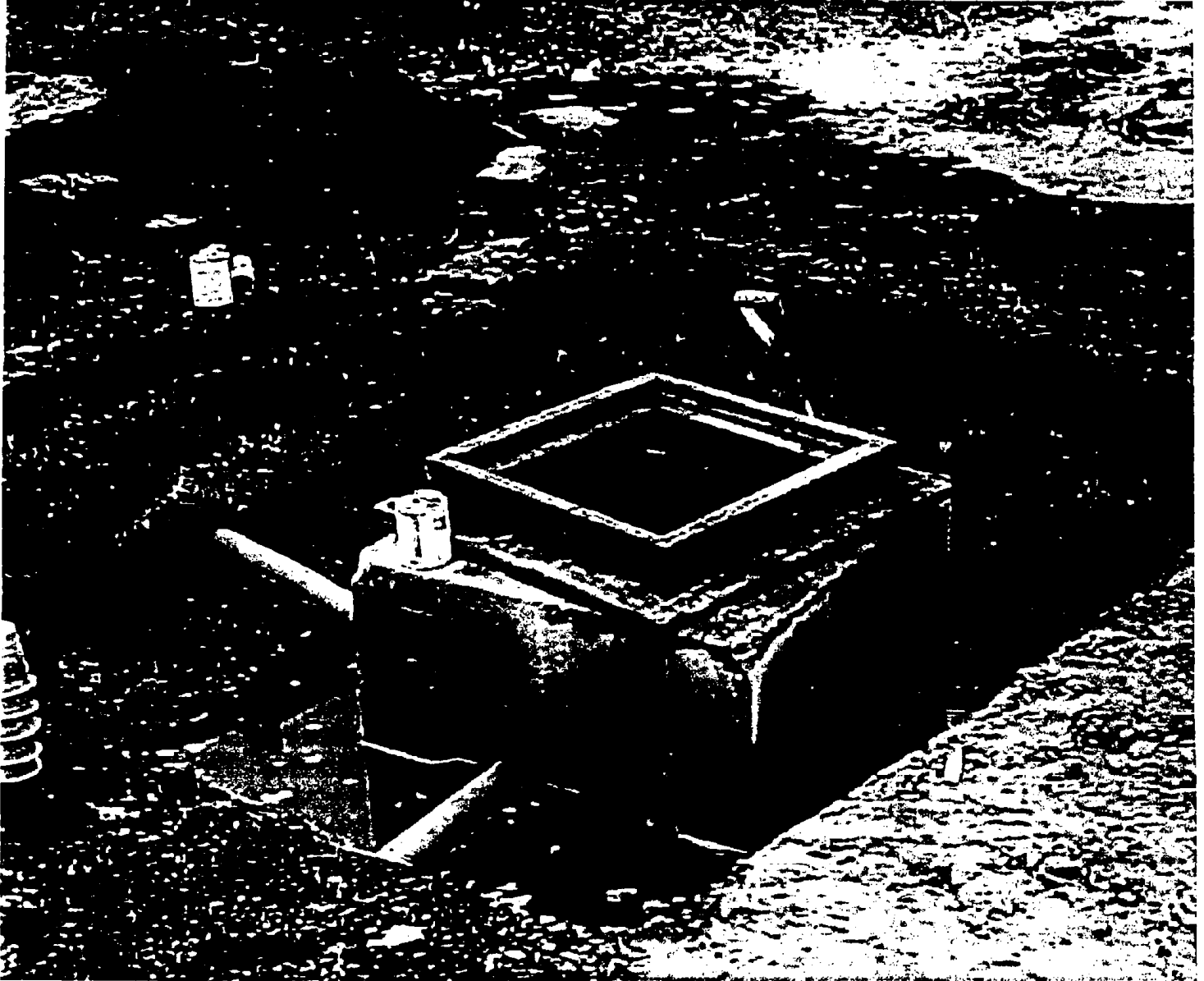
YES NO

Item #	Description	Quantity	Remarks/Location
10*405?	BUILD NEW REG. MAT. CELL 80' X 80'		
2200.121 H	BRICKTILL FH 12E12F		
	* NEED 4' FRAMES		
	EXCAVATE REG. MAT. FOR GAS TRENCH		
200.005 J	INS. FLOOR NEW FABRIC FOR GAS LINE		
10*	EXCAVATE ON EDGE		

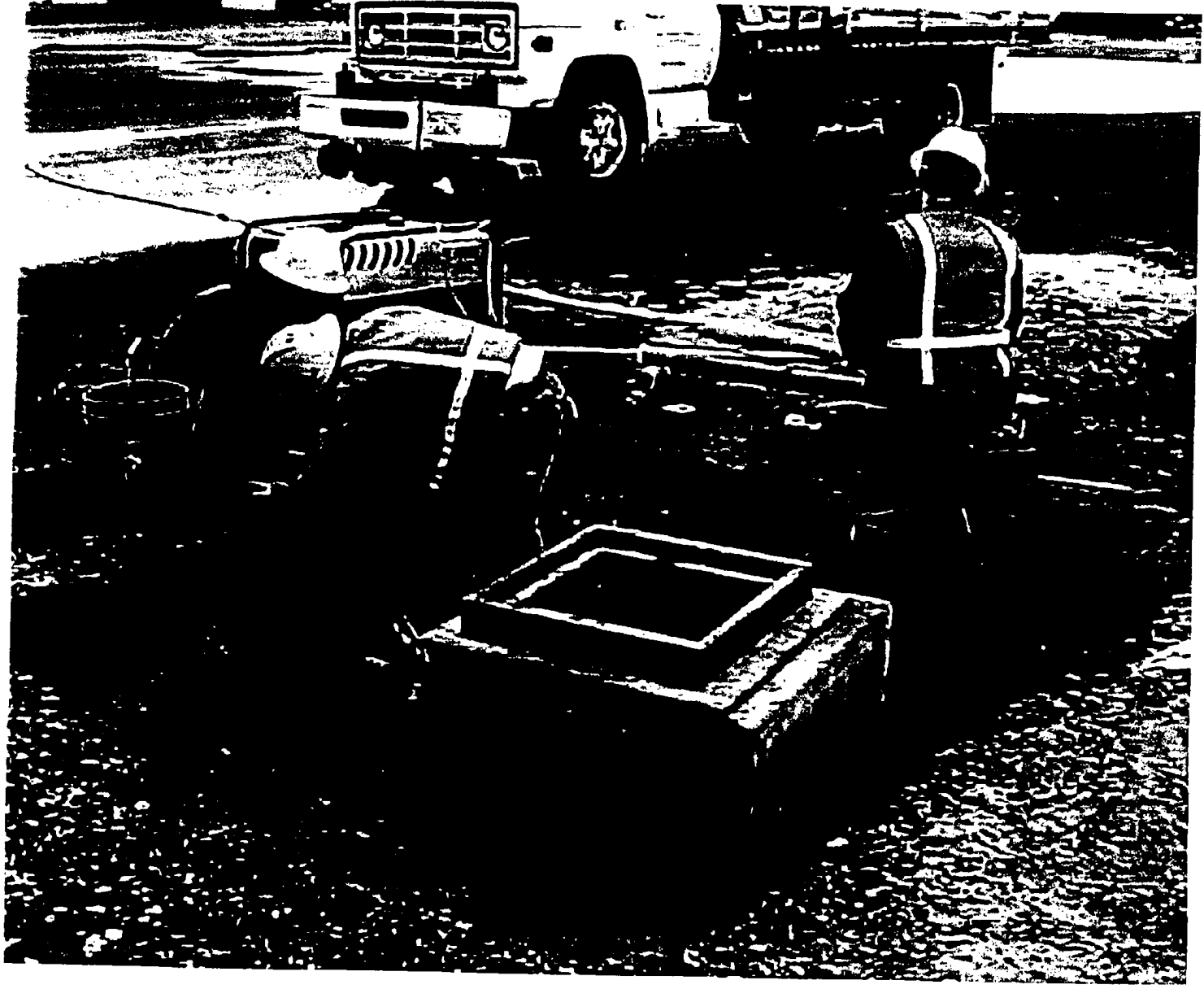
Scope of Work:

T.M.C	BUILD NEW REG. MAT. CELL	80'	80'
	BRICKTILL FLOOR FH 12E12F		
	* NEED 4' FRAMES		
	INSTALL E. GRADE BRICKS FROM STA 675+00 TO 672+00		
	EXCAVATE REG. MAT. FOR GAS TRENCH FROM STA 184+00 TO 184+10		
	LOWER & INS. ALL NEW FABRIC 35' X 4'		
	EXCAVATE TO UNDER FLOOR		

city lights installed Conduit into HandHole 1411



City lights connecting conduit to stand hole #1A



Project: R.T.C. Work Report No.: 05-12-00-48
 Contractor: TMC Date: 5-12-00
 Owner: MARSDOT/MSTA Weather: SUN Clds 70°
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: Exc & install MSTA HandHole #3 & Intrusive work @ Gas Trench

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Form	Rack Truck	Hand Hole (elect)	8	Exc. & install (H.H. #3 Adj TO
1 OPER	Exc & HOE	Gravel Burrow	8	Adjacent Right of Way.
1 Lab.	Hand Tools		3	Backfill Gas Trench @ Atlantic
				& intrusive work for Gas main
				Connection

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC Exc & installed elect H.H. #3 @ STA, 671+00 27' RT of Northbound Rail, Also TMC had to do intrusive work @ Existing Gas main on Atlantic Ave, so Gas Co. could tie in new main coming off R.T.C. site. New Fabric installed and sewed. TMC backfilled after connection was made and top dressed w/ loam, Also Pavz Temp Patch & Gas Trench.

Hazards / Safety Deficiencies: Intrusive work

Corrective actions: modified Level D PPE, Air Monitoring, Dexon set up during intrusive work

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-12-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

CLEAR

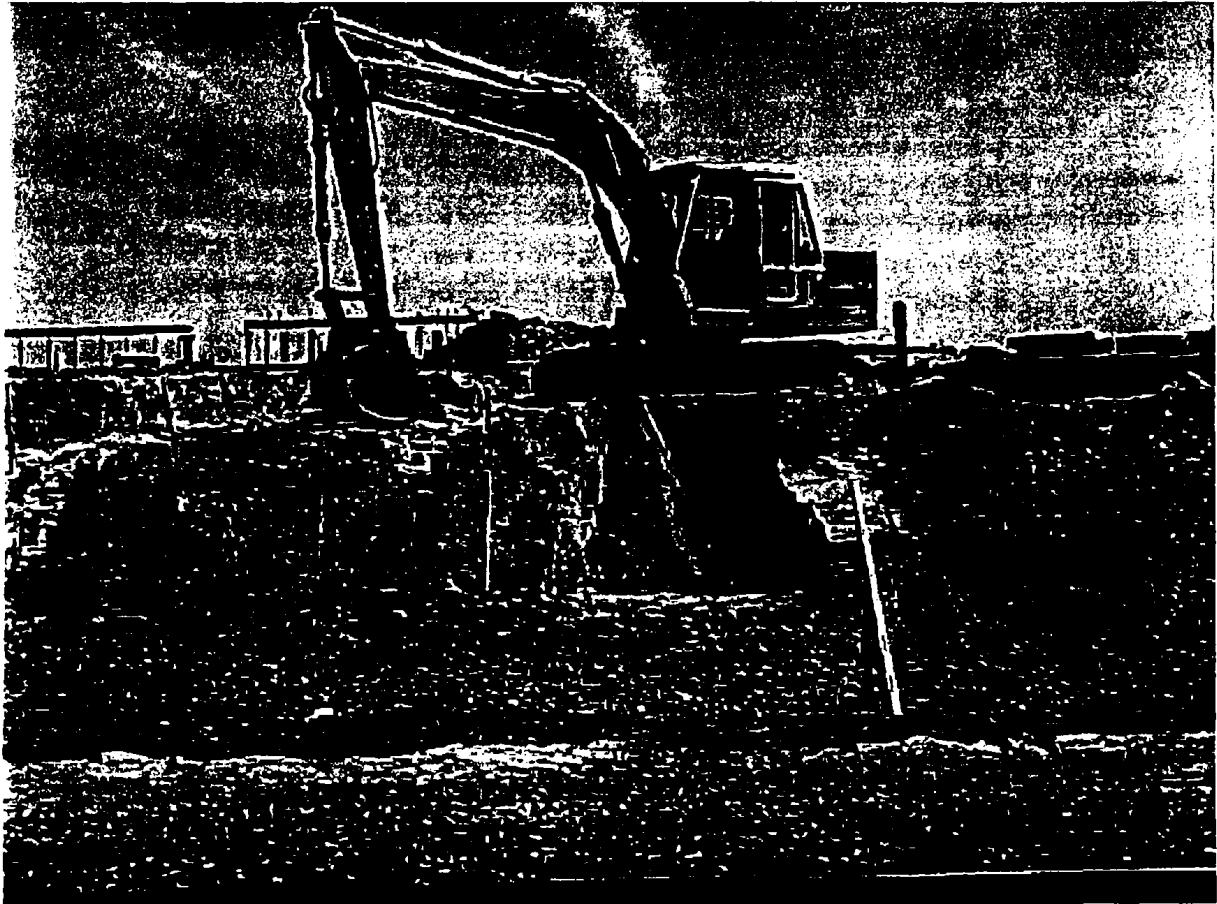
am pm 72°

YES NO

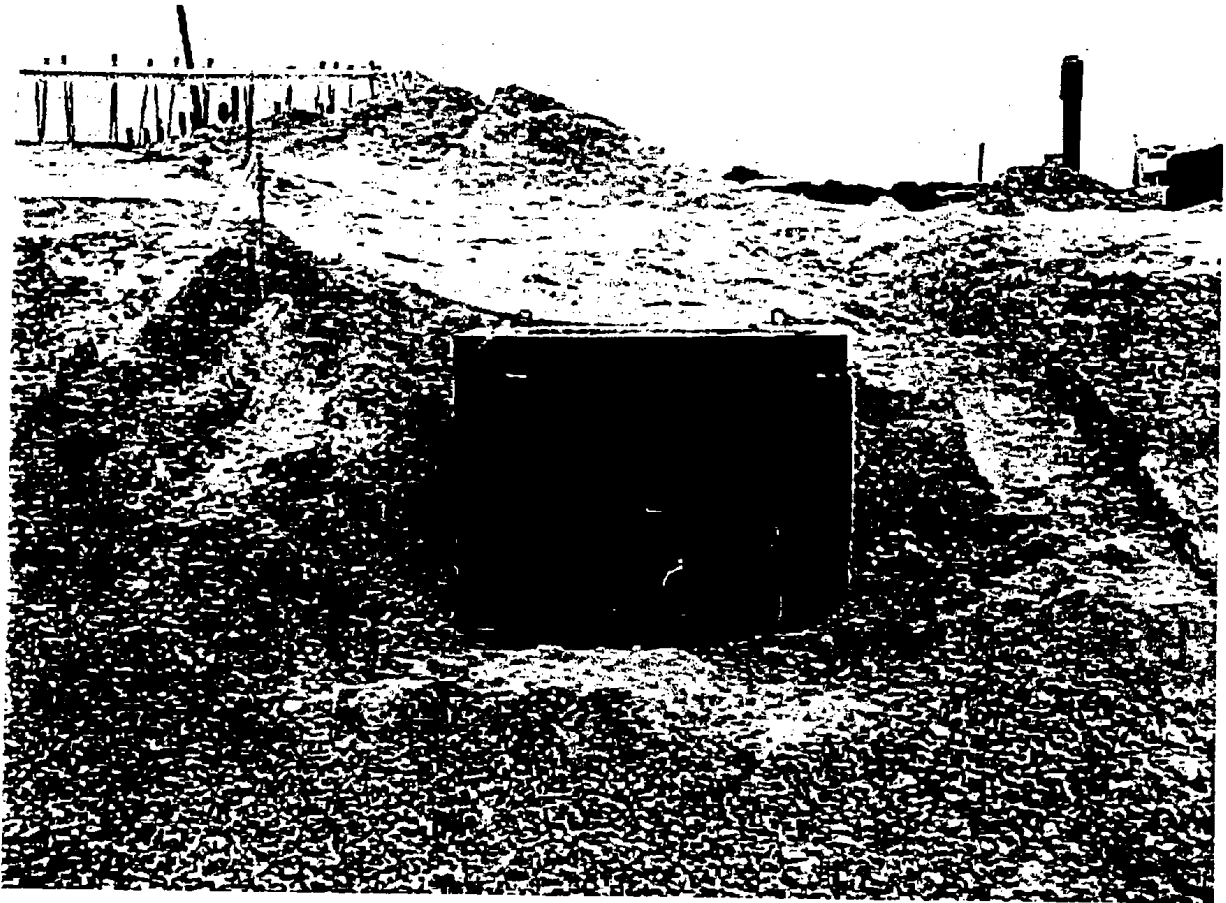
Item #	Description	Quantity	Remarks/Location
CO# 405?	INSTALL MBTA HHS		
1566.000C	INTRUSIVE FOR 4" GAS TIE IN @ STA	18+00	
1999.999J	NEW GEOTEXTILE FABRIC @ STA	18+00	FOR 4" GAS INSTALLATION TIE IN
CO# 405?	BUILD NEW RES. MAT. CELL	20' X 80'	
2200.121H	BACKFILL HH 13, 13A, 14, 14A		
	Excavate Along SIDE BEARING FOR		
	INSTALL FABRIC		
	INSTALL NEW FABRIC		

Scope of Work:			
T.M.C.	Excavate & install MBTA HHS @	RIMWAY	7300 PIONEER DR OFF RAMP @ 66+75
			@ STA 67+00 27' RT H/S FILL
	Excavate RES. MAT. FOR 4" GAS TIE IN @ STA	19+00	
	INSTALL NEW GEOTEXTILE FABRIC @ STA	18+00	
	BACKFILLED & JOINED GAS TIE IN		
	PAVED GAS TRENCH ACROSS ATLANTIC AVE		
	BUILD NEW RES. MAT. CELL	20' X 80'	
	BACKFILL TRENCH HH 13, 13A, 14, 14A		* MISSING IN PLAN
	Excavate along side bearing for		
	Excavate along side bearing for		
	INSTALL FABRIC FROM STA	66+00	TO 66+50
	INSTALL RES. MAT. CELL	20' X 80'	

EXCAVATION FOR MDTA HAND HOLE #3 @ STA 671+00 27' RIGHT



Installation of manhole #3 e STA 671400 27' RT.



Project: R.T.C. Winburn Report No.: 05-15-00-49
 Contractor: TMC Date: 5-15-00
 Owner: MASSPORT / MBTA Weather: Rainy Sunny 50°-70°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: SEE ACTIVITIES

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Form		Fabric, sleeves	10	SEE ACTIVITIES
1 OPER.	B. HOE	REG. MAT.	9.5	
1 Lab			9.5	
1 OPER	EXCAVATOR		8.5	
1 TR DRIVER / Lab	low loader		5 / 4.5	
1 laborer			7.5	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC FINISHED BUILDING CONTAMINATED STORAGE CELL and made 4 Access Ramps. EXCAVATED TO CONC. SLAB FOR PAV IN PLACE LIGHT BASES 46, 47 & 26. Slab @ ELEV. 71.95. TMC EXCAVATED FOR L.B. #42 SLEEVE TO FABRIC, CUT OPEN and Lower TO Required ELEVATION and Sewed NEW FABRIC in PLACE. DURING EXCAVATION FOR LB 42 HIT CONC @ ELVE. 69.8 EXCAVATED THROUGH, and Removed Reg. MAT TO Required ELEVATION and installed sleeve BACKFILLED and Sewed FABRIC. EXCAVATED FOR BUS/VANPOOL Canopy Footings @ 4+40, 4+64, 4+88. ReExcavated Footing @ 7+02 & 6+78. TMC ALSO SET F&E COVER TO Grade FOR H.H. 13, 13A, 14, 14A. ALGAL SET FORMS FOR BUS/VANPOOL Canopy Footings, 4+40, 4+64, 4+88

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK

CORRECTIVE ACTIONS: Modified Level (D) PPE, Air Monitoring, Decon SET UP

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-15-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

CLEAR

am pm 61.5

YES NO

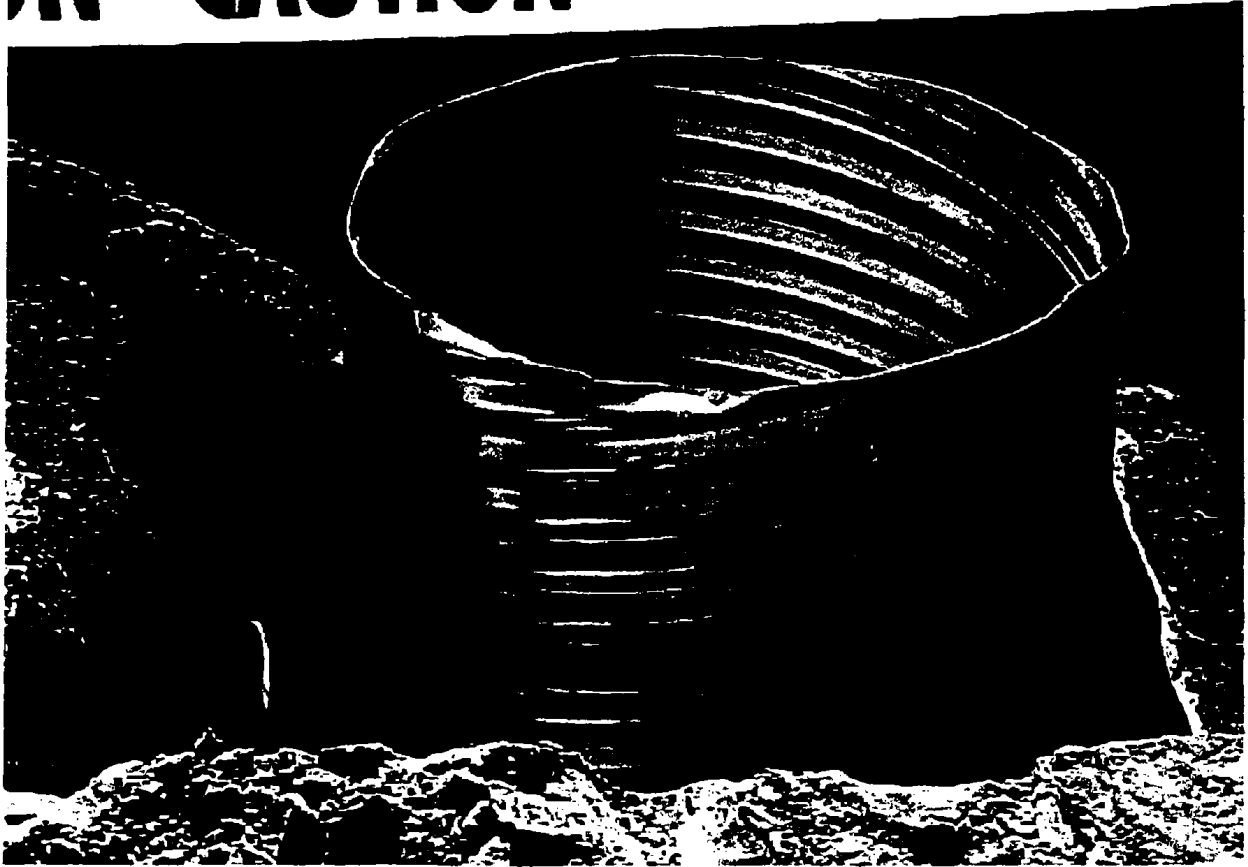
Item #	Description	Quantity	Remarks/Location
CO# 405	BU @ 1/2" PFB @ 200	80' X 80'	
200.1216	EXC. TO CONC. FOR		
156.00:F	EXC. FOR MB FOR LB 42	FABRIC @	71.4 *BROKEN CONC. @ 69.8 BOTTOM @ 67.
	INSTALL SS-36" SLEEVE FOR LB	42	
	RE-EXC. BUS TERM. FORMS		7+02 & 6+78
330.00:5	EXC. FOR BUS SHELTER FORMS @		4+40, 4+64 & 4+88
340.161	SET FRAME & COVER TO GRADE	HH 13.5' X 14'	

Scope of Work:

T.M.C.	FINISH EXCAVATIONS REE CELL	80' X 80'	80' X 80'
	MAKE GOOD ALL EXCAVATIONS		
	EXCAVATE TO CONC. FOR	POUR IN PLACE LB	46.47 & 26
		SLAB @	71.95
	EXCAVATE FOR LB 42 SLEEVE	FABRIC @	71.4
	* HIT CONC. @ 69.8	DRIVE THROUGH & EXCAVATE TO NO. 1111	
	INSTALLED SS-36" SLEEVE FOR	LB 42	
	EXCAVATE FOR BUS SHELTER FORMS @		4+40, 4+64 & 4+88
	RE-EXCAVATE FORMS @		7+02 & 6+78
	SET FRAME & COVER TO GRADE	FOR HH'S	13, 13A, 14 & 14A

ON CAUTION

CAUTION



Project: R.T.C. work Report No.: CS-16-00-50
 Contractor: TMC Date: 5-16-00
 Owner: MASSPORT / MBTA Weather: Clear 60°-70°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: MBTA HandHoles, HandHoles, Gectex Repair, EXCAVATE REG. MAT.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Htz Lab	Wheel Damp		10	SEE ACTIVITIES
2 OPER	Excavator		9	
4 LAB	Truck		9/8/9	
1 Htz Lab			1 1/2	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC Excavated to install MBTA H.H. 1 & 2. Fabric was 1.5' to High, cut fabric Excavated Regulated material & installed NEW FABRIC FOR MBTA Hand Hole 1 & 2. TMC CUT & CHIPPED HANDHOLE 14 & 14 2" DOWN, TO SET FRAME & COVER TO GROUND and Poured concrete around frames, also loc H.H.'s 17, 12 & 13, 13A FRAME & COVERS w/ concrete to Finish Grade. TMC Excavate to concrete slab FOR CAST IN PLACE BASES 18, 19, 20, 21, 27, 48 & 51. TMC Excavated TO TOP OF BOX CURB IN ROADWAY & installed NEW FABRIC @ 31 & 20, 21 (Fabric 2' x 50' x 15') 1500 SF

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK @ HANDHOLES.

CORRECTIVE ACTIONS: Modified LEVEL "D" PPE, DECONTAMINATION SETUP, AIR MONITOR DURING INTRUSIVE WORK

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-15-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. S. [Signature]

Clear

am pm

YES NO

Item #	Description	Quantity	Remarks/Location
CO-1059	Excavate to install MBTA	44 LB	* FABRIC 1.5' TOO HIGH
	Extend - REE, MAT. - INSTALL NEW FABRIC FOR IN STA 44 100		
	LOWEST 44 100 12"		
	FOUNDED CONC. APPROX	HH 12, 12A 12-12A 11E 14A	
	Exc. TO CONC. SLAB FOR	CIG LB	LB # 18, 19, 20, 21, 27, 48 & 51
	Exc. ON TOP OF BOX INVERT & INSTALL NEW FABRIC @ ROAD CROSSINGS		3+50 2+50 51 50' X 1.5' 150

Scope of Work:

TMC	Excavate to install MBTA	-#1 FABRIC @ 66.5	NEW ELEV @ 64.7
	INSTALL 27" MBTA HH 1 (A)	STA 668+0	27" R. NAIL RIM ELEV 68.8
	Excavate to install MBTA	HH 2 FABRIC @ 65.5	NEW ELEV @ 65.4
	INSTALL 27" MBTA HH 2 (A)	STA 668+50	27" R. NAIL RIM ELEV 68.8
	LOWEST 44 100 12"		
	FOUNDED CONC. APPROX		
	Exc. TO CONC. SLAB FOR	CIG LB	LB # 18, 19, 20, 21, 27, 48 & 51
	Exc. ON TOP OF BOX INVERT & INSTALL NEW FABRIC @ ROAD CROSSINGS		3+50 2+50 51 50' X 1.5' 150

Project: R.T.C. Woburn Report No.: 05-17-00-51
 Contractor: TW Date: 5-17-00
 Owner: MASSPORT / MBTA Weather: SUNNY 70°
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: Clean overburden off rock, Excavation under tracks.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT			8	Exc. under tracks for conduit
1 OPER / 1 LAB			8.5 / 8.5	install e STA. 694+22
1 TR DRIVER			8	hauling Reg. mat to storage cell
1 OPER			8.5	Clean overburden off ledge & loc cut reg. mat to storage cell

Visitors	Representing	Purpose

Daily Notes:

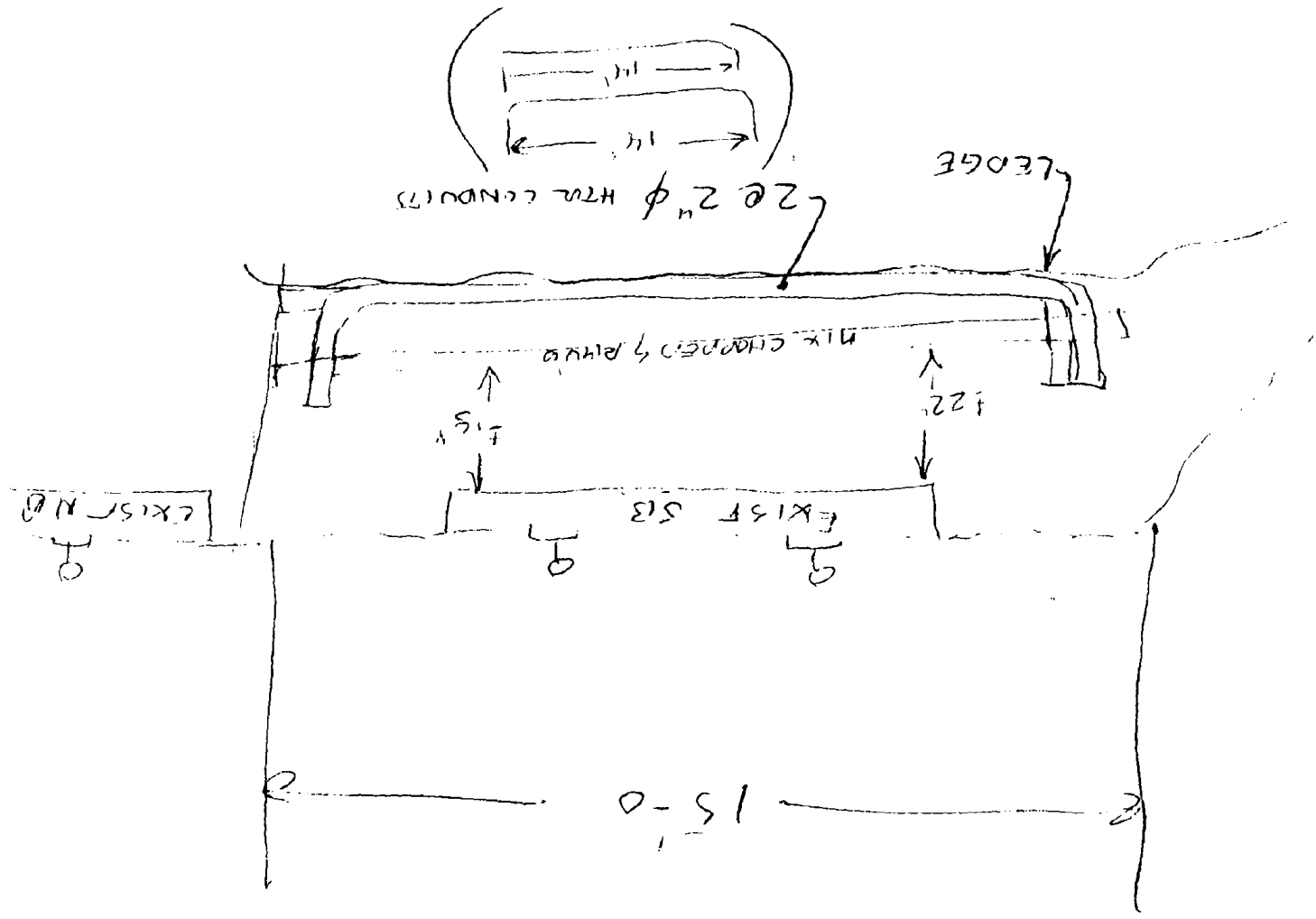
ACTIVITIES: @ LEDGE S.B. ROW mini excavator cleaning all overburden off ledge and stack piling material behind him in prep for loading out. 200 Kom excav loaded out regulated material onto lowwheeler and truck to storage cell. Track crew excavated e STA. 694+22 TO TOP OF MIX, JACK HAM- THROUGH MIX INTO REG. MAT., Exc TO Required depth installed fabric, inst (2) rows e 14' of 2" conduit for heater conduit. Backfill to bottom of mix, place concrete mix TO TOP of mix and then backfilled w/ Ballast, and replace RIE & Reclipped Rowl. e 690+24 Redressed Ballast & RETAMPED.

HAZARDS/SAFETY DEFICIENCIES: Intrusive work

Corrective Actions: During intrusive work men dressed in modified Level "D" PPE, Air monitoring, and Decon station set up.

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

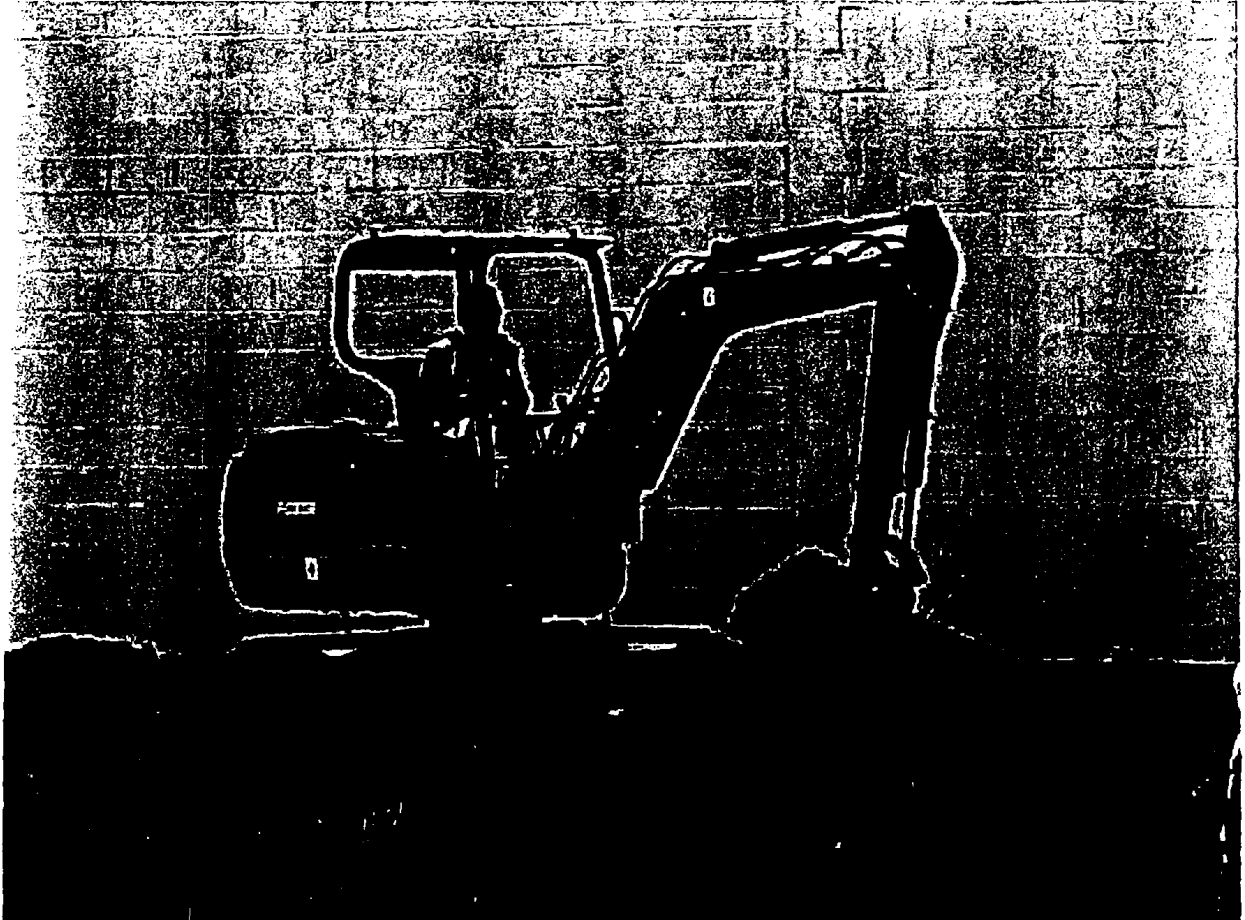
SECTION OF F 684+21
5.17.00



RHV & RHP: BDL-087 - 15'-0" x 3' x 30" = 4.17 cy
 EXIST CONCRETE (DEC) PART - 15' x 30" x 8" = .93 cy

Mini EXCAVATOR cleaning overburden from ledge

5-17-00



EXCAVATOR LOADING OUT REGULATED MATERIAL FROM HEDGE OVERBURDEN 5-17-00



AMTRAK Building 6 & INSTALLING PANELS STA 677+25 working south 5-17-00



EXCAVATION UNDER S. D. TRACK @ STA. 684+22 BACKFILL W/ CONC MIX OVER CONDUIT 5-17-C



Project: R.T.C. Waterway Report No.: 05-18-00-52
 Contractor: TMC Date: 5-18-00
 Owner: MASSPORT / MBSTA Weather: Clay 70°
 Project No.: 1-727

Contractor Supervisor(s): JOE Phinney

Description of Work: Exc under TRACK for Conduit installation, Clean overburden from lot and CLASS B ROCK EXC.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER			8.5	SEE ACTIVITIES
1 LAB			8.5	
1 TK DRIVER			8	
1 SVT			8	
1 OPER,			8	

Visitors	Representing	Purpose

Daily Notes:

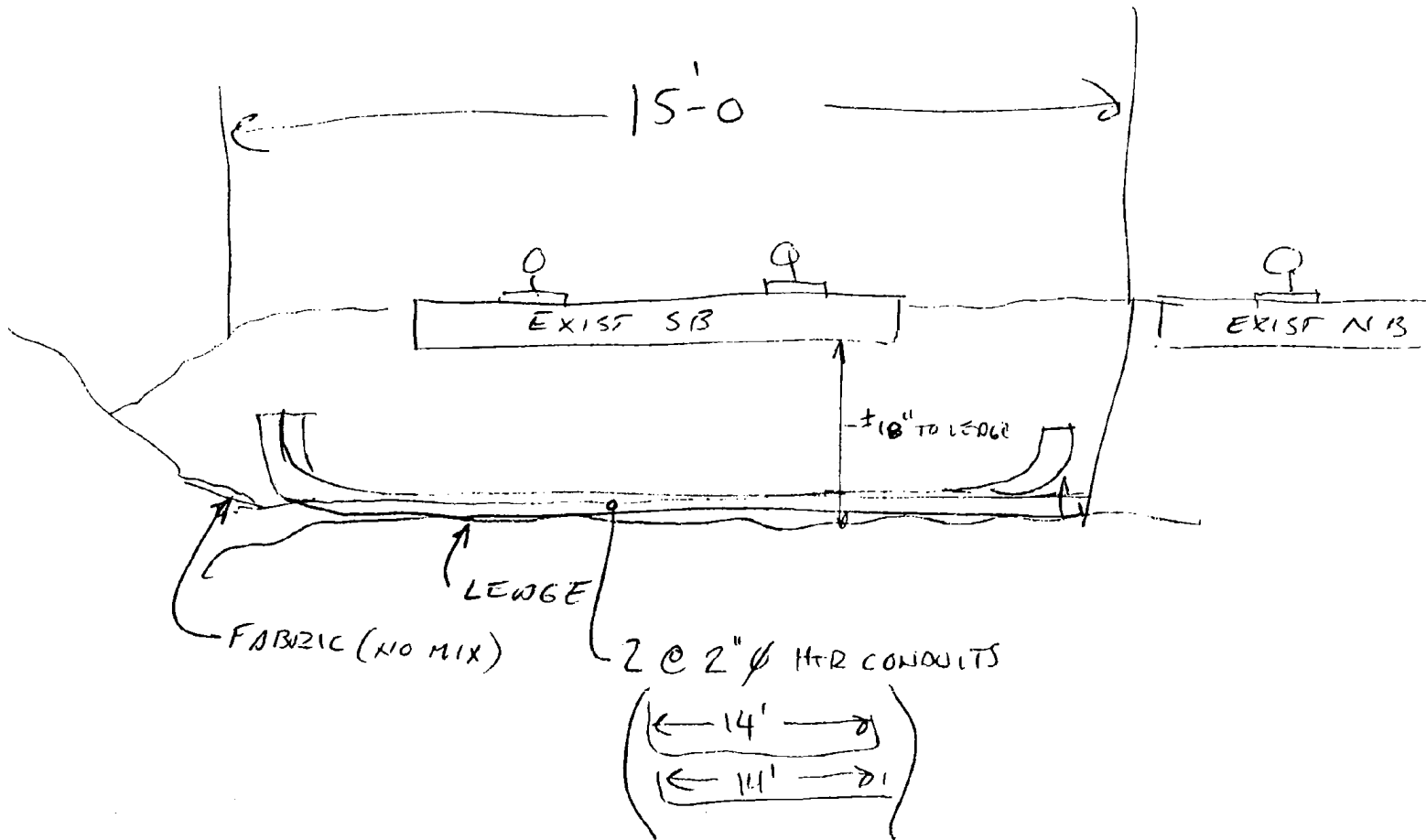
Activities: TRACK crew exposed conduit in mex S. Bound BYPASS and Graded Balast S. Bound BYPASS. CREW excavated under TRACK S. B. STA. 694+62. Excavated expecting to find Asphalt, but hit Fabric and under Fabric encountered ledge. They sewed NEW Fabric in trench. City lights install 2 Runs of 2" Heater Conduit, Placed Conc mix over Conduit and backfilled Replaced TIE & Clipped TO RAILS. TMC Cleaning overburden from Rock A loaded out some CLASS B Rock. TO STOCK on site.

Hazards / SAFETY DEFICIENCIES: Intrusive work.

Corrective Actions: Modified Level "D" PPE during intrusive work, Air Monitoring, and decon set up.

Preparer: Kevin Hankwell Kevin Hankwell
 Name (Print) Signature

REMOVE & REPLACE BALCOSS - $15'-0" \times 3' \times 22" \text{ D} = 3.05 \text{ CY}$
 EXCAV. CURTAIN (REC) MISC - $15'-0" \times 30" \times 3" \text{ D} = 0.35 \text{ CY}$



SECTION @ 6841+62

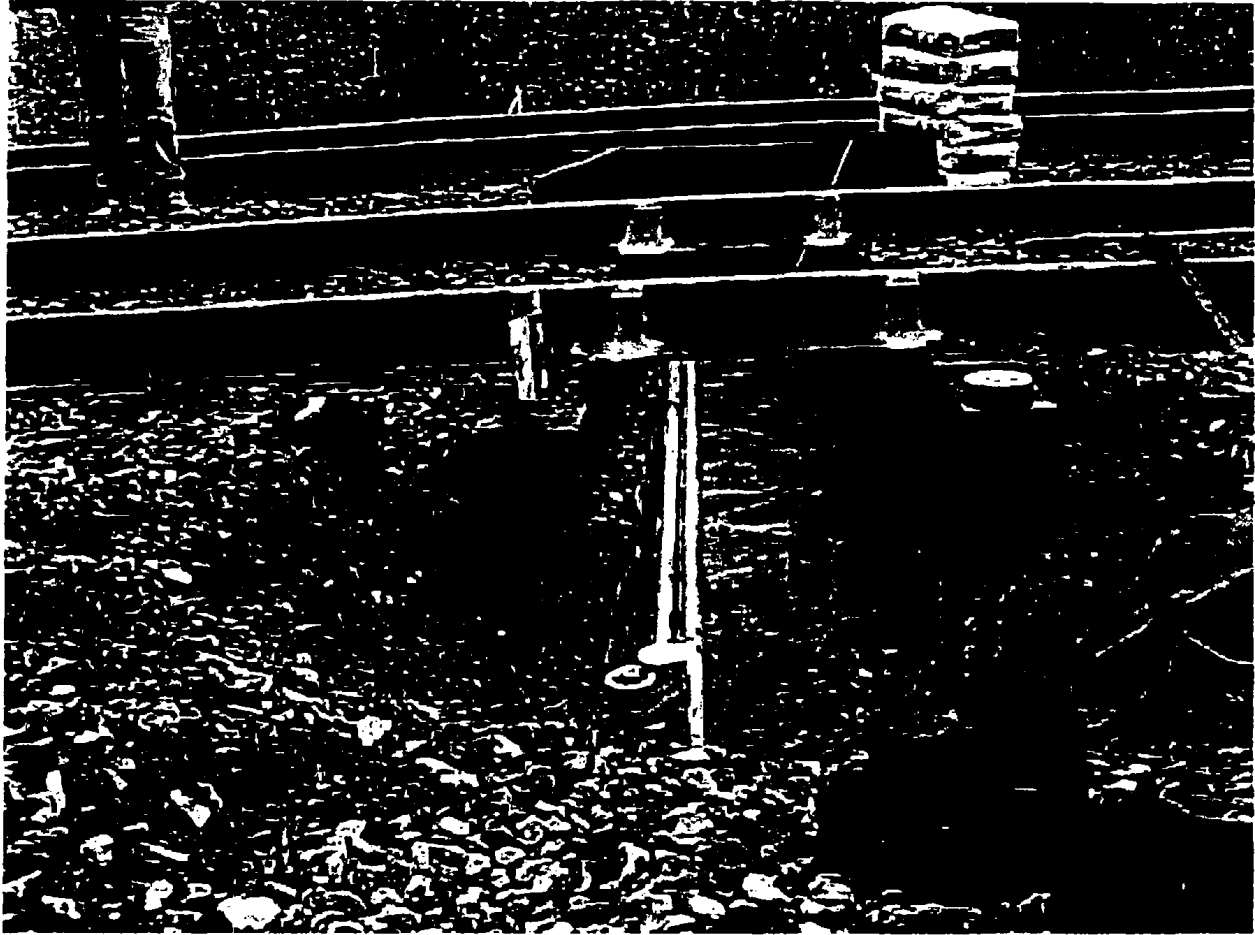
5.18.00

Sewing Fabric @ Ec. under tracks STA 684+62 5-18-00



STA 684+62
Installation of 2" Heater Conduit

5-18-00



Project: R.T. (Woburn) Report No.: 05-18-00-52
 Contractor: TMC Date: 5-18-00
 Owner: MASSPORT / MBTA Weather: Cl/dy 70°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: Exc & install HandHoles, Trench for conduit, Backfilling, Exc & exist. utility. sk

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM	6 wheel Dump utility TR	REG. MNT. H. H.	9	SEE ACTIVITIES
2 OPER	Excavator	PVC PIPE	8.5/8.5	
3 Laborers	compressor		8.5/8.5/8.5	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: INTRUSIVE WORK TO SET HANDHOLES 1, 1A, 1b, 1bA, 9, 9A, 7. TMC CUT FABRIC Exc TO REQUIRED ELEV. SEWED NEW FABRIC and set H.H. and BACKFILLED & COMPACTED material around HandHoles. TMC TRENCHED FROM BUILDING TO H.H. 1, 1A, City lights installed conduit. TMC PLACED FRAMES & COVERS ON HAND HOLES, ALSO BACKFILLED BUS/VAN POOL CANOPY FOOTING. TMC EXCAVATE & INSTALLED 70' of 4" SCHEDULE 80 PVC for IRRIGATION STEVE FROM TOWER 7 TO 11.

HAZARDS/SAFETY DEFICIENCIES: INTRUSIVE WORK @ HANDHOLES.

CORRECTIVE ACTIONS: DURING INTRUSIVE WORK MEN DRESSED IN MODIFIED LEVEL "D" PPE, AIR MONITORING DURING OPERATIONS, and DECON SET UP.

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-17-20

Superintendent/Foreman

T. SWEET

Weather

Temperature

OVERCAST 60-70 F 70-75 F

Contract Time Charged?

YES NO

Item #	Description	Quantity	Remarks/Location
2813.000	FRIB SLEEVES 4" DIA	70	ZONE 7 TOLL
1566.000 F	EXC. REG. MAT. FOR 4-4" DIA	1A	
3400.161	EXC. REG. MAT. FOR 4-4" DIA	4A, 16 & 16A	
2200.011	BASE - BUS FOOTINGS		
2200.031 B	TRENCH FOR 4-4" DIA		

Scope of Work:			
T.M.C.	EXCAVATE & INSTALL 70' OF 4" DIA	FOR 2 PYS.	FROM ZONE 7 TOLL
	EXCAVATE - REG. MAT. FOR 4-4" DIA	FRIB @ 71.8	NEW PYS. @ 72.3
	EXCAVATE - REG. MAT. FOR 4-4" DIA	FRIB @ 72.66	NEW PYS. @ 73.2
	INSTALL HH 1 & 1A @ STA	1 25+85 1A 25+85.4	35" R RIM ELEV. 76.05 25" R RIM ELEV. 76.00
	EXCAVATE & INSTALL HH	16 & 16A	RIM ELEV. 75.20
	EXCAVATE & INSTALL HH	7	RIM ELEV. 76.00
	EXCAVATE - REG. MAT. FOR 4-4" DIA	FRIB @ 73.7	
	EXCAVATE - REG. MAT. FOR 4-4" DIA	NEW PYS. @ 73.45	
	INSTALL HH 9 & 9A		RIM ELEV. 76.05
	BASE - BUS CHANG. FOOTINGS @	6 & 22	11-30 - 14-30
SO'	TRENCH FOR 2-4" DIA	FROM	73.15 TO 441 & 1A
	INSTALL 2-4" DIA FROM	73.15 TO	HH 1
	INSTALL 2-4" DIA FROM	73.15 TO	441 & 1A

Project: R.T.C. WOODROW Report No.: 05-19-CO-53
 Contractor: TMC Date: 5-19-00
 Owner: MASSPORT/MBTA Weather: RAIN 65°
 Project No.: 1777

Contractor Supervisor(s): JOE PHURRY

Description of Work: EXCAVATION TRACK WIDENING & LOAD OUT TO STOCK PILE

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	EXCAVATOR	REG MAT.	8	Exc. FOR TRACK WIDENING S.B.
1 TK DRIVER	10 Wheeler	REG MAT.	8	BYPASS & Load TO STOCK Pile
1 TK DRIVER	10 Wheeler	REG MAT	8	" " " "
1 OPER	EXCAVATOR	REG. MAT	4	Maintaining STOCK Pile
1 LABORER		TARP	3	" " "

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: 200 Komatsu EXCAVATOR Excavating regulated material from south Blvd Bypass and loading (2) 10 wheelers, and dumping into storage cell 80x90. Laborer & Kato 450 EXCAVATOR maintaining material & TARP @ cell.

HAZARDS & SAFETY DEFICIENCIES: REG. MATERIALS.

CORRECTIVE ACTIONS: NONE NEEDED

Comments: During my rounds crew was observed taking proper precaution

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Project: R.T.C. WORK Report No.: 5-22-00-54
 Contractor: TMC Date: 5-22-00
 Owner: MASSPORT/MBTA Weather: Cloudy 50°-60°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: TRENCH FOR HANDHOLES, LIGHT BASE SLEEVE ETC.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Haz Lab		Ordinary BOROX	10	SEE ACTIVITIES
1 Haz Lab	Wheel Dump	REG. MAT.	9.5	
2 OPER.	^{1) SLEEVE} 2) PENCIL HOES	Fabric, Sleeves	8.5 8	
1 Lab			8	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC excavated for conduit installation from HandHole #1 to Light Base #1 to Light Base #2. Excavated for conduit from HandHole #1 to HandHole #6 to Light Base #5. Excavated for conduit from HandHole #1 & 1A to HandHole #16 & 16A.

TMC also excavated for Light Base #4 sleeve, existing fabric @ elev. 71.2 cut through fabric and hit concrete slab @ elev. 69.90 and installed 4' by 36" sleeve and new fabric @ elevation 69.90. Excavated for Light Base #3 sleeve hit existing fabric @ elev. 69.8, cut fabric and excavated to elev. 60.9 and install new fab. & sleeve, sleeve @ 10' by 36" for L.B. sleeve #3. Excavated for L.B. #2, hit fabric @ elev. 69.05, cut through and exc to elev. 63.4 and installed new fabric & sleeve, 10' by 36" sleeve for L.B. #2.

City Lights: inst. 2" conduit from H.H. #1 to LB #26, H.H. #7 to existing RUN

HAZARDS / SAFETY DEFICIENCIES: Intrusive work @ L.B. excavation

CORRECTIVE ACTIONS: Modified Level D PPE, Air monitoring and mobil Decra unit during all intrusive work

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-22-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

clear

am pm 65°

YES NO

Item #	Description	Quantity	Remarks/Location
2000.15'	EXC. FOR CONDS FROM HH1 TO	HH1 TO	LP1 TO LP2
	TRENCH FOR 10" CONDS FROM HH1 TO	HH1 TO	LP1 TO LP2
	TRENCH FOR 10" CONDS FROM HH1 TO	HH1 TO	LP1 TO LP2
1566.000 F	EXC. TO INSTALL 10' 3" 36" SLEEVES		71.01
	* HIT CONC. SLAB @	60.90	
	INSTALL 10' 3" 36" SLEEVES		
	EXC. & INSTALL 10' 3" 36" SLEEVES		
	EXC. & INSTALL 10' 3" 36" SLEEVES		
	EXC. FOR AREA + METEORIC	505'	CLEAN OFF EXPOSED FOR INSULATION

Scope of Work:			
T.M.C	Excavate for 2" CONDS FROM	HH1 TO	LP1 TO LP2 360'
	Excavate for 2" CONDS FROM	HH1 TO	LP1 TO LP2 320'
	Excavate for 2-2" 60" 3" CONDS FROM	HH1 TO	LP1 TO LP2 200'
	Excavate for 10' 3" 36" SLEEVES		71.01
	* HIT CONC. SLAB @	60.90	INSTALL 10' 3" 36" SLEEVES NEW 200'
	Excavate for 10' 3" 36" SLEEVES		60.9 NEW 200'
	INSTALL 10' 3" 36" SLEEVES FOR		LP1
	Excavate for 10' 3" 36" SLEEVES		60.9 NEW 200'
	INSTALL 10' 3" 36" SLEEVES FOR		LP2
	Excavate to top of EXPOSED FOR METEORIC		60.9 NEW 200'
	FROM STA 664+00 TO 669+50		2.5' x 3.66' x 250' = 1850 cu ft
CITY LIGHTS	INSTALL 2" CONDS	HH1 TO	LP2, 447 TO 507

Project: R.T.C. WADSW Report No.: 5-22-00-54
 Contractor: TMC Date: 5-22-00
 Owner: MASSPORT/MBTA Weather: cloudy
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: TRACK BYPASS EXCAVATION South Bound

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER.	EXCAVATOR	REG. MATERIAL	8	EXC. REG MAT S.B. BYPASS
1 TRAILER	10 Wheeler	HAUL REG. MAT.	8	HAUL ^{REG} MAT TO CELL
1 TRAILER	10 Wheeler	HAUL REG. MAT.	8	HAUL REG MAT TO CELL
1 OPER.	D-3 DOZER	REG. MATERIAL	3	Grade mat. in storage CELL

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC EXCAVATING REG MATERIAL @ South Bound ROW, Excavating north of 2 10 wheelers Hauling REG MATERIAL from west side to east side of site and Dumping in storage CELL. D-3 DOZER Grading material in cell to keep it accessible.

HAZARDS/SAFETY DEFICIENCIES: Regulated materials

Corrective Actions: Air monitoring during excavation

Preparer: Kevin Hankwell Kevin Hankwell
 Name (Print) Signature

TRM EXCAVATING REG. MATERIAL SOUTH BOUND BYPASS GOING NORTH 5-22-00



Project: R.T.C. Window Report No.: 05-23-00-55
 Contractor: TMC Date: 5-23-00
 Owner: MASSPORT/MBTA Weather: Cloudy 50°-60°
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: Exc For Conduit, Exc For Light Base Steeves,

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Haz Lab (Form)	6 wheel Dump	L.B. Steeves, Fabric	10	Exc & inst L: Base Steeves
2 OPER.	Gasoline P.H.C.E.	Reg. mat, minureg	8.5/8	
1 OPER.	B.H.C.E.	mat.	8	Exc For Conduit
1 Haz Lab			8.5	
1 Lab			8/8	
1 OPER	D-4 Dozer	Reg. mat	4	maintain contaminated str p.i

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC Excavated For Conduit From H.H. 9#9A TO Control PAD & EBS
& Light Base #18. Excavated For Conduit From Light Base #17 TO #16 and Backfilled
From L-Base #5 TO HandHole #6 TO HandHole #7
TMC also Excavated and installed Light Base Steeves #1, #5, #4,
also Excavated For L.B. #9 but hit rock obstruction. D-4 Dozer maintain
contaminated Storage Cell.

* Hazards / SAFETY DEFICIENCIES: intrusive work @ Light Base Steeve Excavation

* Corrective actions: modified Level / D" PPE, Air monitoring, Mob / Decon unit
During intrusive work

Preparer: Kevin Hankin Kevin Hankin
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ___ of ___

Regional Transportation Center, Woburn, MA

405

5-23-00

Superintendent/Foreman

Weather

Temperature
am pm

Contract
Time Charged?

T SWEET

YES NO

Item #	Description	Quantity	Remarks/Location
2000.1213	Exc. FOR COND FROM HH929A TO CONT 901 PAS 5 ELS 5 F 49' B		
	Exc. FOR COND FROM HH929A TO CONT 901 PAS 5 ELS 5 F 49' B		
	Exc. FOR COND FROM HH929A TO CONT 901 PAS 5 ELS 5 F 49' B		
1566.000F	Exc. FOR 2 SLEEVES	1, 5.21 8 9	
	INSTALL 10' SLEEVES	1, 5.64	
1566.000B	Exc. REG MAT @ N. END ROW. DOWN TO LEGGE South. Bound BYPASS		
2000.121C	Exc. FOR TRUCK SCOPE COND FROM 658+10 TO 658+50 REG. MAT		
	SEW IN NON FABRIC 4X 250' / 1000 SF / METR 441 TO 6		
	Exc. REG MAT 2.5' X 3.66' X 250' = 185 CY		

Scope of Work:			
T.M.C.	Excavate FOR 2-2' COND FROM HH929A TO ELS 5 F 49' B	280' + 200'	
	2.75' X 2.5' X 480'		122.2 CY
	Excavate FOR 3' COND FROM HH929A TO CONT 901 PAS 5 ELS 5 F 49' B	170'	
	2.25' X 2.5' X 170'		35.4 CY
	Excavate FOR 2' COND FROM HH929A TO CONT 901 PAS 5 ELS 5 F 49' B	70'	
	2.16' X 2.5' X 70'		14 CY
	BACKFILL & M&G. TRAP. FROM 425 TO 441		
*Excavate	FOR LB 1 SLEEVE FABRIC @	70.74	NEW FABRIC BOTTOM @ 63.19
	INSTALL 10'-36" SLEEVES FOR LB 1		
*Excavate	FOR LB 5 SLEEVE FABRIC @	70.72	NEW FABRIC BOTTOM @ 63.45
	INSTALL 10'-36" SLEEVES FOR LB 5		
*Excavate	FOR LB 4 SLEEVE FABRIC @	67.22	NEW FABRIC BOTTOM @ 67.22
	INSTALL 10'-36" SLEEVES FOR LB 4		
*Excavate	FOR LB 9 SLEEVE FABRIC @	71.93	
	INSTALL 10'-36" SLEEVES FOR LB 9		
*HIT	Lg. 20' LEGGE @	67.00	
	Excavate - REG. MAT. FOR ROW. PASS WAY @ N. END DOWN TO LEGGE		

Project: R.T.C. WOODW
 Contractor: JMC
 Owner: MASSPORT/MBTA
 Project No.: 1.727

Report No.: 05-23-00-55
 Date: 5-23-00
 Weather: Cloudy 50°-60°

Contractor Supervisor(s): Joe Phinney

Description of Work: Excavation South Bound Bypass

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Excavation	REG MAT.	8	EXC REG MAT. @ South Bound
1 TR DRIVER	10 wheeler		8	Bypass heading north
1 TR DRIVER	10 wheeler		8	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: Excavator cutting REG. material to grade and load (2) 10 wheel DUMPS TO DUMP in storage cell east side of site.

HAZARDS/SAFETY DEFICIENCIES: excavation of regulated materials

Corrective Actions: AIR monitoring during excavations

Preparer: Kevin Hawthell Kevin Hawthell
 Name (Print) Signature

Project: R.T.C. WOODRUM Report No.: 05-23-00-55
 Contractor: TMC Date: 5-23-00
 Owner: MASSPORT/MBTA Weather: Cloudy 50°-60°
 Project No.: 1.727

Contractor Supervisor(s): JOE PHINNEY

Description of Work: EXCAVATE ALONG TRACKS IN REG MAT, and EX TO TOP OF FABRIC ALONG TRACKS

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(0) SUPT.		REG FILL REG mat.	8	SEE ACTIVITIES
(2) HAZ LAB	sewing mach.	" "	5.5/5.5	
(2) LAB		" "	3/3	
(1) OPER	EXCAVATOR	" "	8.5	
(1) LAB		" "	1	
1 TK DRIVER	10 wheeler	FABRIC	8	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: FROM MBTA HANDHOLE #1 TO MBTA HANDHOLE #2, CUT OPEN FABRIC, EXCAVATED REG. MATERIAL TO REQUIRED ELEVATION AND SEWED NEW FABRIC TO EXISTING FAB/1000' INTRUSIVE WORK FROM STA. 666+00 TO STA. 668+50 = 250' x 2'± = 69 CY
 TMC EXCAVATED TO TOP OF FABRIC FROM HANDHOLE MBTA 668+50 TO 668+80 30'.
 5 LOADS OF REG. MATERIAL DUMPED IN STORAGE CELL.

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK

CORRECTIVE ACTIONS: DURING INTRUSIVE WORK MEN DRESSED IN MODIFIED LEVEL "D" PPE, AIR MONITORING, AND MOBIL DECON UNIT SET UP.

Preparer: KEVIN HEATHWELL Kevin Heathwell
 Name (Print) Signature

$$2.53 + .76 = 1.645$$

$$2.4 + .74 = 1.57$$

$$2.53 + .67 = 1.6$$

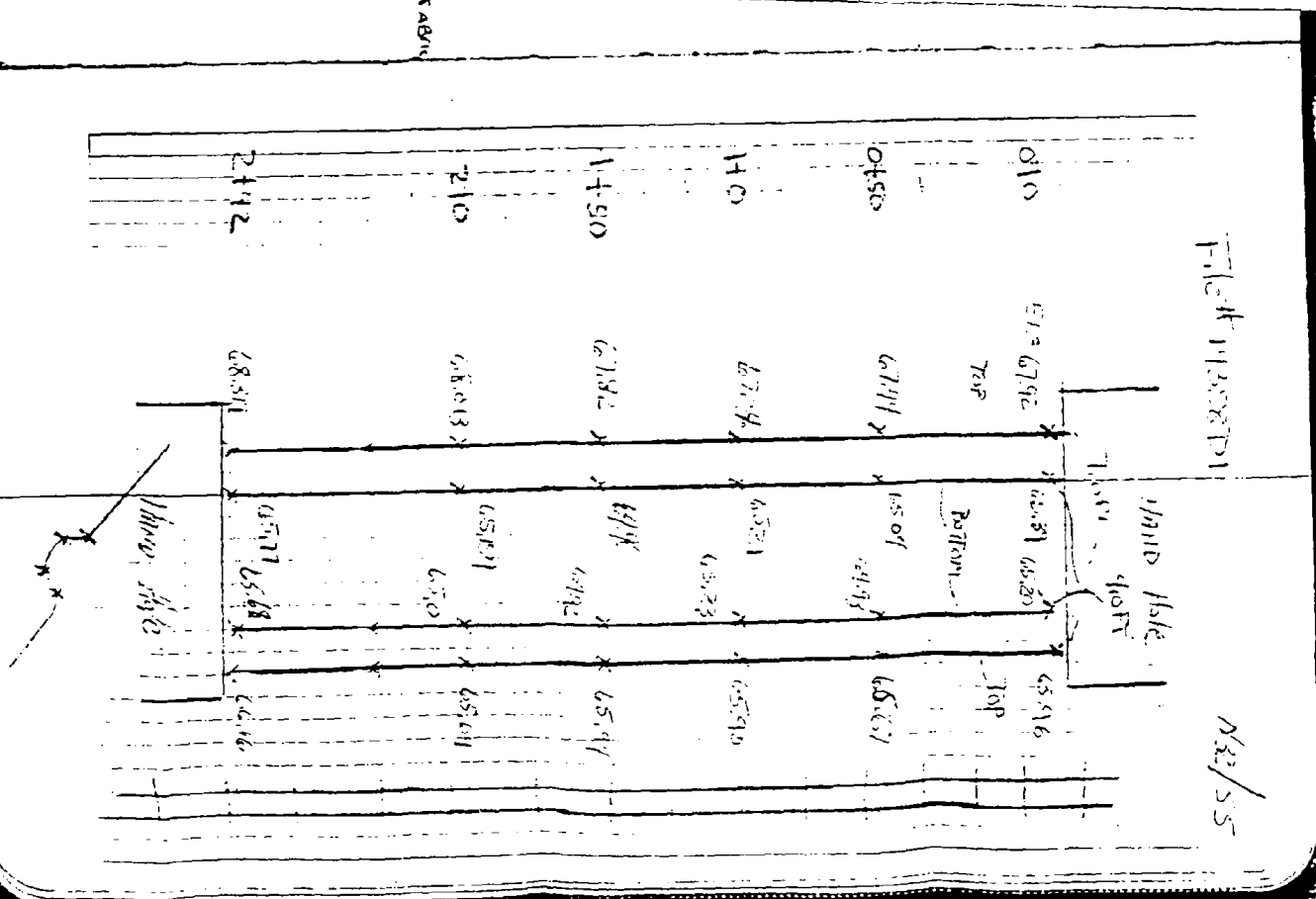
$$2.86 + 1.02 = 1.94$$

$$2.94 + .69 = 1.815$$

$$2.54 + .48 = 1.51$$

$$1.68 \times 3.5 \times 242 / 27 = 52.70 \text{ yd}$$

Depth



Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-24-00

Superintendent/Foreman

T. SWEET

Weather

Rain

Temperature

53°

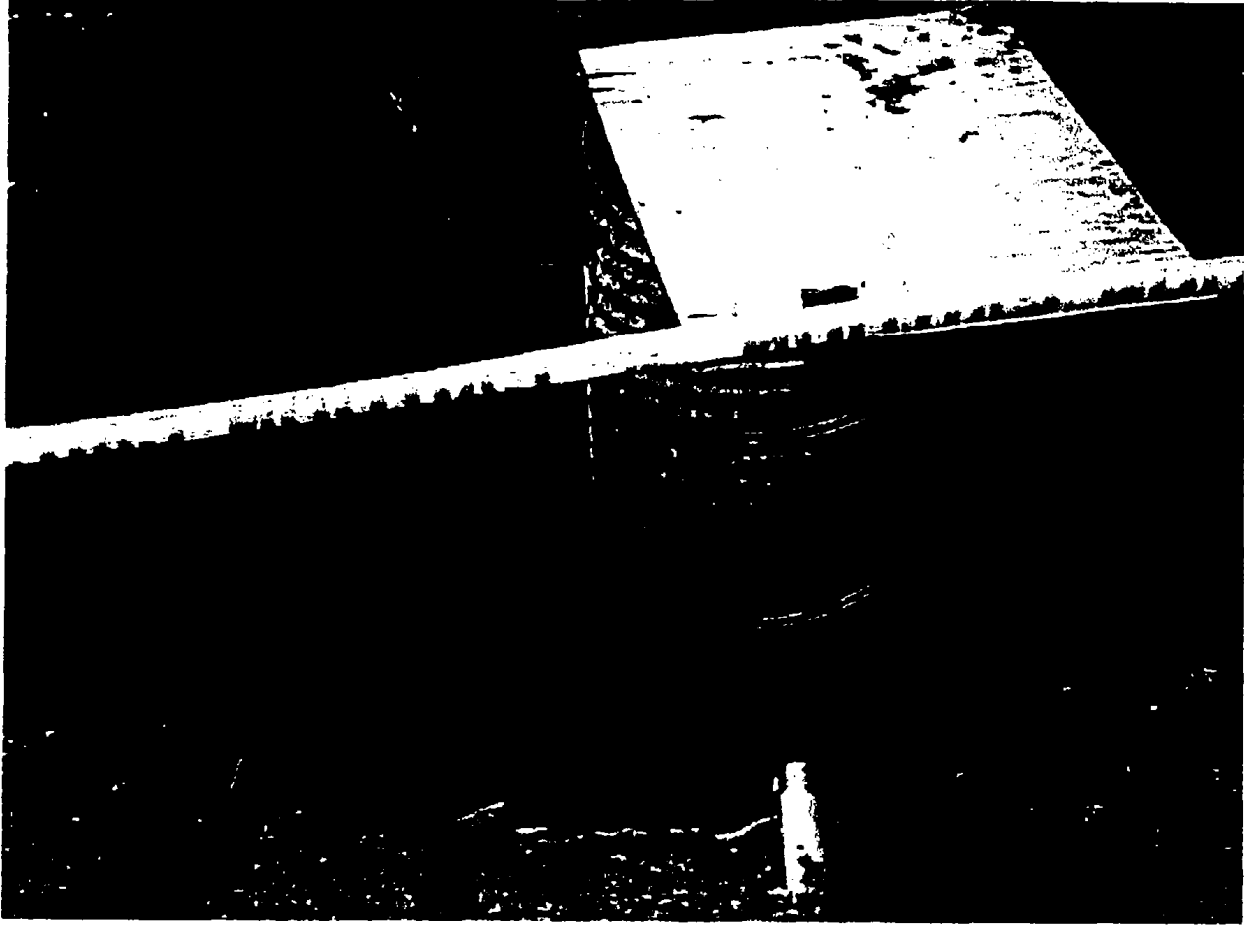
Contract Time Charged?

YES NO

Item #	Description	Quantity	Remarks/Location
2200.1213	BACK FILL COND. TRENCH	FROM	HH 1017 TO HH 1018 HH 1018 TO PAST 1019 HH 1019 TO 1026
1566.0001	EXC. FOR LB & SLEEVE		
	* HAD TO EXC. LB. POINTS IN TRENCH		
	INSTALL 10'-36" SLEEVE		
2300.601	POUR CONG. AROUND LB 1, 2, 3, 4, 5 & 9		15 yds FLOWABLE FILL
2500.50	MOVE & CLEAN DEBRIS, NEW		105 YARDS FILL FILL AREA

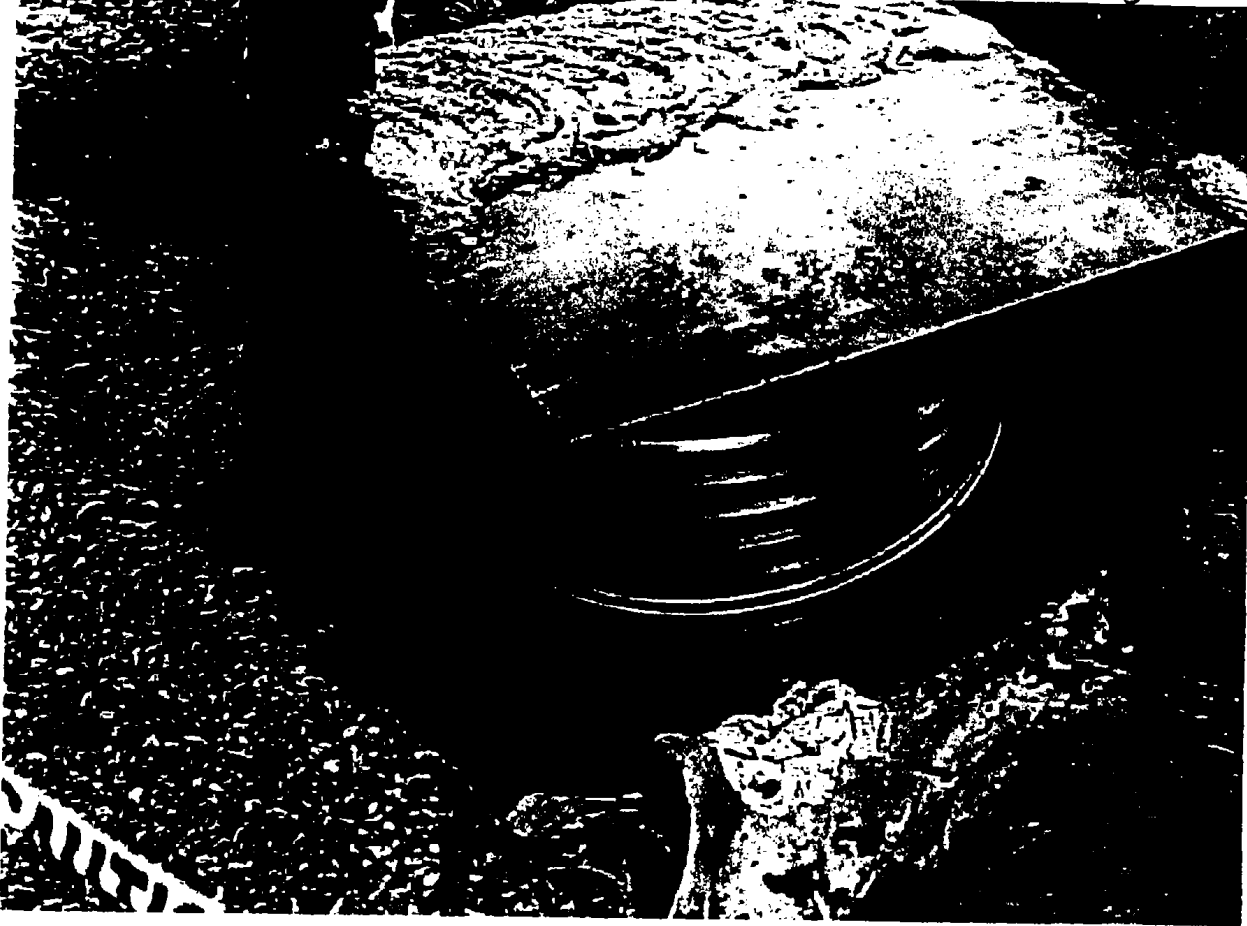
Scope of Work:			
EXC. FOR LB & SLEEVE	INSTALL 10'-36" SLEEVE	NEW FABRIC 63.4	
POUR FLOWABLE FILL AROUND LB SLEEVE UP TO EXISTING FABRIC	POUR LB 1, 2, 3, 4, 5 & 9	15 yds	
MOVE & CLEAN DEBRIS, NEW			
MOVE DEBRIS FROM TRENCH TO EXISTING AREA BY BULK			
MOVE DEBRIS FROM TRENCH TO EXISTING AREA BY BULK			

Paving Flowable Fill @ LHT. BASE #2



Flowable Fill @ 2HT BASE #4

5-24-00



Project: ITC WORK Report No.: 05-25-00-57
 Contractor: ML Date: 5-25-00
 Owner: ROSSPORT/WATA Weather: PARTLY SUNNY
 Project No.: 4727

Contractor Supervisor(s): SEE PHINNEY

Description of Work: 1/4" BASE EAC & DUCT BANK ETC.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Haz Lab / Iron	Gas Weld	Welding Rods	10	SEE ACTIVITIES
3 CREW	BACK HOE	FUEL, OILS	35	
2 Haz LABS	Backhoe (D.M.)		35	
2 LAB	Backhoe (2)		5	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: BACKHOE & LATERAL EXCAVATING TO TOP OF FABRIC FOR PREP TO INTRODUCE WORK FOR LE # 6, 7, 8, 67. HAZ MAT CREW EXCAVATED IN 1/4" MAT TO INSTALL LIFT BASE STEEL # 6, 14, 15, 16, 17.
 1 BACK HOE & LATERAL EXCAVATING FOR CONDUIT FROM LIFT BASE 18 TO 17 AND 47 TO 48. ALSO DUCT BANK EAC & LIFT BASE 50 TO 81 PRESIDENTIAL WORK.
 HAZARDS/SAFETY CONCERNS: Invasive excavation
 CORRECTIVE ACTIONS: During invasive work crew dressed in modified level 2 PPE air monitoring, and mobil 2-man mil setup.

Prepared: Kevin [Signature] [Signature]
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-25-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWIFT

RAIN/OVERCAST

YES NO

Item #	Description	Quantity	Remarks/Location
2200.121B	EXC. FOR COND, 2"	FROM LB	80 TO 81, LB 17 TO 18
	2"		LB 17 TO 18
1566.000F	EXC. FOR LB SLEEVES	14, 15, 16, 17 & 6	
	INSTALL LB SLEEVES	14, 15, 16 & 17	
	PRE EXC. TO FABRIC FOR	LB 14, 15, 16, 17 & 6	

Scope of Work:

T.M.C.	TRENCH EXCAVATION FOR 2" ELE. COND FROM LB 80 TO 81.47 TO 48 & 17 TO 18	100	100	10
	2.18' WIDE X 2.5' DEEP X 300'			160 CY
	EXCAVATE FOR LB 14 SLEEVES	EXISTING FABRIC @	70.3	NEW FABRIC BOTTOM @ 67.3
	INSTALL 5'-36" SLEEVE FOR	LB 14		
	EXCAVATE FOR LB 15 SLEEVES	EXISTING FABRIC @	70.45	NEW FABRIC BOTTOM @ 67.0
	INSTALL 5'-36" SLEEVE FOR	LB 15		
	EXCAVATE FOR LB 16 SLEEVES	EXISTING FABRIC @	71.1	NEW FABRIC BOTTOM @ 67.4
	INSTALL 5'-36" SLEEVE FOR	LB 16		
	EXCAVATE FOR LB 17 SLEEVES	EXISTING FABRIC @	70.8	NEW FABRIC BOTTOM @ 67.9
	INSTALL 5'-36" SLEEVE FOR	LB 17		
	EXCAVATE FOR LB 6 SLEEVE	EXISTING FABRIC @	70.4	
	* HIT LA FC LEDGE (2" DIA. PIPES)	NO EXC. TO REMOVE		
	EXCAVATED & CLEN DOWN TO	FABRIC IN PREP. FOR INTRUSIVE WORK		
		FOR LBS 14, 15, 16, 17 & 6		

Project: R.T.C. WCD 2nd Report No.: 05-25-00-57
 Contractor: TMC Date: 05-25-00
 Owner: MASSPORT/INBTH Weather: Partly Sunny
 Project No.: 1727

Contractor Supervisor(s): CE Phinney

Description of Work: TRACK BYPASS Excavation S. B. RAIL

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Excavator	Reg. material	E	SEE ACTIVITIES
2 TR DRIVER	2110 wheel		E/E	
	D-3 DOZER		2	Maintaining Storage Cell
2 OPER	DOZER vib roller	Gravel & Sidewalk 30000	E/E	Forming subgrade & P.I.

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: EXCAVATOR Excavating for TRACK BYPASS adjacent to South Bound Rail from STA 685100 to STA. 684175. 2 10 wheelers being loaded w/ REG. MATERIAL and BEING DUMPED into storage CELL. TMC also Forming subgrade @ Parklot, DOZER Forming subgrade vib roller compacting gravel material.

NOTE: D-3 DOZER maintaining storage cell

HAZARDS / SAFETY DEFICIENCIES: Regulated material.

COMPLETION ACTIONS: Air Monitoring @ Excavation

Prepared: Kevin Handberg Kevin Handberg
 Name (Print) Signature

Project: ITC (CD) 24
Contractor: TMC
Owner: RASSETT/INTRA
Project No.: 177

Report No.: 5-25-00-57
Date: 5-25-00
Weather: Partly Sunny

Contractor Supervisor(s): Joe Phoney

Description of Work:

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 CTR	Hand truck	2" PVC pipe	8	Install 2" PVC pipe STA. 664+90 to STA. 674+00
1 CTR	Hand truck	2" PVC pipe	8	Install 2" PVC pipe STA. 674+00 to STA. 674+00
2 Lab			8/8	Install 2" PVC pipe STA. 674+00 to STA. 674+00 and STA. 674+00 to STA. 674+00
Patrick Smith		2" PVC pipe	8	Install 2" PVC pipe STA. 674+00 to STA. 674+00
City Light		2" PVC pipe	8	Install 2" PVC pipe STA. 674+00 to STA. 674+00

Visits	Representing	Purpose

Daily Notes:

Activities: TMC crew installed 2" PVC pipe adjacent to North Bound Rail, STA. 664+90 to STA. 674+00. From STA. 674+00 to STA. 674+00 and from STA. 674+00 to STA. 674+00. Patrick Smith installed 2" PVC pipe STA. 674+00 to STA. 674+00. Also, the crew installed new fabric where in issue work was done. Rel. work at into storage cell.

Hazards/SAFETY DEFICIT: None observed.

Corrective Action: None required. No work was performed in Modified Level "D" as no work was required.

Preparer: Kevin Marshall [Signature]
Name (Print) Signature

Project: R.T.C UNDER Report No.: 05-26-00-58
 Contractor: TMC Date: 5-26-00
 Owner: MASSPORT/MBTA Weather: SUNNY 70°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: EXC & INSTALL L.B. SLEEVES, DUCT BANK EXC.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(2) HAZ LAB	6 wheeler BACK HOUL	REG. MAT.	11/8	L.B. EXC & INST. @ P. 107
(1) OPER / K/OPER	Gasman D. HOE, SUMMER	SLEEVES, FABRIC	8/8	
1 OPER	Back Hoe		8	DUCT BANK EXC PRES. WAY

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: INTRUSIVE EXCAVATION FOR LIGHT BASE #6, EXISTING FABRIC @ ELEV. 70.00 AND BOTTOM OF NEW FAB. @ ELEV. 63.00. INSTALL 10' x 36" SLEEVE FOR L.B. #6
(Crew Hit & Remove a large piece of ledge during excavation. Also crew excavated to top of existing fabric in prep for intrusive work @ L.B. 7, 8 & 6.
(Crew excavated for 2" ELECT COND FROM L.B. 81 TO 82 TO 83 (360'
2.16' wide x 2.5' DEEP x 360' LONG (72 y)

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK @ LIGHT BASE #6

CORRECTIVE ACTIONS: Modified level of PPE, AIR MONITORING and Mobil Decon unit set up during intrusive work.

Preparer: Kevin Handwell Kevin Handwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-26-05

Superintendent/Foreman

T. SWIFT

Weather

CLEAR

Temperature

am 58° pm 90°

Contract Time Charged?

YES NO

Item #	Description	Quantity	Remarks/Location
2000.121B	EXC. FOR 15IN. (2") 2.5' X 2.5' X 365'	FROM 72 CY	LB 4 TO 80 TO 82
1566.000F	EXC. & INSTALL LB 6 SLEEVE * HAD TO REMOVE 1/2 PC. @ LEDGE		
	PRE-EXC. TO FABRIC FOR LB	7,8 & 67	

Scope of Work:			
TMC	EVALUATE FOR 6" DIA. ROAD	FROM LB	81 TO 82 TO 83 365'
	2.5' WIDE X 2.5' DEEP X 360'		72 CY
	EXC. & INSTALL FOR LB 6 SLEEVE	FRY @ 70.4	INSTALL @ 63.00
	* HAD TO REMOVE 1/2 PC. @ LEDGE		
	INSTALL 10'-36" SLEEVES	FOR LB	6
	PRE-EXC. TO FABRIC	FOR SLEEVES	IN WORK @ LB 7, 8, & 67

Project: R.T.C. Work
Contractor: JMC
Owner: MASSPORT/MBTA
Project No.: 1.727

Report No.: 05-30-00-59
Date: 05-30-00
Weather: Cloudy 60°

Contractor Supervisor(s): Joe Phinney

Description of Work: Hoe Ramming ledge & loading rack out

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Excavator	Rack/Ledge	8	Hoe Ram Ledge, load out
1 OPER	Hoe Ram	Dirty ledge	8	# dump on site
(1) TL DRIVER	lowwheeler		8	

Visitors	Representing	Purpose

Daily Notes:

Activities: 300 Excavator with Hoe Ram breaking ledge, 200 excavator loading 10 Wheeler & dumping on site, clean Rack only. 2 loads of Dirty ledge dumped into storage cell 80X80.

Hazards/Safety deficiencies: Dirty ledge

Corrective Action: Dirty material (ledge) dumped in storage cell

Preparer: Kevin Harkwell Kevin Harkwell
Name (Print) Signature

Project: R.T.C. WORK
 Contractor: IMC
 Owner: MASSPORT/MBTA
 Project No.: 1.727

Report No.: 05-31-00-60
 Date: 5-31-00
 Weather: Sunny 60°-70°

Contractor Supervisor(s): JOE PHINNEY

Description of Work: EXCAVATION FOR RTT & MBTA CONDUIT

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT		Fabric	8	EX. REG MATERIAL adjacent
2 HAZ LAB	Sewing mach		8/8	TO N.B. RAIL FROM STA. 66A+18
1 OPER	EXCAVATOR	REG MAT.	8	TO 66S+99
1 TK DRIVER	10 wheeler		8	
1 OPER	Gradall	Ordinary Gravel	2	BACKFILLING RTT & MBTA CONDUIT

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: CREW made cut in existing fabric, and folded it back. Excavated out Regular material to required depth From STA. 66A+18 TO 66S+99 and loaded material on 10 wheeler and DUMPED in storage cell. Crew then sewed in NEW Piece of Fabric.

Gradall Back filled section of Conduit (ATT & MBTA) Between MBTA #1 & 2.

HAZARDS / SAFETY DEFICIENCIES: Invasive work

Corrective Actions: crew dressed in Modified level "D" PPE, Air Monitoring, and Mobil Decon setup.

Preparer:

Kevin Handwell
Name (Print)

Kevin Handwell
Signature

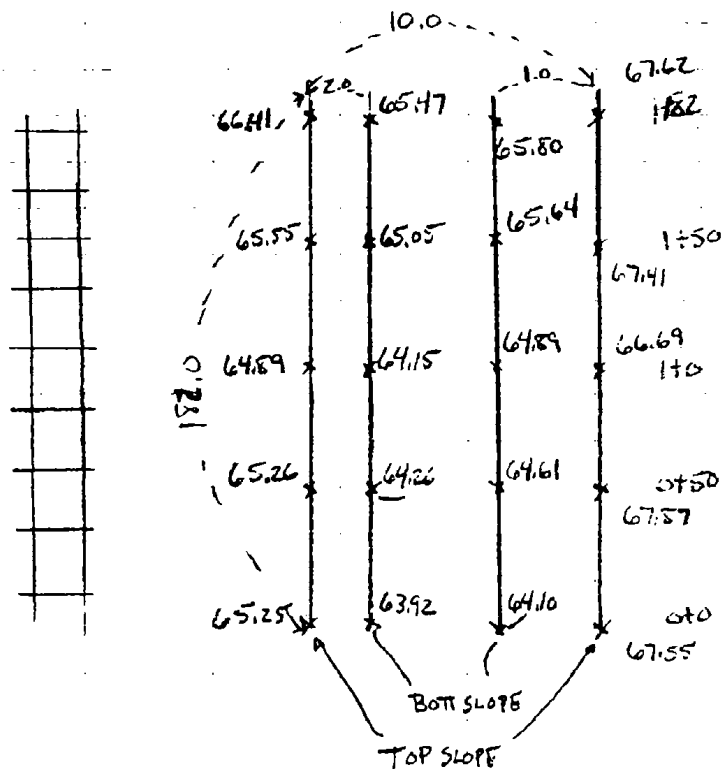
6-1-00 Woburn 4-5862.00

80

AS
30

Ac 79 (5.05) Bson: 601 (5.33)

2300 6.27 TS
 2309 6.27 BS
 2320 6.27 HH top of HAND HOLE
 2335 6.27 SPOT Bottom of HH
 2339 5.33 CHECK



File# 15358D1

N32/68

Ac 601 (5.27) Bson: 600 (5.37)
 FS #84 5/4 (5.13)

Ac 84 (5.13) Bson: 601 (5.27)

2340 INV= 6.27 TOP 4" P.V.L. IRRIGATION SLEEVE
 2348 BS 10.92
 2352 FABRIC 10.92 @ SEAM
 2355 LP 15.75 Bottom of Light pole
 2356 LP 20.59 "
 2358 FABRIC 6.27 @ SEAM
 2361 BS 6.27
 2365 BS "
 2370 FABRIC " @ SEAM
 2375 LP 10.92 @ Bottom of LP
 2377 FABRIC " @ SEAM
 2380 BS "
 2384 MH? " ?

UNABLE to check out MACH. ON-LINE

A- P.K600 5.37
 A- P.K601 5.27
 S/W #80 5.13

Project: R.T.C. WOOD
 Contractor: TMC
 Owner: MASSPORT/MBTA
 Project No.: 1.727

Report No.: 05-31-00-60
 Date: 5-31-00
 Weather: Sunny 60°-70°

Contractor Supervisor(s): Joe Phinney

Description of Work: install LHT Bases, Exc For Sleeves, Trench For Conduit, Irrigation Slew

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM (Hartz Lab)	2" x 4" Plywood Duct	LHT BASES LHT BASE SLEEVES	10	Inst. 70' of Irr. Slew in PLOT
2 OPER	Exc. Small Duct Hoe	Reg. MHT Fabric	8/8	Exc & Inst LHT Base Sleeves in PLOT
1 Hartz Lab	10 Whacker		8	Hand Reg. Mat to Storage Cell
1 OPER	Backhoe	exc. Heavy Fabric	8	Exc to TOP of FAB. in PREP FOR intrusive work For LHT BASE SLEEVES in PLOT

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC installed & backfilled to F.G. Light Bases # 83, 85, 86, TMC excavated and installed Light Base sleeves for LHT Bases # 7 & 8 Both intrusive excavations. TMC also excavated to top of fabric in prep for intrusive excavation for LHT Base sleeves # 67, 35 & 28. *NOTE # 28 is on top of culvert. TMC Exc. & installed 30' of 4" sch 80 for Irr. Slew @ STA 205+30 and 40' of 4" sch 80 @ STA 202+30. TMC Trenched for Conduit from LB 37 to 36, LB 26 to 27; HH*7 to LB 48 to LB 47 to LB 46

HAZARDS / SAFETY DEFICIENCIES: intrusive excavation for LHT BASE SLEEVES

Corrective Actions: During intrusive excavation crew dressed in modified level 1 PPE, Air monitoring, and Mobil Deco unit set up.

Preparer: Kevin Harwell Name (Print) Kevin Harwell Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

5-31-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T, SWEET

CLEAR

am pm 70°

YES NO

Item #	Description	Quantity	Remarks/Location
2200.12' B	EXC. FOR 2" CONR	FROM LB 37 TO 38, LB 26 TO 27, HH 7 TO LB 16 TO LB 24	160' 90' 100' 160' LB
3400.202	INSTALL & BACKFILL LB	83, 85, & 86	
1566.000 F	EXC. & INSTALL LB SLEEVES	7 & 8	
	PRE SIG. TO FABRIC FOR LB	67, 35, 26*	
2613.000	IRRG SLEEVE 4" SCH 80	30'	ZONE 8 TO BUILDING
	IRRG SLEEVE 4" SCH 80	40'	ZONE 11 TO 13

Scope of Work:			
T.M.C.	EXCAVATE FOR 2" ELEK CONP. FROM LB	37 TO 38, LB TO 27, HH 7 TO 46 TO 47 TO 48	
	2.16' WIDE X 2.5' DEEP X 530'		106 CY
	INSTALL & BACKFILL LB 23	TO FG	82.23
	INSTALL & BACKFILL LB 25	TO FG	80.94
	INSTALL & BACKFILL LB 26	TO FG	81.28
	EXCAVATE FOR LB 7 SLEEVE	EXISTING FABRIC @	70.6 NEW FABRIC BOTTOM @ 63.0
	INSTALLED 10'-36" SLEEVE	FOR LB	7
	EXCAVATE FOR LB 8 SLEEVE	EXISTING FABRIC @	69.9 NEW FABRIC BOTTOM @ 62.3
	INSTALLED 10'-36" SLEEVE	FOR LB	8
	EXCAVATE TO & CLEAN FABRIC FOR INTRUSIVE WORK @ LB 67, 35, 26*		
	* LB 28 LOCATED ON TOP OF BOX CULVERT		
			(CROSSINGS @ 2)
	EXCAVATE & INSTALL 30'	4" SCH 80	FOR IRRG. SLEEVES @ 205+30
	EXCAVATE & INSTALL 40'	4" SCH 80	FOR IRRG. SLEEVES @ 202+30

Project: R.T.C. WOODS
 Contractor: TMC
 Owner: MASSPORT/MATA
 Project No.: 1.777

Report No.: 06-01-00-61
 Date: 6-1-00
 Weather: SUNNY 70°-80°

Contractor Supervisor(s): JOE PHINNEY

Description of Work: INSTALL HANDHOLES, EXC & INST. LHT. BASE SLEEVES, INST LHT BASE, RE EXC FOR SLEEVE

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
(1) FORM	BACKhoe / wheel loader	Handhole, LHT BASE	10	SEE ACTIVITIES
(1) LHT LAB / 1 OPER	BACKhoe	LHT. BASE SLEEVE	8/8	
(1) OPER / (1) LAB	BACKhoe		8/8	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC EXCAVATED FOR L.B. # 67 SLEEVE, HIT FABRIC @ ELEV. 71.4, INTRUSIVE EXCAVATION TO REQUIRED ELEV. NEW FAB @ BOTTOM ELEV. 69.2 and installed sleeve. EXCAVATED FOR L.B. #35 SLEEVE, HIT FABRIC @ ELEV. 69.2, INTRUSIVE EXC. TO REQUIRED ELEV. 66.0, NEW FABRIC @ BOTTOM OF SLEEVE and installed sleeve. excavated and installed Handhole #8 STA 104+05. installed a backfiller Light Base #35 @ STA. 104+50 @ ELEV. 76.2. TMC PRE-EXCAVATED TO TOP OF FABRIC PREP FOR INTRUSIVE EXCAVATION FOR L.B. 35, 34 & 33.

Hazards/Safety Deficiencies: INTRUSIVE WORK

Corrective Actions: CREW DRESSED IN MODIFIED LEVEL "D" PPE, AIR MONITORING and mobil dera unit during intrusive work

Preparer: KEVIN HARTWELL
 Name (Print)

Kevin Hartwell
 Signature

Daily Quantity Sheer

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

6-1-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

CLEAR

am pm 75°

YES NO

Item #	Description	Quantity	Remarks/Location
3400.161	INSTALL PREP. CONC. HH	8	
1566.00 F	EXC. FOR LB SLEEVES	67 @ 35	
	INSTALL LB SLEEVES	67 @ 35	
	PRE-EXC. TO FABRIC @	LB 35	34 @ 33
3400.202	INSTALL & BACKFILL LB	35	

Scope of Work:

T.M.C.	Excavate FOR LB 67 SLEEVE	EXISTING FABRIC @ 71.4	NEW FABRIC BOTTOM @ 64.2
	INSTALLED 10'-36" SLEEVE FOR LB	67	
	Excavate FOR LB 35 SLEEVE	EXISTING FABRIC @ 69.2	NEW FABRIC BOTTOM @ 66.0
	INSTALLED 5'-36" SLEEVE FOR LB	35	
	Excavate & INSTALL HH @	104+05	ELEV.
	INSTALL & BACKFILL LB	35 @ 57.4	104+50 ELEV. 76.2
	PRE-EXC. TO FABRIC FOR	INTRUSIVE @ LB 35	34 @ 33

Project: R.T.C. WORK Report No.: 06-02-00-62
 Contractor: TMC Date: 6-2-00
 Owner: MASSPORT/MIBTA Weather: SWIMY 80°
 Project No.: 1.777

Contractor Supervisor(s): JOE PHINNEY

Description of Work: INTRUSIVE EXCAVATION FOR SIGNAL BUNGALO, CUT SLOPE TO ^{SUB}GRADE

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT		REG MAT, FABRIC		INTRUSIVE EXCAV FOR SIGNAL BUNGALO @ STA 678+44
2 WRT LAB	SEWING MACH	REG MAT		
1 OPER	EXCAVATOR	REG MAT, REG ORDINARY PORTLAND CEMENT	8	CUT SLOPE TO SUBGRADE ADJACENT TO N. BOUND RAIL.
1 TR DRIVER		REG MAT	2	Haul 2 loads REG MAT TO STORAGE CELL

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC excavated @ STA. 678+44 beneath Fabric for signal Bungalow. TMC cut fabric, excavated reg mat, sewed in new fabric. Hauled out 2 loads of reg mat - and dumped in storage cell.
 TMC cut slope from approx STA. 677+75 to 678+00 to subgrade adjacent to North Bound Rail.

Hazards / SAFETY DEFICIENCIES: Intrinsic Excavation

Corrective Actions: Modified Level "D" PPE, mobil Decon unit, Air monitoring performed during all intrusive work.

Preparer: K. Handwell Kevin Handwell
 Name (Print) Signature

6.2.00

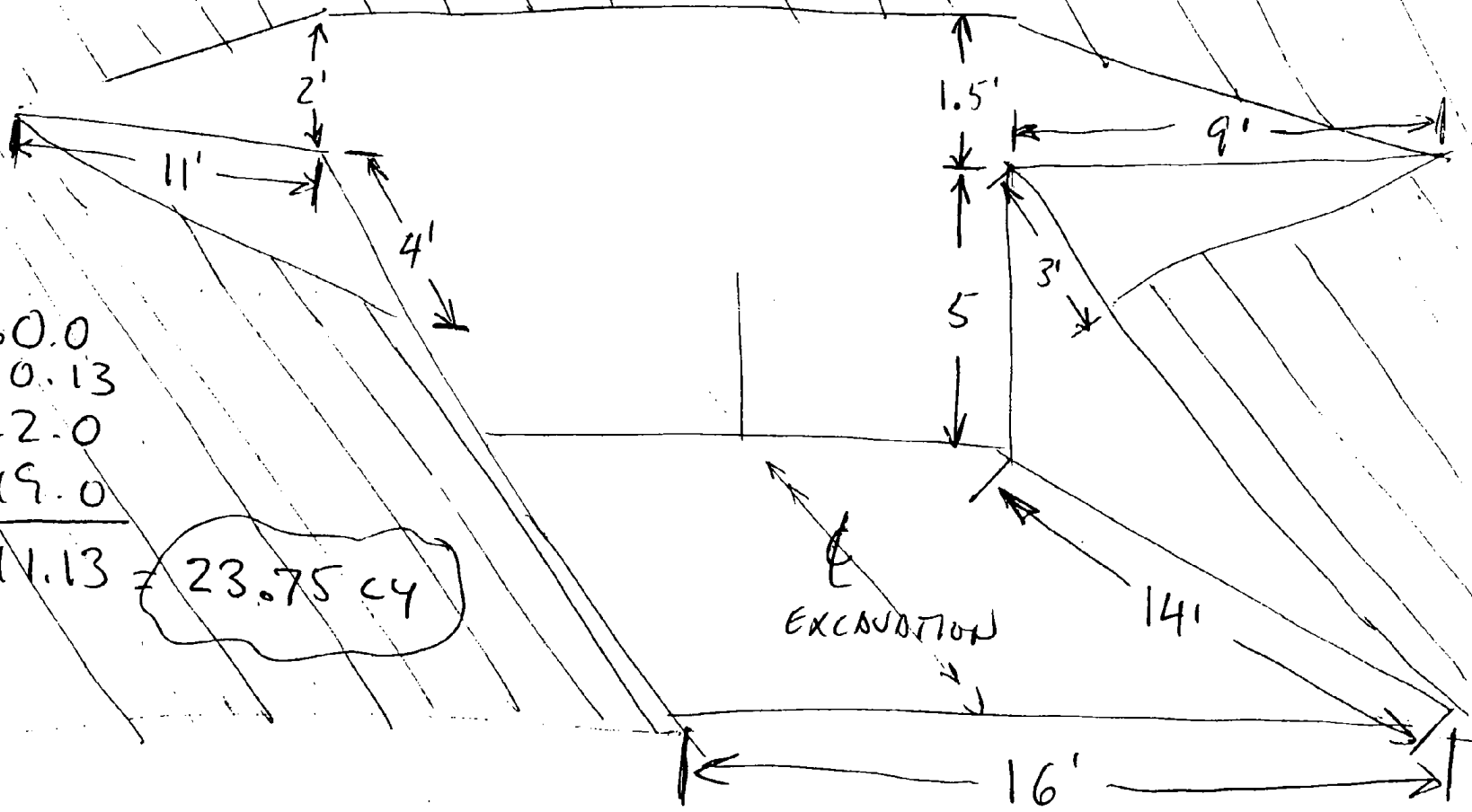
VOLUME REG MATC =

5' x 16' x 14 1/2 = 560.00 + 3' x 1.5 x 9 1/4 = 10.13 +

2' x 4' x 11 1/4 = 22.0 + (2+1.5)/2 x (3+4)/2 x 16 1/2 = 49.

560.0
10.13
22.0
49.0

641.13 = 23.75 CY



INTRUSIVE EXCAV. FOR "LEAN ZONE"
BENEATH WILBUR LOCN "B" BUNGALOW.

SFA 678444

Project: R.T.C. WORK
 Contractor: TMC
 Owner: MASSPORT/MBTA
 Project No.: 1.727

Report No.: 06-02-00-62
 Date: 6-2-00
 Weather: SUNNY 60°

Contractor Supervisor(s): Joe Phinney

Description of Work: Exc & inst. L.B. BASES, SLEEVES, TRENCHING, FLOWABLE FILL, BACKFILLING CONDUIT

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Foreman	BACK TRUCK 4 wheel DUMP	LIGHT BASES LIGHT BASE SLEEVES	11	SEE ACTIVITIES
3 OPER	(2) BACK HOES FOR SLOTTED	CONCRETE, FLOWABLE FILL	30 E	
2 HAZ LAB	DECON UNIT SOUNDING MACH	HAND HOLES	2 E	
1 LAB		REG MAT	2	
		OLD WOOD BOARD		

Visitors	Representing	Purpose
<u>Wakefield Concrete</u>	<u>TMC</u>	<u>Flowable Fill & HHT BASE SLEEVES</u>

Daily Notes:

ACTIVITIES: TMC excavated & installed L.B. sleeve #33, #34, #10, #11. BACKFILLED with Flowable fill L.B. #33, #34, #7, #8, and #67. Installed & BACKFILL L.B. #10 & #11. TMC SEWED IN NEW FABRIC FOR L.B. 10 & 11, grade had to be lower. TMC ALSO EXCAVATED FOR 2" CONDUIT FROM HAND HOLE #7 TO LIGHT BASE #51 and BACKFILLED 2" CONDUIT FROM HAND HOLE #7 TO LIGHT BASE #46 TO L.B. #47 and FROM HAND HOLE #7 TO H.H. #51. BACK HOE PRE-EXCAVATE TO TOP OF FILL FOR L.B.

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK FOR LIGHT BASES & SLEEVE INSTAL-
 -LATIONS

CORRECTIVE ACTIONS: Modified Level 3 PPE, mobil Decon unit and Air monitoring; Performed during all intrusive work.

Preparer: K. Hartwell
 Name (Print)

Kevin Hartwell
 Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ___ of ___

Regional Transportation Center, Woburn, MA

405

6-2-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

CLEAR

am pm

YES NO

Item #	Description	Quantity	Remarks/Location
1566.000F	EXC. FOR LB SLEEVES	33	REG MAT
	EXC. & lower FABRIC FOR	LB 34	10, & 11
3400.202	INSTALL & BACKFILL LB	34, 33	10, & 11
3300.201	FLOWABLE FILL AROUND LB	7, 8, 67, 34, & 33	
1999999D	SEW FABRIC IN FOR LB	10 & 11	8'x8' EA
2200.121B	EXC. FOR 2" COND. FROM	HH7 TO	LB 51
	BACKFILL 2" COND. FROM	HH7 TO	LB 51, HH7 TO LB 46 TO LB 47

Scope of Work:

T.M.C	Excavate FOR LB 33 SLEEVE	EXISTING FABRIC @ 71.3	NEW FABRIC @ 66.00 BOTTOM
	INSTALLED 7'-36" SLEEVE	FOR LB 33	
	Excavate & lower FABRIC FOR LB 10	EXISTING FABRIC @ 67.6	NEW FABRIC @ 66.00 BOTTOM
	Excavate & lower FABRIC FOR LB 11	EXISTING FABRIC @ 67.7	NEW FABRIC @ 66.00 BOTTOM
*	Excavate FOR LB 34 INSTALL ABOVE	FABRIC @ 68.4	BOTTOM ELEV.
	INSTALL & BACKFILL LB 34, 33, 10, & 11		
10 yds	PERUR FLOWABLE FILL AROUND LB SLEEVES	7, 8, 67, 34 & 33	
	SEW FABRIC IN FOR LB	10 & 11	8'x8' EA
16 CY	Excavate FOR 2" COND. FROM	HH7 TO LB 51	20'x2.12x2.5
	BACKFILL 2" COND. FROM	HH7 TO LB 46 TO LB 47, HH7 TO 51	

Project: R.T.C. WPA 12W Report No.: 06-05-CC-63
 Contractor: TMC Date: 6-5-00
 Owner: MASSPORT/MBTA Weather: Cloudy 65°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: install catch basins, rebuild manhole, backfill trenches

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM	2.5K U/Oregon	Catch Basins(2)	10	excavate & install 2 C.B. and
1 OPER	Generator	manhole(1)	8.5	convert existing C.B. TO D.M.H.
1 Lab(HAZ)	sewing mach	Fabric	8.5	@ Cul-de-sac @ ATLANTIC AVE
1 OPER	BACKHOE		8.5	BACKfill conduit runs in P.I.O.T.
1 Lab			8	
TR DRIVER	low wheel		8	HAUL REG MAT TO STORAGE CELL

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: AT CUL-DE-SAC @ ATLANTIC AVE, TMC converted existing catch basin into draw manhole, 1st they excavated in Reg material loaded truck and dumped into storage cell, installed new fabric. Then built new manhole. They also install 2 new catch basins exc. in non reg material for installation. Installed 35' of 8" D.I. PIPE FROM CB 1 TO CB 2 and 9' of 12" HDPE PIPE FROM C.B. 2 TO D.M.H. 1, TMC BACKFILLED and compacted. TMC TRENCHED FROM LB# 11 TO 10 TO H.H.# 1 & 8 toward H.H.# 17. For 2" conduit, also tmc backfilled 2" conduit FROM LB 11 TO LB 10 TO H.H.# 8 toward H.H. 17, LB 18 TO LB 17, LB 18 TO HH 9 & 9A TO ECB, LB 21 TO 20 TO 19 BACKfill 3" conduit FROM H.H. 9 & 9A TO ECB.

HAZARDS/SAFETY DEFICIENCIES: INTRUSIVE EXC. @ existing catch basin @ cul-de-sac

Corrective Actions: Modified LEVEL 'D' PPE, AIR monitoring, mobil decon unit during intrusive excavation.

Preparer: Kevin Hawthell Kevin Hawthell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location Regional Transportation Center, Woburn, MA	Job # 405	Today's Date: 6-5-00	page ____ of ____
Superintendent/Foreman T. SWEET	Weather CLEAR	Temperature am 40° pm 65°	Contract Time Charged? YES NO

Item #	Description	Quantity	Remarks/Location
2400.149	CHANGED EXISTING CB TO MH Excavated REG. MH, & LOWERED FABRIC around CB FROM 68.9 TO 64.5		
2400.201	INSTALL CB 1 & 2 INSTALL 35' OF 8" DUCTILE PIPE FROM CB 1 TO CB 2		
2400.25a	INSTALL 9' OF 12" HDPE		
2200.121B	TRENCH FOR 2" COND. FROM LB 11 TO 10 TO HH 1, & HH 8 toward HH 17 BACKFILL 2" COND FROM LB 11 TO 10 TO HH 1, HH 8 toward HH 17, LB 18 TO LB 17 LB 18 TO HH 9 & 9A TO ECB 5, LB 21 TO 20 TO 19 BACKFILL 3" COND. FROM HH 9 & 9A TO CONTROL PAD		

Scope of Work:		
T.M.C.	Excavate & INSTALL CB 1 @	ELEV. RIM 71.52
	Excavate & INSTALL CB 2 @	ELEV. RIM 71.66
INTRUSIVE →	Excavate & REMOVE CONE on CB EXISTING FABRIC @ 68.9 NEW FABRIC BOTTOM @ 64.5	
	Add 3' RISER & CONE TOP (CHANGE TO MH) RIM 72.33	
	INSTALL 35' OF 8" DUCTILE PIPE FROM CB 1 69.3 TO CB 2 69.0	
	INSTALL 9' OF 12" HDPE FROM CB 2 68.9 TO CH-MH 65.00	
	TRENCHED FOR 2" COND. FROM LB 11 TO 10 TO HH 1, & HH 8 - 50' toward HH 17	
	2.16' WIDE X 2.5' DEEP X	
	BACKFILLED 2" COND FROM LB 11 TO 10 TO HH 1, HH 8 toward HH 17, LB 18 TO LB 17	
	LB 18 TO HH 9 & 9A TO ECB 5, LB 21 TO 20 TO 19	
	BACKFILLED 3" COND HH 9 & 9A TO CONTROL PAD	

Project: R.T.C. WOODROW
Contractor: JMC
Owner: MASSPORT/MBTA
Project No.: 1.727

Report No.: 06-06-00-64
Date: 6-6-00
Weather: Wind, Rain 55°

Contractor Supervisor(s): JOE PHINNEY

Description of Work: CUT SLOPE ADJACENT TO NORTHBOUND RAIL TO SUBGRADE

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
<u>LOPER</u>	<u>200 EXCAVATOR</u>	<u>ordinary Borrow</u>	<u>8</u>	<u>CUT Slope to subgrade adjacent</u>
<u>LOPER</u>	<u>Kat0450 EX.</u>	<u>ordinary Borrow</u>	<u>8</u>	<u>to north Bound Rail</u>

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: 2 EXCAVATORS cutting slope adjacent to north Bound Rail to subgrade.

HAZARDS / SAFETY DEFICIENCIES

Preparer: K. Hartwell
Name (Print)

Kevin Hartwell
Signature

Project: R.T.C. WOODS Report No.: 06-06-00-64
 Contractor: TMC Date: 6-6-00
 Owner: MASSPORT/MATA Weather: Wind, Rain 55°
 Project No.: 1.777

Contractor Supervisor(s): Joe Phinney

Description of Work: Form subgrade @ P. Lot, site survey, stick Fab & LHT BASE sleeves

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	0-4 Dozer	Gravel Borrow	65	Forming subgrade in Park Lot
1 OPER / Lab	vib roller		35/35	" " "
1 OPER	loader		4	Feed dozer w/ gravel borrow around structures
2 SURVEY	survey		8/8	site survey
1 Htz Lab	BACKTAP sewing machine	Fabric	4	sew new Fab & LHT BASE sleeve in P. Lot

Visitors	Representing	Purpose

Daily Notes:

Activities: EXCEL'S tow wheeler & TMC loader feeding dozer with gravel borrow to form subgrade around structures and parking lot. vib roller (compacting graded material). (2) surveyors giving grades as needed. 1 Htz laborer sewed new fabric & LHT BASE sleeves #7, 8, 67.

HAZARDS / SAFETY DEFICIENCIES: NONE observed

CORRECTIVE ACTIONS: NONE NEEDED

Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

Project: WOBOEN RTC Report No.: _____
 Contractor: TMC Date: 6/6/00
 Owner: MASSPORT / MBTA Weather: RAIN 50°
 Project No.: 1.727

Contractor Supervisor(s): J. PHIPNEY / C. DOWNIE

Description of Work: structural steel, make Bolt Templates, Electrical conduit

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
TMC	LIFTS, WELDER	STRUCTURAL STEEL	2.5	STATION BUILDING
ALGAR	HAND TOOLS	1 MEN	2/1	STATION BUILDING
CITY LIGHTS	HAND TOOLS	conduit	2/2	STATION BUILDING

Visitors	Representing	Purpose
_____	_____	_____
_____	_____	_____
_____	_____	_____

Daily Notes:

TMC / 2ND FLOOR DECKING, TORQUE BOLTS TIGHT - RAINED OUT

ALGAR / BLOCK OUTS & BOLT TEMPLATES

CITY LIGHTS: Running conduit @ Building 2nd Floor

HAZARDS / SAFETY DEFICIENCIES: Heights greater than 6'

CORRECTIVE ACTIONS: (2) 60' man lifts, Full body harnesses w/ 6' lanyards and 20' retractable lanyards being used. all ladders

Preparer: C. DOWNIE
 Name (Print)

C. Downie
 Signature

SAFETY: K. HARTWELL

Kevin Hartwell

Project: R.T.C. WOODW Report No.: 06-06-00-64
 Contractor: TMC Date: 6-6-00
 Owner: MASSPORT/MBTA Weather: Wind, Partly 55°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: EXCAVATION FOR 16" WATER MAIN EXTENSION

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM	PUMPS		5	SEE ACTIVITIES
1 OPER	ACE 120M	Flowable Fill	8	
1 OPER	BACK HOE	Flowable Fill	8	
1 LAB	Hand Tools		8	
1 TRUCK DRIVER	10 Wheeler	3/4 STONE, Flow Fill EX	4	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC HOE TAMING Flowable Fill, BACKHOE EXCAVATING Fill OUT and 10 Wheeler Hauling away Fill. All to EXPOSE NEW 16" WATER MAIN, SO TMC CAN EXTEND MAIN. TMC BACK FILLED w/ 3/4 STONE and PLATED EXCAVATION TO SECURE HOLE FOR THE NIGHT.

HAZARDS / SAFETY DEFICIENCIES: NONE OBSERVED

CORRECTIVE ACTIONS: NONE NEEDED

Preparer: K. HARTWELL
Name (Print)

Kevin Hartwell
Signature

Project: R.T.C. WORK Report No.: 06-06-00-64
 Contractor: JMC Date: 6-6-00
 Owner: MASSPORT/MBTA Weather: Wind, Rain 55°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: TRENCH FOR CABLE TRAY

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	BACKHOE	Gravel Borrow	8	TRENCH FOR CABLE TRAY adj
1 LAB	Hand TOOLS		8	TO N. BOUND RAIL FROM STA.
				654+00 TO STA. 660+00

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: BACKHOE & LABORER TRENCHING FOR CABLE TRAY ADJACENT TO NORTH BOUND RAIL FROM STA. 654+00 TO STA 660+00

HAZARDS / SAFETY DEFICIENCIES: NONE OBSERVED

CORRECTIVE ACTIONS: NONE NEEDED

Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

Project: R.T.C Report No.: 06-08-00-66
 Contractor: TMC Date: 6-8-00
 Owner: MASSPOET / MBTA Weather: SUNNY 70°-80°
 Project No.: 1-727

Contractor Supervisor(s): JOE Phunny

Description of Work: Exc ATLANTIC AVE, SEW NEW FABRIC, Gravel Borrow

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM	2x6 T&W/Decon Hand Tools		11	SEE ACTIVITIES
1 HRZ LAB	Sewing machine Fabric	FABRIC	8	
1 LAB	Compressor S. Hammer	Placement	8	
1 TR DRIVER - TMC	10 Wheeler	Reg material	8	
1 TR DRIVER - EXEL	10 Wheeler	Gravel Borrow	2	
1 OPER / 1 OPER	Excavator Roller/Vibrator	Regulate material Gravel Borrow	8/2	

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC excavated @ ATLANTIC AVE FROM STA 19+00 TO 18+00. THIS WAS INTRUSIVE WORK, EXCAVATION 1.0' DEEP X 32' WIDE X 100' (118.5 CY). AFTER EXCAVATION COMPLETE TMC LAID NEW FABRIC & SEWED 55' X 100' (5,500 SF), THEN PLACED GRAVEL BORROW FROM STA 18+00 TO 19+00 (201.1 CY). ALL REG. MAT. DUMPED IN TO STORAGE CELL.

Hazards / SAFETY DEFICIENCIES: INTRUSIVE EXCAVATION @ ATLANTIC AVE

Corrective Actions: Modified Level "D" PPE, AIR MONITORING, MOBIL DECON UNIT ALL BEING PERFORMED DURING INTRUSIVE EXCAVATION

Preparer: K. HANWELL Kevin Hanwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

6-8-10

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T SWEET

WINDY/DEEP

am 26 2m 71

YES NO

Item #	Description	Quantity	Remarks/Location
1566.000 E	EXC. ATLANTIC AVE FULL DEPTH REG. MAT. 1.0' DEEP X 32' WIDE X 100'	118.5 CY	STA 19+00 TO 19+00
1499.999 G	SEW IN NEW FABRIC ATLANTIC AVE.	15,500 SF	55' X 100'
2504.1518	GRAVEL BORROW ATLANTIC AVE		STA 18+00 TO 18+00

Scope of Work:

118.5 CY	EXCAVATED ATLANTIC AVE FULL DEPTH (16") FROM STA 19+00 TO 19+00 REG. MAT. 1.0' DEEP X 32' WIDE X 100' LONG	118.5 CY
454 CY	VIVINES DRIVEWAY 0.75' X 47' X 24'	32 CY
REG. MAT.	SACCO'S DRIVEWAY 1.5' X 24' X 32'	3.5 CY
	SEW IN NEW GEOTEXTILE FABRIC @ ATLANTIC AVE STA 19+00 TO 19+00	15,500 SF
	55' X 100'	
201 CY	GRAVEL TO GRADE ATLANTIC AVE FROM STA 19+50 TO 18+00	177.7 CY
GRAVEL	STA 19+00 TO 18+00 16' X 32' X 150'	21 CY
	VIVINES'S DRIVEWAY 0.75' X 47' X 24'	2.4 CY
	SACCO'S DRIVEWAY 1' X 2' X 32'	

Project: R.T.C
 Contractor: TMC
 Owner: MASSPORT / MBSA
 Project No.: 1-727

Report No.: 06-08-00-66
 Date: 6-8-00
 Weather: SUNNY 70-80

Contractor Supervisor(s): Joe Plunney

Description of Work: Intrusive Excavation for ATT Conduit

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Backhoe	Req. mat	8	Intrusive Exc @ STA. 66A+15 TO
1 HAZ LAB.	sewing mach	Fabric	8	663+52
	Hand Tools			

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC FROM STA. 66A+15 TO STA. 663+52 CUT INTO EXISTING FABRIC excavated to required depth, staked in NEW FABRIC FOR ATT CONDUIT. Req. material dumped into storage cell.

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE EXCAVATION

Corrective Actions: Modified Level "D" PPE, Air monitoring, Mobl decon unit used during intrusive work

Preparer:

K. Hankwell
Name (Print)

Kevin Hankwell
Signature

Project: RTCL WOBURN Report No.: 6-9-00-67
 Contractor: T.M.C. Date: 6-9-00
 Owner: MASSPORT / MBTA Weather: SUNNY AM / OVERCAST RAIN
 Project No.: 1.727 PM 74

Contractor Supervisor(s): J. PHINNEY / T. SWEET

Description of Work: TRACK CROSSING FOR COND. @ 664+19

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPR	RBH 15	BALLAST	8	exc under track for conduit
1 LAB	COMP. JACK HAMMER TRAIL TAMP	SEW MACH. & FABRIC	8	@ STA 664+19
1 FORM	METERS		8	
FF	1 6 WHEEL DUMP	LOAD OUT & HAUL BALLAST	2	
1 FLG. MAN			8	
CITY LIGHT	2 MEN	1 TANK, PIPE & HANDS	8	

Visitors	Representing	Purpose

Daily Notes:

Excavated BALLAST UNDER TRACK TO MIX & JACK HAMMERED MIX
 Excavated REG. MAT BELOW MIX, SEW IN NEW FABRIC.
 CITY LIGHTS INSTALL 5-4" GAV. PIPES TO BUNGLOW

HAZARDS / SAFETY DEFICIENCIES: NEED TO TAPE UP & USE RUBBER SOI

CORRECTIVE ACTIONS: STARTED TAPING UP & USING BOOTS

Preparer:

T. SWEET
Name (Print)

T. Sweet
Signature

Project: RTL WOBURN Report No.: 6-9-00-67
 Contractor: T.M.C. Date: 6-9-00
 Owner: MASSPORT / MBTA Weather: SUNNY AM / OVERCAST RAIN
 Project No.: 1.727 PM 74

Contractor Supervisor(s): J. PHINNEY / T. SWEET

Description of Work: TRENCH FOR CONDUIT, INSTALL CONDUIT, BACKFILL, PPE EXC FOR LHT SLEEVE
EXTEND SILT FENCE

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	BACKHOE	Ordinary Borrow	8	SEE ACTIVITIES
1 Laborer	Handtools	silt fence	8	
City/Lights	Handtools	Conduit	2e8	INSTALL CONDUIT FOR LHT BASES

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC TRENCHED FOR CONDUIT FROM L.B. #31 TO 30 TO 29, BACKFILLED TRENCH FROM L.B. #31 TO 30 & FROM L.B. #34, #33, #32, FROM #13, #12, #31. ALSO TMC PPE EXCAVATED FOR LHT BASE SLEEVE #30 TO TOP OF FABRIC IN PREP OF INTRUSIVE WORK. TMC EXTENDED SILT FENCE @ ATLANTIC AVE.

City Lights: Installed 2" Conduit From L.B. 36 TO 37 TO 38, From L.B. 80 TO 81 TO 82 TO 83 TO 84 TO 85 TO 86, From L.B. 31 TO 30

HAZARDS/SAFETY DEFICIENCIES: INTRUSIVE WORK @ L.B. #31

CORRECTIVE ACTIONS: Modified Level "D" PPE, Air Monitoring, Mobil Decon used during intrusive work.

Preparer: T. SWEET
Name (Print)

[Signature]
Signature

Project: RTK WOBURN
Contractor: T.M.C.
Owner: MASSPORT / MBTA
Project No.: 1.727

Report No.: 6-9-00-67
Date: 6-9-00
Weather: SUNNY AM / OVERCAST RAIN PM

Contractor Supervisor(s): J. PHINNEY / T. SWEET

Description of Work: Light Base installation & backfill

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Geosmart	Light Bases	8	INSTALL LHT BASES IN PILOT
1 Lab			8	& BACKFILL

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC installed light bases #12, 13, 16, 17, & 31, and backfilled

HAZARDS / SAFETY DEFICIENCIES: NONE observed

CORRECTIVE ACTIONS: NONE NEEDED

Preparer: T. SWEET
Name (Print)

T. Sweet
Signature

Project: RTCL WOBURN Report No.: 6-9-00-67
 Contractor: T.M.C. Date: 6-9-00
 Owner: MASSPORT / MBTA Weather: Sunny AM / OVERCAST RAIN
 Project No.: 1.727 PM 74

Contractor Supervisor(s): J. PHINNEY / T. SWEET

Description of Work: EXC FOR Light BASE sleeve

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Firm	BACKHOE	REG. mat.	3	Exc For L.B. sleeve #31 in Plot
1 HAZ Lab	Handtools	L.B. sleeve	4	
	BACK TK WITH	FABRIC		
	Decor unit			
	sewing machine			

Visitors	Representing	Purpose

Daily Notes:

Activities: TOP excavate in REGULATED MATERIAL For light BASE sleeve #31 to Required elevation, BACKFILLED & sewed new FABRIC to existing around sleeve.

HAZARDS / SAFETY DEFICIENCIES: Regulated material Intrusive excavation

CORRECTIVE ACTIONS: Modified Level D PPE, Air monitoring, and Mobil Decor unit during intrusive work.

Preparer: T. SWEET
Name (Print)

T. Sweet
Signature

Project: RTK WOBURN
 Contractor: T.M.C.
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 6-9-00-67
 Date: 6-9-00
 Weather: SUNNY AM / OVERCAST RAIN PM 74°

Contractor Supervisor(s): J. PHINNEY / T. SWEET

Description of Work: ROAD BOX ATLANTIC AVE.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPR	200 EXCAVATOR		4	REMOVE 18" MAT.
1 DRIVER	10 WHEELER	RENTAL	4	HAUL REG MAT.
1 HAZ LAB	HAND TOOLS	FABRIC	4	CLEAN AROUND STRUCTURES & TAG OPA
1 HAZ FORM.	METERS	SEW MACH.	4	SEW IN NEW FABRIC
	TK 3009	GENERATOR	2	

Visitors	Representing	Purpose

Daily Notes:

EXCAVATED 18" OF REG. MAT. FROM TOP OF ASPHALT DOWN FROM STA 17+50 TO 18+00 32' WIDE
 HAWL TO REG. MAT. CELL 7 & COVERED
 SEW IN NEW FABRIC 35' WIDE X 55' LONG

HAZARDS / SAFETY DEFICIENCIES: NONE

CORRECTIVE ACTIONS: NONE NEEDED

Preparer:

T. SWEET
 Name (Print)

[Signature]
 Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ___ of ___

Regional Transportation Center, Woburn, MA

405

6/9/00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T SWEET

am pm

YES NO

Item #	Description	Quantity	Remarks/Location
1566.000 D	EXC. ATLANTIC AVE. FULL DEPTH REG. MAT. 1.5' X 32' X 50'		STA 16+00 TO 17+50 188.8 CY
1999.900 G	SEW IN NEW GEOTEXTILE FABRIC 35' X 55'		FROM STA 16+00 TO 17+50 11925 SF
2509.151 B	GRAVEL & GRADE ATLANTIC AVE 1' X 32' X 50'		FROM STA 16+00 TO 17+50 59.3 CY
1566.000 F	EXC. & INSTALL 6" SLEEVE FOR LB 31 & SEW IN NEW FABRIC		
3400.203	EXC. & INSTALL LB 12 & 13		
	INSTALL & BACKFILL LB 16, 17 & 31		
T1405901	Extend SILT FENCE ALONG LT. SIDE ATLANTIC AVE 16+00 TO 17+50		
2200.121 B	TRENCH FOR 2" COND FROM LB 31 TO 30 TO 29		200'
	BACKFILL LB 31, 33, 34 & 35 & FROM LB 31 TO 30, 29 TO 28, 44.5' X 4' TO		200' 44.5' X 4'
	PRE-EXC. TO FABRIC FOR LB 30 SLEEVE		44.5' X 4'
	* EXC. AROUND PIP LB 5, 18, 19, 20, 21, 26, 27, 46, & 47		

Scope of Work:

TMC	Excavated ATLANTIC AVE 1.5' FROM	STA 16+00 TO 17+50	
	REG. MAT. 1.5' X 32' X 50'		188.8 CY
35' X 55'	SEW IN NEW GEOTEXTILE FABRIC	FROM STA 16+00 TO 17+50	11925 SF
1' X 32' X 50'	GRAVEL & GRADE ATLANTIC AVE	FROM STA 16+00 TO 17+50	59.3 CY
	Excavate FOR LB 31 SLEEVE	EXISTING FILL @ 69.5	NEW FABRIC @ 64.5
	INSTALL 6" - 36" SLEEVE FOR	LB 31	
	Excavate, INSTALL & BACKFILL	LB 12 TO FG - 75.4	
	Excavate, INSTALL & BACKFILL	LB 13 TO FG 75.6	
	INSTALL & BACKFILL LB	16 TO FG. OF 74.6	
	INSTALL & BACKFILL LB	17 TO FG. OF 75.0	
	INSTALL & BACKFILL LB	31 TO FG. OF 72.3	
	Extended SILT FENCE & HAYBALS	LT SIDE OF ATLANTIC AVE FROM 16+00 TO	14+
	TRENCH FOR 2" COND FROM LB	31 TO 30 TO 29	200'
	2.16' wide X 2.5' DEEP X	200' LONG	40 CY
	BACKFILL LB 31, 33, 34, & 35 & FROM	LB 31 TO LB 30, LB 36 TO LB 37, &	14+
	PRE-Excavate TO FABRIC FOR LB 30 SLEEVE		14+
	Excavate AROUND PIP LB	18, 19, 20, 21, 26, 27, 46, 47 & 48	

Project: R.T.C. Woburn Report No.: 06-12-00-69
 Contractor: TMC Date: 6-12-00
 Owner: MASSPORT / MBTA Weather: Rain 50°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: Exc under TRACKS / Conduit installation

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT	Sewing Machine	Fabric, REG MAT.	8	Exc & install conduit @ STA. 69A77
1 OPER	BACK HOE	NOV REG MAT.	10	
1 HAZ LAB	COMPACTOR	BALLAST, Ledge	8	
1 AMTRAK FLAGGER	Flag		8	
CITY LIGHTS	HAND TOOLS	Conduit	2 @ 1	installed conduit @ STA. 69A77

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC Exc under TRACKS @ STA. 69A77 TO TOP of Fabric, cut Fabric & hit ledge. TMC Demo ledge APPROX 6" DEEP x 2.16" wide x 13" Long For conduit depth. AFTER ledge Removal TMC sewed in NEW fabric and City Lights installed (1) 2" conduit under N.B. RAIL & TIED into previously installed 2" @ E of N & S RAILS. Also install (1) 4" line & swept up to E of N & S. Board RAIL. TMC BACKfilled & compacted & reassembled RAIL

Hazards / SAFETY DEFICIENCIES: Invasive Exc.

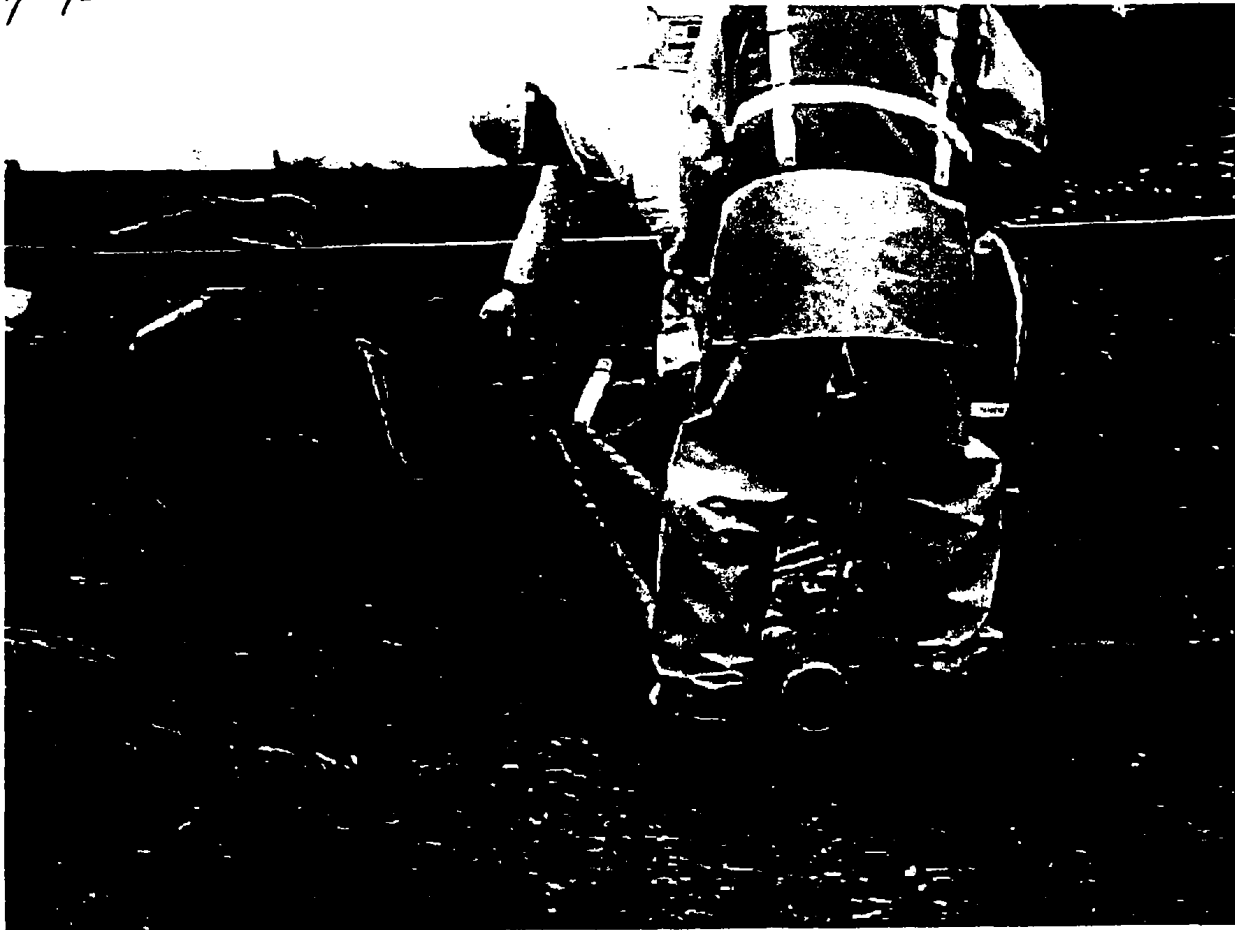
Corrective Actions: Mod. fied level "D" PPE, Air monitoring, mobil Deron unit used during invasive work

Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

TMC Excavated & installing Fabric under tracks N. Bound c STA. 684+22



TMC & CityLight install conduit under TRUCKS N. Bound @ STA. 684+22



Project: RTC Woburn
 Contractor: TMC
 Owner: MASSPORT/MBTA
 Project No.: 1.727

Report No.: 06-13-00-70
 Date: 6-13-00
 Weather: PARTLY CLOUDY 55°-65°

Contractor Supervisor(s): JOE PHINNEY

Description of Work: EXC UNDER TRACKS, CONDUIT INSTALLATION

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Backhoe	REG & NON REG MAT.	8	EXC FOR COND STA 678+96.
1 HazLab/Lab	6 Wheeler	Fabric,	8	
1 SPT	sewing mach		8	
City Lights	Hand Tools	Conduit	4e1	install cond. @ STA. 678+96
1 Amtrak Flagger	Decon unit		9	Flag @ TRACKS

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC EXC FOR CONDUIT UNDER TRACKS @ STA. 678+96, EXC CLEAN MATERIAL TO TOP OF FABRIC, EXC IN REG. MATERIAL TO REQUIRED DEPTH, RESTITCHED FABRIC, and CONTINUED EXCAVATION IN CLEAN MATERIAL. CITY LIGHTS INSTALLED (1) RUN OF 4" COND. & (2) SEPERATE RUNS OF 2" CONDUIT @ STA. 678+96.

HAZARDS/SAFETY DEFICIENCIES: INTRUSIVE WORK, LIVE TRAINS

CORRECTIVE ACTIONS: MODIFIED LEVEL "D" PPE, AIR MONITORING, MOBIL DECON BEING USED DURING INTRUSIVE WORK, TRACK TAKEN OUT OF SERVICE BY AMTRAK FLAGGER

Preparer: K. Hautwell
 Name (Print)

Kerim Hautwell
 Signature

Project: R.T.G. WADSWORTH Report No.: 06-14-00-77
 Contractor: TMC Date: 6-14-00
 Owner: MASSPORT / MBTA Weather: Partly Cloudy 60°-70°
 Project No.: 1.727

Contractor Supervisor(s): JOE PHINNEY

Description of Work: INSTALL SIGNAL FOUNDATION, TRENCH FOR AT&T CONDUIT INST 2 H.H.'S

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	BACKFILL	REG PAU REG MATERIAL	9	Exc & inst. signal Found. STA. 678+30
1 HAZLAB / LAB	sewing machine brushes Decon unit	Fabric, signal Found.	4.5 / 4.5	
Riverside utility		conduit & Hand Holes	2 @ 8	TRENCH FOR CONDUIT INSTALL HAND HOLES STA. 678+77, STA. 653+40

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC Exc TO TOP OF FABRIC, OPEN FABRIC AND Exc IN REG MATERIAL TO REQUIRED ELV. SEWED NEW FABRIC AND INSTALLED SIGNAL FOUNDATION @ STA. 678+30, AND BACKFILLED. TMC ALSO TRENCHED FOR CONDUIT & HAND HOLES (1) @ STA. 678+75 AND (1) @ STA. 653+40. PARKSIDE UTILITY CONST CO. INSTALLED CONDUIT & 2 HAND HOLES.

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE Exc @ signal Foundation

Corrective Actions: Modified Level / 3/8" PPE, Air monitoring and Mobil Decon unit used DURING INTRUSIVE WORK.

Preparer: K. HARTWELL
Name (Print)

Kevin Hartwell
Signature

Project: R.T.C. Woburn Report No.: 06-16-00-72
 Contractor: TMC Date: 6-16-00
 Owner: MASSPORT / MBTA Weather: Hot & Humid 90°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: excavation under TRUCKS

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	BACKHOE	REG MCH.	8	Exc for conduit inst. @ STA. 663+50
1 LABORER	Hand tools	NON REG MCH.	8	
	sewing mach.	Fabric, Ballast		
	6wheeler			
City Lights / 2 men		Conduit		

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC @ STA. 663+50, intrusive Exc @ slope for conduit, rest of Exc NOW INTRUSIVE - TMC sewed new fabric @ slope, continued excavation and City Lights installed (1) 2" cond & (1) 4" conduit @ STA. 663+50. Regulated material loaded into six wheeler & dumped in storage cell.

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE WORK

CORRECTIVE ACTIONS: modified Level "D" PPE, Air monitoring, and mobil Decan unit used during intrusive work

Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

Project: RTC Work Report No.: 06-21-00-75
 Contractor: TMC Date: 6-21-00
 Owner: MassPort / MBTA Weather: Sunny 80°
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: Exc & installation of L Bases

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM	EXC/1/1 Deon	NON REG material	10	Installation of L Bases in P. Lot
1 OPER	Gasman	REG material	10	
1 OPER	Back Hoe	Fabric, ordinary	10	
1 Lab / HPLab	G wheeler sawing machine	Borrow	10	
2 SURVEYORS	SURVEY		2 e 8	
LTC DRIVER	water truck	water	4	water site dust control

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC excavated & installed in REG material L Bases #32, #30, #53, #50
 LHT BASES #29, #56 excavated in Reg material and sleeve installed. TMC in Reg
 material cut Existing Fabric and lower Grade and sewed in NEW Fabric and
 installed LHT Bases and sleeves where necessary and backfill w/ 3/4" stone.
 Light Bases # 54, #55 excavated in NON REG material and installed Bases
 and backfilled.

HAZARDS / SAFETY DEFICIENCIES: Intrusive work / Dust from ordinary & gravel
 Borrow.

CORRECTIVE ACTIONS: modified Level "D" PPE, Air monitoring, mobil Deon unit
 during intrusive work.

Preparer: K. Hartzwell Kevin Hartzwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 06-22-00-76
 Contractor: TMC Date: 6-22-00
 Owner: Massport / MSTA Weather: Hazy Hot & Humid 75°-90°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: Excavate & install Light Bases

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM	rack truck decon unit	L.Bases	10	SEE ACTIVITIES
1 OPER	Geismar	NEW REG & REG MAT	8	
1 Haz Lab / LAB	hand tools		8	
1 Lab	sawing machine 6 wheeler	Fabric	4	

Visitors	Representing	Purpose

Daily Notes:

Activities: tmc excavated to top of fabric for L.B. # 87 & 28, cut open fabric excavated in reg material to required elevation and stuck in new fabric and installed LHT Bases # 87 & 28. Excavated for LHT. Base # 52 and hit conc obstruction slab. Writing on further instructions.

Hazards / SAFETY DEFICIENCIES: Intrusive Excavation

Corrective Actions: modified Level "D" PPE, Air monitoring and mobil decon unit all used during intrusive work

Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

6-22-00

Superintendent/Foreman

T. SWLET

Weather

CLEAR

Temperature

am pm 86°

Contract Time Charged?

YES NO

Item #	Description	Quantity	Remarks/Location
1566.006 E	EXC. REG MAT. FOR LB. SLEEVES		LB 52, 87 @ 20
566.000 E	EXC REG MAT. FOR REG MAT. @ 677+23		15'x20'x1'
1999.999 N	SEW IN NEW FABRIC 18'x22'		
2200.121 G	EXC. FOR 3" FOOTING @ 677+23		5'x13'x3'
	EXC. FOR 15'x15' (TYPE 7 FOOTING) @ 677+00		17'x17'x4.5'
2200.161 B	TRENCH FOR 2" COND BETWEEN LB 31	56 TO 59, 59 TO 51, 32 TO 31, 30 TO 29	
2509.163	4" 6" STONE. ALONG SLOPE 30'x100'	673+50 TO 672+50	

Scope of Work:			
T.M.C.	Excavate FOR LB 52	* HIT CONC. @ 70.2	EXISTING FABRIC @ 70.9
	INSTALLED 3'-36" CAN		
	Excavate FOR LB 28	EXISTING FABRIC @ 68.00	LOWERED FABRIC TO 66.8
	Excavate FOR LB 87	EXISTING FABRIC @ 69.9	LOWERED FABRIC TO 66.16
	Excavate REG MAT. FOR REG. BRIGS FOOTING @ 676+89 TO 677+15		
	15'x20'x1'		111.1 cy
	SEW IN NEW GECTEX FABRIC 16'x20'		250 SE
	Excavate FOR 3'x11' (TYPE 6 FOOTING) @ 677+23		
	5'x13'x3'		7.2 cy
	Excavate FOR 15'x15' (TYPE 7 FOOTING) @ 677+00		
	17'x17'x4.5'		48.2 cy
	TRENCH FOR 2" COND FROM LB 31 TO 30	52, 50 TO 51, 32 TO 31	
	2.16'x2.5'x365'		73 cy
	STONE (4'-6") SLOPE FROM 673+50 TO 672+50		
	30'x1'x100'		111.1 cy

Project: R.T.C. WOBURN Report No.: 06-23-00-77
 Contractor: TMC Date: 6-23-00
 Owner: MASSPORT / MBTA Weather: SUNNY 75°-85°
 Project No.: 1-727

Contractor Supervisor(s): SOE Phinney

Description of Work: exc & install light BASES

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Form	Grismar	FABRIC, REG MAT.	10	SEE ACTIVITIES
1 OPER	BACK TRUCK	NON REG. MATERIAL	85	
1 Lab	with Decon unit		8	
	Wheelbar			
	Sewing MACH.			

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC Excavated in non regulated material for L.B. #44 & #49 TO TOP OF FABRIC, cut in to Fabric for excavation in Regulated material TMC Excavated to Required Elevation and Restored Fabric & installed L.B. #44 & #49 and Backfilled & Compacted.

HAZARDS/SAFETY DEFICIENCIES: Intrusive Excavation

CORRECTIVE ACTIONS: Modified Level "D" PPE, Air Monitoring, Mobil Decon was used during intrusive work.

Preparer: K. Hartwell
Name (Print)

Kevin Hadwell
Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ___ of ___

Regional Transportation Center, Woburn, MA

405

6-23-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

CLEAR

am 85 pm

YES NO

Item #	Description	Quantity	Remarks/Location
2509.162	STONE (3/4") SLOPE FROM 675 TO 675+75		
	FORM SUB GRADE OF SLOPE 675+50 TO 676+70		
60405017	BACKFILL AT ET COND. & FORM SLOPE 679+20 TO 681+00		
	FILL & SUB GRADE FOR CABLE TRAY 682+00 TO 684+68		
2451.601A	EXC. PED. BRIDGE FOOTING @ 671+35		(18' X 6' FOOTING) 20' X 8' PAD
2200.121B	TRENCH FOR 2" COND. LB 48 TO 49, 53 TO 52, 45 TO 44 TO 87		
1566.000F	EXC. & LOWER FABRIC FOR LB 44 & 49		
3400.203	INSTALL & BACKFILL LB 87, 44 & 49		

Scope of Work:

T.M.C.	STONE (3/4") SLOPE FROM 675 TO 676+75		
	20' WIDE X 0.32' DEEP X 175'		199.5 TON
	FORM SUB GRADE OF SLOPE 675+50 TO 676+70		
	BACKFILL AT ET COND. & FORM SLOPE 679+00 TO 681+00		
	FILL & SUB GRADE FOR CABLE TRAY 682+00 TO 684+68		
	10' X 2' X 268'		198.5 CY
3' X 5' X 15'	EXCAVATE & COMP. FOR PED BRIDGE FOOTING 3' X 11' @ 671+55		8.4 CY
4.5' X 20' X 8'	EXCAVATE & COMP FOR PED BRIDGE FOOTING 18' X 6' @ 871+50		26.7 CY
	TRENCH FOR 2" COND. FROM LB 48 TO 49, 53 TO 52, 45 TO 44 TO 87		
	2.16' X 2.5' X 375'		25 CY
	EXCAVATE & LOWER FABRIC FOR LB 44	EXISTING FABRIC @ 69.45	NEW FABRIC BOTTOM @ 68.05
	EXCAVATE & LOWER FABRIC FOR LB 49	EXISTING FABRIC @ 69.7	NEW FABRIC BOTTOM @ 68.3
1449.999P	SEW IN NEW FABRIC 5' X 5' EA FOR LB 44 & 49		50 SF
	INSTALL & BACKFILL LB 87, 44, & 49		

Project: RTC Woburn
 Contractor: TMC
 Owner: Massport / MBTA
 Project No.: 1.727

Report No.: 06-27-00-79
 Date: 6-2-00
 Weather: Hazy Hot & Humid w/ Lat Day Thunder storms 80's

Contractor Supervisor(s): Joe Phinney

Description of Work: Excavate For Light Bases

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Genie	Req material	8	Exc For L.B. in Park Lot
1 HAZE Lab	Track Tr Degan unit, 6 wheeler	NON REG MAT	8	
	Sawing mach.	Fabric		
	Hand tools			

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC excavated For Light Bases #40 & #43 and hit concrete slab obstruction 1' under Fabric which was intrusive excavation. Intrusive excavation For Light Base #39, 6.5' intrusive excavation under Fabric, TMC install 7.5' sleeve 36" dia. For L.B. 40 & 43 (2) 4' dia sleeves installed & backfilled, TMC also installed L.B. #39.

HAZARDS / SAFETY DEFICIENCIES: Intrusive excavation

Corrective Actions: Crew dressed in modified Level "D" PPE, Air monitoring and Mobil Degan unit all being used during intrusive work

Preparer: K. HARTWELL
 Name (Print)

Kevin Hartwell
 Signature

Project: RTC Woburn Report No.: 06-28-00-80
 Contractor: TMC Date: 6-28-00
 Owner: MASSPORT / MBTA Weather: Sunny 80°-85°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: Excavation under TRACKS

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT	P, UP	Fabric, Concl Mix	8	SEE ACTIVITIES
1 LAB (HAZ)	BACKHOE	Existing material	8	
1 OPER	BACKHOE	REG & NON REG.	8	
	COMPACTOR			
CITY LIGHTS	Electrical	Conduit	2 e 2	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC REMOVED TIES AFTER DRIVING EARTH SUPPORT, TRENCHED UNDER TRACKS TO TOP OF MIX & FABRIC (6' x 2 x 1.67) NON REG, 75 CY
 INTRUSIVE EXCAVATION TO REQUIRED DEPTH (11' x 2 x 2) = 1.6 CY TOTAL REG 2.9 CY
 INTRUSIVE EXCAVATION TO REQUIRED DEPTH (6 x 2 x 3) = 1.3 CY AFTER EXCAVATION COMPLETE TMC LAID IN NEW FABRIC AND CITY LIGHTS THEN INSTALLED 3-4" GALV PIPE @ 20" and 1-2" GALV PIPE @ 21" IN LENGTH. TMC BACKFILLED & COMPACTED INLET AND REASSEMBLED TIE TO RAIL. ALL @ STA. 681+63 NORTH BOUND RAIL

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE EXCAVATION

CORRECTIVE ACTIONS: CREW DRESSED IN MODIFIED LEVEL "D" PPE, AIR MONITORING AND MOBIL DECON UNIT ALL BEING USED DURING INTRUSIVE WORK

Preparer: K. Hartwell
 Name (Print)

Kevin Hartwell
 Signature

City lights install conduit under tracks @ STA 681+63 W. Bound



TMC Excavation under N. Bound Tracks @ STA 681+63



Project: RTC Woburn
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 06-28-00-80
 Date: 6-28-00
 Weather: Sunny 80°-85°

Contractor Supervisor(s): JOE Phinney

Description of Work: Excavate & install Light Bases & sleeves

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Form	BITULW/DECON	Light Bases	9	SEE ACTIVITIES
1 OPER	Grismar	sleeves	8.5	
1 HAZ Lab	6wheel Dump	Flowable Fill	8.5	
		3/4" STONE		

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC excavated for L.B.#25 TO TOP OF FABRIC, cut through fabric and hit ledge, TMC will have to C.I.P. L.B.#25. TMC Exc. TO TOP OF FABRIC FOR L.B.#22,23, (cut through FAB, INTRUSIVE EX TO REQUIRED ELEV. and install (2) 36" sleeves and pour Flowable Fill TO FABRIC line. TMC ALSO Exc and installed L.B.#24 IN NOW REG MATERIAL. TMC install L.B.#22,23 inside sleeves and BACKfill w/ 3/4" STONE

- * 3 Light Bases installed
- * 3cy of REG material excavated

HAZARDS/SAFETY DEFICIENCIES: INTRUSIVE EXCAVATION

Corrective Actions: modified Level "D" PPE, Air monitoring and Mob. Decon unit used during intrusive work

Preparer: K. Hartwell
 Name (Print)

Kevin Hartwell
 Signature

Project: RTC Woburn Report No.: 06-29-00-81
 Contractor: TMC Date: 6-29-00
 Owner: MASSPORT / MBTA Weather: HAZY HOT Humid 85°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: Extend Conduit @ STA. 681+63, Exc under TRACKS @ STA. 678+31

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT	Pick up	Fabric, conc mix	8	SEE ACTIVITIES
1 OPER	Back Hoe	REG & NON REG -	8	
1 HAZ LAB / LAB	Hand tools	material	8	
	Compactor			
City Lights	Electrical	Conduit	2 @ 4	

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC Extended Conduit @ STA. 681+63 11' (3 rows of 4" & 1 row of 2" Galv. Conduit) TMC did excavation & city lights install conduit
 TMC excavated under TRACKS @ STA. 678+31 FOR TRACK WIRES. Invasive Excavation 11' x 2' x 34" = 27cy, Excavated in NOW REG material 11' x 2' x 2' = 1.6cy
 TMC excavation under South Bound TRACKS @ STA. 678+31, TMC installed Fabric & city lights then TMC covered conduit w/ conc mix (9 BAGS) and then Backfill and compacted in lifts and reassembled TIE & RAIL

HAZARDS / SAFETY DEFICIENCIES: REG material

Corrective actions: Crew dressed in modified level D PPE, Air monitoring and mobil decon unit all being used during intrusive work

Preparer: K. Heatwell
 Name (Print)

Kevin Heatwell
 Signature

Project: R.T.C. Woburn Report No.: 07-03-00-83
 Contractor: TMC Date: 7-3-00
 Owner: MASSPORT / MBTA Weather: HOT & SUNNY 80°-90°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: Excavate for light BASE, sew fabric @ L.B.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FORM	sewing mach 2xK truck	REG material	9	SEE ACTIVITIES
1 OPER	BACKLOG	FABRIC	1	
1 OPER	loader		3	
	Decon unit			

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC @ L.B. #25 excavated TO TOP OF ledge and installed 4 dia. sleeve. AT L.B. #39 TMC sewed NEW FABRIC TO EXISTING FABRIC around sleeve.

Hazards / SAFETY DEFICIENCIES: Regulated material

Corrective Actions: Modified Level "D" PPE, Air Monitoring and Mobil Decon unit all being used during intrusive excavation

Preparer: K. Hartwell
Name (Print)

Kevin Hartwell
Signature

Project: R.T.C. Widener
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 07-05-00-84
 Date: 7-5-00
 Weather: SUNNY 75°-85°

Contractor Supervisor(s): JOE Phinney

Description of Work: Exc under TRACKS for conduit

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT	BACKHOE	REG & NON REG	8	SEE ACTIVITIES
1 OPER	COMPACTOR	Fabric, rock mix	8	
1 HAZ LAB	AIR monitoring mobil aeraon		8	
City Lights	ELECT.	Conduit	2e2	install cond @ Crossing
Visitors	"	Representing		Purpose

Daily Notes:

ACTIVITIES: TMC - 1. Excavate RAMP TO NEW NORTH Bound Roadbed For Amtrak Conduit (± 60' x 30' x 2'w, installed TEMP RAMP @ STA. 662+20
 2. Installed TRACK Conduit x-ING under N.I.B. & NEW N.I.B. @ STA. 678+31
 Excavation of REG material (± 20' x 2' x 2') excavation of NON REG (25' x 2' x 2')
 TMC Excavated & City Lights installed Conduit & TRACK x-ING.
 3. Back Filled Amtrak Conduit and Deleted TEMP RAMP @ STA. 662+20

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE Excavation

Corrective Actions: modified level "D" PPE, air monitoring, mobil aeraon unit being used During intrusive work.

Preparer: K. HARTWELL Kevin Hartwell
 Name (Print) Signature

7-5-00

TRACK CROSSING @ STA 678+31



7-5-00

TRACK X-WG @ STA 678+31



Project: R.T.C. Waterway
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 07-05-00-84
 Date: 7-5-00
 Weather: SUNNY 75°-85°

Contractor Supervisor(s): JOE PHINNEY

Description of Work: Form subgrade For Cable TRAY / TRENCH For Curb @ ATLANTIC AVE / RAIL C.B.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	EXCAVATOR	ordinary Borrow	8	SEE ACTIVITIES
1 LAB	Hand tools		8	
1 HAZ LAB	Hand tools	REG MAT, Fabric	8	
1 TK DRIVER	10 Wheeler		6	
	BACK TK w/mob			
	DECON UNIT			

Visitors _____ Representing _____ Purpose _____

Daily Notes:

ACTIVITIES: TMC Forming subgrade with ordinary Borrow For Cable TRAY @ North end of site Adjacent to N.B. RAIL From STA 684+39 TO STA 686+20. TMC ALSO RAISED Catch Basin to Finish Grade @ ATLANTIC AVE. TMC TRENCHED FOR CURB @ ATLANTIC AVE in REG material, installed NEW FABRIC, TO create clean zone for curb installation. 125' x 2 x 1.5 ALSO REMOVED 27' of sloped CURB @ ATLANTIC AVE. ALSO DURING subgrade For Cable TRAY TMC backfilled AUNTAK conduit STA. 684+39 TO STA. 686+20

HAZARDS / SAFETY DEFICIENCIES: INTRUSIVE EXC @ ATLANTIC AVE for CURB

CORRECTIVE ACTIONS: modified LEVEL 'D', Air monitoring & mobil decon unit ALL BEING USED DURING INTRUSIVE EXCAVATION.

Preparer: K. HARTWELL Kevin Hartwell
 Name (Print) Signature

Form subgrade for cable TRAY STA 684+39 TO STA 686+20



Project: RT.C - Woburn Report No.: 07-06-00-85
 Contractor: TMC Date: 7-6-00
 Owner: Massport / MBTA Weather: Sunny 70°-80°
 Project No.: 1727

Contractor Supervisor(s): JOE Phinney

Description of Work: TRENCH FOR CURB & ATLANTIC AVE / REMOVE CURB

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Excavator	Reg Mat	8	SEE ACTIVITIES
1 Haz Lab	modified level D PPE	Fabric, ordinary	8	
1 Lab	handtools	Borrow	8	
1 TK Driver	10 wheeler		8	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC removed curb @ 150', then trench 150' of Reg. Mat. Material north side of Atlantic Ave, also installed 150' of fabric and installed ordinary borrow subgrade for curb @ 150' south side of Atlantic Ave. TMC removed 218 LF of sloped curb.

HAZARDS/SAFETY DEFICIENCIES: excavation in Reg material

CORRECTIVE ACTIONS: modified level "D" PPE, air monitoring, mobil decon unit all being used during intrusive work.

Preparer: K. Hartwell
Name (Print)

Kevin Hartwell
Signature

Project: RTC woburn
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 07-10-00-87
 Date: 7-10-00
 Weather: Hazy, HOT & Humid 85°

Contractor Supervisor(s): JOE Thinney

Description of Work: EXCAVATE FOR CURB & SIDEWALK @ ATLANTIC AVE

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Form	COMPRESSOR	REG MAT.	8	SEE ACTIVITIES
1 OPER	Excavator	Fabric	9	
1 HAZ Lab	Hand Tools	Gravel Borrow	9	
1 Lab	Air monitoring		9	
	modified level			
1 TR DRIVER	D" PPE / ^{to label} DUMP		8	

Visitors	Representing	Purpose
_____	_____	_____
_____	_____	_____
_____	_____	_____

Daily Notes:

ACTIVITIES: TMC excavated for curb & sidewalk south side of ATLANTIC AVE. BETWEEN STA. 14+73 TO STA. 15+83 (40' x 4' x 1' For S.W.) & (40' x 2.5' x 1.6' For curb) BETWEEN STA. 16+33 TO STA. 18+33 (200' x 2.5' x 1.6' For curb) & (200' x 4' x 1' For S.W.) Fabric installed throughout excavation (310 x 9 = 2790 SF) NOTE: ALL EX @ ATLANTIC AVE INTRUSIVE. 33cyds For curb & 19cyds For sidewalk material excavated & dump into storage cell

HAZARDS / SAFETY DEFICIENCIES: Regulated Material

CORRECTIVE ACTIONS: modified level "D" PPE, Air monitoring, Mobil Decon unit all be used dur

Preparer: K. HARTWELL Kevin Hartwell
 Name (Print) Signature

Project: RT.C. Woburn Report No.: 07-11-00-
 Contractor: TMC Date: 7-11-00
 Owner: MASSPORT / MBTA Weather: SUNNY 83°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: Excavate For Platform Footing Foundations

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT	PICK UP	Fabric	8	SEE ACTIVITIES
1 Haz Lab / 1 OPER	EXCAVATOR	REG & NON-REG material	8	
1 Lab	J. Hammer Compressor	J. Hammer mix	8	
1 OPER	Loader	BALLAST	2	
1 TR DRIVER	10 wheeler		8	
1 AMTRAC Driver	Horn		8	
ALGAR Visitors	carpentry	Forms	224	Purpose
		Representing		

Daily Notes:

ACTIVITIES: TMC JACK Hammering Through Existing TRACK BED mix of old North Bound RAIL For Platform Footing Excavation. EXCAVATOR & LABORER excavated TO REQUIRED ELEVATION IN REGULATED MATERIAL FOR 5 FOOTING and stiched in NEW FABRIC. TMC PRE excavated For 6 more Footings TMC Loader 10 wheel with REG. MAT and DUMPED into Reg. Soil storage CELL BOX 80. TMC ALSO FLOODED NEW NORTH BOUND RAIL w/ BALLAST. ALGAR SET TWO SETS OF FORMS FOR 2 FOOTINGS. and TMC BACK Filled BETWEEN Footing Forms and RAIL TIES with BALLAST.

HAZARDS / SAFETY DEFICIENCIES: REGULATED MATERIAL

CORRECTIVE ACTIONS: Crew Dressed in modified level D PPE, Air monitoring and mobil Decon unit all being used during intrusive excavation

Preparer: K. HARTWELL Kevin Hartwell
 Name (Print) Signature

Daily Quantity Sheer

Job Name/Location

Job #

Today's Date: 7.11.00 page ___ of ___

Regional Transportation Center, Woburn, MA

405

Superintendent/Foreman

L. Weston

Weather

Temperature

am pm

Contract Time Charged?

YES NO

Item #	Description	Quantity	Remarks/Location
1. ? (1566.000E)	EXC. FOR PLATE FORM - * FTGS.	* *	FOOTING 1-5
	* SEE BSC SECTIONS		
2. 2504.200	Ballast	300 TMS	

Scope of Work:

1. REMOVE REGULATED MATS AND INSUL FABRIC FOR PLATEFORM PIER FOOTINGS. ROUGH DIMENSIONS 7' x 10' x 6" DEEP, COMPLETED #S 1-5
7.78 CY TOTAL REG MATL REMOVED.
2. CONTINUED COVERING S.E. OF NUBS TRACK WITH BALLAST.

Project: R.T.C. Woburn Report No.: 07-12-00-89
 Contractor: TMC Date: 7-12-00
 Owner: MASSPORT / MBTA Weather: Sunny 82°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: EXCAVATION FOR Platform Footings, Foundations

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	EXCAVATOR	Ordinary Borrow	8	SEE ACTIVITIES
1 Lab	bucket DUMP	Asphalt	8	
1 Lab	Handtools		8	
1 OPER	Back Hoe	Ballast	2	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC Jackhammer mix @ Existing N. Bound track bed to limits of Platform Footings Excavation. TMC excavated to top of fabric for 24 Footings in non-REG. material. TMC also removed mix @ Footings 3 & 4 approx 7' x 2' x .5 each loaded into bucket & dumped in Reg soil storage cell and Regraded Footings 3 & 4. TMC also Flooded new North Bound rail w/ Ballast

HAZARDS/SAFETY DEFICIENCIES: NONE observed

CORRECTIVE ACTIONS: NONE NEEDED

Preparer: K. Hantwell Kevin Hantwell
 Name (Print) Signature

Project: R.T.C. Woburn
Contractor: TMC
Owner: MASSPORT / MBTA
Project No: 1.727

Report No.: 07-13-00-90
Date: 7-12-00
Weather: Sunny 82°

Contractor Supervisor(s): Joe Phinney

Description of Work: REG soil Exc For Platform Footings

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Excavator	REG material Fabric	8	SEE ACTIVITIES
1 HRZ Lab	Handtools		8	
1 LAB	Handtools		8	
1 TR DRIVER	10 Wheeler	REG MAT	6	
ALGAR	Currentary	Forms REBAR	3 e 8	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC in REG MATERIAL excavated Asphalt Platform Footing # 5, 6, 7, 8, 9, 10, 11, 12, 13. Full Excavation @ Footings # 6 & 8 and 1/2 Excavation @ Footing # 9 & 10. Fabric install @ Footings # 6 & 8 and Sewed. AT Footings where mix was Removed TMC has TEMP Covered REG MAT w/ Fabr. ALGAR setting Forms & installing Rebar @ Footing # 6 & 8

HAZARDS/SAFETY DEFICIENCIES: Invasive Excavation

CORRECTIVE ACTIONS: CREW Dressed w modified Level "D" PPE, Air Monitoring and Mobil Decon set up @ ALL Invasive work.

Preparer: K. HARTWELL Kevin Hartwell
Name (Print) Signature

Project: R.T.C. Woburn
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 07-13-00-90
 Date: 7-12-00
 Weather: Sunny 82°

Contractor Supervisor(s): Joe Phinney

Description of Work: EXC under TRACKS / Stone Cable Tray / Backfill Cable Tray

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 SUPT	Pick up	REG & NON REG mat	8	EXC under TRACKS
1 OPER / 1 HAZ LAB	Backhoe		2 @ 8	
1 OPER	Excavator	STONE, ordinary BOR.	8	STONE cable TRAY, B.Fill C. TRAY
1 LAB	wheeler		8	
1 TK DRIVER	lowwheeler	REG MAT.	2	Haul REG MAT TO CELL
1 OPER	loader	STONE ordinary BORROW	4	
2 ARMED FLAGMEN VISITORS	horns	Representing		Purpose

Daily Notes:

ACTIVITIES: TMC EXC @ STA. 678+38 9' RT of S.B. RAIL TO REPAIR ELEV. installed fabric and install signal foundation, REG. mat placed in lowwheeler and dumped into storage cell. TMC ALSO EXC under TRACKS @ STA. 677+33 for conduit, installed fabric, Reg mat put into lowwheeler & DUMPED in storage cell. City lights installed (4) rows of 4" and (4) row of 2" both @ 38'. TMC backfilled and compacted signal foundation @ EXC under TRACKS. TMC ALSO STONE cable TRAY subgrade w/ 3/4" STONE from STA. 688+7 to 688+25 and backfilled cable tray w/ ordinary borrow from STA. 677+60 to STA. 678+00

HAZARDS/SAFETY DEFICIENCIES: TRAINS / Intrusive Excavation

CORRECTIVE ACTIONS: FLAGMEN took north bound RAIL OUT / modified level 2" PPE, Air monitoring and mobil decon unit.

Preparer: K. HARTWELL - Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. Woburn
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 07-14-00-91
 Date: 7-12-00
 Weather: Partly Cloudy 82°

Contractor Supervisor(s): Joe Phinney

Description of Work: EXCAVATE FOR PLATFORM FOOTINGS IN REG MATERIAL

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Form	Sewing mach	REG. MAT.	9	SEE ACTIVITIES
1 Haz Lab	Modified Level D PPE	FABRIC	8	
1 Lab	Hand tools	ASPHALT	8	
1 OPER	Excavator		8	
1 TR DRIVER	10 Wheeler		8	
ALGAR	Carpentry	Forms Rebar	3x8	SEE ACTIVITIES

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC excavated in REG. MATERIAL FOR PLATFORM FOOTINGS 5, 7, 9 and 1/2 of 10 and 1/2 of 13, REG material loaded into 10 wheeler and DUMPED into storage cell. TMC stitched NEW FABRIC on each of these Footings. TMC ALSO Pre excavated mix of Footings #14^{#32} and DUMPED into storage cell.

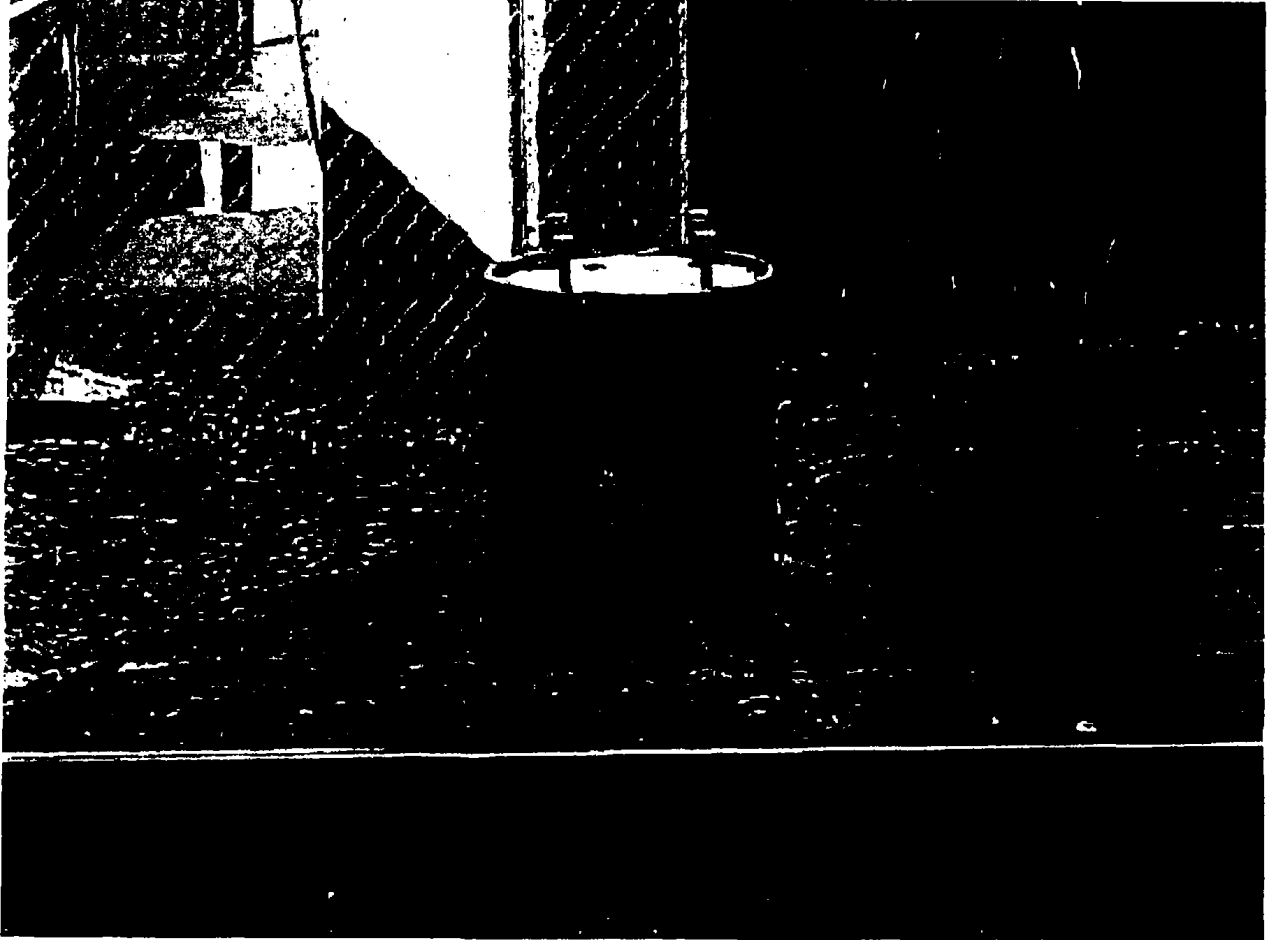
ALGAR - Built Forms & installed Rebar on Footings #5, 7, 9

HAZARDS/SAFETY DEFICIENCIES: WORKING IN REG. MAT

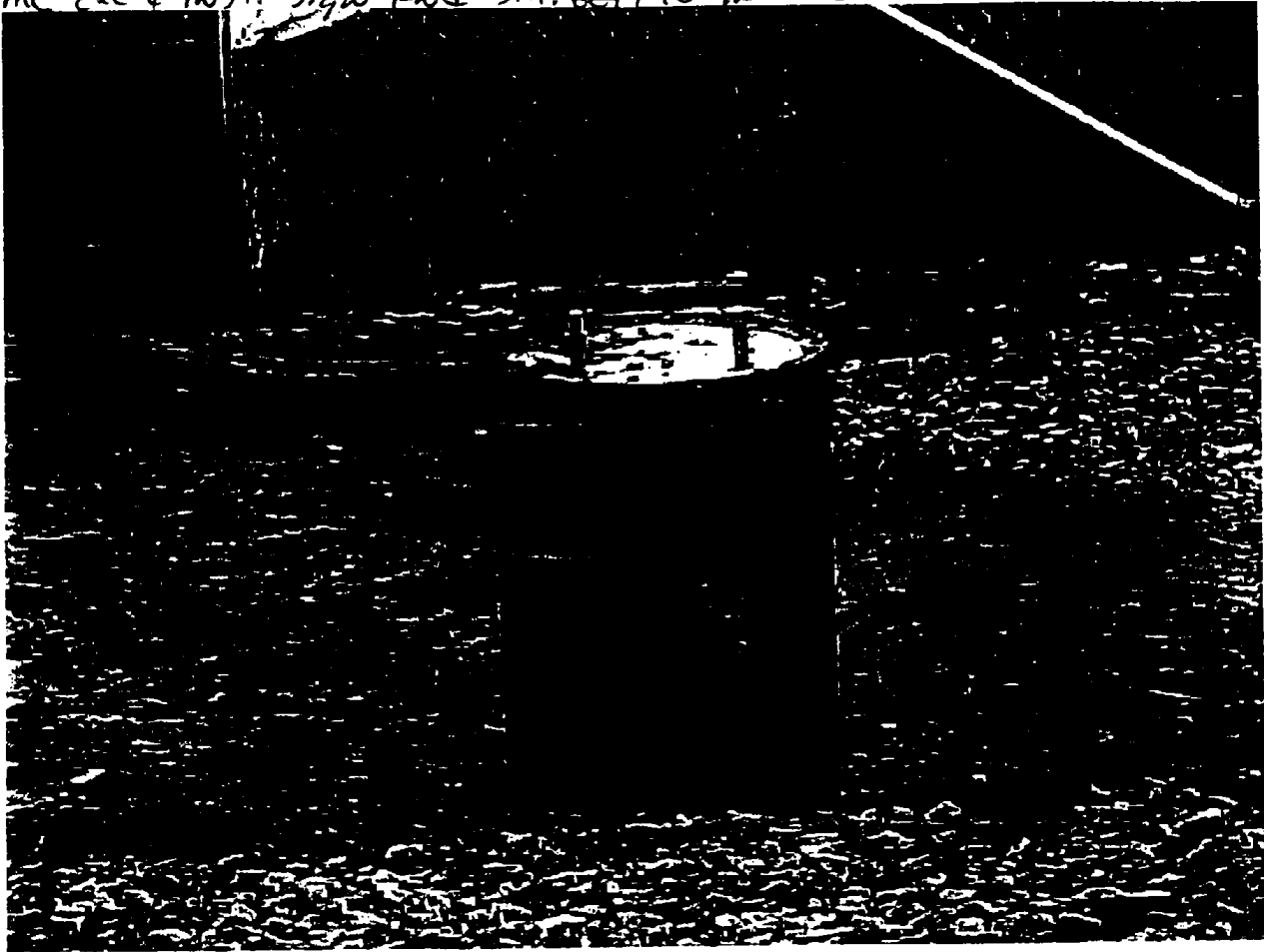
CORRECTIVE ACTIONS: Modified Level "D" PPE, Air monitoring and Mobil Decon unit all be used during intrusive work

Preparer: K. HARTWELL Kevin Hartwell
 Name (Print) Signature

TMC EXC & INST. SIGW FWD. STA. 668+90 LW REG MNT.



TMC Exc & Inst. Sign End STA. 649+90 IN REG MAT



TMC INSTALLING SIGN FWD @ STA- 675+25 ADJACENT TO S.B. RAIL



Project: RTC Woburn
 Contractor: TMC
 Owner: MASSPORT / MATA
 Project No: 1727

Report No.: 10-9-00-159
 Date: 10-9-00
 Weather: Cloudy 50°-55°

Contractor Supervisor(s): Joe Phinney

Description of Work: Relocate REG MAT. TO Hyde Pile @nd Grade

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
2 OPERATORS	D-6 Dozer 200 Kom Exc	REG. MATERIAL	2 @ 12hrs	see activities
3 Haz Tech	Air monitoring HATE PPE	Poly	3 @ 12hrs	
5 TRUCK DRIVER	Decon unit		5 @ 10hrs	
1 Foreman			1 @ 17hrs	
1 OPERATOR				

Visitors	Representing	Purpose
<u>TMC - Trailers</u>	<u>TMC</u>	<u>hauling mat gravel onsite</u>

Daily Notes: ACTIVITIES:

TMC - 750 Komatsu Excavator & 200 Komatsu Excavator loading TRAILERS with regulated material and transporting to Hyde Pile, D-6 CAT DOZER Grading regulated material @ Hyde Pile.
 TMC - Cleaning trailers of all trucks before they leave dumping Ramp, and Decon @ end of shift.
 TMC - Covered regulated materials with Poly @ end of shift.
 TMC - Pre stitched 2 rolls of Fabric

Hazards / SAFETY DEFICIENCIES: working in Regulated materials, Hauling Regulated materials

Corrective ACTIONS: modified level "D" PPE, Air monitoring & Documentation Decon unit all being used. TRUCKS Hauling Regulated materials were Decon @ end of shift

Preparer: K. Hankwell Kevin Hankwell
 Name (Print) Signature

Project: R.T.C. Woturn Report No.: 10-10-00-155
 Contractor: TMC Date: 10-10-00
 Owner: MASSPORT / MBTA Weather: Clly & cold 40°
 Project No: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: Relocate REG Soils, install Geotextile Fabric & Hyde Pile

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
2 OPERATORS	D-6 DOZER 750 KOMATSU	REG. MATERIALS Fabric	1 @ 11 hrs 1 @ 12 hrs	SEE ACTIVITIES
1 OPERATOR	200 KOM EXC. 380 KOM loader		2 hrs	
1 Foreman (HAZ)		CRANE MATS Dead MEN	7 hrs	
4 HAZ Lab		Jawz Barrier	4 @ 7 hrs	
1 HAZ Lab			12 hrs	
7 TRUCKS	DUMP TRUCKS	REG MATERIAL	4 @ 8 hrs 2 @ 5 hrs	

Visitors	Representing	Purpose
<u>AT TMC</u>	<u>MAVERICK Coast</u>	<u>over seeing operation</u>
<u>Phil Bova</u>	<u>TMC</u>	<u>SAFETY inspection</u>

Daily Notes:

- ① TMC - 750 Komatsu Excavator & 380 Komatsu loader loading TRUCKS with REGULATED material and Hauling TO Hyde Pile. D-6 Dozer Grading material TO Given Grades.
- ② TMC - 200 Komatsu Excavator trenched @ TOP OF Slope TO Existing Fabric FOR TIE in OF NEW Fabric.
- ③ TMC - When Grading Completed Installing NEW Geo Textile Fabric, TIEing into Existing Fabric @ Perimeter of Fill area. TMC completely stiched 1/3 of Fabric and secured Remainder for night.
- ④ TMC - Removed & Decon temp. RAMP That was used TO Dump material @ Hyde Pile.
- ⑤ Hazards/SAFETY DEFICIENCIES: work in Regulated materials
- ⑥ CORRECTIVE ACTIONS: (NEW DRESSED in modified level "D" PPE, Air Mon. bring & Documentation, Decon unit. All TRUCKS & Equipment Deconed @ end of Operations

Preparer: K. Hartwell Name (Print) Karen Hartwell Signature

Project: R.T.C. Woburn Report No.: 10-12-00-157
 Contractor: TMC Date: 10-12-00
 Owner: MASSPORT / MBTA Weather: Sunny 60°-70°
 Project No.: 1.727

Contractor Supervisor(s): J.E. Phinney

Description of Work: Form subgrade @ Hyde Pile

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPERATOR	D-6 DOZER	Ordinary Borrow	8 hrs	SEE ACTIVITIES
1 OPERATOR	250 EXCAVATOR		8 hrs	
1 TRUCK DRIVER	10000 END DUMP		8 hrs	
1 LABORER	Hand tools		8 hrs	

Visitors	Representing	Purpose

Daily Notes: ACTIVITIES:

TMC - Reinstalling ordinary Borrow to form subgrade over Geotextile fabric @ Hyde Pile. Excavator loading 10000 END DUMP, end dump spotting loads of ordinary Borrow for dozer to form subgrade. Dozer grade ordinary Borrow @ 1" thick

HAZARDS / SAFETY DEFICIENCIES: NONE OBSERVED

CORRECTIVE ACTIONS: NONE NEEDED

Preparer: K. HARTWELL Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 10-13-00-158
 Contractor: TMC Date: 10-13-00
 Owner: Massport / MBTA Weather: Sunny 65°-73°
 Project No.: 1.777

Contractor Supervisor(s): Joe Phinney

Description of Work: Form subgrade w/ordinary borrow & grade loom & Hyde Pile

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPERATOR	0-6 Dozer	Ordinary Borrow Loom	8hrs	SEE ACTIVITIES
1 OPERATOR	750 Excavator		8hrs	
1 TRUCK DRIVER	Volvo End Dump		8hrs	
1 Laborer	Hand tools		8hrs	

Visitors	Representing	Purpose

Daily Notes: Activities:

TMC - Formed subgrade with ordinary borrow graded over Geo textile fabric & at least 1' thick, TMC - started establishing finish grade with loom & Hyde Pile.

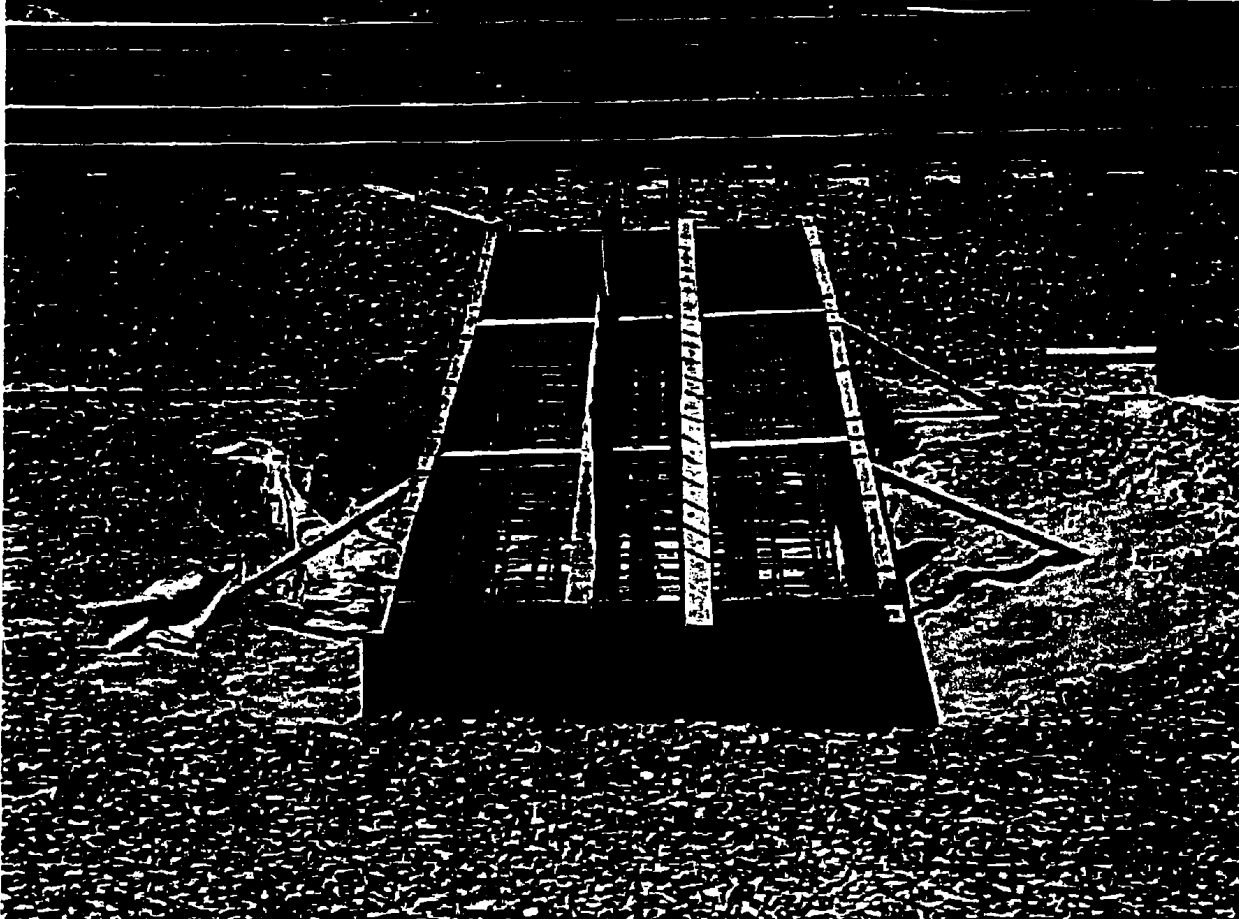
HAZARDS / SAFETY DEFICIENCIES: none observed

CORRECTIVE ACTIONS: NONE NEEDED

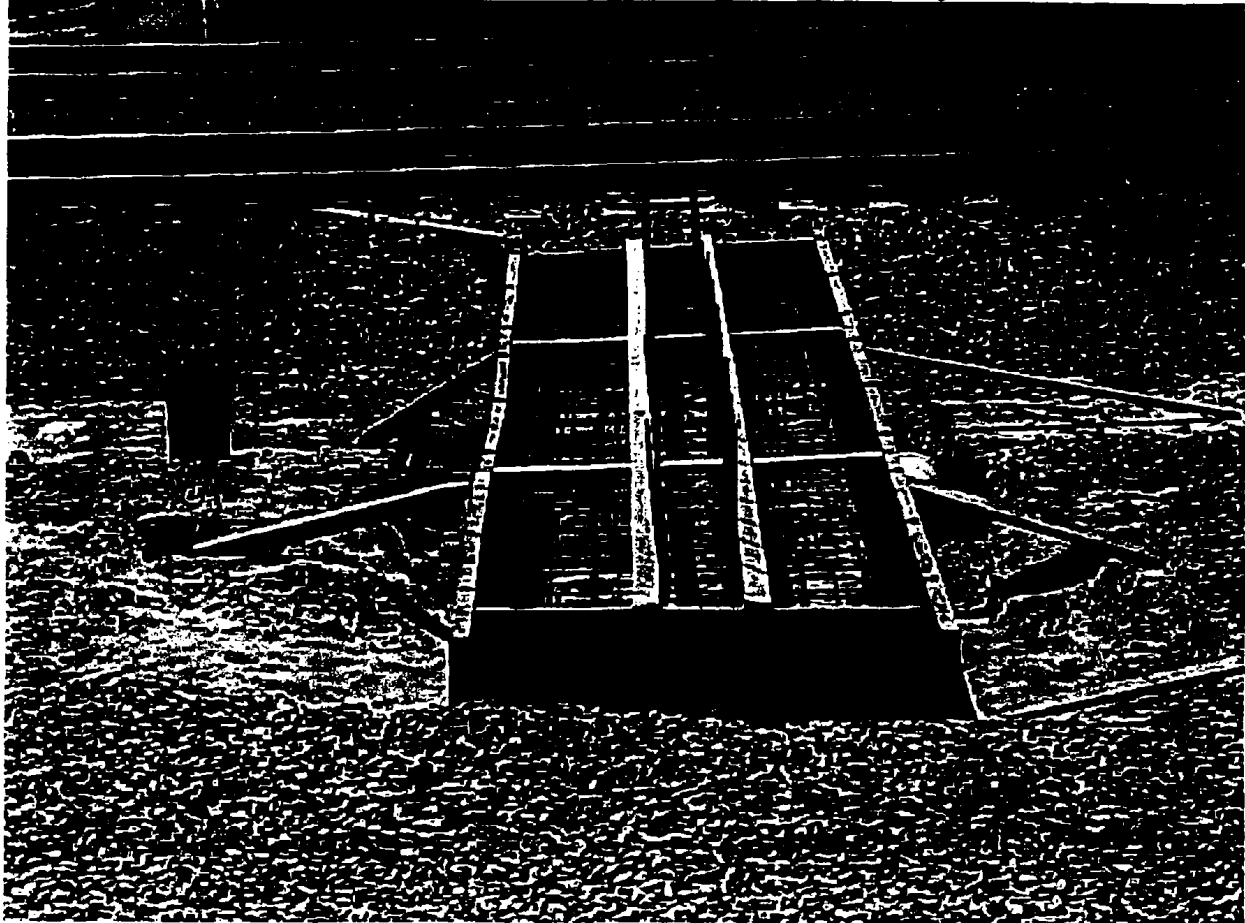
Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

7-14-00

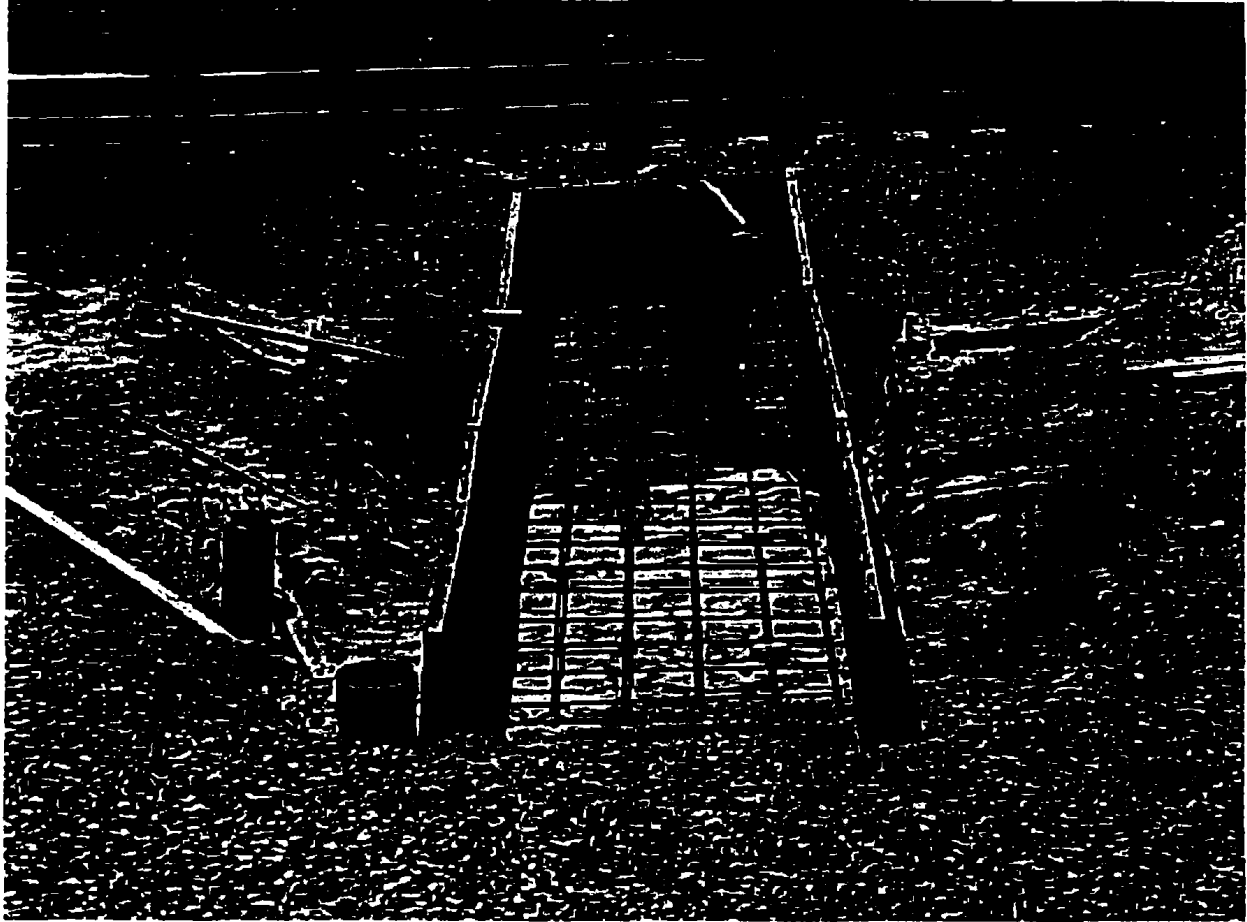
Platform Footing #5 TMC Exc & Inst. / Historic / ALBAN inst. Forms & Rebar



Platform Footing #7 TMC exc & installed Fdb / AKGAM inst. Forms & Rebar



Platform Footing #9 TMC Exc & Inst. FAB / ALGAR Inst. Forming & Rebar



Project: R.T.C. Woburn Report No.: 07-17-00-92
 Contractor: TMC Date: 7-12-00
 Owner: MASSPORT / MBTA Weather: Partly Cloudy 82°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: EXCAVATION PLATFORM Footings / Form & Pour Footings

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	EXCAVATOR	Reg material / Ballast	8	SEE ACTIVITIES
1 HAZ Lab	HAZ PPE	FABRIC	8	
1 LAB	air mon. foring		8	
1 Form	DECON EQUIP		8	
1 TR DRIVER	100' FEET DUMP HAND TOOLS		8	
ALGAR 3 MEN	sewing mach	Forms / Rebar concrete	308	

Visitors	Representing	Purpose
<u>Wakefield</u>	<u>TMC</u>	<u>DECON FOR FOOTINGS & PLATFORM</u>

Daily Notes:

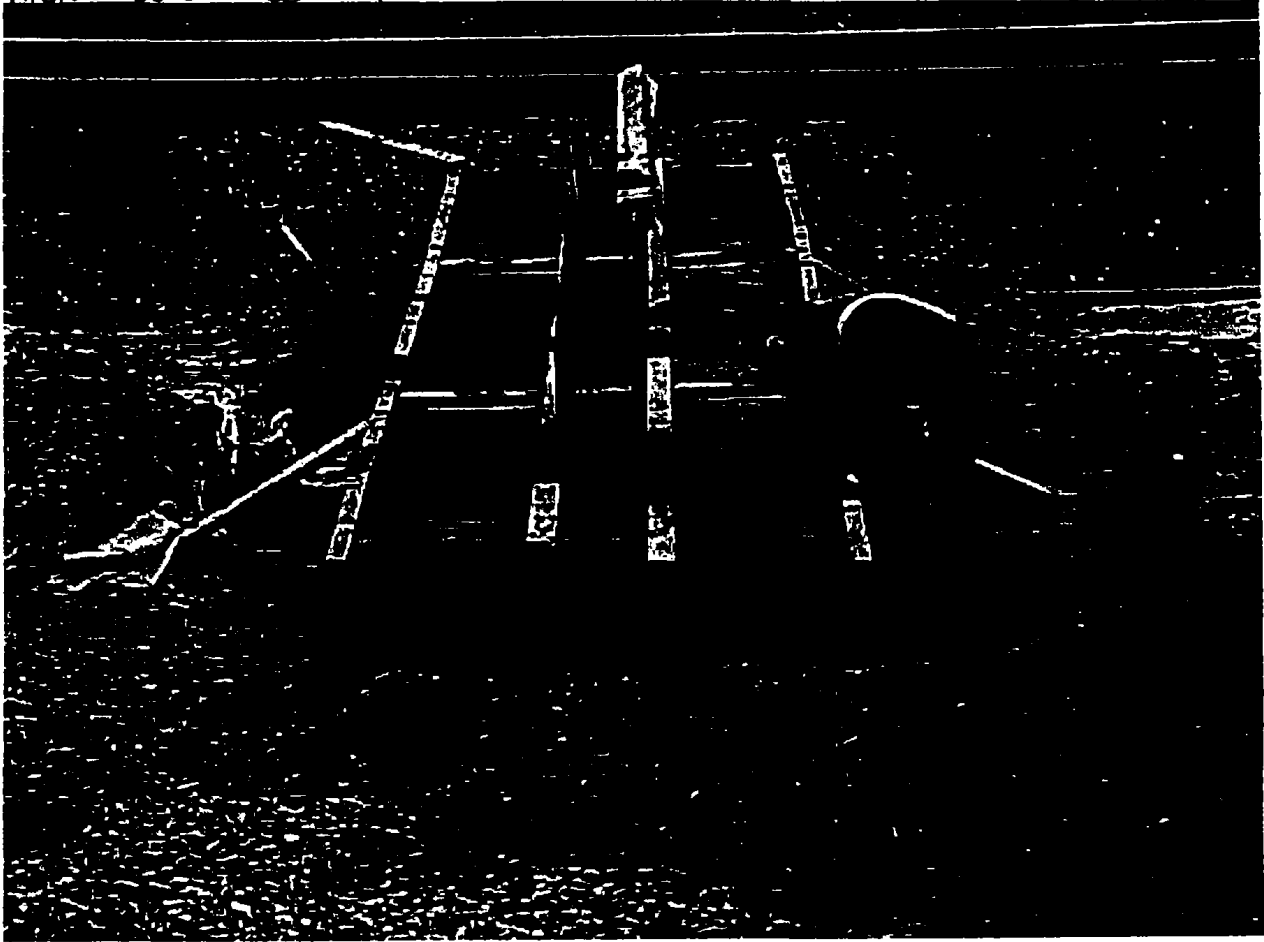
ACTIVITIES: TMC EX IN REG MAT TO REQUIR ELEVATION FOR FOOTINGS #12,14,16 completely. EX. IN REG MAT TO REQUIRED ELEV. FOR FOOTINGS #11,13,15,17,18(3/4) OF FOOTING EXCAVATED. FABRIC STITCHED @ EACH EXCAVATED FOOTINGS. TMC EXCAVATED FROM R.R. TIES TO COMPLETE FOOTING EXCAVATION @ #9,10. TMC BACKFILLED FORMS BETWEEN FOOTINGS #12,14,16 @ FORMS @ RAIL W/ BALLAST.
 ALGAR: Poured Footings #5,7,8,9
 Formed @ inst Rebar @ Footings #10,12,14,16

HAZARDS/SAFETY DEFICIENCIES: REGULATED MATERIAL

CORRECTIVE ACTIONS: Crew DRESSED IN MODIFIED LEVEL "D" PPE, AIR MONITORING and mobil decon unit ALL BEING USED DURING INTRUSIVE WORK.

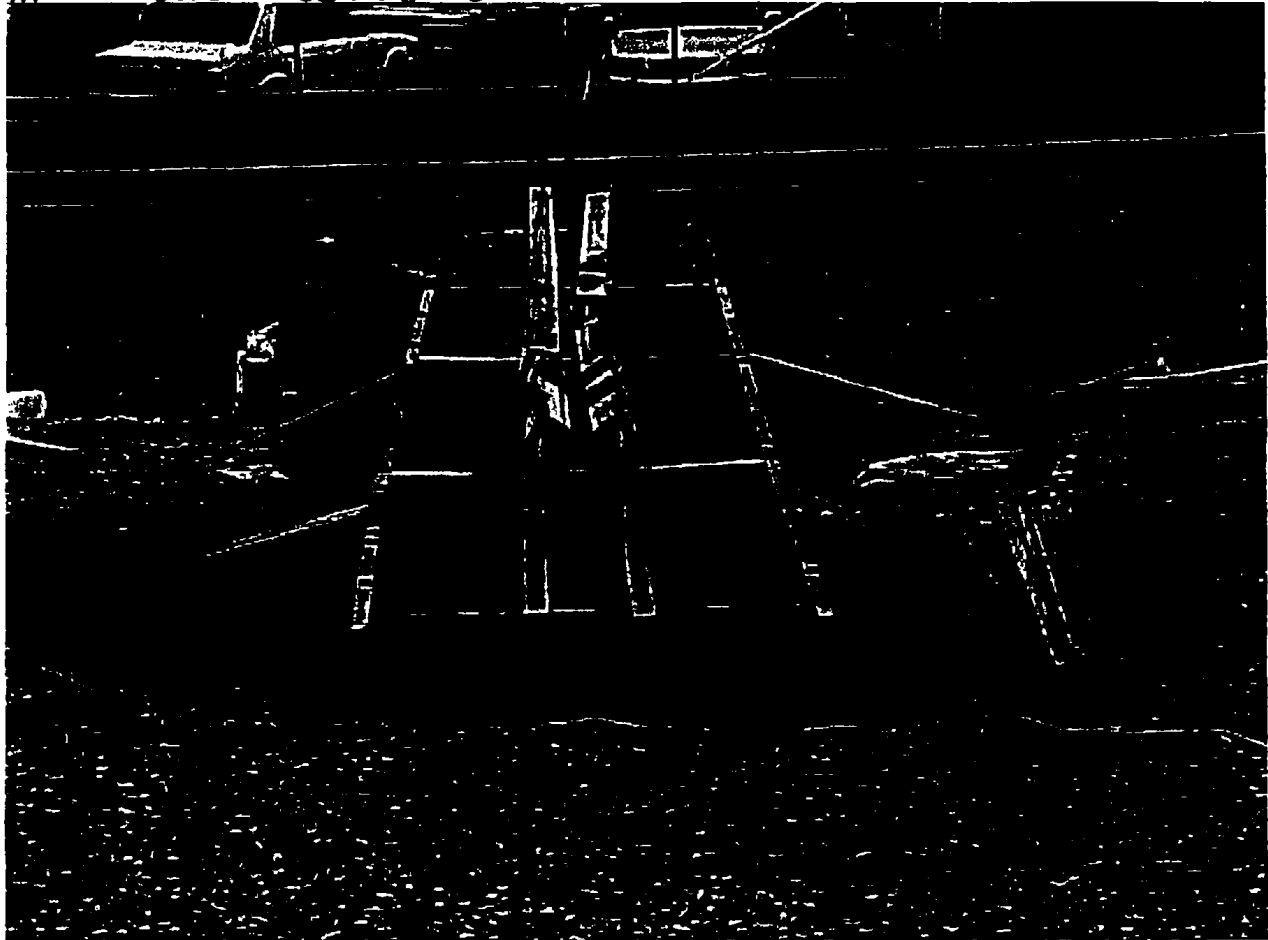
Preparer: K. HARTWELL Kevin Hartwell
 Name (Print) Signature

AKAR Paired Footing #5

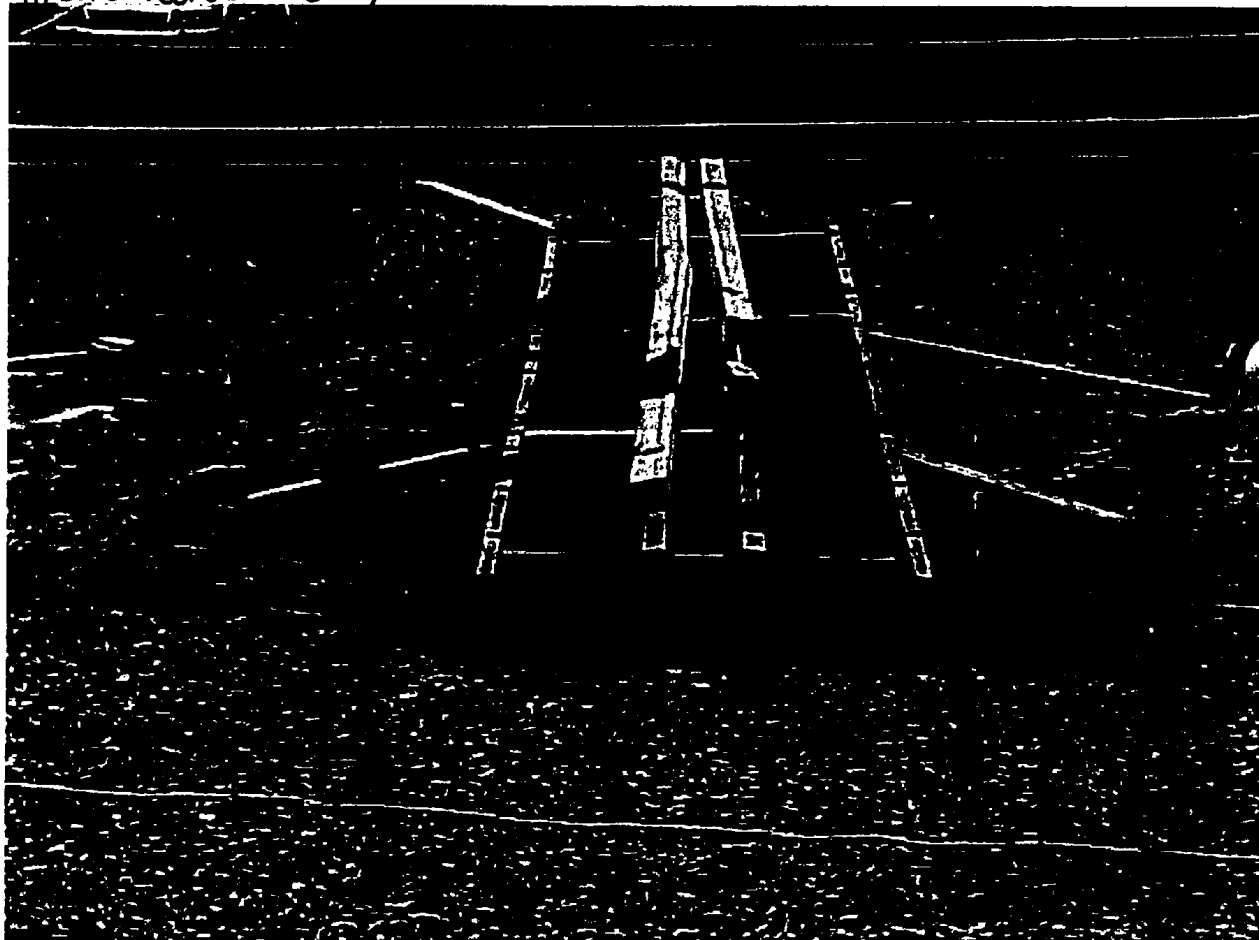


43

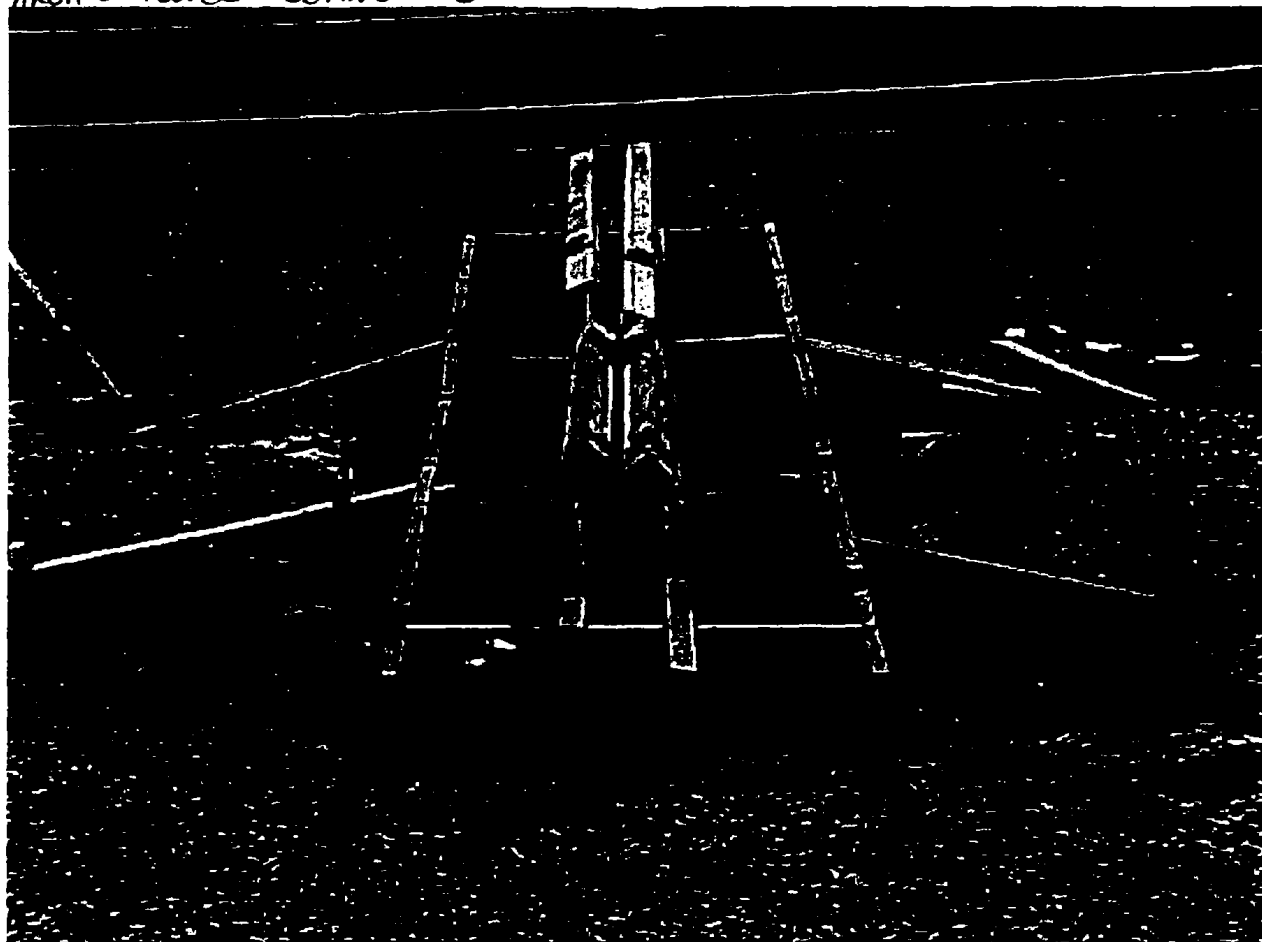
ALGAR Poured Footing #6



Algar Poured Footing #7



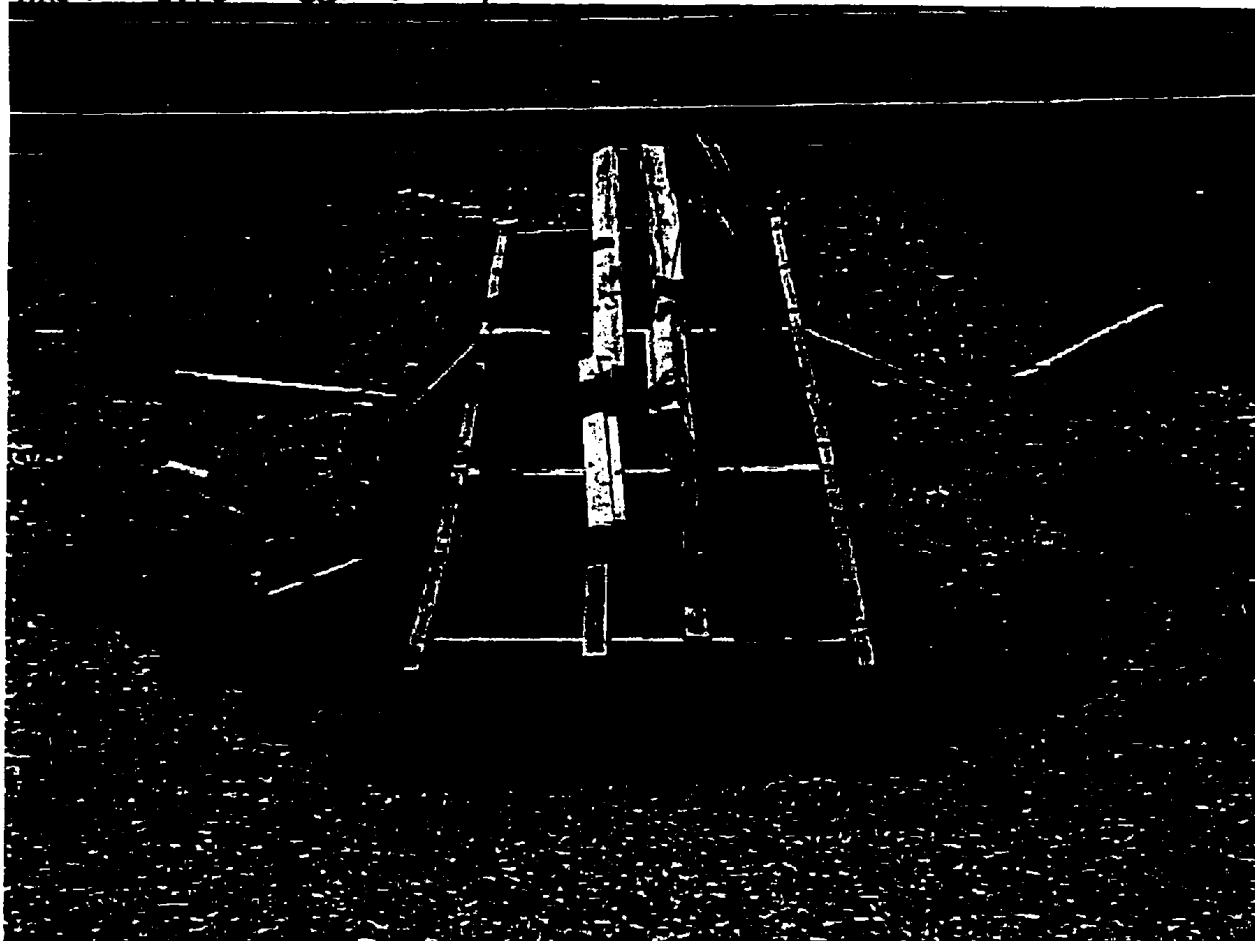
AKGAL Poured Footing # 8



97.

TMC Finished Exc @ Footing #9 from back of Form to rail.

ALCAN Poured Footing #9



42

Project: R.T.C. Woburn
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 07/18/00/93
 Date: 7-18-00
 Weather: Hot & Humid 85-90

Contractor Supervisor(s): Joe Phinney

Description of Work: EXCAVATE Platform Footings & Stick NEW FABRIC

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	EXCAVATOR	REG. MATERIAL	7.5	
1 HAZ LAB	HAZ PPE SEWING MACH	FABRIC	7.5	
1 LAB	Hand tools		7.5	
1 TR DRIVER	10 Wheel DUMP		7.5	

Visitors

Representing

Purpose

Daily Notes:

ACTIVITIES: TMC EXCAVATED 3/4 OF Footings # 19, 20, 21, 22, 23, 24, 25 and stick IN NEW FABRIC. TMC & Footings # 11, 13 Finished Excavation @ Rail Rd TIES TO complete Footing Excavation, and BACKFILLED FROM BACK OF FORM TO RAIL Road TIES with Ballast. ALL Excavation in Regulated material.

HAZARDS / SAFETY DEFICIENCIES: REGULATED MATERIAL

CORRECTIVE ACTIONS: Crew DRESSED in modified Level "D" PPE, AIR MONITOR and Mobil decn unit all being used during intrusive work.

Preparer:

K. Hartwell
Name (Print)

Kevin Hartwell
Signature

Project: R.T.C. Woburn Report No.: 07/19/00/94
 Contractor: TMC Date: 7-19-00
 Owner: MASSPORT / MBTA Weather: Hot & Humid 85-90
 Project No.: 1.727

Contractor Supervisor(s): see Phinney

Description of Work: Excavation For Platform Footings

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Excavator	Regulated Mat.	8	see activities
1 Haz Lab	Haz mat Sowing Machine	Ballast, Fabric	8	
1 Lab	Hand tools		8	
1 TK DRIVER	10 Wheeler		8	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC - Excavated and stiched new fabric @ Footings # 26, 27, 28, 29, 30, 31 at these Footings only 3/4 of Footing Excavated. TMC Completed Excavation @ Footing 15 & 17 to enable ALGAR to Form, TMC then Back Filled between Form & Rail Road TIES w/ BALLAST

HAZARDS / SAFETY DEFICIENCIES: REGULATED MATERIAL

CORRECTIVE ACTIONS: Modified Level "D" PPE, air monitoring, mobil DECON unit all being used during intrusive work

Preparer:

K. Hartwell
Name (Print)

Kevin Hartwell
Signature

TMC excavation & Platform Footing #15



Project: R.T.C. Woburn Report No.: 07/20/00/95
 Contractor: TMC Date: 7-20-00
 Owner: MASSPORT / MBTA Weather: Hot & Humid 85-90
 Project No.: 1.727

Contractor Supervisor(s): SEE Phinney

Description of Work: Excavation of Platform Footings

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Excavator	REG MAT	8	SEE ACTIVITIES
1 Haz Lab	100% MMT PPE Sawing mach	Fabric, Ballast	8	
1 Lab	Handtools		8	
1 TR DRIVER	10 wheel Dump	REG MAT	8	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC Excavated in Regulated material 3/4 of Platform Footings # 31, 32, 33, 34, 35, 36 and stiched NEW FABRIC in Place. FINISH Excavating Platform Footings # 18, 20 and ALGAE FORMED and TM BACKFILLED BETWEEN RR TIES & FORM WITH BALLAST. ALL REGULATED MATERIAL DUMPED INTO STORAGE CELL.

HAZARDS / SAFETY DEFICIENCIES: Regulated Material

CORRECTIVE ACTIONS: CREW DRESSED in modified Level "D" PPE, AIR - Monitoring and MOBIL Decon all being used during intrusive work.

Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

Project: R.T.G. Woburn
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1-227

Report No.: 07/21/00/96
 Date: 7-21-00
 Weather: Sunny 81°

Contractor Supervisor(s): JOE Phinney

Description of Work: install Ballast / exc REG material & Platform Footings / RAISE GRADING TO FG

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Excavator	REG material	8	SEE ACTIVITIES
1 Haz Lab / Lab	Haz mat PPE Hand tools	Ballast, BRICK	8	
1 Haz Lab / Lab	Generator Tearing machine	mortar	8	
1 OPER	Loader		4	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC - installed new Ballast between Platform Footings 1 & 2 & 3. Excavated in regulated material & Platform Footings #18 and 1/2 of Footings #16 & 20, so ALGAR could SET FORMS. TMC ALSO SET MBTA HandHole #1 FRAME & COVER TO FINISH GRADE. RAISED MBTA HandHole #2 & SEWER manHole #2 FRAME & COVER TO FINISH GRADE.

HAZARDS / SAFETY DEFICIENCIES: REGULATED MATERIAL

CORRECTIVE ACTIONS: modified level 5" PPE, Air monitoring, mobil Decon unit all being used during

Preparer: K. Hantwell Kenneth Hantwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location Regional Transportation Center, Woburn, MA	Job # 405	Today's Date: 7-21-00	page ___ of ___
Superintendent/Foreman T. SWEET	Weather CLEAR	Temperature am _____ pm 80°	Contract Time Charged? YES NO

Item #	Description	Quantity	Remarks/Location
3400.202	SET SONA TUBS & POUR	LB 52 & 43	[2]
2509.162	STONE (34) SLOPE ABOVE CABLE TRAY		58' - 15' 7" 2486 & 50
1566000E	Exc. REG. MAT. FOR CIP FOOTINGS	18 & 20' 4" 190	
2200.121B	BACKFILL COMP. AROUND	LB 58, 43, 112, 87, 50, 61	
2504.100	INSTALL NEW RAILFAST BETWEEN	FOOTINGS 112, 213	56.9
2400.221	RAISE SMH 1, SMH 2,		[2]
2504.150	FILL & GRADE SLOPE	100CY FILL	
2509.151B	GRAVEL & GRADE SERVICE RAMP	25.7CY GRAVEL	
2200.171B	FINE GRADE SERVICE RAMP	138.9 SY	
CO 405003	SET FRAME & COVER FOR	META HH 132	

Scope of Work:			
T.M.C.	SET SONA TUBS & POUR	LB 43 & 52	
	STONE (34) SLOPE ABOVE & BELOW	CABLE TRAY 58' - 15' 7" 2486 & 50	
	3" X 0.33' X 100'		66.5 TONS
	Excavate REG. MAT. FOR CIP	FOOTINGS 18 & 20' 4" 190	
	9' W X 0.9' D X 20' L	GRAVEL	12CY
	BACKFILL COMP. AROUND	FOOTINGS 112-87, & AROUND	LB 58, 61 & 66
	INSTALL NEW RAILFAST BETWEEN	FOOTINGS 112, 213	
	20' X 1' X 4'		56.9 TONS
	RAISE SMH 1 & 2	TO GRADE	1.5' & 2.5' VF
	FILL & GRADE SLOPE		100CY
	GRAVEL & GRADE SERVICE RAMP		25.7 CY
	FINE GRADE SERVICE RAMP	9x130'	138.9 SY
	MODIFY HH TO SET	FOR MBTA HH 132	

Project: R.T.G. Woburn Report No.: 07/24/00/97
 Contractor: TMC Date: 7-24-00
 Owner: MASSPORT / MBTA Weather: SUNNY 81°
 Project No.: 1.727

Contractor Supervisor(s): JOE PHINNEY

Description of Work: Excavate Plat. Footings/Fill, Gravel, Grade Service Ramp / TRAP ROCK / BALLAST

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	excavator	regulated matk	8	SEE ACTIVITIES
1 HAZ LAB	HAZ MAT PPE HAND TOOLS	Ordinary, Gravel	6	
1 TK DRIVER	10 wheeler	Borrow	8	
1 OPER	Loader	4" to 6" TRAP ROCK	4	
	Compactor	BALMST		

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC - Completed Excavation of Platform Footings # 19, 21, 23 & 25. TMC - Filled, Graveled and graded SERVICE RAMP TO Platform (APPROX 5' x 8' x 2', 1.5' ordinary & .5' of Gravel). TMC - Backed slope of Service Ramp with 4" to 6" TRAP ROCK. TMC - Flooded new north Bound Rail w/more Ballast to Protect Rails.

HAZARDS/SAFETY DEFICIENCIES: Regulated material

CORRECTIVE ACTIONS: Modified Level "D" PPE, Air Monitoring and mobil Decon ALL BEING USED DURING intrusive work

Preparer: K. Hantwell Kenn Hantwell
 Name (Print) Signature

Daily Quantity Sheer

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

105

7-24-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

1 CLEAR

am pm 78'

YES NO

Item #	Description	Quantity	Remarks/Location
1566.000 E	EXC. REG. MAT FOR CIP FOOTINGS	19.21	23 E 25
2509.162	STONE (3/4) SLOPE AROUND CABLETRAY	124 CY	STA 685+50 - 684+00
2509.150	FILL & GRADE AROUND CABLETRAY	199.7 TONS	STA 686+50 - 687+25
3400.202	DRILL & SET REBAR FOR LB 40		
2509.151B	GRAVEL & GRADE SERVICE RAMP	25 CY	50' (0.5')
CO 405023	EXC. AROUND LB 10E11 FOR 3' EXTENSION		
2509.150	FILL & GRADE FOR SERVICE RAMP	18.4 CY	50' (1.5')
2504.100	INSTALL NEW BALLAST		
ALGAR			
3300.401W	F&S PLATFORM FOOTINGS	19.21, 23 E 25	

Scope of Work:

T.M.C.	Excavate REG. MAT FOR CIP PLATFORM FOOTINGS	19.21, 23 E 25
	9' W X 0.9' D X 20' L EYEA	124 CY
	STONE (3/4) SLOPE ABOVE CABLETRAY	685+50 TO 684+00
	34' X 0.33' X 150'	199.7 TONS
	STONE (3/4) SLOPE BELOW CABLETRAY	683+00 TO 684+00
	5' X 0.33' X 100'	9.8 TONS
	FILL, GRADE & SUBGRADE AROUND CABLETRAY	686+50 - 687+25
	20' X 1.5' X 135'	150 CY
	DRILL & SET REBAR FOR LB 40	
	FILL & GRADE SERVICE RAMP	
	9' X 1.5' X 50'	25 CY
	GRAVEL & GRADE	
	9' X 0.5' X 50'	18.4 CY
	INSTALL NEW BALLAST	
	12' W X 0.50' X 300'	106.7 TONS
ALGAR	F&S CIP PLATFORM FOOTINGS	19.21, 23 E 25

Project: R.T.C. Woburn
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 07-25-00-98
 Date: 7-25-00
 Weather: Partly Cloudy 80°-85°

Contractor Supervisor(s): JOE Phinney

Description of Work: locate, excavate and raise catch BASINS frames & covers / STIC FAB

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Foreman	PUMP/COMPRESSOR or hammer	masonry	10	SEE ACTIVITIES
1 LAB	Handtools	C.B. Frames & COVERS	2	
1 OPER	BACK HOE	Fabric	8	
1 OPER	Loader		4	
	Sewing Machine			

Visitors _____ Representing _____ Purpose _____

Daily Notes:

ACTIVITIES: TMC - Jammer mix curb line & Entrance of Job, so that K. Daponte could Trench for curb. TMC - located existing catch Basins w/ METAL Detector, excavated and raised Frames & covers & C.B. #27, 32. TMC - also stuck in APPROX. 70' of NEW FABRIC onto Fabric install under Atlantic Ave and curb to extend limits of Fabric behind curb line.

HAZARDS / SAFETY DEFICIENCIES: NONE OBSERVED

CORRECTIVE ACTIONS: NONE NEEDED.

Preparer: K. Hartwell Kerrin Hartwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 07-25-00-98
 Contractor: TMC Date: 7-25-00
 Owner: MASSPORT / MBTA Weather: Partly Cloudy 80°-85°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: Excavation Platform Foundations; Backfill Foundation w/Ballast

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Excavator	Reg. Material	8	SEE ACTIVITIES
1 Lab/Haz Lab	Haz Air Monitoring	Ballast	8	
1 TRUCK DRIVER	Hand Tools		7	
1 OPER	Loader	Ballast	3	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC - Backfilled Platform Foundations with Ballast Between Footings 1&2, 2&3, 3&4, 4&5, 7&8. TMC - Excavated in Regulated Material e Platform Footings #26, #24, #22, #28 and BACKFILLED BETWEEN Rail Road TIES and ALGALS FORMS with BALLAST.

HAZARDS / SAFETY DEFICIENCIES: Regulated materials

CORRECTIVE ACTIONS: During intrusive work, modified level D" PPE, Air monitoring and mobil Decan unit all being used.

Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

7-25-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T SWEET

am pm

YES NO

Item #	Description	Quantity	Remarks/Location
1566.000E	EXC. REG. MAT. FOR CIP FOOTING	22, 24, 26 & 28	
2509.162	STONE 4" BELOW FROM STA 668+20 - 670		
2509.150	FILL & GRADE AROUND CABLE TRAY	686+50 TO 686+50	
2504.100	INSTALL NEW CONCRETE BETWEEN FOOTINGS 3-4, 4-5, 7-8, 8-9		
2509.162	STONE (3/4") SLOPE ABOVE & BELOW CABLE TRAY	686+50 TO 687	
2200.222	RAISE CB 27 & SET FRAME & GATE (RAISE CE 32)		
1999.999	SEW FIBER IN CURB TRENCH	75'	
ALGAR	FORM & CURR FOOTINGS	19, 21, 23 & 25	

Scope of Work:

T.M.C.	Excavated REG MAT. FOR CIP FOOTINGS	22, 24, 26 & 28	
3 @	7'6" X 0'9" X 20' 47.25 EA	141	20 CY
1 @	9'6" X 0'9" X 30' 54 EA	60	
	STONE 4" BELOW FROM 668+00 TO 670+00		
	30' X 1' X 130'		631 TONS
	FILL & GRADE AROUND CABLE TRAY	STA 686+50 TO 686+50	
	20' X 1' X 190'		140.7 TONS
	INSTALL NEW CONCRETE BETWEEN FOOTINGS 3-4, 4-5, 7-8, 8-9		
	20' X 1' X 24' 20 EA		140.2 TONS
	STONE (3/4") SLOPE ABOVE & BELOW CABLE TRAY	686+50 TO 687+00	
	30' X 0.336' X 50'		29.3 TONS
	RAISE & SET FRAME & GATE FOR CB 27 (RAISE CB 32)		
	SEW IN NEW GEOTEXTILE FIBER (CURB LINE ATLANTIC)		
	3.5' X 75'		262.5 SF
ALGAR	FORM & CURR PLATFORM FOOTINGS	19, 21, 23 & 25	

Project: RTC, Woburn
 Contractor: TMC
 Owner: Massport / MBTA
 Project No.: 1.777

Report No.: 07-28-CO-101
 Date: 7-28-00
 Weather: Cloudy ☀

Contractor Supervisor(s): Joe Phinney

Description of Work: inst sonotube for footings / fill of form subgrade & stone slope / edge of platform

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Operator	Excavator	sonotube, fill	8	SEE ACTIVITIES
1 Lab / Lab	Hand tools	3/4" stone	8	
	6 wheel dump	REG. material		
		Ballast		

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC @ STA. 681+50 ADJACENT TO N.B. RAIL excavated and install and back-filled 2 sonotubes for ICE melter footings, TMC - back-filled and formed subgrade around cable tray and installed 3/4" stone protection from STA. 681+50 TO STA 681+70 ADJACENT TO N.B. RAIL. TMC - excavated the remainder of platform footings # 27 & # 29 in regulated material to enable ALIAS TO SET FORMS, the TMC back-filled forms between forms & IR TIES with Ballast.

Hazards / SAFETY DEFICIENCIES: Regulated Material

Corrective Actions: Crew dressed in modified level "D" PPE, Air monitoring, mobil Decan unit all being used during intrusive work.

Preparer: K. Hartwell Name (Print) Kevin Hartwell Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

7-28-00

Superintendent/Foreman

T. SWEET

Weather

Temperature

OVERCAST/CLEAR

78°

Contract Time Charged?

YES NO

Item #	Description	Quantity	Remarks/Location
CO,405003	RAISE MBTA HH 3 & 4	1' MORE &	SET FRAME & COVER
CO,405023	POUR LR 10 & 11		
TI,405909	CUT & ANCHOR NEW BOLTS, TIE REBAR &		POUR LB 12
2200.222	SET FRAME & GRATES ON DBL. CB32 &		POUR AROUND DBL. CB32
	POUR LB 16 & 31 EXTENSIONS		
2509.150	BACKFILL AROUND CABLETRAY TO FG		688+30 TO 690+00 & 691+50 TO 691+70
	INSTALL SAND TUBS FOR ICE MELT &		BACKFILL
2509.162	STONE (3/4) SLOPE FROM	681+50 TO 681+70	(ABOVE & BELOW CABLETRAY)
1586.000E	EXC REG MAT. FOR CIP PLATFORM FOOTINGS	27 & 29	
1449.999D	RECLAIM ORDINARY DORROW FROM PIG PENS		
ALGAR	POURED PLATFORM FOOTINGS	22, 24, 26 & 28	& STEMS 4, 5, 6, 7 & 8
	FORMED PLATFORM FOOTING	27 & 29	

Scope of Work:

T.M.C.	RAISE MBTA HH 3 & 4	1' MORE &	SET FRAME & COVER
	POURED LB 10 & 11		(& COVERED FOR WEEKEND)
	CUT & ANCHOR NEW BOLTS, TIE REBAR &		POUR LB 12
	SET FRAME & GRATES ON DBL. CB32 &		POUR CONC. AROUND DBL. CB32
	POUR LB 16 & 31 EXTENSIONS		
	BACKFILL AROUND CABLETRAY TO FG		688+30 TO 690+00 & 691+50 TO 691+70
	20' X 2' X 150'		2222 cy
	INSTALL SAND TUBS FOR FOOTING OF ICE MELT		
	POUR ICE MELT FOOTINGS		
	STONE (3/4) SLOPE FROM	681+50 TO 681+70	
	32' X 0.9' X 20'		12.5 TON
	EXCAVATE REG. MAT. FOR CIP PLATFORM FOOTINGS	27 & 29	1/2 OF 27 & 29
	7' X 0.9' X 20'		14.7 cy
	RECLAIM ORDINARY DORROW FROM CONTAMINATION FILE		
ALGAR	POURED PLATFORM FOOTINGS	22, 24, 26, & 28	& STEMS 4, 5, 6, 7 & 8
	FORMED PLATFORM FOOTING	27 & 29	

Project: R.T.C. Woburn Report No.: 08-02-00-109
 Contractor: TMC Date: 8-2-00
 Owner: MASSDOT / MBTA Weather: Cloudy 72°-80°
 Project No.: L727

Contractor Supervisor(s): JOE Phinney

Description of Work: INST. 4" TO 6" TRAP ROCK, PLATFORM FTG EXC, Form Earth Berm

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	excavator	4 TO 6" TRAP ROCK	8	SEE ACTIVITIES
1 TRUCK DRIVER	10 wheel DUMP	BALLAST, REG MAT. Ordinary Borrow	8	

Visitors	Representing	Purpose

Daily Notes:

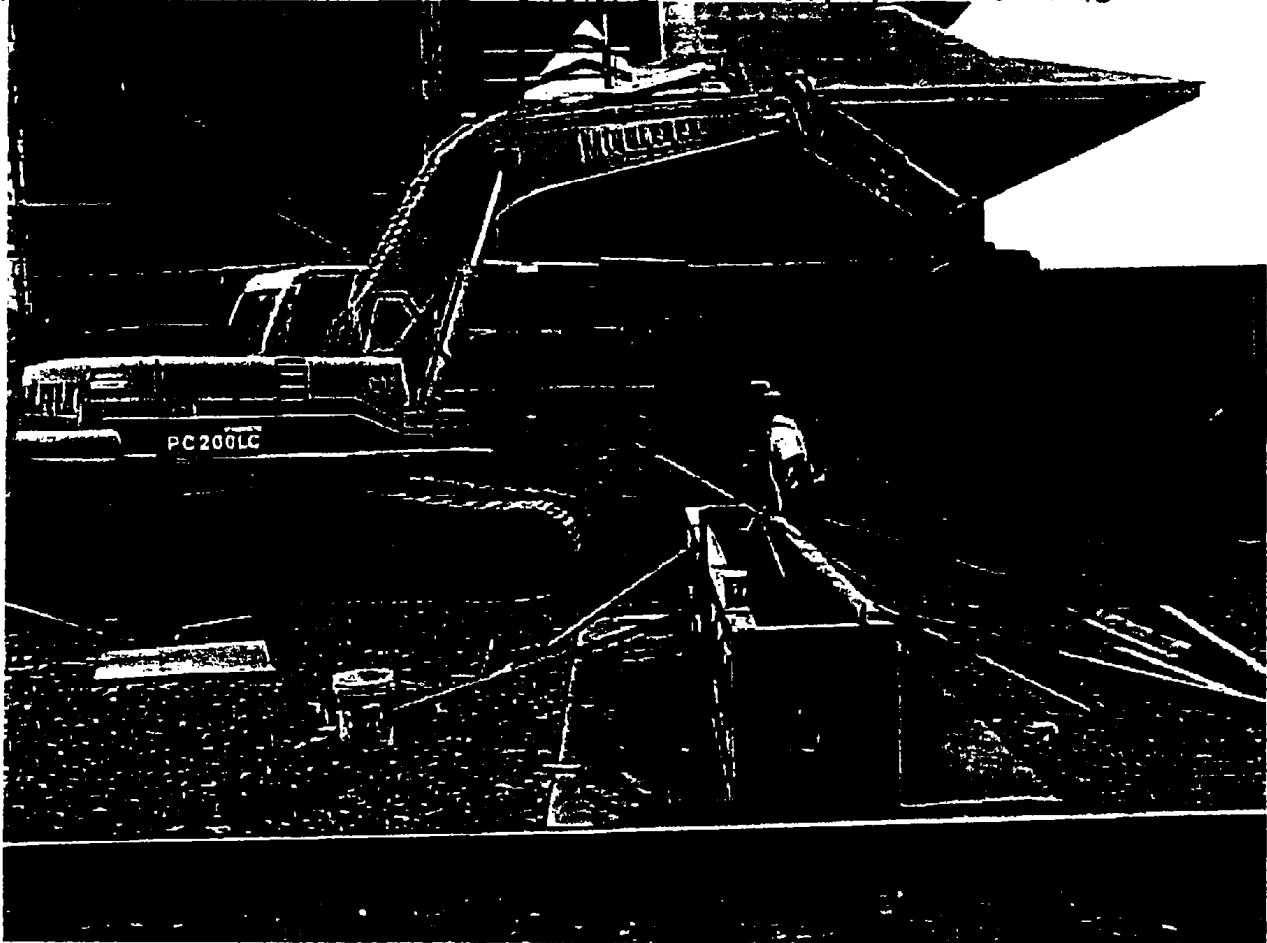
ACTIVITIES: TMC - installed 4" TO 6" TRAP ROCK on slope adjacent to new north Bound Rail between STA. 671+10 TO STA. 671+40
 TMC - excavated e Platform Footings # 30 & #31, removed Ballast and stock Pile, excavated mix & Regulated material, and excavated out ordinary Borrow East side of FTGS. Ballast Exc (8'x4'x3)'x2 REG. MAT Exc (7'x0.9'x4')x2 and ordinary Borrow Exc (8'x4'x1)'x2

HAZARDS / SAFETY DEFICIENCIES: Regulated Material excavation

Corrective Actions: Crew dress in modified Level "D" PPE, Air Monitor and Mobil Decon unit all being used during intrusive work.

Preparer: K. Hartwell Name (Print) Kevin Hartwell Signature

TMC - INST 4" TO 6" TRAP ROCK ON SLOPE STA. 671+10 TO 671+90



Project: R.T.C. Woburn
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 08-03-00-105
 Date: 8-3-00
 Weather: Hot & Humid 80°-90°

Contractor Supervisor(s): JOE Phinney

Description of Work: Platform FTO Exc / Form subgrade in Islands / off load curb

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Operator	Excavator	Reg. mat	8	SEE ACTIVITIES
1 Operator	Loader	Ballast	4	
1 TK Driver	10 Wheeler	Ordinary Borrow	4	

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC - Excavated Reg. material @ Platform Footings # 31 & # 33, ALGAR SET FORMS and TMC BACKFILLED w/Ballast BETWEEN FORMS & Rail. TMC Forming subgrade in Parking Lot Islands. TMC - off loaded a load of curb for K. Dr Ponte.

Hazards / SAFETY DEFICIENCIES: working w/ Regulated materials

CORRECTIVE ACTIONS: modified level "D" PPE, Air monitoring and metal Decon station all being used during intrusive work.

Preparer: R. Hartwell
 Name (Print)

Kevin Hartwell
 Signature

Project: R.T.C. Woburn
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1.727

Report No.: 08-9-00-109
 Date: 8-9-00
 Weather: Sunny Hot & Humid 80°-90°

Contractor Supervisor(s): JOE Phinney

Description of Work: TRENCH FOR Guard Rail Footings / Lay out cable tray

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPERATOR	6 wheel dump BACKHOE	NON REG MAT REG. MAT.	8	SEE ACTIVITIES
1 Laborer	HAND TOOLS		8	
1 Haz Lab/TEC	Recn unit BACK TRACK HAZ MAT PPE AIR monitoring		4	

Visitors	Representing	Purpose

Daily Notes:

Activities: TMC - FOR 1 hr. laid out cable tray south end of site for City lights. TMC - TRENCHED FOR Guard Rail in UPPER Parking Lot OFF OF BASELINE (B) STA. 50+70 3' RT TO STA. 51+53 3' RT. (45' x 2.5' x 3.25') (20' x 2.5' x 3.25') IN NON REG MAT. IN REG material TMC TRENCHED (45' x 2.5' x .5')

134 + 6.94 = 20 cyds of NON REG MAT.
 2.08 cyds of REG MAT.

Installed NEW FABRIC - 505F

HAZARDS / SAFETY DEFICIENCIES: Regulated Material

CORRECTIVE ACTIONS: CREW DRESSED in modified Level "D" PPE, AIR Monitoring, and Mobil Decan unit all being used during intrusive work.

Prepared: K. Hankwell Kevin Hankwell
 Name (Print) Signature

Project: BTC Webster Report No.: 08-18-00-116
 Contractor: TMC Date: 8-18-00
 Owner: MASSPORT / MBTA Weather: Sunny 80°
 Project No.: 1727

Contractor Supervisor(s): JOE Phinney

Description of Work: Trench For Fence Post, EXC Platform FGS., 100m Islands, Ballast

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	Loader	loom	3hrs	SPOT loads of loom in P. Lot IS
1 Laborer	lowheel dump		3hrs	
1 OPER	EXC. 200Kom	ordinary borrow	3hrs	TRENCH TO TOP FABRIC in non-REG
1 Laborer	Handtools		3hrs	mat N. END P. Lot.
1 OPER	EXC. 200 Kom	Reg. mat ordinary borrow	5hrs	EXC Platform FGS e R.D.W.
1 HAZ Laborer	EXC mat		5hrs	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TMC - loaded lowheel dump & spotted loads of loom in T³ h³ BETWEEN Roadways to Building. TMC - TRENCHED 168 x 4 x 1.25 in clean fill TO TOP OF FABRIC in prep of intrusive excavation to create clean corridor for clean LAK fence @ N. END parking lot. TMC EXC For Platform Foundation #34, 35, & 36. REG material EXC. (2e 7' x 1' x 4' & 1e 5' x 1' x 4') and NON REG excavation (7' x 1' x 3') x 2 and 5' x 1' x 3'. Regulated material dump into storage cell (80x80) TMC After ALGATE Formed Footings Form (backfilled) between Rail & Forms w/ Ballast.

HAZARDS / SAFETY DEFICIENCIES: Regulated materials

CORRECTIVE ACTIONS: modified Level "D" PPE, Air monitoring, and mobilization will used during intrusive excavations

Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 08-21-00-117
 Contractor: TML Date: 8-21-00
 Owner: MASSPORT / MBTA Weather: Sunny 68°-80°
 Project No.: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: TRENCH FOR FENCE POST

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	750 Com Exc.	REG. material	8	XCC ACTIVITIES
1 LAB / TR DRIVER	low wheel amp	Fabric	8	
1 Haz Lab	hand tools		8	
1 OPER	750 Com Exc.		4	

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES: TML - cut OPEN fabric, trenched 190' x 2.5' x 4' in regulated material to required elevation to create clean corridor for fence post, in short term parking lot north end of site, 750 Komatsu excavator stock piling contaminated soils in storage cell 80x80, TML Decon equipment & personal as required.

HAZARDS / SAFETY DEFICIENCIES: working in regulated materials

CORRECTIVE ACTIONS: modified Level D" PPE, AIR monitoring and Decon station all being used during intrusive excavation

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 08-22-00-118
 Contractor: TMC Date: 8-22-00
 Owner: MASSPORT / MIBTA Weather: Sunny 78°
 Project No: 1.727

Contractor Supervisor(s): JOE Phinney

Description of Work: TRENCH FOR FENCE LINE

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPERATOR	2000 km. EXC	REG. material	5	SCE ACTIVITIES
1 HAZ. LAB	Hand tools	NEW-REG material	5	
1 TR. DRIVER	10 wheel dump		8	
1 Laborer	Sewing machine	Fabric	8	
	Air monitoring Dron unit Generator			

Visitors	Representing	Purpose

Daily Notes:

ACTIVITIES:
 TMC - TRENCHING TO create clean corridor for fence line post in short term parking lot north end. TMC TRENCH in NEW-REG material TO TOP OF FABRIC 150' x 1.25' x 4'. TMC CUT OPEN FABRIC and TRENCHED in REGULATED material 160' x 1' x 4'. 10' wheeler Hauled REG mat. TO 80x80 storage cell. TMC aft TRENCHING completed SEWED NEW FABRIC TO EXISTING TO complete clean corridor FABRIC - 350' x 3'

HAZARDS / SAFETY DEFICIENCIES: REGULATED material excavation

CORRECTIVE ACTIONS: During intrusive excavation modified level "D" PPE being used, Air Monitoring and Mobil Dron unit.

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. Waterw Report No.: 08-25-00-121
 Contractor: TMC Date: 8-25-00
 Owner: MASSPORT / MBTA Weather: Sunny 80°
 Project No.: 1727

Contractor Supervisor(s): JOE Phinney

Description of Work: TRACK widening new north Bound

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPERATOR	200 ton Exc.	REG & NON REG MAT	8	SEE ACTIVITIES
1 TR DRIVER / Lab	low back Dump	ASPHALT	4/4	
1 Haz Lab / Lab	Haz MAT	Fabric	4/4	
1 Lab	Sewing machine	Ballast	5	

Visitors	Representing	Purpose
TMC TRUCK #2050	TMC	Delivered Mix (2hrs)

Daily Notes:

ACTIVITIES: TMC Exc. For TRACK widening NEW north Bound TRACK From STA 681100 TO STA. 679150 in REG material, TMC Exc NON-REG material in P&P For INTRUSIVE EXCAVATION From STA. 679117 TO STA. 678142. TMC From STA. 681100 TO STA. 680100 installed Binder mix For TRACK BED. TMC @ end of DAY Regstab - lished Ballast shoulder between STA. 681100 TO STA. 680100, Also TMC before Paving, stiched NEW fabric TO existing.

HAZARDS / SAFETY DEFICIENCIES: working with Regulated materials, live trains

CORRECTIVE ACTIONS: modified level "D" PPE, air monitoring & mobil Decan unit BEING USED DURING intrusive work. Antirax Fleggers working w/ crews.

Prepared: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. Woburn Report No.: 08-24-00-120
 Contractor: TMC Date: 8-24-00
 Owner: MASSPORT / MBTA Weather: sun & clds 68°-80°
 Project No.: 1.777

Contractor Supervisor(s): JOE Phinney

Description of Work: Exc For Footings @ Platform / Track Widening Exc / Fab. Lifting Beam / PARCE MISCELLANEOUS STRUCTURES

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	200 Kom. Exc	REG. MNT.	8	SEE ACTIVITIES
1 OPER	380 Kom loader MNT MNT	Ordinary Borrow	8	
1 Haz Laborer			8	
1 Laborer / Driver	10 wheel dump		4/A	
1 Operator	250 Kom Exc	H-Pile	8	
2 Laborers	Hand tools	Mortar	2 @ 8	

Visitors	Representing	Purpose
<u>BOUSEL WELDING SERVICE</u>	<u>TMC</u>	<u>Fab. Lifting Beam</u>

Daily Notes:

ACTIVITIES: TMC @ south end of Platform excavated in Regulated MNT. FOR ACCESS RAMP Footing (22' x 10' x 1'). TMC @ north end of Platform exc IN REGULATED material for Platform Footing #36A (16' x 9' x 1.5'). TMC str bed NEW Fabric @ EACH location to Existing Fabric. TMC also performed track Widening Exc FROM STA. 681+00 TO STA. 681+75 (75' x 8.5' x 1'). TMC Fabricating Lifting Beam FOR Precast Platform Erection. TMC Parcing miscellaneuous Concrete structures through-out site.

HAZARDS / SAFETY DEFICIENCIES: working w/ Regulated materials, live tracks

CORRECTIVE ACTIONS: Modified level "D" PPE, Air monitoring, Decon unit all BEING used. Amtrak Flaggers working w/ crews @ tracks.

Preparer: Kevin Hartwell Kevin Hartwell
 Name (Print) Signature

Project: R.T.C. NOBURN Report No.: 09-14-00-135
 Contractor: TML Date: 9-14-00
 Owner: MASSPORT / MBTA Weather: Sunny 78°
 Project No.: 1.727

Contractor Supervisor(s): JOE PHINNEY

Description of Work: excavate & install EMH & CMH; Excavate & install HandHoles

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 FOREMAN	SAWING MACHINE	LOW DEG. MATERIAL	4	SEE ACTIVITIES
1 LABORER	HANDTOOLS	REGULATED MATERIAL	8	
1 OPERATOR	SD BACKHOE	EMH & CMH	8	
	COMPACTOR	HAND HOLES FABRIC		
	HZ PPE			
	AIR MONITORING EQUIPMENT			

Visitors	Representing	Purpose

Daily Notes: ACTIVITIES:

TML - NORTH SIDE OF STATION BLDG EXCAVATED (2) 7x7x4 HOLES & INSTALLED EMH #2 & CMH #2A, ALSO TRENCHED FROM BLDG FOR CONDUIT FOR EMH #2 & CMH #2A.

TML - EXCAVATED REGULATED MATERIAL FOR HANDHOLE #11A (3.5 x 3.5 x 1) SICKLED IN NEW FABRIC 3.5 x 3.5 ÷ 1.36 SQ YDS, AND INSTALLED H.H. & BACKFILLED. TML INSTALLED HANDHOLE 11 IN CLEAN MATERIAL PREVIOUSLY EXCAVATED, AND BACKFILLED.

HAZARDS / SAFETY DEFICIENCIES: WORKING IN REGULATED MATERIALS

CORRECTIVE ACTIONS: MODIFIED LEVEL "D" PPE, AIR MONITORING EQUIPMENT AND MOBIL DECON UNIT BEING USED DURING INTRUSIVE EXCAVATION

Preparer: K. HARTWELL Kevin Hartwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ___ of ___

Regional Transportation Center, Woburn, MA

405

9-14-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

CLEAR

70°

YES NO

Item #	Description	Quantity	Remarks/Location
3400.162	EXC. & INSTALL HH# 2 & 2A		
3400.161	EXC. & INSTALL HH# 11 & 11A		
1516.00F	EXC. REG. MAT FOR HH # 11A		
1999.999P	GEOTEXTILE REPAIR FOR HH# 11A		4'x4' 16 SF
2451.681A	INSTALL PIPE RAIL FND'S	7 PC	
2451.681A	BACKFILL PIPE RAIL FND'S		
5100.100	WELD & FABRICATE PED ADA RAMP		
	SHIM & LEVEL DECK PANELS		

Scope of Work:

T.M.C.	Excavate & INSTALL HH# 2 & 2A	& BACKFILL
	7'x 7' x 4.5'	82 CY 16.4 CY
	Excavate & INSTALL HH# 11 & 11A	& BACKFILL
	Excavate REG. MAT. FOR HH # 11A	6'x6' x 1' 1.4 CY
	GEOTEXTILE REPAIR FOR HH# 11A	4'x4' 16 SF
	INSTALL PIPE RAIL FOOTINGS	7 PC
	BACKFILL PIPE RAIL FOOTINGS	
	WELD & FABRICATE PED RAMP	
	SHIM & LEVEL DECK PANELS	

Project: R.T.C. Waterway Report No.: 091-28-00-146
 Contractor: TMC Date: 9-28-00
 Owner: MASSPORT / MBTA Weather: SUN & Clds 60°-68°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: Track Widening New North Bound

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPERATOR	Excavator	NON REGULATED REG MATERIAL	8	Track Widening Excavation -
1 TRUCK DRIVER	Wheelbarrow	ASPHALT BALLAST	8	NEW N.B. TRACK
1 HAZ LABORER	Air monitoring H2S PPE Decon unit		8	
2 AMTRAK FLAGMEN	Air Horns		208	Flng R.O.W.

Visitors	Representing	Purpose

Daily Notes: ACTIVITIES:

TMC - excavated in non regulated material From STA. 664+35 TO STA. 662+80
 155' x 10' x 1.5' = 86 CYS

TMC - excavated in Regulated material From STA. 664+35 TO STA 662+80
 155' x 2' x 4' = 45.9 CYS

TMC - PAVED NEW NORTH BOUND TRACK BED FROM STA. 664+35 TO STA. 662+80
 WITH 50 TON C6 BINDER

TMC - Backed Existing Rail Slope w/ BALLAST FROM STA. 663+80 TO STA 662+80

HAZARD / SAFETY DEFICIENCIES: working in regulated materials, working
 near live trains

CORRECTIVE ACTIONS: During intrusive excavation laborer dressed in modified
 Level "D" PPE, Air monitoring and decon unit being used.

Preparer: K. Hartwell Name (Print) Kenn Hartwell Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ____ of ____

Regional Transportation Center, Woburn, MA

405

9-29-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

CLEAR

am pm 600

YES NO

Item #	Description	Quantity	Remarks/Location
1566.006A	EXC. REG. MAT FROM	662+80 - 664+35	155'
2200.121E	TRACK WIDENING FROM	662+80 - 664+35	155'
2504.100	INSTALL NEW BRUSH		
1999.999R	INSTALL NEW FABRIC IN ROW	155' X 4'	
2513.463	PAVED N.B. RAIL FROM	662+80 - 664+35	50 TON BINDER
2513.470	PAVED N. END PARKING LOT AROUND	LB'S & ROAD CROSSINGS	2 ST. OF TR.
2400.222	RAISED DCB 6 & 7 #3		
	MIX PLANTABLE SOIL		
5100.100	ERRECT & WELD RAMP SECTIONS	FROM COLUMN 17 TO 19	2 SECTIONS
TUBAR	EXC. & INSTALL MAIN LINE IRRIGATION		

Scope of Work:

T.M.G	EXCAVATE REG. MAT FROM	662+80 - 664+35	155' ALONG S. END N.B. RAIL
	155' X 2' X 4'	45.9 cys	
	EXC. FOR TRACK WIDENING FROM	662+80 - 664+35	155' ALONG S. END N.B. RAIL
	155' X 10' X 1.5'	86 cys	
	INSTALL NEW GEOTEXTILE FABRIC	155' X 4'	620 SF
	INSTALL NEW BRUSH		
	MIX PLANTABLE SOIL		
	ERRECT & WELD RAMP SECTIONS	FROM COLUMN 17 TO 19	2 SECTIONS
	* LAST SECTION would NOT FIT	COLUMNS 20 & 4" TOO HIGH	
	50 TON BINDER PAVED N.B. RAIL FROM	662+80 - 664+35	
25 TON TOP	PAVED N. END PARKING LOT AROUND	LB'S & ROAD CROSSINGS	
TUBAR	EXC. & INSTALL MAIN LINE IRRIGATION		

Project: R.T.C. Woburn Report No.: 09-29-00-147
 Contractor: TMC Date: 9-29-00
 Owner: Massport / MBTA Weather: Sunny & Cool 60°-68°
 Project No: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: TRACK widening New North Bound

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 Operator	Excavator		8	TRACK widening New N.B.
1 TK Driver	10 wheel dump		6	STA. 661+40 TO STA. 662+80
1 Haz Laborer	Air monitoring MPL PPE		8	
1 Laborer	Sewing machine Generator		2	
	Hand tools			
1 Amtrak Flagger	Air Horn		8	Flag R.O.W.

Visitors	Representing	Purpose

Daily Notes: ACTIVITIES:

TMC - Excavated in non-regulated material for TRACK widening from STA. 661+40 TO STA. 662+80, 140' x 10' x 2' = 103.7 cyds

TMC - Excavated in Regulated Material for TRACK widening from STA. 661+40 TO STA. 662+80; 140' x 4' x 3' = 62.2 cyds

TMC - Stitched in NEW FABRIC @ Invasive Excavation from STA. 661+40 TO STA. 662+80, 140' x 4' = 62.2 cyds

TMC - PAVED TRACK widening for TRACK BED (140' x 5' x .33) STA. 661+40 TO STA. 662+80 = 20 TOW of Binder

TMC - installed Ballast to BACK existing North Bound Pail from STA. 661+40 TO STA. 662+80

Hazards / SAFETY DEFICIENCIES: working in Regulated materials

CORRECTIVE ACTIONS: Modified Level "D" PPE, Air monitoring and Decon unit all being used during Invasive Excavation

Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

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Regional Transportation Center, Woburn, MA

405

9-29-00

Superintendent/Foreman

Weather

Temperature

Contract Time Charged

T. SWEET

CLEAR

54°

YES NO

Item #	Description	Quantity	Remarks/Location
1999, 999R	INSTALL NEW FABRIC S. END N.B. RAIL	662+80 - 681+40	
1566, 000A	EXC. REG. MAT. 4' X 3'	S. END N.B. RAIL	662+80 - 681+40
2200, 121E	TRACK WIDENING 10' X 2'	S. END N.B. RAIL	662+80 - 681+40
2504, 19C	INSTALL NEW BALLAST		662+80 - 681+40
2513, 463	PAVE N.B. RAIL		662+80 - 681+40
—	MIX PLANTABLE SOIL		
CO405019	INSTALL SILT FENCE @ HIDE PILE		
5100, 100	WELD FAB PED BRIDGE 1		
2400, 220	RAISE CB 8A @ DCB#2		
2400, 221	RAISE DMH FCC 30 @ 3A		

Scope of Work:	
T.M.C.	EXC. REG. MAT. 4' X 3' X 140'
	S. END N.B. RAIL STA 662+80 - 681+40
	162.2 CYDS
	TRACK WIDENING 10' X 2' X 140'
	S. END N.B. RAIL STA 662+80 - 681+40
	103.7 CYDS
	INSTALL NEW GEOTEXTILE FABRIC S.E. N.B. RAIL
	662+80 - 681+40
	INSTALL NEW BALLAST
	MIX PLANTABLE SOIL
	PAVE N.B. RAIL STA 681+40 TO 662+80
	20 TON BINDER
	INSTALL SILT FENCE @ HIDE PILE 300' + 100' FENCING
	WELD FAB PED. BRIDGE 1
	RAISED CB 8A @ DCB#2
	RAISED DMH FCC 30 @ 3A
	SEW IN NEW GEOTEXTILE FABRIC 662+80 - 681+40
	140' X 4' 560 SF
McGATH	EXC. & LAYOUT FOR ALTERNATIVE FENCE
TIBUR	INSTALL IRRIGATION

Project: R.T.C. Woburn Report No.: 10-2-00-149
 Contractor: TMC Date: 10-2-00
 Owner: MASSPORT / MBTA Weather: _____
 Project No.: 1727

Contractor Supervisor(s): Joe Phinney

Description of Work: TRACK widening NEW North Bound

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPERATOR	EXCAVATOR	NON REG MAT.	10	TRACK widening EX NEW N.B.
1 TK Driver / Lab	10 wheel DMD	REG MAT.	5/5	STA. 661150 TO STA. 660100
1 HAZ Lab / Lab	HAZ PPE SEWING MACH. Decon unit	FABRIC ASPHALT	5/5	
	Air monitoring	BALLAST		

Visitors	Representing	Purpose
_____	_____	_____
_____	_____	_____

Daily Notes: ACTIVITIES:

TMC - Excavated from STA. 661150 to STA. 660100 in non-regulated material
 TMC - Excavated from STA. 661150 to STA. 660100 in regulated material
 TMC - Stitched in new fabric to existing fabric from STA. 661150 to STA. 660100
 TMC - Paved new N.B. track bed from STA. 661150 to STA. 660100 (approx 5' wide) & will finish paving a later date.
 TMC - Backed existing N.B. rail w/ ballast to secure rail until paving is complete and track bed is completely loaded w/ ballast.

Hazards / SAFETY DEFICIENCIES: working in regulated materials

CORRECTIVE ACTIONS: modified level "D" PPE, Air monitoring w/ DCCUM entation and Decon being used.

Preparer: K. Hartwell Kevin Hartwell
 Name (Print) Signature

Daily Quantity Sheet

Job Name/Location

Job #

Today's Date:

page ___ of ___

Regional Transportation Center, Woburn, MA

405

10-2-08

Superintendent/Foreman

Weather

Temperature

Contract Time Charged?

T. SWEET

CLEAR

am pm 68°

YES NO

Item #	Description	Quantity	Remarks/Location
1566.000A	EXC. REG. MAT. STA 661+40	- 660+00	
2000.121E	TRACK WIDENING STA 661+40	- 660+00	
1999.999R	NEW FABRIC STA 661+40	- 660+00	
2513.463	PAVE N.B. RAIL STA 661+40	- 660+00	
2504.100	NEW BALLAST STA 661+40	- 660+00	
CO405019	REMOVE LOAM OFF HIDE PILE		
5100.100	WELD & FAB PED. BRIDGE 1		

Scope of Work:			
T.M.C.	EXC. REG. MAT. STA 661+40	- 660+00	
	140' X 2' X 3'		31.2 cys
	TRACK WIDENING STA 661+40	- 660+00	
	140' X 10' X 1'		51.9 cys
	NEW GEOTEXTILE FABRIC @	661+40 - 660+00	140' X 4' 560 SF
	INSTALL NEW BALLAST	661+40 - 660+00	
	PAVE N.B. RAIL		18 TON
	REMOVE LOAM FROM HIDE PILE		
	WELD & FAB PED. BRIDGE 1		

Project: R.T.L. work Report No.: 10-5-00-152
 Contractor: TMC Date: 10-5-00
 Owner: MassDOT / MBTA Weather: Sun & Clds 60°-70°
 Project No.: 1.727

Contractor Supervisor(s): Joe Phinney

Description of Work: Excavation & installation TYPE J sign Fds.

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPERATOR	JD 410 BHE	NON-REG MAT.	9	SEE ACTIVITIES
1 TR DRIVER	Wheel Dump	REG MAT.	8	
1 Laborer	Hand tools	FABRIC	9	
1 HAZ Laborer	Sawing machine Air monitoring	Sign Bases	9	
2 Amtrak Flaggers			1209	

Visitors	Representing	Purpose

Daily Notes: ACTIVITIES:

TMC - Excavated TO TOP OF FABRIC @ STA. 672+80 (4'x4'x2'), CUT OPEN FABRIC & EXC. REGULATED MATERIAL (3x3x2.5), STICHD IN NEW FAB TO EXISTING and installed & BACK FILL SIGN FOUNDATION

TMC - Excavated TO TOP OF FABRIC @ STA. 673+76 (4'x4'x2'), CUT OPEN FABRIC & EXC. REGULATED MATERIAL (3x3x2.5), STICHD IN NEW FAB. TO EXISTING and installed & BACK FILL SIGN FOUNDATION.

* All above adjacent to S.B. RAIL

HAZARDS / SAFETY DEFICIENCIES: working in regulated materials, LIVE TRAIN

CORRECTIVE ACTIONS: modified level "D" PPE, Air monitoring & Documentation, Mobil Decon unit being used. Amtrak Flaggers working w/ crew

Preparer: K. Hartwell Kevin Hawke
 Name (Print) Signature

Project: RTCL
 Contractor: TMC
 Owner: MASSPORT / MBTA
 Project No.: 1727

Report No.: 10-6-00-153
 Date: 10-6-00
 Weather: Partly cloudy 60-70°
RTCL

Contractor Supervisor(s): Joe Phinney

Description of Work: EXCAVATION & INSTALLATION OF SIGN FOUNDATION

Personnel (Organization)	Equipment	Materials	Quantity (Hours)	Task & Location
1 OPER	JD 410 BUC	NEW REG. MAT. REG. MAT	9	SEE ACTIVITIES
1 FOREMEN	SEWING MACHINE	FABRIC SIGN FOUNDATIONS	10	
1 LAB	AIR MONITORING DECON		9	
1 HAZ LAB			9	
1 LAB			2hrs	
2 UNTRAK FLAGGER			2@ 9	

Visitors	Representing	Purpose

Daily Notes: ACTIVITIES - ADJACENT TO S.B. RAIL

- ① TMC @ STA. 668+90 EXC TO TOP OF FABRIC IN NEW REG. MAT. (4x4x1.5)
 - EXC IN REG. MAT. TO REQUIRED ELEV. (3x3x2.5)
 - Staked in NEW FAB & install sign Fnd & BACKfill
- ② TMC @ STA. 669+90 NEW REG. EXC TO TOP OF FAB. (4x4x1) REG. MAT. EXC. (3x3x3) STICK IN NEW FAB & INST. SIGN FND & B. FILL
- ③ TMC @ STA. 670+82 EXC TO TOP OF FAB. IN NEW REG. MAT. (4x4x2) REG. MAT. EXC. (3x3x2.5) Staked in NEW FAB, installed sign Fnd & BACKfilled.
- ④ TMC @ STA @ STA. 674+80 NEW REG. EXC. (4x4x1.5) REG. MAT. EXC. (3x3x2.5) Staked FAB, inst. Fnd & B. Fill
- ⑤ TMC @ STA. 675+75 NEW REG. EXC. (4x4x1) REG. MAT. EXC. (3x3x2.5) Staked FAB, inst. Fnd & B. Fill

Hazards / SAFETY DEFICIENCIES: WORKING IN REGULATED WASTE AND W/ LIVE TRAINS

Corrective Actions: Modified Level D PPE, air monitoring, Decon & Documentation and FLAGGERS working w/ crew.

Prepared: K. Handwell Kenn Handwell
 Name (Print) Signature

D.2 – BASELINE AIR MONITORING REPORTS



Occupational Health & Safety • Environmental Consultants

RECEIVED JAN 19 2001

OccuHealth, Inc.
44 Wood Avenue
Mansfield, MA 02048

Tel (508) 339-9119
Fax (508) 339-2893
(800) 729-1035

April 13, 2000

Mr. Adam Westhaver
BATG Environmental
150 Recreation Park Road
Suite 5
Hingham, MA

RE: Results of Air Samples
Woburn Regional Transportation Center

Dear Adam,

OccuHealth, Inc. (OHI) was retained by BATG Environmental to conduct baseline air monitoring in conjunction with the construction of the Woburn Regional Transportation Center (WRTC). The objective of the sampling was to determine the background concentrations of airborne metals and volatile organic compounds (VOC's) downwind of the site.

Two area air samples were collected for metals and VOC's on March 22, 2000. The samples were collected by Scott Herzog, a Certified Industrial Hygienist on OHI's staff. The samples were collected approximately 20 feet from the track right-of-way at a height of approximately five feet above the ground to simulate breathing zone height. The samples were collected and analyzed in accordance with validate NIOSH sampling methodologies.

The sample for metals was collected by drawing air through a mixed cellulose ester membrane using a calibrated sampling pump at a flow rate of approximately 2.0 liters per minute for a period of four hours. The sample was analyzed for a panel of common metals using inductively coupled plasma spectroscopy in accordance with Method 7300.

The sample for volatile organic compounds was collected by drawing air through a charcoal sorbent tube at a flow rate of 1.0 liter per minute for a period of four hours. The sample was analyzed by gas chromatography using flame ionization detection.

The results of th samples are shown on Tables 1 and 2 respectively. The sample number, sample length and results are shown for each sample. The results for metals are shown in milligrams per cubic meter of air (mg/m^3), while the results for the VOC;s are in parts per million (ppm)

Mr. Adam Westhaver
 BATG Environmental, Inc.
 April, 2000

Table 1
 Results of Metals Sample

Sample Number/ Location	Sample Length	Compound	Air Concentration mg/m ³
WO-032200-01 20 ft from ROW	10:44 - 15:16 (4.53 hours)	Aluminum	< 0.0054
		Arsenic	< 0.0054
		Beryllium	< 0.00004
		Calcium	< 0.011
		Cadmium	< 0.00072
		Cobalt	< 0.0011
		Chromium	< 0.0036
		Copper	< 0.00072
		Iron	< 0.00018
		Lithium	< 0.00018
		Magnesium	< 0.0036
		Manganese	< 0.00072
		Molybdenum	< 0.00072
		Nickel	< 0.0018
		Lead	< 0.0054
		Phosphorus	< 0.0090
		Platinum	< 0.018
		Selenium	< 0.018
		Silver	< 0.00054
		Sodium	0.022
Titanium	< 0.00036		
Vanadium	< 0.00072		
Zinc	< 0.0018		
Zirconium	< 0.00018		

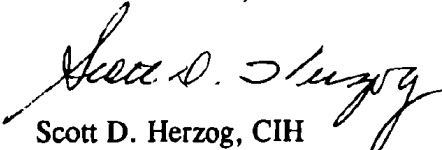
Table 2
Results of VOC Sample

Sample Number/ Location	Sample Length	Compound	Air Concentration (ppm)
WO-032200-02 20 feet from ROW	11:06 - 15:17 (4.18 hours)	Acetone	< 0.0033
		Acrylonitrile	< 0.0037
		Hexane	< 0.0019
		1,1-Dichloroethane	< 0.0029
		Vinyl Acetate	< 0.0027
		Methyl Ethyl Ketone	< 0.0027
		Ethyl Acetate	< 0.0025
		1,1,1-Trichloroethane	< 0.0025
		Benzene	< 0.0027
		Heptane	< 0.0017
		Trichloroethylene	< 0.0027
		MIBK	< 0.0020
		Toluene	< 0.0023
		n-Butyl Acetate	< 0.0019
Xylenes	< 0.0020		

All of the results for both metals and VOC's were below the limits of detection for the respective methods. Based on these results, no corrective measures are required for work in the vicinity of the project.

Should you have any questions, do not hesitate to contact me at (508) 339-9119.

Very truly yours,
OCCUHEALTH, INC.


Scott D. Herzog, CIH
Senior Project Manager



ANALYTICAL REPORT

Form ARF-C

Page 8 of 8
04070011185474

Date APR 11 2000
Laboratory Group Name 00I-0598-01

General Set Comments

Method Reference: NIOSH Manual of Analytical Methods(NMAM), 4th ed., 08/15/94.

LABORATORY ANALYSIS DATA FORM

000816

Laboratory Name: ESA Laboratories
 Address: 22 Alpha Road
Chelmsford, MA

Client Name: OccuHealth, Inc.
 44 Wood Avenue
 Mansfield, MA 02048-1255

Date Collected: 3/22/2000
 P.O. No.: 3469
 OHI Project No.: _____
 Laboratory Sample No.: _____

Phone: 978 250-7155
 Fax: () _____

Mail & Fax Results to: Scott Herzog
 (508) 339-9119 • Fax: (508) 339-2893

(for laboratory use only)

Laboratory Account No.: _____

Sample Number	Sample Description & Location	Sample Volume (liters)	Collection Medium	Analyze for: (list of parameters)	Comments
110-032200-01	Downwind site ~ 20' from ROW	564 L	10:44 28UMICE	Metals SCAN	572925
* 110-032200-02	Downwind site ~ 20' from ROW (Solvent scan for 16 cpts per attached)	251 L	11:06 Chris. Tube	Volatile organic cpts	562117
DO NOT ADD BLANK!					

Sampled and Relinquished by: Scott Herzog
 Print Name: Scott Herzog
 Date: 3/23/2000
 Notes / Special Instructions: _____

Received by: Rita Catalani
 Date Received: 3/24/00
 Analyst: _____ Date Analyzed: _____
 Laboratory Turn-Around-Time: _____ Standard _____ Priority _____



ANALYTE	ug/SMPL	PPM	Mg/m3
ACETONE	< 1.980	< 0.0033	< 0.0079
ACRYLONITRILE	< 2.020	< 0.0037	< 0.0081
HEXANE	< 1.650	< 0.0019	< 0.0066
1,1 DICHLOROETHANE	< 2.940	< 0.0029	< 0.0117
VINYL ACETATE	< 2.340	< 0.0027	< 0.0093
METHYL ETHYL KETONE	< 2.010	< 0.0027	< 0.0080
ETHYL ACETATE	< 2.280	< 0.0025	< 0.0090
1,1,1 TRICHLOROETHANE	< 3.350	< 0.0025	< 0.0134
BENZENE	< 2.190	< 0.0027	< 0.0087
HEPTANE	< 1.710	< 0.0017	< 0.0068
TRICHLOROETHYLENE	< 3.660	< 0.0027	< 0.0146
METHYL ISOBUTYL KETON	< 2.000	< 0.0020	< 0.0080
TOLUENE	< 2.170	< 0.0023	< 0.0087
n-BUTYL ACETATE	< 2.210	< 0.0019	< 0.0088
XYLENES	< 2.150	< 0.0020	< 0.0086

OCCUHEALTH, INC.
44 Wood Avenue
MANSFIELD, MASSACHUSETTS 02048

LETTER OF TRANSMITTAL

(508) 339-9119

TO Adam Westhavel
BATG Environmental
150 Recreation Park Rd, Suite 5
Hingham, MA

DATE	JOB NO.
ATTENTION	
RE:	
RECEIVED JAN 30 2001	

WE ARE SENDING YOU Attached Under separate cover via _____ the following items:

- Shop drawings Prints Plans Samples Specifications
- Copy of letter Change order _____

COPIES	DATE	NO.	DESCRIPTION

THESE ARE TRANSMITTED as checked below:

- For approval Approved as submitted Resubmit _____ copies for approval
- For your use Approved as noted Submit _____ copies for distribution
- As requested Returned for corrections Return _____ corrected prints
- For review and comment _____
- FOR BIDS DUE _____ PRINTS RETURNED AFTER LOAN TO US

REMARKS

Adam -
Here's a hard copy of the report for WRTC.

COPY TO _____

SIGNED: Sara Murray

If enclosures are not as noted, kindly notify us at once.

D.2 – BASELINE MONITORING REPORTS



Occupational Health & Safety • Environmental Consultants

OccuHealth, Inc.
44 Wood Avenue
Mansfield, MA 02048

Tel. (508) 339-9119
Fax (508) 339-2893
(800) 729-1035

RECEIVED JAN 30 2001

April 13, 2000

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BATG Environmental
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Suite 5
Hingham, MA

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The results of th samples are shown on Tables 1 and 2 respectively. The sample number, sample length and results are shown for each sample. The results for metals are shown in milligrams per cubic meter of air (mg/m^3), while the results for the VOC;s are in parts per million (ppm)

Mr. Adam Westhaver
 BATG Environmental, Inc.
 April, 2000

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 Results of Metals Sample

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		Chromium	< 0.0036
		Copper	< 0.00072
		Iron	< 0.00018
		Lithium	< 0.00018
		Magnesium	< 0.0036
		Manganese	< 0.00072
		Molybdenum	< 0.00072
		Nickel	< 0.0018
		Lead	< 0.0054
		Phosphorus	< 0.0090
		Platinum	< 0.018
		Selenium	< 0.018
		Silver	< 0.00054
		Sodium	0.022
Titanium	< 0.00036		
Vanadium	< 0.00072		
Zinc	< 0.0018		
Zirconium	< 0.00018		

Mr. Adam Westhaver
BATG Environmental, Inc.
April, 2000

Table 2
Results of VOC Sample

Sample Number/ Location	Sample Length	Compound	Air Concentration (ppm)
WO-032200-02 20 feet from ROW	11:06 - 15:17 (4.18 hours)	Acetone	< 0.0033
		Acrylonitrile	< 0.0037
		Hexane	< 0.0019
		1,1-Dichloroethane	< 0.0029
		Vinyl Acetate	< 0.0027
		Methyl Ethyl Ketone	< 0.0027
		Ethyl Acetate	< 0.0025
		1,1,1-Trichloroethane	< 0.0025
		Benzene	< 0.0027
		Heptane	< 0.0017
		Trichloroethylene	< 0.0027
		MIBK	< 0.0020
		Toluene	< 0.0023
		n-Butyl Acetate	< 0.0019
Xylenes	< 0.0020		

All of the results for both metals and VOC's were below the limits of detection for the respective methods. Based on these results, no corrective measures are required for work in the vicinity of the project.

Should you have any questions, do not hesitate to contact me at (508) 339-9119.

Very truly yours,
OCCUHEALTH, INC.


Scott D. Herzog, CIH
Senior Project Manager



ESA Laboratories, Inc.
22 Alpha Road
Chelmsford, MA 01824
Phone: (978) 250-7150

BATG
Weburn

SCOTT HERZOG

OCCUHEALTH INC
44 WOOD AVE
MANSFIELD, MA 02048

ESAL Job No.: 000816
Customer No.: 51847
P.O. Number: 3469
Date Received: 03/24/00
Date Reported: 04/04/00

SUBJECT: ANALYSES COMPLETED

The samples which you submitted for analysis on 03/24/00 have been processed. The results of the analyses are enclosed.

If you have any questions concerning any of this data, please do not hesitate to call.

Pauline C. Lambert
Laboratory Director

Encl.



ANALYTE	ug/SMPL	PPM	Mg/m3
ACETONE	< 1.980	< 0.0033	< 0.0079
ACRYLONITRILE	< 2.020	< 0.0037	< 0.0081
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ETHYL ACETATE	< 2.260	< 0.0025	< 0.0090
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BENZENE	< 2.190	< 0.0027	< 0.0087
HEPTANE	< 1.710	< 0.0017	< 0.0068
TRICHLOROETHYLENE	< 3.660	< 0.0027	< 0.0146
METHYL ISOBUTYL KETON	< 2.000	< 0.0020	< 0.0080
TOLUENE	< 2.170	< 0.0023	< 0.0087
n-BUTYL ACETATE	< 2.210	< 0.0019	< 0.0088
XYLENES	< 2.150	< 0.0020	< 0.0086

D.3 – AIR MONITORING REPORTS

D.3.1 –EQUIPMENT CALIBRATION LOGS

Equipment PID/4-Gas Serial #	Cal Gas Lot #	By - Whom	Trained		Date
			Yes	No	
PID SER# RA920004	34718	KEVIN / ROLLAND	✓		3-10-00
PID SER# RA920004	34718	KEVIN	✓		3-23-00
AWAY GAS METER	59375	KEVIN	✓		3-23-00
DUST METER	NONE	KEVIN	✓		3-23-00
DUST METER	NONE	KEVIN / TOM	✓		3-24-00
PID SER# RA920004	FRESH AIR	KEVIN / TOM	✓		3-24-00
4 WAY GAS METER	FRESH AIR	KEVIN / TOM	✓		3-24-00
DUST METER	FRESH AIR	KEVIN	✓		3-27-00
AWAY GAS METER	FRESH AIR	KEVIN	✓		3-27-00
PID SER# RA920004	FRESH AIR	KEVIN	✓		3-27-00
4 WAY GAS METER	FRESH AIR	KEVIN	✓		3-30-00
PID SER# RA920004	FRESH AIR	KEVIN	✓		3-30-00
DUST METER	FRESH AIR	KEVIN	✓		3-30/00
4 WAY GAS METER	FRESH AIR	TOM	✓		4-3-00
DUST METER	FRESH AIR	TOM	✓		4-3-00
PID SER# RA920004	FRESH AIR	TOM	✓		4-3-00
4 WAY GAS METER	FRESH AIR	TOM	✓		4-10-00
DUST METER	FRESH AIR	TOM	✓		4-10-00
4 WAY GAS METER	FRESH AIR	TOM	✓		4-10-00
DUST METER	FRESH AIR	TOM	✓		4-4-00
PID SER# RA920004	FRESH AIR	TOM	✓		4-11-00
4 WAY GAS METER	FRESH AIR	TOM	✓		4-12-00
DUST METER	FRESH AIR	TOM	✓		4-12-00
PID SER# RA920004	FRESH AIR	TOM	✓		4-12-00
4 WAY GAS METER	FRESH AIR	TOM	✓		4-12-00
DUST METER	FRESH AIR	TOM	✓		4-12-00
PID SER# RA9004	FRESH AIR	TOM	✓		4-12-00

01

Equipment PID/4-Gas Serial #	Cal Gas Lot #	By - Whom	Trained		Date
			Yes	No	
PID	FRESH AIR	KEVIN	✓		4-12-00
A-GAS			✓		4-12-00
DUST METER	AIR BAG	KEVIN	✓		4-12-00
PID	57431A	KEVIN	✓		4-13-00
DUST METER	AIR BAG	KEVIN	✓		4-13-00
4WAY GAS	FRESH AIR	KEVIN	✓		4-13-00
4WAY GAS METER	FRESH AIR	TOM	✓		4-18-00
DUST METER	FRESH AIR	TOM	✓		4-18-00
PID ^{SER #} RA92004	FRESH AIR	TOM	✓		4-18-00
4 WAY GAS	FRESH AIR	TOM	✓		4-20-00
DUST	FRESH AIR	TOM	✓		4-20-00
PID ^{SER #} RA92004	FRESH AIR	TOM	✓		4-20-00
PID Thermo 5805	CAL GAS	Spectra Scientific	✓		5-19-00
A-GAS ZACHARACH	CAL	" "	✓		5-19-00
Mini-RAM	AIR BAG	" "	✓		5-19-00
PID MSA Photon	UN1956	KEVIN	✓		5-23-00
MSA 4-GAS METER	59375	KEVIN	✓		5-23-00
Mini-RAM	AIR BAG	KEVIN	✓		7-25-00
PID	CAL GAS	KEVIN	✓		"
4-WAY GAS	CAL GAS	KEVIN	✓		"
4 way Gas	CAL GAS	KEVIN	✓		8-21-00
PID	CAL GAS	KEVIN	✓		8-21-00
Mini-RAM (Dustmeter)	AIR BAG	KEVIN	✓		8-21-00
4-way GAS	57431A CAL GAS	KEVIN	✓		8-22-00
PID	57431A CAL GAS	KEVIN	✓		8-22-00
Mini-RAM	AIR BAG	KEVIN	✓		8-22-00

Equipment PID/4-Gas Serial #	Cal Gas Lot #	By - Whom	Trained		Date
			Yes	No	
PID MSA Passport	FRESH AIR	KEVIN	✓		5-5-00
4WAY GAS	"	"	✓		"
DUST METER	AIR BAG	"	✓		"
PID MSA Passport	FRESH AIR	"	✓		5-9-00
WAY MSA GAS	" "	"	✓		5-9-00
DUST METER	AIR BAG	"	✓		5-9-00
PID MSA Passport	FRESH AIR	"	✓		5-11-00
WAY MSA GAS	" "	"	✓		5-11-00
DUST METER	AIR BAG	"	✓		5-11-00
4 Way Gas meter	FRESH AIR	KEVIN	✓		6-12-00
4 WAY GAS	Cal Gas	KEVIN	✓		8-24-00
DUST METER	AIR BAG	KEVIN	✓		8-24-00
PID	Cal Gas	KEVIN	✓		8-24-00
4WAY GAS	Cal	"	✓		8-25-00
DUST METER	AIR BAG	"	✓		8-25-00
PID	Cal Gas	"	✓		8-25-00
4WAY GAS	Cal Gas	"	✓		9-14-00
PID	Cal Gas	"	✓		9-14-00
DUST METER	AIR BAG	"	✓		9-14-00
4WAY GAS	Cal Gas	"	✓		9-28-00
PID	Cal Gas	"	✓		9-28-00
DUST	AIR BAG	"	✓		9-28-00
4WAY GAS	FRESH AIR	"	✓		9-29-00
PID	Cal Gas	"	✓		9-29-00
DUST	AIR BAG	"	✓		9-29-00
DUST METER	AIR BAG	"	✓		10-9-00
PID	Cal Gas	"	✓		10-9-00
4 WAY GAS	Cal Gas	"	✓		10-9-00

10-10
10-10
10-10

D.3.2 –DAILY AIR MONITORING LOGS

Health & Safety Field Log

Page:

Name: T.M.L.

Site Location: LA 35-60-61

Date: 4-17

Weather Conditions: CLEAR

Project and No: 12 TL 1727

Temperature: 46°

Time	LEL (%)	O2 (%)	CO (ppm)	H2S (ppm)	VOC (ppm)	Particulates (mg/m ³)			Wind Direction	Comments
						15 Minute Reading	Rolling 24-Hr Total	24-Hr Incremental Concentration		
9:00	0	20.8	0	0	0.0	0.000				
9:15	0	20.8	0	0	0.0	0.000				
9:30	0	20.8	0	0	0.0	0.000				
9:45	0	20.8	0	0	0.0	0.000				
10:00	0	20.8	0	0	0.0	0.000				
10:15	0	20.8	0	0	0.0	0.000				
10:30	0	20.8	0	0	0.0	0.000				
10:45	0	20.8	0	0	0.0	0.000				
11:00	0	20.8	0	0	0.0	0.000				
11:15	0	20.8	0	0	0.0	0.000				
11:30	0	20.8	0	0	0.0	0.000				
11:45	0	20.8	0	0	0.0	0.000				
12:00	0	20.8	0	0	0.0	0.000				
12:15	0	20.8	0	0	0.0	0.000				
12:30	0	20.8	0	0	0.0	0.000				
12:45	0	20.8	0	0	0.0	0.000				
1:00	0	20.8	0	0	0.0	0.000				
1:15	0	20.8	0	0	0.0	0.000				
1:30	0	20.8	0	0	0.0	0.000				
1:45	0	20.8	0	0	0.0	0.000				
2:00	0	20.8	0	0	0.0	0.000				
2:15	0	20.8	0	0	0.0	0.000				
2:30	0	20.8	0	0	0.0	0.000				
2:45	0	20.8	0	0	0.0	0.000				
3:00	0	20.8	0	0	0.0	0.000				
3:15	0	20.8	0	0	0.0	0.000				
3:30	0	20.8	0	0	0.0	0.000				
3:45	0	20.8	0	0	0.0	0.000				
4:00	0	20.8	0	0	0.0	0.000				
4:15	0	20.8	0	0	0.0	0.000				
4:30	0	20.8	0	0	0.0	0.000				
4:45	0	20.8	0	0	0.0	0.000				
5:00	0	20.8	0	0	0.0	0.000				
5:15	0	20.8	0	0	0.0	0.000				
5:30	0	20.8	0	0	0.0	0.000				
5:45	0	20.8	0	0	0.0	0.000				
6:00	0	20.8	0	0	0.0	0.000				

Health & Safety Field Log

Page:

Name: L. WESTON

Site Location: WEST OF SB STA 679+40 TO 677+00

Date: 5-2-00

Weather Conditions: BRIZZLE

Project and No: WOBOAN RTC / JOB 405

Temperature: 45° RESINO

Time	LEL (%)	O2 (%)	CO (ppm)	H2S (ppm)	VOC (ppm)	Particulates (mg/m ³)			Wind Direction	Comments
						15 Minute Reading	Rolling 24-Hr Total	24-Hr Incremental Concentration		
7:30	2	20.7	0	0	0.0	0.05				
7:45	2	20.7	0	0	0.0	0.0				
8:00	2	20.7	0	0	0.0	0.0				
8:15	2	20.8	0	0	0.0	0.003				
8:30	2	20.6	0	0	0.0	0.000				
8:45	2	20.6	0	0	0.0	0.000				
9:00	2	20.7	0	0	0.6	0.000				
9:15	2	20.7	0	0	0.0	0.000				
9:30	2	20.6	0	0	0.0	0.010				
9:45	2	20.7	0	0	0.0	0.000				
10:00	2	20.7	0	0	0.0	0.000				
10:15	2	20.6	0	0	0.0	0.000				
10:30	2	20.6	0	0	0.0	0.000				
10:45	2	20.6	0	0	0.0	0.000				
11:00	2	20.5	0	0	0.0	0.000				
11:15	2	20.4	0	0	0.0	0.000				
11:30	2	20.4	0	0	0.0	0.000				
11:45	2	20.4	0	0	0.0	0.000				
12:00	2	20.4	0	0	0.0	0.000				
12:15	2	20.4	0	0	0.0	0.000				
12:30	2	20.4	0	0	0.0	0.000				
12:45	2	20.4	0	0	0.0	0.000				
1:00	2	20.4	0	0	0.0	0.000				
1:15	2	20.4	0	0	0.0	0.000				
1:30	2	20.4	0	0	0.0	0.000				
1:45	2	20.5	0	0	0.0	0.000				
2:00	2	20.5	0	0	0.0	0.000				
2:15	2	20.6	0	0	0.0	0.000				
2:30	2	20.6	0	0	0.0	0.000				
2:45	2	20.6	0	0	0.0	0.000				
3:00	2	20.5	0	0	0.0	0.000				
3:15	2	20.5	0	0	0.0	0.000				
3:30	2	20.5	0	0	0.0	0.000				

Health & Safety Field Log

Page: _____

Name: T.M.C.

Site Location: CH 574 210 #100

Date: 5-3-00

Weather Conditions: 1. 2.

Project and No: RTC 1727

Temperature: 73°

Time	LEL (%)	O2 (%)	CO (ppm)	H2S (ppm)	VOC (ppm)	Particulates (mg/m3)			Wind Direction	Comments
						15 Minute Reading	Rolling 24-Hr Total	24-Hr Incremental Concentration		
10:00	2	20.7	0	0	0.0	0.001				
10:15	2	20.8	0	0	0.0	0.001				
10:30	2	20.8	0	0	0.0	0.001				
10:45	2	20.8	0	0	0.0	0.001				
11:00	2	20.8	0	0	0.0	0.001				
11:15	2	20.9	0	0	0.0	0.012				
11:30	2	20.8	0	0	0.0	0.040				
11:45	2	20.8	0	0	0.0	0.035				
12:00	2	20.8	0	0	0.0	0.020				
12:15	2	20.8	0	0	0.0	0.047				
12:30	2	20.8	0	0	0.0	0.021				
12:45	2	20.8	0	0	0.0	0.021				
13:00	2	20.8	0	0	0.0	0.021				
13:15	2	20.8	0	0	0.0	0.021				
13:30	2	20.8	0	0	0.0	0.021				
13:45	2	20.8	0	0	0.0	0.021				
14:00	2	20.8	0	0	0.0	0.021				
14:15	2	20.8	0	0	0.0	0.021				
14:30	2	20.8	0	0	0.0	0.021				
14:45	2	20.8	0	0	0.0	0.021				
15:00	2	20.8	0	0	0.0	0.021				
15:15	2	20.8	0	0	0.0	0.021				
15:30	2	20.8	0	0	0.0	0.021				
15:45	2	20.8	0	0	0.0	0.021				
16:00	2	20.8	0	0	0.0	0.021				
16:15	2	20.8	0	0	0.0	0.021				
16:30	2	20.8	0	0	0.0	0.021				
16:45	2	20.8	0	0	0.0	0.021				
17:00	2	20.8	0	0	0.0	0.021				
17:15	2	20.8	0	0	0.0	0.021				
17:30	2	20.8	0	0	0.0	0.021				
17:45	2	20.8	0	0	0.0	0.021				
18:00	2	20.8	0	0	0.0	0.021				
18:15	2	20.8	0	0	0.0	0.021				
18:30	2	20.8	0	0	0.0	0.021				
18:45	2	20.8	0	0	0.0	0.021				
19:00	2	20.8	0	0	0.0	0.021				
19:15	2	20.8	0	0	0.0	0.021				
19:30	2	20.8	0	0	0.0	0.021				
19:45	2	20.8	0	0	0.0	0.021				
20:00	2	20.8	0	0	0.0	0.021				
20:15	2	20.8	0	0	0.0	0.021				
20:30	2	20.8	0	0	0.0	0.021				
20:45	2	20.8	0	0	0.0	0.021				
21:00	2	20.8	0	0	0.0	0.021				
21:15	2	20.8	0	0	0.0	0.021				
21:30	2	20.8	0	0	0.0	0.021				
21:45	2	20.8	0	0	0.0	0.021				
22:00	2	20.8	0	0	0.0	0.021				
22:15	2	20.8	0	0	0.0	0.021				
22:30	2	20.8	0	0	0.0	0.021				
22:45	2	20.8	0	0	0.0	0.021				
23:00	2	20.8	0	0	0.0	0.021				
23:15	2	20.8	0	0	0.0	0.021				
23:30	2	20.8	0	0	0.0	0.021				
23:45	2	20.8	0	0	0.0	0.021				
24:00	2	20.8	0	0	0.0	0.021				

Health & Safety Field Log

Page:

Name: TMC
 Date: 6-21-00
 Project and No: 4105

Site Location: Woburn
 Weather Conditions: P. Cloudy
 Temperature: 7°

Time	LEL (%)	O ₂ (%)	CO (ppm)	H ₂ S (ppm)	VOC (ppm)	Particulates (mg/m ³)			Wind Direction	Comments
						15 Minute Reading	Rolling 24-Hr Total	24-Hr Incremental Concentration		
8:30	0	20.8	0	0	0.0	0.000				
8:45	0	20.8	0	0	0.0	0.000				
9:00	0	20.6	0	0	0.0	0.000				
9:15										
9:30										
9:45										
10:00										
10:15										
10:30										
10:45										
11:00										
11:15	0	20.6	0	0	0.0	0.000				
11:30	0	20.4	0	0	0.0	0.000				
11:45	0									
12:00	0	20.6	0	0	0.0	0.000				
12:15	0	20.6	0	0	0.0	0.000				
12:30	0	20.6	0	0	0.0	0.000				
12:45										
1:00										
1:15										
1:30										
1:45										
2:00	0	20.8	0	0	0.0	0.635				
2:15										
2:30										
2:45										
3:00										

B
2
2
50

←

Name: GENO PIMENTAL

Site Location: East of N.B. Track

Date: 7-17-00

Weather Conditions: F.C TO Hot For Suit

Project and No: Woburn RTC 405

Temperature: 82 Hot

Time	LEL (%)	O2 (%)	CO (ppm)	H2S (ppm)	VOC (ppm)	Particulates (mg/m3)			Wind Direction	Comments
						15 Minute Reading	Rolling 24-Hr Total	24-Hr Incremental Concentration		
7:30	0	20.8	0	0	0.0	0.60				
7:45	0	20.8	0	0	0.0	0.00				
8:00	0	20.7	0	0	0.0	0.00				
8:15	0	20.7	0	0	0.0	0.00				
8:30	0	20.6	0	0	0.0	0.00				
8:45	0	20.8	0	0	0.0	0.00				
9:00	0	20.8	0	0	0.0	0.00				
9:15	0	20.8	0	0	0.0	0.00				
9:30	0	20.7	0	0	0.0	0.00				
9:45	0	20.8	0	0	0.0	0.00				
10:00	0	20.7	0	0	0.0	0.00				
10:15	0	20.7	0	0	0.0	0.00				
10:30	0	20.7	0	0	0.0	0.00				
10:45	0	20.7	0	0	0.0	0.00				
11:00	0	20.8	0	0	0.0	0.00				
11:15	0	20.8	0	0	0.0	0.00				
11:30	0	20.7	0	0	0.0	0.00				
11:45	0	20.7	0	0	0.0	0.00				
12:00	0	20.7	0	0	0.0	0.00				
12:15	0	20.8	0	0	0.0	0.00				
12:30	0	20.8	0	0	0.0	0.00				
12:45	0	20.8	0	0	0.0	0.00				
1:00	0	20.7	0	0	0.0	0.00				
1:15	0	20.7	0	0	0.0	0.00				
1:30	0	20.7	0	0	0.0	0.00				
1:45	0	20.8	0	0	0.0	0.00				
2:00	0	20.8	0	0	0.0	0.00				
2:15	0	20.8	0	0	0.0	0.00				
2:30	0	20.7	0	0	0.0	0.00				

Name: Gono Fumentel
 Date: 7-19-00
 Project and No: _____

Site Location: East of NB Track
 Weather Conditions: Cloudy good day for suit
 Temperature: 68°

Time	LEL (%)	O2 (%)	CO (ppm)	H2S (ppm)	VOC (ppm)	Particulates (mg/m3)			Wind Direction	Comments
						15 Minute Reading	Rolling 24-Hr Total	24-Hr Incremental Concentration		
7:15	0	20.9	0	0	0.0	0.00				
30	0	20.8	0	0	0.00	0.00				
45	0	20.8	0	0	0.0	0.00				
8:00	0	20.8	0	0	0.0	0.00				
15	0	20.8	0	0	0.0	0.00				
30	0	20.8	0	0	0.0	0.00				
45	0	20.7	0	0	0.0	0.00				
9:00	0	20.8	0	0	0.0	0.00				
15	0	20.8	0	0	0.0	0.00				
30	0	20.8	0	0	0.0	0.00				
45	0	20.7	0	0	0.0	0.00				
10:00	0	20.8	0	0	0.0	0.00				
15	0	20.8	0	0	0.0	0.00				
30	0	20.7	0	0	0.0	0.00				
45	0	20.8	0	0	0.0	0.00				
11:00	0	20.8	0	0	0.0	0.00				
11:15	0	20.8	0	0	0.0	0.00				
11:30	0	20.8	0	0	0.0	0.00				
45	0	20.8	0	0	0.0	0.00				
12:00	0	20.7	0	0	0.0	0.00				
15	0	20.7	0	0	0.0	0.00				
30	0	20.8	0	0	0.0	0.00				
45	0	20.8	0	0	0.0	0.00				
1:00	0	20.9	0	0	0.0	0.00				
15	0	20.8	0	0	0.0	0.00				
30	0	20.8	0	0	0.0	0.00				
45	0	20.7	0	0	0.0	0.00				
2:00	0	20.7	0	0	0.0	0.00				
15	0	20.8	0	0	0.0	0.00				
30	0	20.7	0	0	0.0	0.00				

Name: Dennis Thiberge

Site Location: 675 East of NB Track

Date: 7/26/00

Weather Conditions: 70° To HOT For Suit

Project and No: Wburn RTC #405

Temperature: 75°-85°

Time	LEL (%)	O2 (%)	CO (ppm)	H2S (ppm)	VOC (ppm)	Particulates (mg/m3)			Wind Direction	Comments
						15 Minute Reading	Rolling 24-Hr Total	24-Hr Incremental Concentration		
7:00	0	20.7	0	0	0.0	0.00				
15	0	20.7	0	0	0.0	0.00				
30	0	20.8	0	0	0.0	0.00				
45	0	20.8	0	0	0.0	0.00				
8:00	0	20.8	0	0	0.0	0.00				
15	0	20.7	0	0	0.0	0.00				
30	0	20.7	0	0	0.0	0.00				
45	0	20.8	0	0	0.0	0.00				
9:00	0	20.8	0	0	0.0	0.00				
15	0	20.8	0	0	0.0	0.00				
30	0	20.8	0	0	0.0	0.00				
45	0	20.7	0	0	0.0	0.00				
10:00	0	20.7	0	0	0.0	0.00				
15	0	20.8	0	0	0.0	0.00				
30	0	20.8	0	0	0.0	0.00				
45	0	20.8	0	0	0.0	0.00				
11:00	0	22.8	0	0	0.0	0.00				
15	0	20.7	0	0	0.0	0.00				
30	0	20.7	0	0	0.0	0.00				
45	0	20.5	0	0	0.0	0.00				
12:00	0	20.5	0	0	0.0	0.00				
15	0	20.4	0	0	0.0	0.00				
30	0	20.4	0	0	0.0	0.00				
45	0	20.2	0	0	0.0	0.00				
1:00	0	20.2	0	0	0.0	0.00				
15	0	20.4	0	0	0.0	0.00				
30	0	20.4	0	0	0.0	0.00				
45	0	20.4	0	0	0.0	0.00				
2:00	0	20.4	0	0	0.0	0.00				
15	0	20.4	0	0	0.0	0.00				
30	0	20.4	0	0	0.0	0.00				

Health & Safety Field Log

Page:

Name:
 Date: 10/9/00
 Project and No: 1-727

Site Location: Hyde Park
 Weather Conditions: Cloudy
 Temperature: 42°

Time	LEL (%)	O2 (%)	CO (ppm)	H2S (ppm)	VOC (ppm)	Particulates (mg/m3)			Wind Direction	Comments
						15 Minute Reading	Rolling 24-Hr Total	24-Hr Incremental Concentration		
7:15	0	20.6	0	0	0.0	0.000			W	
8:00	0	20.5	0	0	0.0	0.000			W	
8:15	0	20.7	0	0	0.0	0.000			W	
8:30	0	20.7	0	0	0.0	0.000			W	
8:45	0	20.6	0	0	0.0	0.000			W	
9:00	0	20.8	0	0	0.0	0.000			W	
9:15	0	20.8	0	0	0.0	0.000			W	
9:30	0	20.7	0	0	0.0	0.000			W	
9:45	0	20.8	0	0	0.0	0.000			W	
10:00	0	20.8	0	0	0.0	0.000			W	
10:15	0	20.8	0	0	0.0	0.000			W	
10:30	0	20.8	0	0	0.0	0.000			W	
10:45	0	20.8	0	0	0.0	0.000			W	
11:00	0	20.8	0	0	0.0	0.000			W	
11:15	0	20.7	0	0	0.0	0.000			W	
11:30	0	20.7	0	0	0.0	0.000			W	
11:45	0	20.7	0	0	0.0	0.000			W	
12:00	0	20.8	0	0	0.0	0.000			W	
12:15	0	20.6	0	0	0.0	0.000			W	
12:30	0	20.7	0	0	0.0	0.000			W	
12:45	0	20.8	0	0	0.0	0.000			W	
1:00	0	20.8	0	0	0.0	0.000			W	
1:15	0	20.8	0	0	0.0	0.000			W	
1:30	0	20.7	0	0	0.0	0.000			W	
1:45	0	20.7	0	0	0.0	0.000			W	
2:00	0	20.7	0	0	0.0	0.000			W	
2:15	0	20.7	0	0	0.0	0.000			W	
2:30	0	20.8	0	0	0.0	0.000			W	
2:45	0	20.8	0	0	0.0	0.000			W	
3:00	0	20.8	0	0	0.0	0.000			W	
3:15	0	20.7	0	0	0.0	0.000			W	
3:30	0	20.8	0	0	0.0	0.000			W	

APPENDIX E - MATERIALS SHIPPING RECORDS



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012A
Release Tracking Number

BILL OF LADING (pursuant to 310 CMR 40.0030)

FOR TRACKING CLEAN SOIL TO Woburn Landfill

A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

Release Name (optional): _____

Street: Atlantic Ave Location Aid: Industrial-plex WRE

City/Town: Woburn, MA Zip Code: 01501

Date/Period of Generation: 4/13/00 to 7/20/00

Additional Release Tracking Numbers Associated with this Bill of Lading: _____

*Note: If this Bill of Lading is the result of a Limited Removal Action (LRA) taken prior to Notification, a Release Tracking Number is not needed.

B. PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH BILL OF LADING:

Name of Organization: Middlesex Corporation

Name of Contact: Joe Phinney Title: Superintendent

Street: Atlantic Ave

City/Town: Woburn State: MA Zip Code: 01501

Telephone: 781-935-0729 Ext. _____

C. RELATIONSHIP TO RELEASE OR THREAT OR RELEASE OF PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH BILL OF LADING:

(check one/specify)

- RP Specify (circle one): Owner Operator Generator Transporter Other RP: _____
- PRP Specify (circle one): Owner Operator Generator transporter Other RP: _____
- Fiduciary/Secured Lender
- Agency/Public Utility on a Right of Way
- Other Person: _____

If an owner and/or operator is not conducting the response action associated with the Bill of Lading, provide on an attachment the name, contact person, address and telephone number, including any area code and extension, for each, if known.

D. TRANSPORTER/Common CARRIER INFORMATION:

Transporter/Common Carrier Name: The Middlesex Corporation

Contact Person: Joe Phinney Title: Superintendent

Street: One Saccharum Pond Road

City/Town: Littleton State: MA Zip Code: 01460

Telephone: 978-772-4400 Ext. _____

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

Operator/Facility Name: Woburn Municipal Landfill

Contact Person: Craig Satter Title: Site Superintendent

Street: 202 Merrimack Street

City/Town: Woburn State: MA Zip Code: 01501

Telephone: _____ Ext. _____

- Type of Facility: (check one)
- Asphalt Batch/Cold Mix
 - Asphalt Batch/Hot Mix
 - Thermal Processing
 - Landfill/Disposal
 - Landfill/Daily Cover
 - Landfill/Structural Fill
 - Incinerator
 - Temporary
 - Storage

Other: _____

Division of Hazardous Waste/Class A Permit #: _____ Division of Solid Waste Management Permit #: _____ EPA Identification #: ACO-NE-95-4009

Actual/Anticipated Period of Temporary Storage (specify dates if applicable): _____ to _____

Reason for Temporary Storage (if applicable): _____



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012A
Release Tracking Number

BILL OF LADING (pursuant to 310 CMR 40.0030)

Empty boxes for tracking information

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION (Continued):

Temporary Storage Address:

Street: N/A
City/Town: _____ State: _____ Zip Code: _____

F. DESCRIPTION OF REMEDIATION WASTE:
(check all that apply)

- Contaminated Media (circle all that apply): Soil Groundwater Surface Water Other: _____
 - Contaminated Media (circle all that apply): Demolition/Construction Waste Vegetation/Organic Materials
Inorganic Absorbant Materials Other: _____
 - Non-hazardous Uncontainerized Waste (circle all that apply): Non-aqueous Phase Liquid Other: _____
 - Non-hazardous Containerized Waste (circle all that apply): Tank Bottom/Sludges Containers Drums
Other: _____
- Engineered Impoundments
Type of Contamination (circle all that apply): Gasoline Diesel Fuel #2 Oil #4 Oil #5 Oil Waste Oil
Kerosene Jet Fuel Other: _____

Estimated Volume of Materials: Cubic Yards: 1000 Tons: _____ Other: _____

Contaminant Source (check one/specify): Transportation Accident Underground Storage Tank Other: _____

Response Action Associated with Bill of Lading (circle one): Immediate Response Action Release Abatement Measure

Utility-Related Abatement Measure Limited Removal Action (LRA) Comprehensive Response Action

Other: MATERIAL NOT SUITABLE FOR REUSE, MATERIAL FROM ABOVE

Remediation Waste Characterization Support Documentation attached: Geotextile Liner at STATION LOCATION 500-870

- Site History Information
- Sampling and Analytical Methods and Procedures
- Laboratory Data
- Field Screening Data

If supporting documentation is not appended, provide an attachment stating the date and in connection with what document such information was previously submitted to DEP.

G. LICENSED SITE PROFESSIONAL (LSP) OPINION:

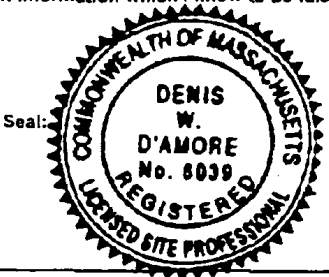
Name of Organization: D'Amore Associates, Inc.
LSP Name: Denis D'Amore Title: LSP
Telephone: 978 - 368 - 1802 Ext. _____

I attest that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this submittal, and in my professional opinion and judgment based upon application of

- (i) the standards of care in 309 CMR 4.02(1),
- (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and
- (iii) the provisions of 309 CMR 4.03(5),

to the best of my knowledge, information and belief, the assessment actions undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with the applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal. I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

Signature: [Signature]
Date: 4/12/00
License Number: 0039





Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

	-	
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H. CERTIFICATION OF PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH THIS BILL OF LADING:

I certify under penalties of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for wilfully submitting false, inaccurate, or incomplete information.

Signature:

Joe Phinney

Date

4 - 12 - 00

Name of Person (print):

Joe Phinney



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

LOG SHEET

BWSC-012B
Release Tracking Number

I. LOAD INFORMATION:

LOAD 1: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____ / _____ / _____ : _____ (circle one) am/pm

Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____ / _____ / _____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 2: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____ / _____ / _____ : _____ (circle one) am/pm

Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____ / _____ / _____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 3: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____ / _____ / _____ : _____ (circle one) am/pm

Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____ / _____ / _____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 4: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____ / _____ / _____ : _____ (circle one) am/pm

Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____ / _____ / _____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 5: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____ / _____ / _____ : _____ (circle one) am/pm

Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____ / _____ / _____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 6: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____ / _____ / _____ : _____ (circle one) am/pm

Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____ / _____ / _____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 7: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____ / _____ / _____ : _____ (circle one) am/pm

Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____ / _____ / _____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

J. LOG SHEET VOLUME INFORMATION:

Total Volume This Page (cu. yds./tons): _____

Total Carried Forward (cu. yds./tons): _____

Total Carried Forward and This Page (cu. yds./tons): _____



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012C
Release Tracking Number

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ OF _____

L. ACKNOWLEDGEMENT OF RECEIPT OF REMEDIATION WASTE AT RECEIVING FACILITY OR TEMPORARY STORAGE LOCATION:

Receiving Facility/Temporary

Location Representative (print): _____ Title: _____

Signature: _____ Date: ____ / ____ / ____

M. ACKNOWLEDGEMENT OF SHIPMENT AND RECEIPT OF REMEDIATION WASTE BY PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH THIS BILL OF LADING:

I certify under penalties of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

Signature: _____ Date: ____ / ____ / ____

Name of Person (print): _____

City of Woburn Landfill
 02 Merrimac Street
 Woburn, MA 01801

00370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE		TICKET		GRID		WEIGHMASTER	
02		010153		C		Bob Furness	
DATE IN		DATE OUT		TIME IN		TIME OUT	
04/14/00		04/14/00		13:32		13:42	
REFERENCE				ORIGIN			
135001				WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 43560 LB
 Scale 1 Tare Wt. 26200 LB
 Net Weight 17360 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
8.68	TON	Contaminated Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 6:00 AM - 4:00 PM Monday Thru Friday
 Member to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135001

TRUCK OWNER'S NAME & ADDRESS <i>M. Williams</i>		DATE <i>4/14/00</i>
DRIVER'S NAME <i>M. Williams</i>		
CONSIGNEE: <i>City of Woburn</i>	SHIPPER: <i>M. Williams</i>	
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>Dirt</i>	WEIGHT <i>8.68</i>
LOAD OF SOLID WASTE	WEIGHT IN <i>43560</i>	WEIGHT OUT <i>26200</i>
	NET WEIGHT <i>17360</i>	
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: <i>Woburn Landfill</i>	BY: <i>Bob</i>	
DATE: <i>4/14/00</i>	TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM	

I hereby certify that the above described equipment contains only solid waste that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135002

TRUCK OWNER'S NAME & ADDRESS Mill House Corp. 1 South Main Street Hampton, NH 03842		DATE 4/17/00
CONSIGNEE: Woburn		DRIVER'S NAME [Signature]
SHIPPER: [Signature]		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	62700
	DIET	26020
	NET WEIGHT	36680

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: [Signature]

DATE: 4/17/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010212		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/17/00	04/17/00	09:59	10:07			
REFERENCE			ORIGIN			
135002			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 62700 LB Inbound - Cash ticket
Scale 1 Tare Wt. 26020 LB
Net Weight 36680 LB

QTY.	UNT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
18.34	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222
No. 135003

TRUCK OWNER'S NAME & ADDRESS <i>Woburn Trans. Center</i>		DATE <i>4/17/00</i>
CONSIGNEE: <i>Woburn</i>		DRIVER'S NAME <i>Bob Furness</i>
SHIPPER: <i>Middlesex</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT
	WEIGHT IN <i>63640</i>	
	WEIGHT OUT <i>26420</i>	
	NET WEIGHT <i>37220</i>	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*
 BY: *RAL*
 DATE: *4/17/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010223		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/17/00	04/17/00	11:16	11:23			
REFERENCE			ORIGIN			
135003			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 63640 LB
 Scale 1 Tare Wt. 26420 LB
 Net Weight 37220 LB
 Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
18.61	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135004

TRUCK OWNER'S NAME & ADDRESS		DATE	
Merrimac		4/17/00	
CONSIGNEE:		SHIPPER:	
Woburn Landfill		City of Woburn	
DRIVER'S NAME		DATE	
Bob Furness		4/17/00	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT
1	LOAD OF SOLID WASTE	63900	63900
	DIRT (18.81)	26280	26280
	NET WEIGHT	37620	37620

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: Bob
DATE: 4/17/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish, trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010232		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/17/00	04/17/00	12:09	12:16		
REFERENCE		ORIGIN			
135004		WOBURN TRANS. CENTER			

Scale 1 Gross Wt.	63900	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	26280	LB				
Net Weight	37620	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
18.81	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135051

TRUCK OWNER'S NAME & ADDRESS EXCEL Truckline Drives Wob.		DATE 04-14-00
CONSIGNEE: City of Woburn Middlesex Corp.		DRIVER'S NAME Dave
SHIPPER:		DATE
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (15.95)	WEIGHT WEIGHT IN: 55420 WEIGHT OUT: 23520 NET WEIGHT: 31900

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/14/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010155		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/14/00	04/14/00	13:41	13:57		
REFERENCE			ORIGIN		
135051			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	55420	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	23520	LB				
Net Weight	31900	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
15.95	TON	Contaminated Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135052

TRUCK OWNER'S NAME & ADDRESS
 EXCEL TRUCKING
 DANIELS HWY #2

DATE
 04-17-08

DRIVER'S NAME
 DRIVER

CONSIGNEE:
 City of Woburn

SHIPPER:
 Middlesex Corp.

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	NET WEIGHT
1	DIRT	62440	23860	38580
	(19.29)			

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM:
 Woburn Landfill

BY:
 R.F.

DATE: 4/17/08 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010216		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/17/00	04/17/00	10:25	10:33			
REFERENCE			ORIGIN			
135052			WOBURN TRANS. CENTER			

Scale 1 Gross Wt.	62440	LB	Inbound - Cash ticket
Scale 1 Tare Wt.	23860	LB	
Net Weight	38580	LB	

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.29	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135053

TRUCK OWNER'S NAME & ADDRESS EIRCO TRAILERS 42 CONSIGNEE: City of Woburn SHIPPER: Middlesex Corp		DATE 04-17-00 DRIVER'S NAME TRAVE
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	WEIGHT IN 64320
	DIRT 20.25	WEIGHT OUT 23820
		NET WEIGHT 40500

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/17/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010228		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/17/00	04/17/00	11:45	11:54		
REFERENCE		ORIGIN			
135053		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 64320 LB
 Scale 1 Tare Wt. 23820 LB
 Net Weight 40500 LB
 Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.25	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135054

TRUCK OWNER'S NAME & ADDRESS
 EXCEL TRUCKING
 DRIVERS 11955
 & C

DATE
 04-17-00

DRIVER'S NAME
 DWIGHT

CONSIGNEE: City of Woburn

SHIPPER: Middlesex Corp.

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	NET WEIGHT
1	LOAD OF SOLID WASTE	64960	23760	41200
	DIET		20.60	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/17/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010236		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/17/00	04/17/00	12:36	12:44		
REFERENCE		ORIGIN			
135054		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 64960 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 23760 LB
 Net Weight 41200 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.60	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. **135055**

TRUCK OWNER'S NAME & ADDRESS		DATE	
EIRCO TRUCKING		04-17-00	
DRIVERS MISS.		DRIVER'S NAME	
42		DAVE	
CONSIGNEE:		SHIPPER:	
City of Woburn		Middlesex Corp.	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT
1	LOAD OF SOLID WASTE	65840	23700
	DIRT (21.07)	WEIGHT OUT	42140
	NET WEIGHT		

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FROM: Woburn Landfill

BY: Bob

DATE: 4/17/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010244		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/17/00	04/17/00	13:42	13:51			
REFERENCE			ORIGIN			
135055			WOBURN TRANS. CENTER			

Scale 1 Gross Wt.	65840	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	23700	LB				
Net Weight	42140	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.07	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135056

TRUCK OWNER'S NAME & ADDRESS EXCELL TRUCKING		DATE 04-17-00
CONSIGNEE: City of Woburn		DRIVER'S NAME TRAVET
SHIPPER: Middlesex Corp.		
NO. PIECES 1	ARTICLES OR DESCRIPTION DIRT (2071)	
LOAD OF SOLID WASTE		WEIGHT
	WEIGHT IN	65220
	WEIGHT OUT	23800
	NET WEIGHT	41420

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: **Woburn Landfill**

BY: **Bob**

DATE: **4/17/00** TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010251		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/17/00	04/17/00	14:21	14:33			
REFERENCE			ORIGIN			
135056			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 65220 LB
Scale 1 Tare Wt. 23800 LB
Net Weight 41420 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.71	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

02	010292			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	09:35	09:46		
REFERENCE			ORIGIN		
120202			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 63160 LB
 Scale 1 Tare Wt. 27540 LB
 Net Weight 35620 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	TAXES OR	FEES	TOTAL
17.81	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. **120202**

TRUCK OWNER'S NAME & ADDRESS <i>SULLIVAN</i>		DATE <i>4/18/00</i>
CONSIGNEE: <i>CITY OF WOBURN</i>		DRIVER'S NAME <i>JEFF</i>
SHIPPER: <i>MIDDLESEX CORP.</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>DIRT (17.81)</i>	WEIGHT IN <i>63160</i>
	WEIGHT OUT <i>27540</i>	WEIGHT IN <i>63160</i>
	NET WEIGHT <i>35620</i>	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*
 BY: *Bob*
 DATE: *4/18/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

02	010300	Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	10:22	10:30		
REFERENCE			ORIGIN		
120203			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	60840	LB	Inbound - Cash ticket		
Scale 1 Tare Wt.	27560	LB			
Net Weight	33280	LB			
QTY	UNIT	DESCRIPTION	RATE	EXTENSION	TOTAL
16.64	TON	Soil	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 120203

TRUCK OWNER'S NAME & ADDRESS J.S. Sullivan Environmental ED Merrimac MA.		DATE 4/18/00	
CONSIGNEE: City of Woburn		DRIVER'S NAME Jeff	
SHIPPER: Middlesex Corp.			
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT
1	DIETS	60840	27560
	NET WEIGHT		33280

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/18/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

02	010310	Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	11:04	11:18		
REFERENCE			ORIGIN		
120204			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 70680 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 27500 LB
 Net Weight 43180 LB

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.59	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 120204

TRUCK OWNER'S NAME & ADDRESS Jeffery Sullivan 23 Richmond Merrimac MA 01860		DATE 4/18/00	
CONSIGNEE: City of Woburn		SHIPPER: MIDDLESEX Corp	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT
1	LOAD OF SOLID WASTE	27500	27500
	Net Weight	43180	43180
RECEIVED ABOVE MATERIAL IN GOOD CONDITION			
FIRM: Woburn Landfill BY: Bob		DATE: 4/18/00 TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM	

I hereby certify that the above described equipment contains only solid waste that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous in nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

02	010318			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	11:45	11:57		
REFERENCE			ORIGIN		
120205			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 67080 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 27440 LB
 Net Weight 39640 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.82	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED:	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. **120205**

TRUCK OWNER'S NAME & ADDRESS <i>Teffery Sullivan</i> <i>Richmond Rd</i> <i>Merrimac MA.</i>		DATE <i>4/18/00</i>
CONSIGNEE: <i>City of Woburn</i>		DRIVER'S NAME <i>Self</i>
SHIPPER: <i>Middlesex Corp</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>DIRT</i>	WEIGHT <i>67080</i>
	LOAD OF SOLID WASTE <i>19.82</i>	WEIGHT IN <i>27440</i>
	NET WEIGHT <i>39640</i>	WEIGHT OUT <i>27440</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/18/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

02	010332	Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	12:48	12:58		
REFERENCE			ORIGIN		
120206			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 68060 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 27560 LB
 Net Weight 40500 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.25	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. **120206**

TRUCK OWNER'S NAME & ADDRESS Jeffrey Sullivan Rte 100 Merrimac MA 01860		DATE 4/18/00
CONSIGNEE: City of Woburn		DRIVER'S NAME Jeff
SHIPPER: Middlesex Corp.		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	68060
	DIET 20.25	27560
	NET WEIGHT	40500

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/18/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

02	010337	Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	13:30	13:41		
REFERENCE			ORIGIN		
120207			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	70000	LB	Inbound - Cash ticket		
Scale 1 Tare Wt.	27140	LB			
Net Weight	42860	LB			
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	TOTAL
21.43	TON	Soil	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

No. 120207

ERGO ENVIRONMENTAL LLC

PO BOX 265
 CLIMPTON, NH 03842
 (800) 266-6222

TRUCK OWNER'S NAME & ADDRESS <i>J.J. Solheim Richmond Rd Merrimac MA.</i>		DATE <i>4/18/00</i>
SHIPPER <i>MIDDLESEX Corp</i>		DRIVER'S NAME <i>JFT</i>
CONSIGNEE <i>City of Woburn</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>DIRT (21.43)</i>	WEIGHT
	LOAD OF SOLID WASTE	WEIGHT IN <i>70000</i>
		WEIGHT OUT <i>27140</i>
		NET WEIGHT <i>42860</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/18/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

02	010347	Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	14:12	14:20		
REFERENCE			ORIGIN		
120208			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 68140 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 27320 LB
 Net Weight 40820 LB

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEES	TOTAL
20.41	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 120208

TRUCK OWNER'S NAME & ADDRESS

City of Woburn
 202 Merrimac St
 Woburn MA

DATE: 4/18/00

DRIVER'S NAME: Self

CONSIGNEE:

City of Woburn

SHIPPER:

MIDDLESEX Corp

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	NET WEIGHT
1	Dirt	68140	27320	40820
				20.41

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/18/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish, trash, debris, ash and metal, non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

02	010352	Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	14:50	15:01		
REFERENCE			ORIGIN		
120209			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	70260	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	27420	LB				
Net Weight	42840	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FFE	TOTAL
21.42	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. **120209**

TRUCK OWNER'S NAME & ADDRESS J.S. Sullivan 22 Rummrader Merrimac MA 01850		DATE: 4/18/00
DRIVER'S NAME Jeff		
CONSIGNEE: City of Woburn		SHIPPER: Middlesex Corp
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	70260
	DIET (2142)	27420
	NET WEIGHT	42840
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: Woburn Landfill		
BY: Bob		
DATE: 4/18/00 TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM		
I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.		

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

02	010365			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	15:45	15:52		
REFERENCE			ORIGIN		
120210			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	69920	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	27120	LB				
Net Weight	42800	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.40	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

ERCO ENVIRONMENTAL LLC

PO Box 265
 Grafton, NH 03842
 (800) 266-6222

No. 120210

TRUCK OWNER'S NAME & ADDRESS <u>J.T. Sullivan</u> <u>92 Buchanan</u> <u>Merrimac MA 01860</u>		DATE <u>4/18/00</u>	DRIVER'S NAME <u>Jeff</u>
CONSIGNEE <u>City of Woburn</u>	SHIPPER <u>MIDDLESEX Corp</u>		
NO. PIECES <u>1</u>	ARTICLES OR DESCRIPTION <u>LOAD OF SOLID WASTE</u> <u>DIRT (21.40)</u>	WEIGHT IN <u>69920</u>	WEIGHT OUT <u>27120</u>
		NET WEIGHT <u>42800</u>	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: WOBURN LANDFILL

BY: Bob

DATE: 4/18/00 TIME: _____ AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and /or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish, trash, debris, ash, sand metal, nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135006

TRUCK OWNER'S NAME & ADDRESS		DATE	
Woburn Trans. Center		4/18/00	
CONSIGNEE:		SHIPPER:	
City of Woburn Landfill		Woburn Trans. Center	
DRIVER'S NAME		DATE	
Bob Furness		4/18/00	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT
1	LOAD OF SOLID WASTE	62360	
	DIET	26640	
	(17.86)		35720
	NET WEIGHT		

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FRM: Woburn Landfill
 BY: Bob
 DATE: 4/18/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER	
02	010275		Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	POLL OFF
04/18/00	04/18/00	08:24	08:31	
REFERENCE		ORIGIN		
135006		WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 62360 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 26640 LB
 Net Weight 35720 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.86	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135007

TRUCK OWNER'S NAME & ADDRESS		DATE	
Woburn		4/18/00	
CONSIGNEE:		DRIVER'S NAME	
Woburn		Bob Furness	
SHIPPER:		WEIGHT	
Woburn		62400	
NO. PIECES		WEIGHT IN	
1		26340	
ARTICLES OR DESCRIPTION		WEIGHT OUT	
LOAD OF SOLID WASTE		18.03	
DIRT		36060	
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		NET WEIGHT	
FIRM: Woburn Landfill			
BY: Bob			
DATE: 4/18/00			
TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM			

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish, trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010291		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	09:34	09:44		
REFERENCE		ORIGIN			
135007		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 62400 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 26340 LB
 Net Weight 36060 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
18.03	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135008

TRUCK OWNER'S NAME & ADDRESS		DATE
CONSIGNEE:		DRIVER'S NAME
SHIPPER:		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	59520
	DIRT (16.46)	26600
	NET WEIGHT	32920

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/18/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radio-active, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER
02	010297		Bob Furness
DATE IN	DATE OUT	TIME IN	TIME OUT
04/18/00	04/18/00	10:12	10:19
REFERENCE	ORIGIN		
135008	WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 59520 LB
Scale 1 Tare Wt. 26600 LB
Net Weight 32920 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
16.46	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135009

TRUCK OWNER'S NAME & ADDRESS		DATE
CONSIGNEE:		DRIVER'S NAME
SHIPPER:		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	64340
	WEIGHT OUT	26320
	NET WEIGHT	38020

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: [Signature]

DATE: 4/18/00 TIME: 10:47 AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010305		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	10:47	10:55		
REFERENCE		ORIGIN			
135009		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 64340 LB
Scale 1 Tare Wt. 26320 LB
Net Weight 38020 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.01	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

ERICO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135010

TRUCK OWNER'S NAME & ADDRESS Middlesex Corp 12000 Hwy Woburn		DATE 4/18/00	
CONSIGNEE:		SHIPPER:	
NO. PIECES		ARTICLES OR DESCRIPTION	
LOAD OF SOLID WASTE		WEIGHT IN	
1		67560	
DIET		26460	
20.55		41100	
WEIGHT OUT		NET WEIGHT	
26460		41100	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: Bob
DATE: 4/18/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

SITE		TICKET		GRID		WEIGHMASTER	
02		010314				Bob Furness	
DATE IN		DATE OUT		TIME IN		TIME OUT	
04/18/00		04/18/00		11:27		11:33	
REFERENCE				ORIGIN			
135009				WOBURN TRANS. CENTER			

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

Scale 1 Gross Wt. 67560 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 26460 LB
 Net Weight 41100 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.55	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135011

TRUCK OWNER'S NAME & ADDRESS Middlesex Corp One Spectacle Pond Road Littleton MA 01460		DATE 4/18/00	
CONSIGNEE: Woburn		SHIPPER: Middlesex	
NO. PIECES 1		ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE	
		WEIGHT IN	WEIGHT
		66300	
		DIET	
		(19.89)	
		WEIGHT OUT	NET WEIGHT
		26520	39780

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: Bob
DATE: 4/18/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010324			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	12:05	12:13		
REFERENCE			ORIGIN		
135011			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	66300	LB	Inbound - Cash ticket
Scale 1 Tare Wt.	26520	LB	
Net Weight	39780	LB	

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.89	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135012

TRUCK OWNER'S NAME & ADDRESS		DATE	
Middlesex Corp One Spectacle Pond Road Littleton MA		4/18/00	
CONSIGNEE:		SHIPPER:	
City of Woburn		Woburn Trans. Center	
DRIVER'S NAME		DATE	
Bob Furness		4/18/00	

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	WEIGHT
1	LOAD OF SOLID WASTE	67000	26520	40480
	DIET (20.24)			40480

RECEIVED ABOVE MATERIAL IN GOOD CONDITION	
FIRM: <u>Albuen Landfill</u>	DATE: <u>4/18/00</u>
BY: <u>Bob</u>	TIME: _____
	<input type="checkbox"/> AM <input type="checkbox"/> PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER	
02	010331		Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE
04/18/00	04/18/00	12:47	12:54	
REFERENCE		ORIGIN		
135012		WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 67000 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 26520 LB
 Net Weight 40480 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.24	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135013

TRUCK OWNER'S NAME & ADDRESS <i>Middlesex Corp</i>		DATE <i>4/18/00</i>
CONSIGNEE:		DRIVER'S NAME <i>Bob Furness</i>
SHIPPER:		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	WEIGHT IN <i>68500</i>
	<i>DIRT</i> (2103)	WEIGHT OUT <i>26500</i>
	NET WEIGHT	<i>42060</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/18/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER
02	010336		Bob Furness
DATE IN	DATE OUT	TIME IN	TIME OUT
04/18/00	04/18/00	13:28	13:39
REFERENCE	ORIGIN		
135013	WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	68560	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	26500	LB				
Net Weight	42060	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.03	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135014

TRUCK OWNER'S NAME & ADDRESS Middlesex Corp 11 Merrimac St Woburn, MA 01801		DATE 04/18/00	DRIVER'S NAME Bob Furness
CONSIGNEE:		SHIPPER:	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT
1	LOAD OF SOLID WASTE	68320	
	DIRT (20901)	26420	
	NET WEIGHT	41900	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: Bob
DATE: 4/18/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010346		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/18/00	04/18/00	14:08	14:15			
REFERENCE			ORIGIN			
135014			WOBURN TRANS. CENTER			

Scale 1 Gross Wt.	68320	LB	Inbound - Cash ticket
Scale 1 Tare Wt.	26420	LB	
Net Weight	41900	LB	

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.95	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135015

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/18/00 TIME: AM PM

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	NET WEIGHT
1	LOAD OF SOLID WASTE	64420	26500	37920
	DIRT (18.96)			37920

TRUCK OWNER'S NAME & ADDRESS: Middlesex Corp

CONSIGNEE: Woburn

SHIPPER: Woburn

DATE: 4/18/00

DRIVER'S NAME: Bob

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010363		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/18/00	04/18/00	15:36	15:43			
REFERENCE			ORIGIN			
135015			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 64420 LB
Scale 1 Tare Wt. 26500 LB
Net Weight 37920 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
18.96	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135057

TRUCK OWNER'S NAME & ADDRESS EXCELL TRAILERS DANIELS LINES HA		DATE 04-18-00
CONSIGNEE: <i>City of Woburn</i>		DRIVER'S NAME TRUJE
SHIPPER: <i>M. Williams Corp.</i>		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	57760
	WEIGHT OUT	23520
	NET WEIGHT	34240

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Middlesex Corp.*

BY: *Paul*

DATE: *4/18/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER
02	010276		Bob Furness
DATE IN	DATE OUT	TIME IN	TIME OUT
04/18/00	04/18/00	08:27	08:35
REFERENCE	ORIGIN		
135058	WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 57760 LB
 Scale 1 Tare Wt. 23520 LB
 Net Weight 34240 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.12	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135058

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRUCKING</i>		DATE <i>04-18-08</i>
CONSIGNEE: <i>City of Woburn</i>		DRIVER'S NAME <i>DJOE</i>
SHIPPER: <i>Middlesex Corp.</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>DIRT</i>	WEIGHT <i>18.54</i>
	LOAD OF SOLID WASTE	WEIGHT IN <i>60940</i>
		WEIGHT OUT <i>23860</i>
		NET WEIGHT <i>37080</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *[Signature]*

DATE: *4/18/08* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010294		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	09:41	09:48		
REFERENCE			ORIGIN		
135058			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 60940 LB Inbound - Cash ticket
Scale 1 Tare Wt. 23860 LB
Net Weight 37080 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
18.54	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135059

TRUCK OWNER'S NAME & ADDRESS <i>EXCELL TRANSLING</i>		DATE <i>04-18-00</i>
DRIVER'S NAME <i>DAVID S WINS</i>		DRIVER'S NAME <i>DAVE</i>
CONSIGNEE: <i>City of Woburn</i>		SHIPPER: <i>Middlesex Corp.</i>
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT
	WEIGHT IN	<i>63940</i>
	WEIGHT OUT	<i>23700</i>
	NET WEIGHT	<i>40240</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/18/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE		TICKET		GRID		WEIGHMASTER	
02		010302				Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF		
04/18/00	04/18/00	10:26	10:36				
REFERENCE				ORIGIN			
135059				WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 63940 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 23700 LB
 Net Weight 40240 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.12	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135060

TRUCK OWNER'S NAME & ADDRESS EIRCO TRUCKING DRIVERS WARRS #2		DATE 04-18-00	
CONSIGNEE: City of Woburn		SHIPPER: Middlesex Corp.	
NO. PIECES 1		DRIVER'S NAME DAVE	
ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE		WEIGHT	
		WEIGHT IN	WEIGHT OUT
		67480	23480
		(22.00) NET WEIGHT	44000

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: Bob
DATE: 4/18/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010311			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	11:05	11:20		
REFERENCE			ORIGIN		
135060			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	67480	LB	Inbound - Cash ticket
Scale 1 Tare Wt.	23480	LB	
Net Weight	44000	LB	

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
22.00	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135061

TRUCK OWNER'S NAME & ADDRESS
 EXCEL TRUCKING
 DRIVEN'S INC'S
 #2

DATE
 04-18-00

DRIVER'S NAME
 DROUE

CONSIGNEE: City of Woburn

SHIPPER: Middlesex Corp.

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	NET WEIGHT
1	LOAD OF SOLID WASTE	63520	23700	39820
	DIRT (19.91)			

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/18/00 **TIME:** AM PM

Thereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

SITE	TICKET	GRID	WEIGHMASTER		
02	010321		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	11:59	12:11		
REFERENCE	ORIGIN				
135061	WOBURN TRANS. CENTER				

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

Scale 1 Gross Wt.		63520	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.		23700	LB				
Net Weight		39820	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL	
19.91	TON	Soil	0.00	0.00	0.00	0.00	

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135062

TRUCK OWNER'S NAME & ADDRESS EIRCO ENVIRONMENTAL LLC P.O. Box 265 Hampton, NH 03842		DATE 04-08-00
CONSIGNEE: City of Woburn		DRIVER'S NAME B. FURNES
SHIPPER: Middlesex Corp.		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIET 20.67	WEIGHT WEIGHT IN: 65040 WEIGHT OUT: 23700 NET WEIGHT: 41340
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FRM: Woburn Landfill		
BY: Bob		
DATE: 4/18/00 TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM		

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010330		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	12:37	12:44		
REFERENCE		ORIGIN			
135062		WOBURN TRANS. CENTER			

Scale 1 Gross Wt.	65040	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	23700	LB				
Net Weight	41340	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.67	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135063

TRUCK OWNER'S NAME & ADDRESS EXCEL TRUCKING THAYER'S MASS. #2		DATE 04-18-08
CONSIGNEE: City of Woburn		DRIVER'S NAME DAVE
SHIPPER: Middlesex Corp.		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
	LOAD OF SOLID WASTE	WEIGHT IN
1	Dirt (21.21)	66340
	WEIGHT OUT	23920
	NET WEIGHT	42420

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: [Signature]
DATE: 4/18/08 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010335		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/18/00	04/18/00	13:25	13:34		
REFERENCE		ORIGIN			
135063		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 66340 LB
Scale 1 Tare Wt. 23920 LB
Net Weight 42420 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.21	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135064

TRUCK OWNER'S NAME & ADDRESS EXCEL TRUCKING DRAVERS 1955. # 2		DATE 04-18-02
CONSIGNEE: City of Woburn Middlesex Corp.		DRIVER'S NAME
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT 2019	WEIGHT 64300 23920 40380
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: Woburn Landfill		
BY: [Signature]		
DATE: 4/18/02 TIME: [] AM [] PM		

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010345		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/18/00	04/18/00	14:03	14:13			
REFERENCE			ORIGIN			
135064			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 64300 LB
Scale 1 Tare Wt. 23920 LB
Net Weight 40380 LB
Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.19	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135065

TRUCK OWNER'S NAME & ADDRESS		DATE	
EXCEL TRUCKS		04-18-00	
SHAWERS TRUCKS		DRIVER'S NAME	
H-2		DRAVE	
CONSIGNEE:		SHIPPER:	
City of Woburn		Middlesex Corp.	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT
1	LOAD OF SOLID WASTE	58420	23640
	DIET (17.39)	WEIGHT OUT	34780
	NET WEIGHT		

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: Bob
DATE: 4/18/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish, trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010362		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/18/00	04/18/00	15:22	15:38			
REFERENCE			ORIGIN			
135065			WOBURN TRANS. CENTER			

Scale 1 Gross Wt.	58420	LB	Inbound - Cash ticket
Scale 1 Tare Wt.	23640	LB	
Net Weight	34780	LB	

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.39	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120211

TRUCK OWNER'S NAME & ADDRESS City of Woburn 202 Merrimac St Woburn, MA 01801		DATE 4/19/00
CONSIGNEE: City of Woburn		DRIVER'S NAME Self
SHIPPER: Middlesex Corp.		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (21.69)	WEIGHT WEIGHT IN: 71020 WEIGHT OUT: 27640 NET WEIGHT: 43380
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: Woburn Landfill	BY: [Signature]	DATE: 4/19/00 TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010375		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	TOLL OFF
04/19/00	04/19/00	07:25	07:39		
REFERENCE		ORIGIN			
120211		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 71020 LB
Scale 1 Tare Wt. 27640 LB
Net Weight 43380 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.69	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120212

TRUCK OWNER'S NAME & ADDRESS		DATE
55-11 Merrimac Rd Merrimac NH		4/19/00
DRIVER'S NAME		711
CONSIGNEE:	SHIPPER:	
City of Woburn	Middlesex Corp	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	70780
	WEIGHT IN	27500
	WEIGHT OUT	43280
	NET WEIGHT	(21.64)

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/19/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish, trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010381		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	FOLL OFF
04/19/00	04/19/00	08:07	08:15		
REFERENCE			ORIGIN		
120212			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 70780 LB Inbound - Cash ticket
Scale 1 Tare Wt. 27500 LB
Net Weight 43280 LB

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.64	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

ELIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120213

TRUCK OWNER'S NAME & ADDRESS <i>25 Sullivan St Merrimac MA</i>		DATE <i>4/19/00</i>
DRIVER'S NAME <i>SFE</i>		

CONSIGNEE: <i>CITY OF WOBURN</i>	SHIPPER: <i>MIDDLESEX Corp</i>
-------------------------------------	-----------------------------------

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	NET WEIGHT
	<i>LOAD OF SOLID WASTE</i>	<i>70920</i>	<i>27380</i>	<i>43540</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Middlesex Corp*

BY: _____

DATE: *4/19/00* TIME: _____ AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish, trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010392			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	09:02	09:18		
REFERENCE			ORIGIN		
120213			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 70920 LB Inbound - Cash ticket
Scale 1 Tare Wt. 27380 LB
Net Weight 43540 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.77	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222
 No. 120214

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/19/00 TIME: AM PM

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	NET WEIGHT
1	DIRT	65000	27420	37580

TRUCK OWNER'S NAME & ADDRESS
TELL SULLIVAN
BIRMINGHAM, AL
MERRIMAC NH 03842

CONSIGNEE: City of Woburn SHIPPER: Woburn Landfill

DATE: 4/19/00 DRIVER'S NAME: SOFF

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010399		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	09:57	10:06		
REFERENCE	ORIGIN				
120214	WOBURN TRANS. CENTER				

Scale 1 Gross Wt. 65000 LB
 Scale 1 Tare Wt. 27420 LB
 Net Weight 37580 LB
 Inbound - Cash ticket

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
18.79	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135072

TRUCK OWNER'S NAME & ADDRESS		DATE	
EXCEL TRUCKING		04-19-00	
DRAVER'S WISS.		DRIVER'S NAME	
#2		DAVE	
CONSIGNEE:		SHIPPER:	
City of Woburn		Middlesex Corp.	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT
1	LOAD OF SOLID WASTE	58900	24280
	DIRT (17.31)	NET WEIGHT	34620

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/19/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010428			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	12:44	12:55		
REFERENCE			ORIGIN		
135072			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 58900 LB
Scale 1 Tare Wt. 24280 LB
Net Weight 34620 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.31	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010435			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	13:25	13:37		
REFERENCE			ORIGIN		
135073			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 59640 LB
 Scale 1 Tare Wt. 24280 LB
 Net Weight 35360 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.68	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135073

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRUCKING</i> DRIVERS <i>WASS</i> <i>#2</i>		DATE <i>04-19-00</i>
CONSIGNEE: <i>City of Woburn</i>		DRIVER'S NAME <i>DRUE</i>
SHIPPER: <i>Middlesex Corp.</i>		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	59640
	<i>DIRT</i>	24280
	<i>(17.68)</i>	35360
	NET WEIGHT	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *WOBURN LANDFILL*

BY: *BAK*

DATE: *4/19/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

TRUCK OWNER'S NAME & ADDRESS EIRCO MERRIMAC DUNLAP'S WISS #2		DATE 04-19-00
CONSIGNEE: City of Woburn Middlesex Corp.		DRIVER'S NAME DAVE
SHIPPER:		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE DIRT (18.33)	WEIGHT IN 61160 WEIGHT OUT 24500 NET WEIGHT 36660

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/19/00 **TIME:** AM PM

Hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010442		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	14:09	14:22		
REFERENCE			ORIGIN		
135074			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	61160	LB	Inbound - Cash ticket
Scale 1 Tare Wt.	24500	LB	
Net Weight	36660	LB	

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
18.33	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135075

TRUCK OWNER'S NAME & ADDRESS		DATE
EXCEL INDUSTRIES		04-19-00
DUNDLES WMS		DRIVER'S NAME
LR		DUNE
CONSIGNEE:	SHIPPER:	
City of Woburn	M. Middlesex Corp.	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	62540
	WEIGHT IN	24260
	WEIGHT OUT	38280
	NET WEIGHT	38280

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/19/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01450

SITE	TICKET	GRID	WEIGHMASTER		
02	010451		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	FULL OF
04/19/00	04/19/00	14:53	15:07		
REFERENCE		ORIGIN			
135075		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 62540 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 24260 LB
 Net Weight 38280 LB

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.14	TON	Soil	0.00	0.00	0.00	0.0

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.0
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135076

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRUCKING</i>		DATE <i>04-19-00</i>
DRIVER'S NAME <i>MARKS MISS #2</i>		DRIVER'S NAME <i>MADE</i>
CONSIGNEE: <i>City of Woburn</i>	SHIPPER: <i>Middlesex Corp.</i>	
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>DIET 15.33</i>	WEIGHT <i>54940</i>
	LOAD OF SOLID WASTE	WEIGHT IN <i>24280</i>
		WEIGHT OUT <i>30660</i>
		NET WEIGHT

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/19/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish, trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010459			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	15:45	15:52		
REFERENCE			ORIGIN		
135076			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 54940 LB
Scale 1 Tare Wt. 24280 LB
Net Weight 30660 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
15.33	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

ERCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120222

TRUCK OWNER'S NAME & ADDRESS 52 S.W. Rd Richwood Rd Merrimac NH		DATE 4/20/00
CONSIGNEE: City of Woburn		DRIVER'S NAME JEFF
SHIPPER: Middlesex Corp.		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (17.46)	WEIGHT WEIGHT IN: 63280 WEIGHT OUT: 28360 NET WEIGHT: 34920
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: Woburn Landfill		
BY: Bob		
DATE: 4/20/00 TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM		

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish/trash debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010473		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/20/00	04/20/00	07:22	07:33			
REFERENCE			ORIGIN			
120222			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 63280 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 28360 LB
 Net Weight 34920 LB

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.46	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 120223

TRUCK OWNER'S NAME & ADDRESS		DATE
City of Woburn Middlesex Corp		4/20/00
CONSIGNEE:		DRIVER'S NAME
City of Woburn		Self
SHIPPER:		
Middlesex Corp		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE DIRT (19.78)	67960 28400 39560
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: <u>Woburn Landfill</u> BY: <u>Bob</u> DATE: <u>4/20/00</u> TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM		

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010480		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	FOLL OFF
04/20/00	04/20/00	08:01	08:11		
REFERENCE			ORIGIN		
120223			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 67960 LB
 Scale 1 Tare Wt. 28400 LB
 Net Weight 39560 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.78	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120224

TRUCK OWNER'S NAME & ADDRESS City of Woburn 202 Merrimac Street Woburn, MA 01801		DATE 4/20/00
CONSIGNEE: City of Woburn		DRIVER'S NAME 5555
SHIPPER: Middlesex Corp.		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (19.81)	WEIGHT WEIGHT IN: 67920 WEIGHT OUT: 28300 NET WEIGHT: 39620
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: Woburn Landfill	BY: Bob	DATE: 4/20/00 TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010490		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/20/00	04/20/00	08:46	08:59		
REFERENCE			ORIGIN		
120224			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 67920 LB
Scale 1 Tare Wt. 28300 LB
Net Weight, 39620 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.81	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120225

TRUCK OWNER'S NAME & ADDRESS City of Woburn 202 Merrimac St Woburn, MA 01801		DATE 4/30/00	DRIVER'S NAME Self
CONSIGNEE: City of Woburn		SHIPPER: Middlesex Corp	
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (19.02)	WEIGHT IN 66680	WEIGHT OUT 28640
		NET WEIGHT 38040	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill	BY: Bob
DATE: 4/30/00	TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER	
02	010496		Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE ROLL OFF
04/20/00	04/20/00	09:27	09:43	
REFERENCE		ORIGIN		
120225		WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 66680 LB
Scale 1 Tare Wt. 28640 LB
Net Weight 38040 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.02	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 120226

TRUCK OWNER'S NAME & ADDRESS City of Woburn 202 Merrimac Street Woburn, MA 01801		DATE 4/30/00		
CONSIGNEE: City of Woburn		SHIPPER: Middlesex Corp		
DRIVER'S NAME Jeff		DATE 4/30/00		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (19.71)	WEIGHT IN 67620	WEIGHT OUT 28200	
		NET WEIGHT 39420		

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Cornell Landfill
BY: R.F.
DATE: 4/30/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010502			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/20/00	04/20/00	10:12	10:26		
REFERENCE			ORIGIN		
120226			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 67620 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 28200 LB
 Net Weight 39420 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.71	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222
 No. 120227

TRUCK OWNER'S NAME & ADDRESS S. H.		DATE 4/20/00
CONSIGNEE: City of Woburn		DRIVER'S NAME TIF
SHIPPER: Merrimac Corp		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT	WEIGHT 70840
	WEIGHT IN 70840	WEIGHT OUT 28240
	NET WEIGHT 42600	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FROM: Woburn Landfill
 BY: Bob
 DATE: 4/20/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010508		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/20/00	04/20/00	10:55	11:05		
REFERENCE			ORIGIN		
120227			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 70840 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 28240 LB
 Net Weight 42600 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.30	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120228

TRUCK OWNER'S NAME & ADDRESS JS Middex Corp Merrimac NH		DATE 4/20/00 DRIVER'S NAME Jeff
CONSIGNEE: City of Woburn		SHIPPER: Middex Corp
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (19.28)	WEIGHT WEIGHT IN 66940 WEIGHT OUT 28380 NET WEIGHT 38560

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/20/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010525		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/20/00	04/20/00	12:05	12:26		
REFERENCE			ORIGIN		
120228			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 66940 LB
 Scale 1 Tare Wt. 28380 LB
 Net Weight 38560 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.28	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 120229

TRUCK OWNER'S NAME & ADDRESS City of Woburn Merrimac St.		DATE 4/20/00	
CONSIGNEE: City of Woburn		DRIVER'S NAME Self	
SHIPPER: Middlesex Corp.			
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT
1	LOAD OF SOLID WASTE DIRT (19.16)	66540	28220
	NET WEIGHT		38320

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: Bob
DATE: 4/20/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010529		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/20/00	04/20/00	12:57	13:08			
REFERENCE			ORIGIN			
120229			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 66540 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 28220 LB
 Net Weight 38320 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.16	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120230

TRUCK OWNER'S NAME & ADDRESS <i>City of Woburn 202 Merrimac St Woburn, MA</i>		DATE <i>4/20/00</i>
CONSIGNEE: <i>City of Woburn</i>		DRIVER'S NAME <i>Self</i>
SHIPPER: <i>Middlesex Corp.</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT
	WEIGHT IN <i>63960</i>	
	WEIGHT OUT <i>28400</i>	
	NET WEIGHT <i>35560</i>	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/20/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish, trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER
02	010535		Bob Furness
DATE IN	DATE OUT	TIME IN	TIME OUT
04/20/00	04/20/00	13:40	13:48
REFERENCE	ORIGIN		
120230	WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 63960 LB Inbound - Cash ticket
Scale 1 Tare Wt. 28400 LB
Net Weight 35560 LB

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.78	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135028

TRUCK OWNER'S NAME & ADDRESS <i>Middlesex Corp 11000000</i>		DATE <i>4/20/00</i>
CONSIGNEE: <i>Woburn</i>		DRIVER'S NAME <i>Bob Furness</i>
SHIPPER: <i>Middlesex</i>		

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	WEIGHT
1	DIRT <i>(18.45)</i>	63640	26740	36900
	NET WEIGHT			36900

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Middlesex Corp*

BY: *Bob*

DATE: *4/20/00* TIME: _____ AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER
02	010465		Bob Furness
DATE IN	DATE OUT	TIME IN	TIME OUT
04/20/00	04/20/00	07:09	07:20
REFERENCE		ORIGIN	
135028		WOBURN TRANS. CENTER	

Scale 1 Gross Wt. 63640 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 26740 LB
 Net Weight 36900 LB

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
18.45	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT 0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

ERCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135029

TRUCK OWNER'S NAME & ADDRESS <i>Middlesex Corp</i> <i>One Spectacle Pond Rd</i>		DATE <i>4/20/00</i>
CONSIGNEE: <i>Woburn</i>		DRIVER'S NAME <i>Bob Furness</i>
SHIPPER: <i>Woburn</i>		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	WEIGHT IN
	<i>DIRT</i> 17.24	<i>60840</i>
	WEIGHT OUT	<i>26360</i>
	NET WEIGHT	<i>34480</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/20/00* **TIME:** _____ AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010479			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/20/00	04/20/00	07:59	08:04		
REFERENCE			ORIGIN		
135029			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 60840 LB
Scale 1 Tare Wt. 26360 LB
Net Weight 34480 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.24	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135077

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRUCKING</i>		DATE <i>04-20-00</i>
DRIVERS NAME <i>#2</i>		DRIVER'S NAME <i>DAVE</i>
CONSIGNEE: <i>City of Woburn</i>	SHIPPER: <i>Merrimac Corp.</i>	
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT
	WEIGHT IN <i>62140</i>	
	WEIGHT OUT <i>24040</i>	
	NET WEIGHT <i>38100</i>	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/20/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010464		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/20/00	04/20/00	07:08	07:17		
REFERENCE		ORIGIN			
135077		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 62140 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 24040 LB
 Net Weight 38100 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.05	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135078

TRUCK OWNER'S NAME & ADDRESS
 EIRCO ENVIRONMENTAL LLC
 HAMPTON NH 03842

DATE
 04-20-00

DRIVER'S NAME
 DINO

CONSIGNEE:
 City of Woburn

SHIPPER:
 Woburn Health Dept.

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	WEIGHT NET WEIGHT
1	LOAD OF SOLID WASTE	62800	24060	38740
	DIET (19.37)			

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM:
 WOBURN LANDFILL

BY:
 Bob

DATE: 4/20/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010476		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/20/00	04/20/00	07:45	07:57			
REFERENCE			ORIGIN			
135078			WOBURN TRANS. CENTER			

Scale 1 Gross Wt.	62800	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	24060	LB				
Net Weight	38740	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.37	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842

(800) 266-6222

No. 135079

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRUCKING</i>		DATE <i>04-20-00</i>
DRIVER'S NAME <i>DAVENS MASS.</i>		DRIVER'S NAME <i>DAVE</i>
CONSIGNEE: <i>City of Woburn</i>	SHIPPER: <i>Middlesex Corp.</i>	
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>DIRT</i>	WEIGHT
	LOAD OF SOLID WASTE	WEIGHT IN
	<i>20.82</i>	<i>24040</i>
	NET WEIGHT	<i>41640</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/20/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010489			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/20/00	04/20/00	08:39	08:53		
REFERENCE			ORIGIN		
135079			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	65680	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	24040	LB				
Net Weight	41640	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.82	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

ERCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135080

TRUCK OWNER'S NAME & ADDRESS EXCEL TRUCKING DRAVERS WMS #2		DATE 4/20/00
CONSIGNEE: City of Woburn		DRIVER'S NAME DAVE
SHIPPER: Middlesex Corp.		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	WEIGHT IN 63660
	DIRT 19.69	WEIGHT OUT 24280
		NET WEIGHT 39380

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: **Woburn Landfill**

BY: **Bob**

DATE: **4/20/00** TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010524		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/20/00	04/20/00	12:01	12:24		
REFERENCE		ORIGIN			
135080		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 63660 LB
Scale 1 Tare Wt. 24280 LB
Net Weight 39380 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.69	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010528			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/20/00	04/20/00	12:55	13:03		
REFERENCE			ORIGIN		
135081			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 62320 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 24000 LB
 Net Weight 38320 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.16	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135081

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRUCKING</i>		DATE <i>04-20-00</i>
DRIVER'S NAME <i>DAVE</i>		DRIVER'S NAME <i>DAVE</i>
CONSIGNEE: <i>City of Woburn</i>		SHIPPER: <i>Middlesex Corp.</i>
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT <i>62320</i>
	<i>DIRT</i>	<i>24000</i>
	<i>19.16</i>	<i>38320</i>
	NET WEIGHT	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *WOBURN LANDFILL*

BY: *Bob*

DATE: *4/20/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222
 No. 135082

TRUCK OWNER'S NAME & ADDRESS
EXCEL TRUCKLINES
DRIVER'S NAME
#2
 DATE
04-20-00
 DRIVER'S NAME
DYDE

CONSIGNEE:
City of Woburn Middlesex Corp.
 SHIPPER:

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	NET WEIGHT
1	LOAD OF SOLID WASTE	62200	24200	38000
	DIET	19.00		

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/20/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010534		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/20/00	04/20/00	13:33	13:45		
REFERENCE	ORIGIN				
135082	WOBURN TRANS. CENTER				

Scale 1 Gross Wt. 62200 LB
 Scale 1 Tare Wt. 24200 LB
 Net Weight 38000 LB
 Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.00	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135083

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRAILERS</i>		DATE <i>04-21-00</i>
DRIVERS NAME <i>#2</i>		DRIVER'S NAME <i>WAVE</i>
CONSIGNEE: <i>City of Woburn</i>	SHIPPER: <i>Middlesex Corp</i>	
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT
	WEIGHT IN <i>64560</i>	
	WEIGHT OUT <i>24200</i>	
	NET WEIGHT <i>40360</i>	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *WOBURN LANDFILL*

BY: *Bob*

DATE: *4/21/00* TIME: AM PM

thereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010571		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/21/00	04/21/00	08:35	08:45		
REFERENCE		ORIGIN			
135083		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 64560 LB
Scale 1 Tare Wt. 24200 LB
Net Weight 40360 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.18	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135084

TRUCK OWNER'S NAME & ADDRESS EXCEL TRUCKING MILLIS MASS. #2		DATE 04-21-00
CONSIGNEE: City of Woburn Middlesex Corp.		SHIPPER: Middlesex Corp.
NO. PIECES 1		DRIVER'S NAME DIVE
ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (19.98)		
	WEIGHT IN 64240	WEIGHT
	WEIGHT OUT 24280	24280
	NET WEIGHT 39960	39960
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: Woburn Landfill	BY: Bob	
DATE: 4/21/00	TIME:	<input type="checkbox"/> AM <input type="checkbox"/> PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010586			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/21/00	04/21/00	10:09	10:16		
REFERENCE			ORIGIN		
135084			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 64240 LB
Scale 1 Tare Wt. 24280 LB
Net Weight 39960 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.98	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842

(800) 266-6222

No. 120231

TRUCK OWNER'S NAME & ADDRESS 55 S. H. DR BIRCHMOUNT RD MERRIMAC, MA,		DATE 4/21/00
CONSIGNEE: City of Woburn		DRIVER'S NAME SELF
SHIPPER: Middlesex Corp		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIET (20.69)	WEIGHT 69600 28220 41380
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: Woburn Landfill	BY: Bob	DATE: 4/21/00
		TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010583			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/21/00	04/21/00	09:49	10:00		
REFERENCE			ORIGIN		
120231			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 69600 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 28220 LB
 Net Weight 41380 LB

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.69	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. **120232**

TRUCK OWNER'S NAME & ADDRESS City of Woburn 202 Merrimac Street Woburn, MA 01801		DATE 4/21/00
CONSIGNEE: City of Woburn		DRIVER'S NAME Jeff
SHIPPER: Middlesex Corp		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIET (18.14)	WEIGHT WEIGHT IN 64680 WEIGHT OUT 28400 NET WEIGHT 36280

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/21/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010603			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/21/00	04/21/00	11:24	11:33		
REFERENCE			ORIGIN		
120232			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 64680 LB
 Scale 1 Tare Wt. 28400 LB
 Net Weight 36280 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
18.14	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120233

TRUCK OWNER'S NAME & ADDRESS S-S S.H. DR Merrimac, MA		DATE 4/25/00
ONSIGNEE: City of Woburn Middlesex Corp		SHIPPER: Middlesex Corp
DRIVER'S NAME SFF		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT 20.20	WEIGHT 68220 27820 40400
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FROM: Woburn Landfill	BY: Bob	
DATE: 4/25/00	TIME:	<input type="checkbox"/> AM <input type="checkbox"/> PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010776			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/25/00	04/25/00	13:25	13:33		
REFERENCE			ORIGIN		
120233			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 68220 LB
Scale 1 Tare Wt. 27820 LB
Net Weight 40400 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.20	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135085

TRUCK OWNER'S NAME & ADDRESS EXCEL TRUCKING DRAVEIS WBS #2		DATE 04-25-00
CONSIGNEE: City of Woburn		DRIVER'S NAME DWADE
SHIPPER: Middlesex Corp.		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	WEIGHT IN 65040
		WEIGHT OUT 24420
		NET WEIGHT 40620

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

DATE: 4/25/00 TIME: AM PM

BY: BSK

FIRM: City of Woburn

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER
02	010768		Bob Furness
DATE IN	DATE OUT	TIME IN	TIME OUT
04/25/00	04/25/00	12:40	13:01
REFERENCE	ORIGIN		
135085	WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 65040 LB Inbound - Cash ticket
Scale 1 Tare Wt. 24420 LB
Net Weight 40620 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.31	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

P.O. Box 265
 Exempton, NH 03842
 (800) 266-6222
No. 135086

TRUCK OWNER'S NAME & ADDRESS EXCEL TRUCKING		DATE 04-25-00
DRIVER'S NAME WIDE		
SIGNATURE: <i>[Signature]</i>		
SHIPPER: City of Woburn Middlesex Corp.		
NO. PIECES 1	ARTICLES OR DESCRIPTION DIET (2.76)	WEIGHT 5520
LOAD OF SOLID WASTE		WEIGHT IN 29880
		WEIGHT OUT 24360
		NET WEIGHT 5520

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: **Woburn Landfill**

BY: **Bob**

DATE: **4/25/00** TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish, trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010780		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL O	
04/25/00	04/25/00	13:49	14:03			
REFERENCE			ORIGIN			
135086			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 29880 LB
 Scale 1 Tare Wt. 24360 LB
 Net Weight 5520 LB
 Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
2.76	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135087

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRUCKING</i>		DATE <i>04-26-00</i>
DRIVERS NAME <i>HJ</i>		DRIVER'S NAME <i>DRIVE</i>
ONSIGNEE: <i>City of Woburn</i>	SHIPPER: <i>Middlesex Corp.</i>	
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT <i>63700</i>
	WEIGHT OUT <i>24320</i>	
	NET WEIGHT <i>39380</i>	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/26/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010816			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/26/00	04/26/00	08:31	08:39		
REFERENCE			ORIGIN		
135087			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 63700 LB
Scale 1 Tare Wt. 24320 LB
Net Weight 39380 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.69	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:

7:00 AM - 4:00 PM Monday Thru Friday

Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. **135088**

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRUCKING</i> <i>1400 ERS APTS</i>		DATE <i>04-26-00</i>
ONSIGNEE: <i>City of Woburn</i>		DRIVER'S NAME <i>DAVE</i>
SHIPPER: <i>Middlesex Corp</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT
	WEIGHT IN <i>41860</i>	
	WEIGHT OUT <i>24200</i>	
	NET WEIGHT <i>17660</i>	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/26/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010826		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/26/00	04/26/00	09:20	09:29		
REFERENCE			ORIGIN		
135088			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	41860	LB	Inbound - Cash ticket
Scale 1 Tare Wt.	24200	LB	
Net Weight	17660	LB	

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
8.83	TON	Soil	- 0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135089

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRUCK INC.</i>		DATE <i>04-27-00</i>
CONSIGNEE: <i>City of Woburn</i>		DRIVER'S NAME <i>PIVIG</i>
SHIPPER: <i>Middlesex Corp.</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>DIET</i>	WEIGHT
	LOAD OF SOLID WASTE	WEIGHT IN <i>57540</i>
	<i>(15.66)</i>	WEIGHT OUT <i>26220</i>
	NET WEIGHT	<i>31320</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Rafk*

DATE: *4/27/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01450

SITE	TICKET	GRID	WEIGHMASTER		
02	010916		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/27/00	04/27/00	09:50	10:00		
REFERENCE		ORIGIN			
135089		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 57540 LB
Scale 1 Tare Wt. 26220 LB
Net Weight 31320 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
15.66	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222
 No. **120215**

TRUCK OWNER'S NAME & ADDRESS <i>Self Sullivan</i>		DATE <i>4/19/00</i>
CONSIGNEE: <i>City of Woburn</i>		DRIVER'S NAME <i>SFF</i>
SHIPPER: <i>MIDDLESEX</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT
	WEIGHT IN <i>68280</i>	
	WEIGHT OUT <i>28146</i>	
	NET WEIGHT <i>40140</i>	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*
 BY: *[Signature]*
 DATE: *4/19/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010406		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/19/00	04/19/00	10:34	10:45			
REFERENCE			ORIGIN			
120215			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 68280 LB
 Scale 1 Tare Wt. 28140 LB
 Net Weight 40140 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.07	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 120216

TRUCK OWNER'S NAME & ADDRESS <i>City of Woburn</i>		DATE <i>4/19/00</i>
CONSIGNEE: <i>City of Woburn</i>		DRIVER'S NAME <i>Jeff</i>
SHIPPER: <i>Middlesex Corp</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT
	WEIGHT IN	<i>69260</i>
	WEIGHT OUT	<i>27820</i>
	NET WEIGHT	<i>41440</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*
 BY: *Bob*
 DATE: *4/19/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 102 Merrimac Street
 Woburn, MA 01801

00370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010413		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	11:23	11:31		
REFERENCE		ORIGIN			
120216		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 69260 LB
 Scale 1 Tare Wt. 27820 LB
 Net Weight 41440 LB

Inbound - Cash ticket

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.72	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 00 AM - 4:00 PM Monday Thru Friday
 member to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 120217

TRUCK OWNER'S NAME & ADDRESS 555 - 11000 Merrimack Rd Merrimack MA		DATE 4/19/00
CONSIGNEE: City of Woburn		DRIVER'S NAME SFF
SHIPPER: Woburn Corp		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (17.51)	WEIGHT 62660 27640 35020
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: Woburn Landfill BY: Bob DATE: 4/19/00 TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM		

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludges, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010430		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	12:51	13:01		
REFERENCE		ORIGIN			
120217		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 62660 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 27640 LB
 Net Weight 35020 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.51	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 120218

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/19/00 TIME: AM PM

TRUCK OWNERS NAME & ADDRESS <u>City of Woburn</u>		DATE <u>4/19/00</u>	
CONSIGNEE: <u>City of Woburn</u>		SHIPPER: <u>Middlesex Corp</u>	
DRIVER'S NAME <u>Jeff</u>			
NO. PIECES <u>1</u>	ARTICLES OR DESCRIPTION <u>DIRT (17.67)</u>	WEIGHT IN <u>63120</u>	WEIGHT OUT <u>27780</u>
	NET WEIGHT <u>35340</u>		

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER	
02	010438		Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE
04/19/00	04/19/00	13:36	13:47	
REFERENCE		ORIGIN		
120218		WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 63120 LB
 Scale 1 Tare Wt. 27780 LB
 Net Weight 35340 LB

Inbound - Cash ticket

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.67	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120219

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: MORVEL LANDFILL

BY: Bob

DATE: 4/19/00 TIME: AM PM

TRUCK OWNER'S NAME & ADDRESS		DATE	
<u>City of Woburn</u>		<u>4/19/00</u>	
CONSIGNEE:		DRIVER'S NAME	
<u>City of Woburn</u>		<u>Bob</u>	
SHIPPER:		WEIGHT	
<u>Merrimac Corp.</u>		<u>65840</u>	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT
<u>1</u>	<u>LOAD OF SOLID WASTE</u>	<u>65840</u>	<u>27440</u>
	<u>DIRT</u>	<u>19.20</u>	<u>38400</u>
		NET WEIGHT	

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

100370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER	
02	010444		Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE
04/19/00	04/19/00	14:21	14:32	
REFERENCE		ORIGIN		
120219		WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 65840 LB
Scale 1 Tare Wt. 27440 LB
Net Weight 38400 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.20	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
6:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 120220

TRUCK OWNER'S NAME & ADDRESS T.S. Sullivan BIRKENHEAD CO. INC WELLS RICE MA		DATE 4/19/00
CONSIGNEE: City of Woburn		DRIVER'S NAME TIF
SHIPPER: Middlesex Corp		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	66260
	DIET (19.30)	27660
	NET WEIGHT	38600

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/19/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010456		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/19/00	04/19/00	15:06	15:16			
REFERENCE			ORIGIN			
120220			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 66260 LB
Scale 1 Tare Wt. 27660 LB
Net Weight 38600 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.30	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. **120221**

TRUCK OWNER'S NAME & ADDRESS		DATE
City of Woburn 02 Merrimac Street Woburn, MA 01801		4/19/00
CONSIGNEE:		DRIVER'S NAME
City of Woburn		Self
SHIPPER:		
City of Woburn Corp		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	66320
	WEIGHT IN	27360
	WEIGHT OUT	38960
	NET WEIGHT	38960

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/19/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
02 Merrimac Street
Woburn, MA 01801

00370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010462		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	15:54	16:02		
REFERENCE		ORIGIN			
120221		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 66320 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 27360 LB
 Net Weight 38960 LB

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.48	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
6:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135016

TRUCK OWNER'S NAME & ADDRESS Middlesex Corp One Spectacle Pond Road Littleton MA		DATE 4/19/00
CONSIGNEE: City of Woburn		DRIVER'S NAME Bob Furness
SHIPPER: Woburn		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT	WEIGHT 68440
	WEIGHT IN 26700	WEIGHT OUT 41740
	NET WEIGHT 20.87	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: Bob
DATE: 4/19/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010373		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	07:15	07:26		
REFERENCE		ORIGIN			
135016		WOBURN TRANS. CENTER			

Scale 1 Gross Wt.	68440	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	26700	LB				
Net Weight	41740	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.87	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135017

TRUCK OWNER'S NAME & ADDRESS Middlesex Corp One Spectacle Pond Rd Littleton		DATE 4/19/00
ONSIGNEE: Woburn		SHIPPER: M. M. M.
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIET	DRIVER'S NAME Bob Furness
	WEIGHT IN 69920	
	WEIGHT OUT 26560	
	NET WEIGHT 43360	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FRM: Woburn Landfill
BY: BT
DATE: 4/19/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE		TICKET		GRID		WEIGHMASTER	
02		010378				Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF		
04/19/00	04/19/00	07:59	08:08				
REFERENCE				ORIGIN			
135017				WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 69920 LB
Scale 1 Tare Wt. 26560 LB
Net Weight 43360 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.68	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

IRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135018

TRUCK OWNER'S NAME & ADDRESS <i>Middlesex Corp One Spectacle Pond Rd Littleton, MA</i>		DATE <i>4/19/00</i>
CONSIGNEE: <i>Woburn</i>		DRIVER'S NAME <i>Bob Furness</i>
SHIPPER: <i>Middlesex</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>DIET (20.17)</i>	WEIGHT <i>66880</i>
	LOAD OF SOLID WASTE	WEIGHT IN <i>26540</i>
		WEIGHT OUT
		NET WEIGHT <i>40340</i>

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *WOBURN LANDFILL*

BY: *Bob*

DATE: *4/19/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010388			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	08:47	08:55		
REFERENCE		ORIGIN			
135018		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 66880 LB
Scale 1 Tare Wt. 26540 LB
Net Weight 40340 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.17	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135019

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/19/00 TIME: AM PM

NO. PIECES		ARTICLES OR DESCRIPTION		WEIGHT	
1		LOAD OF SOLID WASTE		67500	
		DIET <u>20.43</u>		26640	
		NET WEIGHT		40860	

TRUCK OWNER'S NAME & ADDRESS: M. Miller Corp
One Spectacle Pond Rd
Littleton

SHIPPER: M. Miller Corp

ONSIGNEE: Woburn

DATE: 4/19/00

DRIVER'S NAME: Bob Furness

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010396			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	09:36	09:43		
REFERENCE			ORIGIN		
135019			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	67500	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	26640	LB				
Net Weight	40860	LB				
QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.43	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135020

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/19/00 TIME: AM PM

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	NET WEIGHT
1	DIRT	66020	26840	39180
	(19.59)			

TRUCK OWNER'S NAME & ADDRESS: Middlesex
 DRIVER'S NAME: Bob Furness
 DATE: 4/19/00
 CONSIGNEE: Woburn
 SHIPPER: Middlesex

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010404		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	10:13	10:20		
REFERENCE		ORIGIN			
135020		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 66020 LB
 Scale 1 Tare Wt. 26840 LB
 Net Weight 39180 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.59	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135021

TRUCK OWNER'S NAME & ADDRESS Middlesex Corp. One Spectacle Pond Road Littleton MA		DATE 4/19/00
CONSIGNEE: Woburn		SHIPPER: Middlesex
DRIVER'S NAME Bob Furness		
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE	WEIGHT 67760
	WEIGHT IN 67760	WEIGHT OUT 26780
	NET WEIGHT 40980	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: Bob
DATE: 4/19/00 AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER	
02	010408		Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE
04/19/00	04/19/00	10:43	10:52	
REFERENCE		ORIGIN		
135021		WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 67760 LB
Scale 1 Tare Wt. 26780 LB
Net Weight 40980 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.49	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135022

TRUCK OWNER'S NAME & ADDRESS Middlesex Corp One Spectacle Pond Road Littleton MA		DATE 4/19/00 DRIVER'S NAME Will Furness
CONSIGNEE: Woburn	SHIPPER: Middlesex	
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (20.47)	WEIGHT WEIGHT IN: 67400 WEIGHT OUT: 26460 NET WEIGHT: 40940

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/19/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010414		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	11:25	11:33		
REFERENCE		ORIGIN			
135022		WOBURN TRANS. CENTER			

Scale 1 Gross Wt.	67400	LB	Inbound - Cash ticket
Scale 1 Tare Wt.	26460	LB	
Net Weight	40940	LB	

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.47	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

FIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135023

TRUCK OWNER'S NAME & ADDRESS Middlesex Corp One Spectacle Pond Rd Littleton		DATE 4/19/00
CONSIGNEE: Woburn		DRIVER'S NAME Bob Furness
SHIPPER: Middlesex		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
	LOAD OF SOLID WASTE	WEIGHT IN
	DIRT	26780
	13.58	27160
	NET WEIGHT	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
 BY: Bob
 DATE: 4/19/00 TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010426		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/19/00	04/19/00	12:32	12:38			
REFERENCE			ORIGIN			
135023			WOBURN TRANS. CENTER			

Scale 1 Gross Wt.	53940	LB	Inbound - Cash ticket			
Scale 1 Tare Wt.	26780	LB				
Net Weight	27160	LB				
QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
13.58	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135024

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill

BY: Bob

DATE: 4/19/00 TIME: AM PM

TRUCK OWNER'S NAME & ADDRESS <u>Middlesex Corp</u> <u>One Spectacle Pond Rd</u> <u>Littleton</u>		DATE <u>4/19/00</u>
CONSIGNEE: <u>Woburn</u>		DRIVER'S NAME <u>Bob Furness</u>
SHIPPER: <u>Middlesex</u>		
NO. PIECES <u>1</u>	ARTICLES OR DESCRIPTION <u>LOAD OF SOLID WASTE</u>	WEIGHT
	WEIGHT IN <u>60600</u>	
	WEIGHT OUT <u>26400</u>	
	NET WEIGHT <u>34200</u>	

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER			
02	010434		Bob Furness			
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF	
04/19/00	04/19/00	13:11	13:18			
REFERENCE			ORIGIN			
135024			WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 60600 LB
Scale 1 Tare Wt. 26400 LB
Net Weight 34200 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
17.10	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135025

TRUCK OWNER'S NAME & ADDRESS Middlesex Corp One Spectacle Pond Rd Littleton, MA 01460		DATE 4/19/00
CONSIGNEE: Woburn		SHIPPER: Middlesex
DRIVER'S NAME Bob Furness		DATE 4/19/00
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT (19.67)	WEIGHT 65940
	WEIGHT IN	26600
	WEIGHT OUT	39340
	NET WEIGHT	39340

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: Woburn Landfill
BY: Bob
DATE: 4/19/00 **TIME:** AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010441		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	13:50	13:56		
REFERENCE			ORIGIN		
135025			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 65940 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 26600 LB
 Net Weight 39340 LB

QTY	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.67	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135026

TRUCK OWNER'S NAME & ADDRESS <i>Middlesex Corp One Spectacle Pond Road Littleton MA</i>		DATE <i>4/19/00</i>
CONSIGNEE: <i>Woburn</i>		SHIPPER: <i>Middlesex</i>
DRIVER'S NAME <i>Bob Furness</i>		
NO. PIECES <i>1</i>	ARTICLES OR DESCRIPTION <i>LOAD OF SOLID WASTE</i>	WEIGHT
	WEIGHT IN <i>66720</i>	
	WEIGHT OUT <i>26580</i>	
	NET WEIGHT <i>40140</i>	
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: <i>WOBURN LANDFILL</i>		
BY: <i>Bob</i>		
DATE: <i>4/19/00</i> TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM		

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish, trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE		TICKET		GRID		WEIGHMASTER	
02		010446				Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF		
04/19/00	04/19/00	14:36	14:42				
REFERENCE				ORIGIN			
135026				WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 66720 LB
Scale 1 Tare Wt. 26580 LB
Net Weight 40140 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.07	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135027

TRUCK OWNER'S NAME & ADDRESS Woburn Trans. Center 152 Lakeside		DATE 4/19/00
CONSIGNEE: Woburn		DRIVER'S NAME Bob Furness
SHIPPER: P.O. BOX 265 X		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	66400
	DIRT	26220
	WEIGHT OUT	40180
	NET WEIGHT	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: WOBURN LANDFILL

BY: Bob

DATE: 4/19/00 TIME: AM PM

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City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010457		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	15:21	15:32		
REFERENCE		ORIGIN			
135027		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 66400 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 26220 LB
 Net Weight 40180 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.09	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC
 P.O. Box 265
 Hampton, NH 03842
 (800) 266-6222

No. 135066

TRUCK OWNER'S NAME & ADDRESS		DATE
EXCEL TRUCKING		04-19-00
DANIELS WASS		DRIVER'S NAME
#2		DAVE
CONSIGNEE:	SHIPPER:	
City of Woburn	Middlesex Corp.	
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	WEIGHT IN 64440
	WEIGHT OUT 23680	NET WEIGHT 40760
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: <u>Woburn Landfill</u>		
BY: <u>Bob</u>		
DATE: <u>4/19/00</u> TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM		

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of solid waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
 202 Merrimac Street
 Woburn, MA 01801

000370 MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010374			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	07:24	07:37		
REFERENCE			ORIGIN		
135066			WOBURN TRANS. CENTER		

Scale 1 Gross Wt.	64440	LB	Inbound - Cash ticket
Scale 1 Tare Wt.	23680	LB	
Net Weight	40760	LB	

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.38	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
 7:00 AM - 4:00 PM Monday Thru Friday
 Remember to use the dedicated truck Route.

NET AMOUNT
0.00
TENDERED
CHANGE
CHECK NO.

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135067

TRUCK OWNER'S NAME & ADDRESS EXCEL TRUCKING DUNLEAKS WBS. #2		DATE 04-19-00
CONSIGNEE: <i>City of Woburn</i>		SHIPPER: <i>Middlesex Corp.</i>
NO. PIECES 1		DRIVER'S NAME <i>Spade</i>
ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE		
WEIGHT IN 67540	WEIGHT OUT 23780	
NET WEIGHT 43760		
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: <i>Woburn Landfill</i>		
BY: <i>Bob</i>		
DATE: <i>4/19/00</i> TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM		

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID		WEIGHMASTER	
02	010383			Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	08:22	08:31		
REFERENCE			ORIGIN		
135067			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 67540 LB
Scale 1 Tare Wt. 23780 LB
Net Weight 43760 LB
Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
21.88	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135068

TRUCK OWNER'S NAME & ADDRESS <i>EXCEL TRAILERS</i>		DATE <i>04-19-00</i>
CONSIGNEE: <i>City of Woburn</i>		DRIVER'S NAME <i>JAMES</i>
SHIPPER: <i>Middlesex Corp.</i>		
NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT
1	LOAD OF SOLID WASTE	WEIGHT IN <i>63280</i>
		WEIGHT OUT <i>23520</i>
		NET WEIGHT <i>39760</i>
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: <i>Woburn Landfill</i>		
BY: _____		
DATE: <i>4/19/00</i> TIME: _____ <input type="checkbox"/> AM <input type="checkbox"/> PM		

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010395		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	09:30	09:39		
REFERENCE		ORIGIN			
135068		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 63280 LB
Scale 1 Tare Wt. 23520 LB
Net Weight 39760 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.88	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

EIRCO ENVIRONMENTAL LLC

No. 135069

P.O. Box 265
Hampden, NH 03842
(800) 266-6222

TRUCK OWNER'S NAME & ADDRESS EXCEL TRUCKING DRAVER'S MASS. # 2		DATE 04-19-00
CONSIGNEE: City of Woburn		SHIPPER: Middlesex Corp.
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE DIRT	WEIGHT WEIGHT IN: 63160 WEIGHT OUT: 23860 NET WEIGHT: 39300
RECEIVED ABOVE MATERIAL IN GOOD CONDITION		
FIRM: Woburn Landfill		
BY: Bob		
DATE: 4/19/00 TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM		

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE		TICKET		GRID		WEIGHMASTER	
02		010401				Bob Furness	
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF		
04/19/00	04/19/00	10:09	10:17				
REFERENCE				ORIGIN			
135069				WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 63160 LB Inbound - Cash ticket
 Scale 1 Tare Wt. 23860 LB
 Net Weight 39300 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.65	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

ERCO ENVIRONMENTAL LLC

No. 135070

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

TRUCK OWNER'S NAME & ADDRESS <i>ERCO ENVIRONMENTAL LLC</i>		DATE <i>04-19-00</i>
DRIVER'S NAME <i>DRIVERS MASS</i>		DRIVER'S NAME <i>DAVE</i>
CONSIGNEE <i>City of Woburn</i>		SHIPPER <i>Middlesex Corp.</i>

NO. PIECES	ARTICLES OR DESCRIPTION	WEIGHT IN	WEIGHT OUT	NET WEIGHT
1	LOAD OF SOLID WASTE	63600	23940	39660
	<i>DIET</i> (19.83)			

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: *Woburn Landfill*

BY: *Bob*

DATE: *4/19/00* TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal non-toxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010410		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	10:50	11:00		
REFERENCE		ORIGIN			
135070		WOBURN TRANS. CENTER			

Scale 1 Gross Wt. 63600 LB Inbound - Cash ticket
Scale 1 Tare Wt. 23940 LB
Net Weight 39660 LB

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
19.83	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

FIRCO ENVIRONMENTAL LLC

P.O. Box 265
Hampton, NH 03842
(800) 266-6222

No. 135071

TRUCK OWNER'S NAME & ADDRESS EXCEL TRUCK LHS		DATE 04-19-00
DRIVERS NAME DRUENS WASS		DRIVER'S NAME DRUE
CONSIGNEE: City of Woburn		SHIPPER: Middlesex Corp.
NO. PIECES 1	ARTICLES OR DESCRIPTION LOAD OF SOLID WASTE	WEIGHT 64820
	WEIGHT IN DIRT 20.32	WEIGHT OUT 24180
	NET WEIGHT 40640	

RECEIVED ABOVE MATERIAL IN GOOD CONDITION

FIRM: **Woburn Landfill**

BY: **Bob**

DATE: **4/19/00** TIME: AM PM

I hereby certify that the above described equipment contains only solid waste, that meets with all federal, state and/or local regulations as to the definition of said waste containing animal and vegetable matter, rubbish trash, debris, ash, and metal nontoxic sludge, and other waste materials which is not radioactive, volatile, highly flammable, explosive, toxic, infectious, or hazardous nature as listed.

City of Woburn Landfill
202 Merrimac Street
Woburn, MA 01801

000370 MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON MA 01460

SITE	TICKET	GRID	WEIGHMASTER		
02	010420		Bob Furness		
DATE IN	DATE OUT	TIME IN	TIME OUT	VEHICLE	ROLL OFF
04/19/00	04/19/00	11:58	12:13		
REFERENCE			ORIGIN		
135071			WOBURN TRANS. CENTER		

Scale 1 Gross Wt. 64920 LB
Scale 1 Tare Wt. 24180 LB
Net Weight 40640 LB

Inbound - Cash ticket

QTY.	UNIT	DESCRIPTION	RATE	EXTENSION	FEE	TOTAL
20.32	TON	Soil	0.00	0.00	0.00	0.00

Hours of Operation:
7:00 AM - 4:00 PM Monday Thru Friday
Remember to use the dedicated truck Route.

NET AMOUNT	0.00
TENDERED	
CHANGE	
CHECK NO.	

SIGNATURE _____

APPENDIX F – QUALITY CONTROL DOCUMENTATION

F.1 – IMPORTED MATERIALS: GRAVEL

Submittal 02509-001-00
Ordinary Borrow; Gravel Borrow

Massport Project 1.727
Woburn Regional Transportation Center

Enclosed are sieve analysis results on two materials from Middlesex Corporation's pit in Littleton, MA. The first sieve analysis (sample # 7904B) is for material from the "north pile" which is proposed for use as Ordinary Borrow. The second sieve analysis (sample # 7979) is for material from "pile A" which is proposed for use as Gravel Borrow.

Also enclosed are chemical analysis test results. Adam Westhaver of BATG (environmental consultant for The Middlesex Corporation) took a sample of the Ordinary Borrow and had Con-Test analytical laboratory perform the chemical analysis.

As both the Ordinary Borrow and Gravel Borrow are from the same source, it is The Middlesex Corporation's understanding that only one chemical analysis is needed. If additional testing is needed, it will be performed upon request.

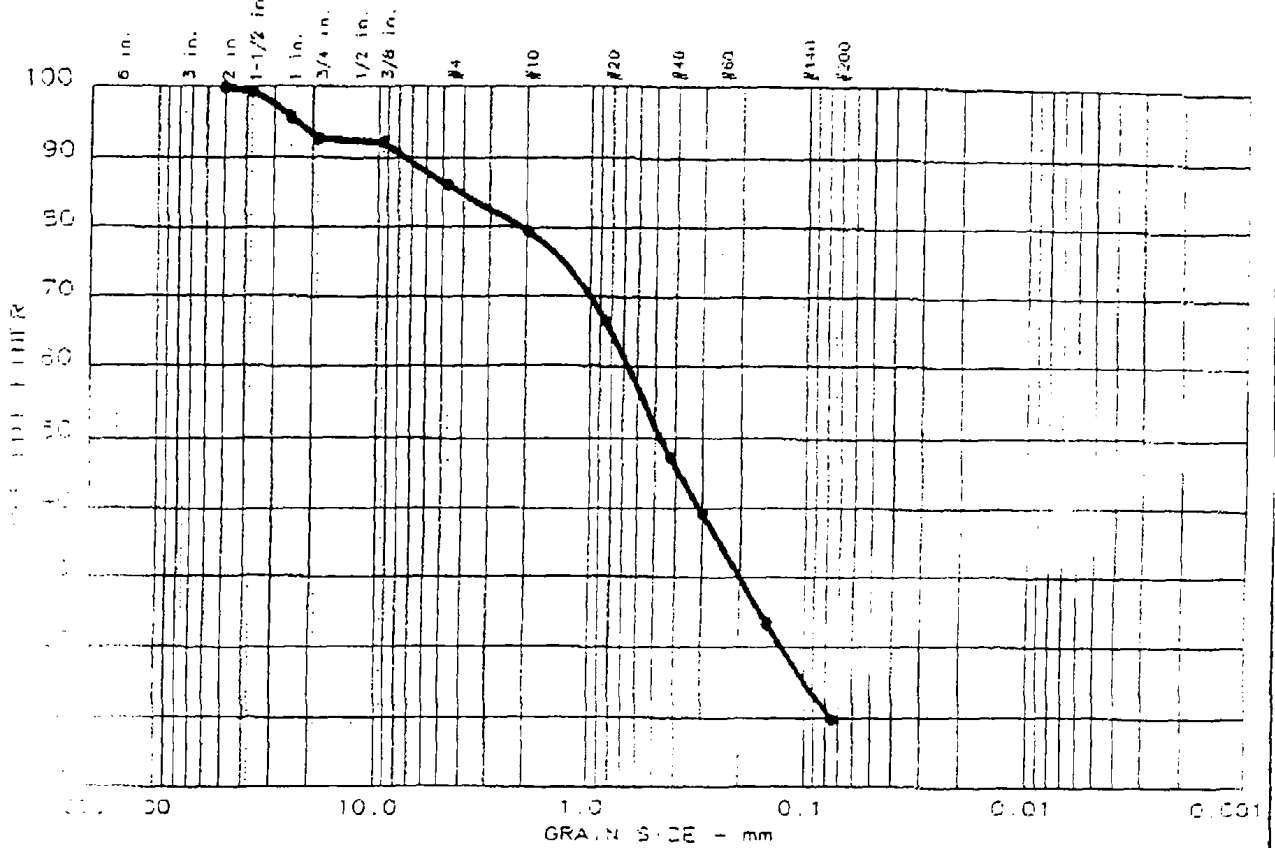
Approval by Environmental Department

PASSPORT PROJECT NO. 1.727	
REGIONAL TRANSPORTATION CENTER	
SUBMITTAL NO. 02509-001-00	DATE 3/4/00
I hereby certify that the performance and quality of the project described in the project documents and the information provided in the submittal documents, including the shop drawings, and the proposed materials and methods of construction, will be in accordance with the contract documents and the approved design process for the project. I am responsible for the work of all subcontractors and suppliers for assuring consistency of the work.	
Approved by: <u>LL Robinson</u>	
The Middlesex Corporation	
Date: <u>3/4/00</u>	

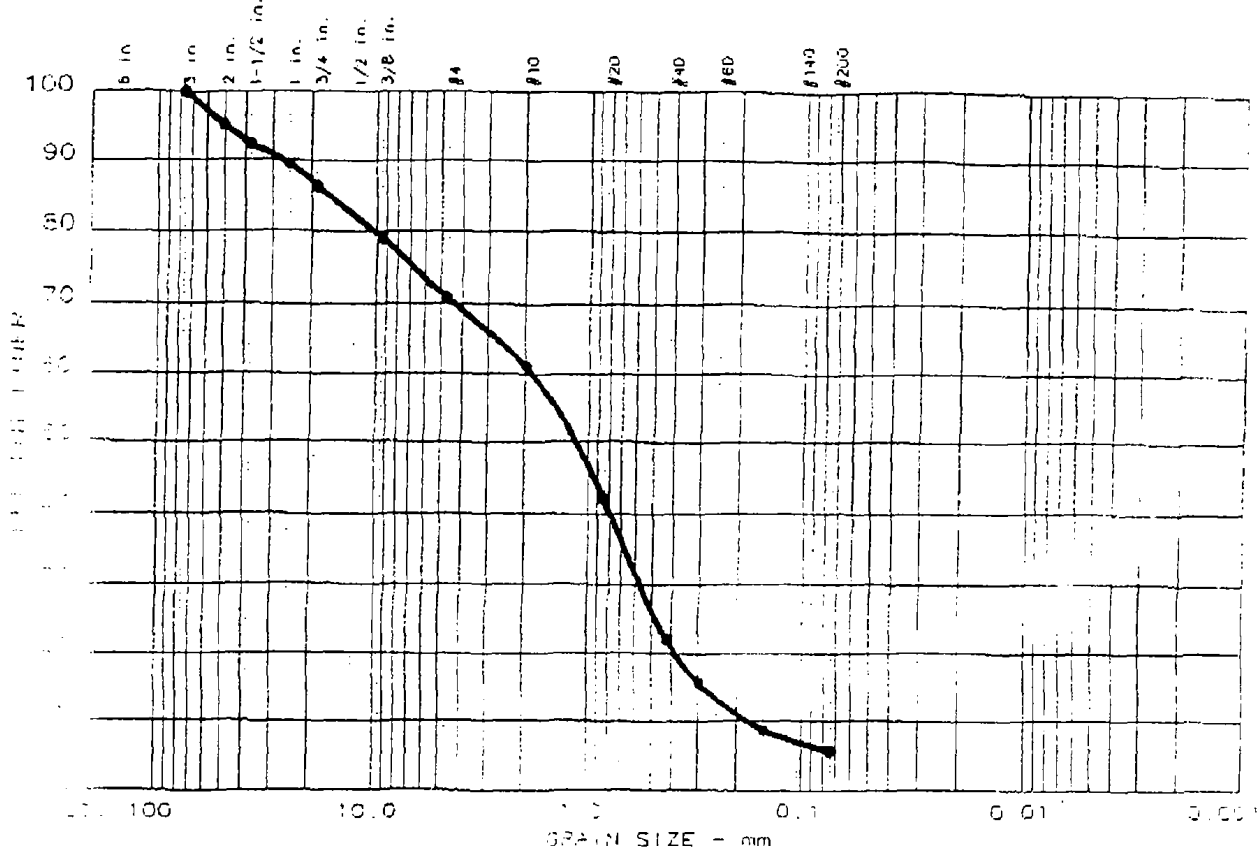
THE MIDDLESEX CORPORATION	
Regional Transportation Center - Woburn, MA	
MPA Project No. 1.727	
This shop drawing has been thoroughly checked and complies with the Contract Documents and field measurements and the item fits with adjoining work except as noted.	
SUBMITTAL # <u>02509-001-00</u>	DATE: <u>3/4/00</u>
BY: <u>JLB</u>	

3/8/00

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



#	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
1	29.1	65.3		5.6	SP-SM		

GRAIN SIZE	PERCENT FINER
75	95.1
60	89.4
47.5	85.3
37.5	70.9
30	61.1
25	42.0
20	22.1
15	13.7
12.5	8.7
10	5.7

GRAIN SIZE	PERCENT FINER
0.850	100
0.425	100
0.250	100
0.150	100
0.075	5.7

COEFFICIENTS	
C_u	0.96
C_c	10.4

SIEVE number size	PERCENT FINER
4	70.9
10	61.1
20	42.0
40	22.1
50	13.7
100	8.7
200	5.7

Location:
 • LITTLETON PIT, PILE #4

Description:
 • F-M SAND, SOME GRAVEL, TRACE SILT

Remarks:
 #100 WASH SIEVE

UTS OF MASSACHUSETTS, INC.
 REVIEWED BY: *William P. Collette*

UTS OF MASSACHUSETTS, INC. 5 Richardson Lane Stoneham, MA 02180	Project No.: 6130 Project: REGIONAL TRANSPORTATION CENTER, WOBURN, MA Date: 03/08/2000 Sample No.: 7979
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RECEIVED FEB 22 2000

February 17, 2000

Report No. 25.19219.0002-1

Mr. Adam Westhaver
BATG Environmental
150 Recreation Park Dr., Unit #5
Hingham, MA 02043

Re: Woburn Regional
Transportation Center

Gentlemen:

The following are test results of a sample of soil as delivered to this laboratory on 2-8-00.

1. Sample Description
- | <u>Sample No.</u> | <u>Description</u> | <u>Source</u> |
|-------------------|--------------------|--------------------|
| C-38 | Sandy Gravel | BATG Environmental |

2. Washed Sieve Analysis (% passing by weight)

<u>Sieve Size (mm)</u>	<u>Result</u>
1" (25.0)	100
3/4 (19.0)	96
1/2 (12.5)	87
3/8 (9.5)	82
#4 (4.75)	77
10 (2.00)	72
20 (.850)	66
40 (.425)	56
50 (.300)	29
80 (.180)	15
200 (.075)	9.4

Should you have any questions or require additional information, please do not hesitate to call.

Sincerely,

Thomas Bowker
Regional Division Manager

TB/dc





39 Spruce Street • 2nd Floor • East Longmeadow, MA 01028 • FAX 413/525-6405 • TEL 413/525-2332

BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: ADAM WESTHAVER

REPORT DATE: 02/16/00

PURCHASE ORDER NUMBER: 00-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-46635
JOB NUMBER: 00-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WRTC

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
MLO#1	00802723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	8260 sludge (a)
MLO#1	00802723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	8260 sludge (b)
MLO#1	00802723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	8270-sludge br-1
MLO#1	00802723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	8270-sludge br-2
MLO#1	00802723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	8270-sludge-acid
MLO#1	00802723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	cyanide-tot slag
MLO#1	00802723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	metals-3 sig icp
MLO#1	00802723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	pest/pcbs-sludge
MLO#1	00802723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	solids (percent)
MLO#1	00802723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	tph gc dry 8100m

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308	AIHA ELLAP (LEAD) 6836
MASSACHUSETTS MA100	NEW HAMPSHIRE 2516
CONNECTICUT PH-3567	VERMONT DDP (LEAD) No. 15036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson
SIGNATURE DATE

Ted Kopycinski
Director of Operations

Edward Denson
Technical Director



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02/16/00

ADAM WESTHAVER
BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043

page 1 of 13

Purchase Order Number: 00-100

Project Location: WRTC
Date Received: 02/08/00

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00802723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Acetone	mg/kg dry wt	ND	02/14/00	WSD	0.112		
Acrolein	mg/kg dry wt	ND	02/14/00	WSD	0.045		
Acrylonitrile	mg/kg dry wt	ND	02/14/00	WSD	0.017		
Benzene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Bromobenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
Bromochloromethane	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
Bromodichloromethane	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
Bromomethane	mg/kg dry wt	ND	02/14/00	WSD	0.003		
Bromotoluene	mg/kg dry wt	ND	02/14/00	WSD	0.003		
Chlorobenzene (MEK)	mg/kg dry wt	ND	02/14/00	WSD	0.027		
1,2-Dichlorobenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
1,3-Dichlorobenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
1,4-Dichlorobenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
Carbon Disulfide	mg/kg dry wt	ND	02/14/00	WSD	0.007		
Carbon Tetrachloride	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Chlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Chloroacetylmethane	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Chloroethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		
Chloropropylvinylether	mg/kg dry wt	ND	02/14/00	WSD	0.021		
Chlorotoluene	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,1-Dichloroethane	mg/kg dry wt	ND	02/14/00	WSD	0.034		
1,1-Dichloroethene	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
1,1-Dibromo-3-Chloroethane	mg/kg dry wt.	ND	02/14/00	WSD	0.004		
1,2-Dichloroethane	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
Dibromomethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,2-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,3-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
1,4-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.002		
dis-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	02/14/00	WSD	0.005		
trans-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	02/14/00	WSD	0.005		
Dichlorodifluoromethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		

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ND = Not Detected
SDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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02/16/00

page 3 of 13

Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00802723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Trichloroethylene	mg/kg dry wt	ND	02/14/00	WSD	0.002		
Trichlorofluoromethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,2,3-Trichloropropane	mg/kg dry wt	ND	02/14/00	WSD	0.003		
1,2,4-Trimethylbenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
1,3,5-Trimethylbenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
Vinyl Acetate	mg/kg dry wt	ND	02/14/00	WSD	0.037		
Vinyl Chloride	mg/kg dry wt	ND	02/14/00	WSD	0.001		
m-Xylene	mg/kg dry wt	ND	02/14/00	WSD	0.003		
o + p Xylene	mg/kg dry wt	ND	02/14/00	WSD	0.001		

Analytical Method(s):

SW846 8260

SAMPLES ARE CONCENTRATED BY PURGE & TRAP, FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

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NM = Not Measured

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00802723	Date	Analyst	MDL	SPEC LIMIT	P/F
Acenaphthene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Acenaphthylene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Aniline	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Anthracene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Benzidine	mg/kg dry wt	ND	02/14/00	WSD	2.40		
Benzoic Acid	mg/kg dry wt	ND	02/14/00	WSD	1.03		
Benzo(a)anthracene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Benzo(a)pyrene	mg/kg dry wt	ND	02/14/00	WSD	0.69		
Benzo(b)fluoranthene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Benzo(g,h,i)perylene	mg/kg dry wt	ND	02/14/00	WSD	1.03		
Benzo(k)fluoranthene	mg/kg dry wt	ND	02/14/00	WSD	0.69		
Benzyl Alcohol	mg/kg dry wt	ND	02/14/00	WSD	0.69		
1-(2-chloroethoxy)methane	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1-(2-chloroethyl)ether	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1-(2-chloroisopropyl)ether	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1-(2-ethylhexyl)pnthalate	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1-(4-phenyl phenyl) ether	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1-(4-benzyl)phthalate	mg/kg dry wt	ND	02/14/00	WSD	0.69		
1-(4-propyl)aniline	mg/kg dry wt	ND	02/14/00	WSD	0.69		
1-(4-propyl)-3-methylphenol	mg/kg dry wt	ND	02/14/00	WSD	0.69		
1-(4-propyl)anthracene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1-(4-propyl)benzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1-(4-propyl)phenyl ether	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1-methylbenzene	mg/kg dry wt	ND	02/14/00	WSD	0.69		
1-methylpiperan	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1-(benzo(a,h)anthracene	mg/kg dry wt	ND	02/14/00	WSD	0.69		
1,2-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1,3-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1,4-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
3,3'-Dichlorobenzidine	mg/kg dry wt	ND	02/14/00	WSD	0.69		
2,4-Dichlorophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Diethylpnthalate	mg/kg dry wt	ND	02/14/00	WSD	0.34		

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02/16/00

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00802723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Phenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Pyrene	mg/kg dry wt	ND	02/14/00	WSD	1.00		
Pyridine	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1,2,4-Trichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2,4,5-Trichlorophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2,4,6-Trichlorophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		

Analytical Method(s):

SW846 8270

SAMPLES ARE EXTRACTED IN METHYLENE CHLORIDE/ACETONE AND FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

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02/16/00

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635

Job Number: 00-100

Sample Matrix: SOIL

Sampled: 02/07/00

MIDDLESEX LITTLETON OVER BORDER #1

MLO#1

	Units	00802723	Date Analyzed	Analyst	MCL	SPEC LIMIT	P/F
Cyanide	mg/kg dry wt.	ND	02/16/00	SSK	1.0		

Analytical Method(s):

MODIFIED SW846 9012

DISTILLATION FOLLOWED BY REACTION WITH CHLORAMINE-T/PYRIDINE-BARBITURIC ACID AND PHOSPHATE BUFFER. ANALYSIS BY AUTOMATED FLOW INJECTION SPECTROPHOTOMETRY.

MCL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
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02/16/00

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00802723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
.....
.....	mg/kg dry wt.	8.94	02/14/00	PM	5.14		
.....	mg/kg dry wt.	21.4	02/14/00	PM	0.10		
.....	mg/kg dry wt.	ND	02/14/00	PM	0.05		
.....	mg/kg dry wt.	17.1	02/14/00	PM	0.36		
.....	mg/kg dry wt.	3.90	02/14/00	PM	2.57		
.....	mg/kg dry wt.	ND	02/15/00	APP	0.008		
.....	mg/kg dry wt.	5.36	02/14/00	PM	5.14		
.....	mg/kg dry wt.	ND	02/14/00	PM	0.51		

Method(s):

SW846 3010/3010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

.....
SW846 3010/3010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

.....
SW846 3010/3010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

.....
SW846 3050/3010

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



SAMPLED AND DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.
LEAD
DATE: 02/16/00

SAMPLED AND DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.
MANGANESE
DATE: 02/16/00

SAMPLED AND DIGESTED WITH ACIDS AND THEN ANALYZED BY
COLD VAPOR (FLAMELESS) ATOMIC ABSORPTION SPECTROPHOTOMETRY
SELENIUM
DATE: 02/16/00

SAMPLED AND DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.
SILVER
DATE: 02/16/00

SAMPLED AND DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00B02723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Aldrin	mg/kg dry wt	ND	02/09/00	JB	0.03		
alpha-BHC	mg/kg dry wt	ND	02/09/00	JB	0.03		
beta-BHC	mg/kg dry wt	ND	02/09/00	JB	0.03		
delta-BHC	mg/kg dry wt	ND	02/09/00	JB	0.03		
gamma-BHC (Lindane)	mg/kg dry wt	ND	02/09/00	JB	0.03		
Chlordane	mg/kg dry wt	ND	02/09/00	JB	0.10		
4,4'-DDD	mg/kg dry wt	ND	02/09/00	JB	0.03		
4,4'-DDE	mg/kg dry wt	ND	02/09/00	JB	0.03		
4,4'-DDT	mg/kg dry wt	ND	02/09/00	JB	0.03		
Dieldrin	mg/kg dry wt	ND	02/09/00	JB	0.03		
Endosulfan I	mg/kg dry wt	ND	02/09/00	JB	0.03		
Endosulfan II	mg/kg dry wt	ND	02/09/00	JB	0.03		
Endosulfan Sulfate	mg/kg dry wt	ND	02/09/00	JB	0.03		
Endrin	mg/kg dry wt	ND	02/09/00	JB	0.03		
Endrin Aldehyde	mg/kg dry wt	ND	02/09/00	JB	0.03		
Heptachlor	mg/kg dry wt	ND	02/09/00	JB	0.03		
Heptachlor Epoxide	mg/kg dry wt	ND	02/09/00	JB	0.03		
Methoxychlor	mg/kg dry wt	ND	02/09/00	JB	0.26		
PCB-1221	mg/kg dry wt	ND	02/09/00	JB			
PCB-1232	mg/kg dry wt	ND	02/09/00	JB			
PCB-1242	mg/kg dry wt	ND	02/09/00	JB			
PCB-1248	mg/kg dry wt	ND	02/09/00	JB			
PCB-1254	mg/kg dry wt	ND	02/09/00	JB			
PCB-1260	mg/kg dry wt	ND	02/09/00	JB			
PCB's	mg/kg dry wt	ND	02/09/00	JB	0.026		
Toxaphene	mg/kg dry wt	ND	02/09/00	JB	0.10		

Analytical Method(s):

84846 3550/3052

SAMPLES ARE EXTRACTED WITH SONICATION, CONCENTRATED, AND ANALYZED BY GAS

MDL = Method Detection Limit
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NM = Not Measured

SPEC LIMIT = as client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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02/16/00

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635

Job Number: 00-100

Sample Matrix: SOIL

Sampled: 02/07/00

MIDDLESEX LITTLETON OVER BORDER #1

MLO#1

	Units	00802723	Date	Analyst	MDL	SPEC	P/F
-----	-----	-----	Analyzed	-----	---	LIMIT	---
Solids, total	%	97.3	02/10/00	S&P			

Analytical Method(s):

SM 2540G

PERCENT OF SAMPLE REMAINING AFTER DRYING OVERNIGHT AT 103-105 DEGREES CENTIGRADE.

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 02/16/00
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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
 Job Number: 00-100
 Sample Matrix: SOIL

Sampled: 02/07/00
 MIDDLESEX LITTLETON OVER BORDER #1
 MLO#1

	Units	00B02723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Unknown Hydrocarbons	mg/kg dry wt.	BOL	02/10/00	MFF	8.6		

Analytical Method(s):

MODIFIED SW846 8100

SAMPLES ARE EXTRACTED INTO METHYLENE CHLORIDE AND ANALYZED BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION (FID). ALL PEAKS ELUTING IN THE PETROLEUM FUEL REGION ARE QUANTITATED AS #2 FUEL OIL.

MDL = Method Detection Limit
 ND = Not Detected
 BOL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
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QC Batch Number: CYANIDE-0780

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00802723	Cyanide	Sample Amount	<1.025	mg/kg dry wt.	
		Duplicate Value	<1.025	mg/kg dry wt.	



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QC Batch Number: GC/ECD-2986

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00802723	Chlordane	Sample Amount	<0.10	mg/kg dry wt	
		Duplicate Value	<0.10	mg/kg dry wt	
	PCB-1232	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	PCB-1242	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	PCB-1254	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	PCB-1260	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	PCB-1248	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	PCB-1221	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	alpha-BHC	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	83.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.08	mg/kg dry wt	
		MSD % Recovery	80.50	%	
		MSD Range	2.50	units	
	delta-BHC	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.06	mg/kg dry wt	
		Matrix Spike % Rec.	57.50	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.06	mg/kg dry wt	
		MSD % Recovery	55.00	%	
		MSD Range	2.50	units	
	beta-BHC	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	



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QC Batch Number: GC/ECD-2986

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	90.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	
		MSD % Recovery	88.50	%	
		MSD Range	1.50	units	
	gamma-BHC (Lindane)	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	89.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	
		MSD % Recovery	86.00	%	
		MSD Range	3.00	units	
	Heptachlor	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	90.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	
		MSD % Recovery	88.00	%	
		MSD Range	2.00	units	
	Alarzin	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	89.50	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	



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QC Batch Number: GC/ECD-2986

Sample Id	Analysis	QC Analysis	Values	Units	Limits
		MSD % Recovery	87.00	%	
		MSD Range	2.50	units	
	Heptachlor Epoxide	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.10	mg/kg dry wt	
		Matrix Spike % Rec.	95.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.10	mg/kg dry wt	
		MSD % Recovery	92.50	%	
		MSD Range	2.50	units	
	Endosulfan I	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.08	mg/kg dry wt	
		Matrix Spike % Rec.	80.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.08	mg/kg dry wt	
		MSD % Recovery	79.50	%	
		MSD Range	2.50	units	
	4,4'-DDE	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	90.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	
		MSD % Recovery	89.00	%	
		MSD Range	3.00	units	
	Dieldrin	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	



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QC Batch Number: GC/ECD-2986

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	89.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	
		MSD % Recovery	83.50	%	
		MSD Range	5.50	units	
	Endrin	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.10	mg/kg dry wt	
		Matrix Spike % Rec.	97.50	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.10	mg/kg dry wt	
		MSD % Recovery	97.50	%	
		MSD Range	0.00	units	
	4,4'-DDD	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.11	mg/kg dry wt	
		Matrix Spike % Rec.	105.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.11	mg/kg dry wt	
		MSD % Recovery	105.00	%	
		MSD Range	0.00	units	
	Endosulfan II	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.10	mg/kg dry wt	
		Matrix Spike % Rec.	92.50	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.10	mg/kg dry wt	
		MSD % Recovery	92.50	%	



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Sample Id	Analysis	QC Analysis	Values	Units	Limits
		MSD Range	0.00	units	
	4,4'-DDT	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.06	mg/kg dry wt	
		Matrix Spike % Rec.	56.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.06	mg/kg dry wt	
		MSD % Recovery	55.00	%	
		MSD Range	1.00	units	
	Endrin Aldehyde	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.12	mg/kg dry wt	
		Matrix Spike % Rec.	120.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.12	mg/kg dry wt	
		MSD % Recovery	120.00	%	
		MSD Range	0.00	units	
	Endosulfan Sulfate	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.07	mg/kg dry wt	
		Matrix Spike % Rec.	70.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.08	mg/kg dry wt	
		MSD % Recovery	75.00	%	
		MSD Range	5.00	units	
	Methoxychlor	Sample Amount	<0.26	mg/kg dry wt	
		Duplicate Value	<0.26	mg/kg dry wt	
		Sample Amount	<0.26	mg/kg dry wt	
		Matrix Spk Amt Added	0.51	mg/kg dry wt	
		MS Amt Measured	0.53	mg/kg dry wt	



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QC Batch Number: GC/ECD-2986

Sample Id	Analysis	QC Analysis	Values	Units	Limits
		Matrix Spike % Rec.	103.00	%	
		Duplicate Sample Amt	<0.26	mg/kg dry wt	
		MSD Amount Added	0.51	mg/kg dry wt	
		MSD Amt Measured	0.49	mg/kg dry wt	
		MSD % Recovery	96.00	%	
		MSD Range	0.00	units	
	Toxaphene	Sample Amount	<0.10	mg/kg dry wt	
		Duplicate Value	<0.10	mg/kg dry wt	
	PCB's	Sample Amount	<0.026	mg/kg dry wt.	
		Duplicate Value	<0.026	mg/kg dry wt.	
3.244-23922	Dibutyl Chloroendate	Surrogate Recovery	100.5	%	
	Chlordane	Blank	<0.10	mg/kg dry wt	
	PCB-1232	Blank	0.000	mg/kg dry wt.	
	PCB-1242	Blank	0.000	mg/kg dry wt.	
	PCB-1254	Blank	0.000	mg/kg dry wt.	
	PCB-1260	Blank	0.000	mg/kg dry wt.	
	PCB-1248	Blank	0.000	mg/kg dry wt.	
	PCB-1221	Blank	0.000	mg/kg dry wt.	
	alpha-BHC	Blank	<0.02	mg/kg dry wt	
	delta-BHC	Blank	<0.02	mg/kg dry wt	
	beta-BHC	Blank	<0.02	mg/kg dry wt	
	gamma-BHC (Lindane)	Blank	<0.02	mg/kg dry wt	
	heptachlor	Blank	<0.02	mg/kg dry wt	
	Aldrin	Blank	<0.02	mg/kg dry wt	
	heptachlor Epoxide	Blank	<0.02	mg/kg dry wt	
	Endosulfan I	Blank	<0.02	mg/kg dry wt	
	4,4'-DDE	Blank	<0.02	mg/kg dry wt	
	Dieldrin	Blank	<0.02	mg/kg dry wt	
	Endrin	Blank	<0.02	mg/kg dry wt	
	4,4'-DDD	Blank	<0.02	mg/kg dry wt	
	Endosulfan II	Blank	<0.02	mg/kg dry wt	
	4,4'-DDT	Blank	<0.02	mg/kg dry wt	
	Endrin Aldehyde	Blank	<0.02	mg/kg dry wt	
	Endosulfan Sulfate	Blank	<0.02	mg/kg dry wt	
	Methoxychlor	Blank	<0.25	mg/kg dry wt	
	Toxachene	Blank	<0.10	mg/kg dry wt	
	PCB's	Blank	<0.025	mg/kg dry wt.	



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QC Batch Number: GC/FID-3193

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00B02723	Unknown Hydrocarbons	Sample Amount	<8.6	mg/kg dry wt.	
		Dup. Sample Value	<8.6	mg/kg dry wt.	
		Dup. Sample Amt	0.0	%	
		Sample Amount	<8.6	mg/kg dry wt.	
		Matrix Spike Amt Added	34.3	mg/kg dry wt.	
		MSD Amt Measured	27.2	mg/kg dry wt.	
		Matrix Spike % Rec.	61.6	%	
		Dup. Sample Amount	<8.6	mg/kg dry wt.	
		MSD Amount Added	34.3	mg/kg dry wt.	
		MSD Amt Measured	29.9	mg/kg dry wt.	
		MSD % Recovery	69.4	%	
		MSD Range	7.8	units	
BLANK-23842	Unknown Hydrocarbons	Blank	<8.3	mg/kg dry wt.	



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QC Batch Number: GCMS/SEMI-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00802723	Naphthalene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	1,2-Dichlorobenzene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Acenaphthene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	3.43	mg/kg dry wt	
		MS Amt Measured	2.37	mg/kg dry wt	
		Matrix Spike % Rec.	69.20	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	3.43	mg/kg dry wt	
	Acenaphthylene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Aniline	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Anthracene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Benzidine	Sample Amount	<2.40	mg/kg dry wt	
		Duplicate Value	<2.40	mg/kg dry wt	
Benzo(a)anthracene	Sample Amount	<0.34	mg/kg dry wt		
	Duplicate Value	<0.34	mg/kg dry wt		
Benzo(a)pyrene	Sample Amount	<0.59	mg/kg dry wt		
	Duplicate Value	<0.59	mg/kg dry wt		
Benzo(b)fluoranthene	Sample Amount	<0.34	mg/kg dry wt		
	Duplicate Value	<0.34	mg/kg dry wt		
Benzo(g,h,i)perylene	Sample Amount	<1.03	mg/kg dry wt		
	Duplicate Value	<1.03	mg/kg dry wt		
Benzoic Acid	Sample Amount	<1.03	mg/kg dry wt		
	Duplicate Value	<1.03	mg/kg dry wt		
Benzyl Alcohol	Sample Amount	<0.59	mg/kg dry wt		
	Duplicate Value	<0.59	mg/kg dry wt		
Bis(2-chloroethyl)et	Sample Amount	<0.34	mg/kg dry wt		
	Duplicate Value	<0.34	mg/kg dry wt		
Bis(2-chloroethoxy)m	Sample Amount	<0.34	mg/kg dry wt		
	Duplicate Value	<0.34	mg/kg dry wt		



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Batch Number: GCMS/SEM1-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
	Bis(2-chloroisopropyl)	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Bis(2-ethylhexyl)ph	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	4-Bromononyl phenyl	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	3,5-Dibenzylphthalate	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	4-Chloroaniline	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	2,3-Dibromophthalene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	4-Chlorononylphenyl	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	1,2-Dibenzene	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Dibenzofluoranthracene	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Dibenzofuran	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	3,3'-Dichlorobenzidif	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Diethylphthalate	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Dimethylphthalate	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Di-n-butylphthalate	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2,4-Dinitrotoluene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	3.43	mg/kg dry wt	
		MS Amt Measured	2.56	mg/kg dry wt	
		Matrix Spike % Rec.	74.67	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	3.43	mg/kg dry wt	
		MSD Amt Measured	2.50	mg/kg dry wt	
		MSD % Recovery	72.89	%	
		MSD Range	1.03	units	



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Standard Reference Materials and Duplicates
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QC Batch Number: GCMS/SEMI-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
	2,6-Dinitrotoluene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	1,2-Diphenylhydrazin	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Di-n-octylphthalate	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Fluoranthene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Fluorene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Hexachlorobenzene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Hexachlorobutadiene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Hexachlorocyclopenta	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Hexachloroethane	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Indeno(1,2,3-cd)pyre	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Isophorone	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2-Methylnaphthalene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2-Nitroaniline	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	3-Nitroaniline	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Nitrobenzene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	N-Nitrosodimethylami	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	N-Nitroso-di-n-propyl	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	3.43	mg/kg dry wt	
		MS Amt Measured	2.11	mg/kg dry wt	
		Matrix Spike % Rec.	59.77	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	



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QC Batch Number: GCMS/SEMI-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
		MSD Amount Added	3.43	mg/kg dry wt	
		MSD Amt Measured	1.91	mg/kg dry wt	
		MSD % Recovery	55.82	%	
		MSD Range	3.95	units	
	N-Nitrosodiphenylam	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Phenanthrene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Pyrene	Sample Amount	<1.03	mg/kg dry wt	
		Duplicate Value	<1.03	mg/kg dry wt	
		Sample Amount	<1.03	mg/kg dry wt	
		Matrix Spk Amt Added	3.43	mg/kg dry wt	
		MS Amt Measured	2.65	mg/kg dry wt	
		Matrix Spike % Rec.	77.44	%	
		Duplicate Sample Amt	<1.03	mg/kg dry wt	
		MSD Amount Added	3.43	mg/kg dry wt	
		MSD Amt Measured	2.74	mg/kg dry wt	
		MSD % Recovery	79.85	%	
		MSD Range	2.41	units	
	1,2,4-Trichlorobenz	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	3.43	mg/kg dry wt	
		MS Amt Measured	2.17	mg/kg dry wt	
		Matrix Spike % Rec.	63.44	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	3.43	mg/kg dry wt	
		MSD Amt Measured	2.10	mg/kg dry wt	
		MSD % Recovery	61.20	%	
		MSD Range	2.24	units	
	4-Chloro-3-methylene	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
		Sample Amount	<0.69	mg/kg dry wt	
		Matrix Spk Amt Added	6.85	mg/kg dry wt	
		MS Amt Measured	4.79	mg/kg dry wt	
		Matrix Spike % Rec.	69.84	%	
		Duplicate Sample Amt	<0.69	mg/kg dry wt	
		MSD Amount Added	6.85	mg/kg dry wt	
		MSD Amt Measured	4.63	mg/kg dry wt	



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QC Batch Number: GCMS/SEM1-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		MSD % Recovery	67.50	%	
		MSD Range	2.34	units	
	2-Chlorophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	6.85	mg/kg dry wt	
		MS Amt Measured	3.76	mg/kg dry wt	
		Matrix Spike % Rec.	54.72	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	6.85	mg/kg dry wt	
		MSD Amt Measured	3.63	mg/kg dry wt	
		MSD % Recovery	52.96	%	
		MSD Range	1.96	units	
	2,4-Dichlorophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2,4-Dimethylphenol	Sample Amount	<1.37	mg/kg dry wt	
		Duplicate Value	<1.37	mg/kg dry wt	
	4,6-Dinitro-2-methyl	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2,4-Dinitrophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	o-cresol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	m & p-cresol(s)	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2-Nitrophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	4-Nitrophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	6.85	mg/kg dry wt	
		MS Amt Measured	4.92	mg/kg dry wt	
		Matrix Spike % Rec.	71.80	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	6.85	mg/kg dry wt	
		MSD Amt Measured	5.22	mg/kg dry wt	
		MSD % Recovery	76.14	%	
		MSD Range	4.33	units	
	Phenol	Sample Amount	<0.34	mg/kg dry wt	



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QC Batch Number: GCMS/SEMI-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	6.85	mg/kg dry wt	
		MS Amt Measured	3.56	mg/kg dry wt	
		Matrix Spike % Rec.	52.00	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	6.85	mg/kg dry wt	
		MSD Amt Measured	3.49	mg/kg dry wt	
		MSD % Recovery	50.92	%	
		MSD Range	1.08	units	
	2,4,5-Trichlorobenzene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2,4,6-Trichlorobenzene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Pentachlorobenzene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	6.85	mg/kg dry wt	
		MS Amt Measured	5.38	mg/kg dry wt	
		Matrix Spike % Rec.	78.56	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	6.85	mg/kg dry wt	
		MSD Amt Measured	5.76	mg/kg dry wt	
		MSD % Recovery	84.10	%	
		MSD Range	3.44	units	
	Pyridine	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Benzo(k)fluoranthene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Phenol-d6	Surrogate Recovery	59.3	%	24.0-113.0
	Nitrobenzene-d5	Surrogate Recovery	54.4	%	23.0-100.0
	2-Fluorobiphenyl	Surrogate Recovery	64.8	%	25.0-121.0
	2,4,6-Tribromobenol	Surrogate Recovery	72.0	%	19.0-122.0
	Terphenyl-d14	Surrogate Recovery	81.5	%	18.0-137.0
	2-Fluorophenol	Surrogate Recovery	62.1	%	30.0-115.0
BLANK-23922	Naphthalene	Blank	<0.33	mg/kg dry wt	
	1,2-Dichlorobenzene	Blank	<0.33	mg/kg dry wt	
	Acenaphthene	Blank	<0.33	mg/kg dry wt	
	Acenaphthylene	Blank	<0.33	mg/kg dry wt	



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QC Batch Number: GCMS/SEMI-2266

Sample ID	Analysis	QC Analysis	Values	Units	Limits
	Aniline	Blank	<0.33	mg/kg dry wt	
	Anthracene	Blank	<0.33	mg/kg dry wt	
	Benidine	Blank	<2.33	mg/kg dry wt	
	Benzo(a)anthracene	Blank	<0.33	mg/kg dry wt	
	Benzo(a)pyrene	Blank	<0.67	mg/kg dry wt	
	Benzo(b)fluoranthene	Blank	<0.33	mg/kg dry wt	
	Benzo(g,h,i)perylene	Blank	<1.00	mg/kg dry wt	
	Benzoic Acid	Blank	<1.00	mg/kg dry wt	
	Benzyl Alcohol	Blank	<0.67	mg/kg dry wt	
	Bis(2-chloroethyl)et	Blank	<0.33	mg/kg dry wt	
	Bis(2-chloroethoxy)m	Blank	<0.33	mg/kg dry wt	
	Bis(2-chloroisopropyl)	Blank	<0.33	mg/kg dry wt	
	Bis(2-ethylhexyl)ph	Blank	<0.33	mg/kg dry wt	
	Bromophenyl phenyl	Blank	<0.33	mg/kg dry wt	
	Benzylbenzylphthalate	Blank	<0.67	mg/kg dry wt	
	2-Chloroaniline	Blank	<0.67	mg/kg dry wt	
	2-Chloronaphthalene	Blank	<0.33	mg/kg dry wt	
	2-Chlorophenylphenyl	Blank	<0.33	mg/kg dry wt	
	Chrysene	Blank	<0.67	mg/kg dry wt	
	Fluoranthene	Blank	<0.67	mg/kg dry wt	
	1,2-Benz(a,n)anthracen	Blank	<0.33	mg/kg dry wt	
	1,2-Benzofuran	Blank	<0.33	mg/kg dry wt	
	1,3-Dichlorobenzoid	Blank	<0.67	mg/kg dry wt	
	Dibenzylphthalate	Blank	<0.33	mg/kg dry wt	
	Dibenzylphthalate	Blank	<0.67	mg/kg dry wt	
	Dibutylphthalate	Blank	<0.33	mg/kg dry wt	
	2,4-Dinitrotoluene	Blank	<0.33	mg/kg dry wt	
	2,6-Dinitrotoluene	Blank	<0.33	mg/kg dry wt	
	1,2-Diphenylhydrazin	Blank	<0.33	mg/kg dry wt	
	Dibutylphthalate	Blank	<0.67	mg/kg dry wt	
	Fluoranthene	Blank	<0.33	mg/kg dry wt	
	Fluorene	Blank	<0.33	mg/kg dry wt	
	Hexachlorobenzene	Blank	<0.33	mg/kg dry wt	
	Hexachlorocyclopentadiene	Blank	<0.33	mg/kg dry wt	
	Hexachlorocyclopenta	Blank	<0.33	mg/kg dry wt	
	Hexachloroethane	Blank	<0.33	mg/kg dry wt	
	Indeno(1,2,3-cd)pyre	Blank	<0.33	mg/kg dry wt	
	Isocoumarone	Blank	<0.33	mg/kg dry wt	
	2-Methylnaphthalene	Blank	<0.33	mg/kg dry wt	
	2-Methyltoluene	Blank	<0.33	mg/kg dry wt	



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QC Batch Number: GCMS/VOL-4729

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00802723	1,2-Dichloroethane-d	Surrogate Recovery	109.600	%	56.000-128.000
	Toluene-d8	Surrogate Recovery	93.200	%	65.000-113.000
	Bromofluorobenzene	Surrogate Recovery	97.000	%	62.000-137.000
BLANK-23903	Acetone	Blank	<0.050	mg/kg dry wt	
	Benzene	Blank	<0.003	mg/kg dry wt	
	Carbon Tetrachloride	Blank	<0.002	mg/kg dry wt	
	Chloroform	Blank	<0.004	mg/kg dry wt	
	1,2-Dichloroethane	Blank	<0.004	mg/kg dry wt	
	1,4-Dichlorobenzene	Blank	<0.004	mg/kg dry wt	
	Ethyl Benzene	Blank	<0.003	mg/kg dry wt	
	2-Butanone (MEK)	Blank	<0.060	mg/kg dry wt	
	MIBK	Blank	<0.044	mg/kg dry wt	
	Naphthalene	Blank	<0.005	mg/kg dry wt.	
	Styrene	Blank	<0.004	mg/kg dry wt	
	Tetrachloroethylene	Blank	<0.002	mg/kg dry wt	
	Toluene	Blank	<0.004	mg/kg dry wt	
	1,1,1-Trichloroethan	Blank	<0.004	mg/kg dry wt	
	Trichloroethylene	Blank	<0.005	mg/kg dry wt	
	Trichlorofluorometha	Blank	<0.004	mg/kg dry wt	
	o + p Xylene	Blank	<0.002	mg/kg dry wt	
	m-Xylene	Blank	<0.006	mg/kg dry wt	
	1,2-Dichlorobenzene	Blank	<0.004	mg/kg dry wt	
	1,3-Dichlorobenzene	Blank	<0.003	mg/kg dry wt	
	1,1-Dichloroethane	Blank	<0.004	mg/kg dry wt	
	1,1-Dichloroethylene	Blank	<0.003	mg/kg dry wt	
	MTBE	Blank	<0.004	mg/kg dry wt	
	trans-1,2-Dichloroet	Blank	<0.004	mg/kg dry wt	
	Vinyl Chloride	Blank	<0.002	mg/kg dry wt	
	Methylene Chloride	Blank	<0.075	mg/kg dry wt	
	Chlorobenzene	Blank	<0.003	mg/kg dry wt	
	Chloromethane	Blank	<0.075	mg/kg dry wt	
	Bromomethane	Blank	<0.006	mg/kg dry wt	
	Chloroethane	Blank	<0.004	mg/kg dry wt	
	cis-1,3-Dichloroprop	Blank	<0.002	mg/kg dry wt	
	trans-1,3-Dichloroprop	Blank	<0.002	mg/kg dry wt	
	Chlorodibromomethane	Blank	<0.002	mg/kg dry wt	
	1,1,2-Trichloroethan	Blank	<0.004	mg/kg dry wt	
	2-Chloroethylvinylet	Blank	<0.048	mg/kg dry wt	
	Bromoform	Blank	<0.006	mg/kg dry wt	



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QC Batch Number: HG-1381

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
BLANK-23930	Mercury	Blank	<0.010	mg/kg dry wt.	



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QC Batch Number: ICP-4178

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00802723	Silver	Sample Amount	<0.51	mg/kg dry wt.	
		Duplicate Value	<0.51	mg/kg dry wt.	
	Arsenic	Sample Amount	8.94	mg/kg dry wt.	
		Duplicate Value	10.01	mg/kg dry wt.	
		Duplicate RPD	11.25	%	
	Barium	Sample Amount	21.45	mg/kg dry wt.	
		Duplicate Value	22.96	mg/kg dry wt.	
		Duplicate RPD	6.81	%	
	Cadmium	Sample Amount	<0.05	mg/kg dry wt.	
		Duplicate Value	0.06	mg/kg dry wt.	
		Duplicate RPD	200.00	%	
	Chromium	Sample Amount	17.14	mg/kg dry wt.	
Duplicate Value		17.63	mg/kg dry wt.		
Duplicate RPD		2.78	%		
Lead	Sample Amount	3.90	mg/kg dry wt.		
	Duplicate Value	4.11	mg/kg dry wt.		
	Duplicate RPD	5.25	%		
Selenium	Sample Amount	5.36	mg/kg dry wt.		
	Duplicate Value	<5.14	mg/kg dry wt.		
	Duplicate RPD	200.00	%		

CHAIN OF CUSTODY RECORD

Client Name: Middlesex Telephone: 781-740 2078

Attn: Adam Westhaver Batch #: _____

Address: 150 Recreation Park Drive
Hingham MA 02043 Project #: 00-100

Site Location: Bunker/Hingham WRTC Client P.O. #: 00-100

Sampled By: (AMU) Fax #: 781-740 2079

Call Results: Yes _____ No ✓

Fax Results: Yes ✓ No _____

Jim # 46635
Analysis
Required

Field Sample I.D.	Sample Description	Lab #	DATE SAMPLED		Composite	Grab	MATRIX						Preservative (Use Code)	Container (Use Code)					
			Start Date/Time	Stop Date/Time			WASTE WATER	GROUND WATER	DKG WATER	Soil	Air	*Other							
<u>Middlesex Littleton Overhead #1</u>		<u>0000723</u>	<u>1500</u>	<u>2:7:00</u>	<u>✓</u>							<u>UBA</u>	<u>I</u>	<u>8260</u>	<u>8270 AP/N</u>	<u>8080</u>	<u>ACIA 8 metals</u>	<u>TRA 800</u>	<u>Cyanide</u>

CONTAINER CODE: P: PLASTIC (___ Size) 0 = 40 ml vial 0 = Glass (83 size) 0 = 1000 ml Amber 0 = Other _____

PRESERVATIVE CODE: 0 ICED N = HNO₃ H = HCl S = NaOH T = Na₂S₂O₃ O = OTHER _____

Relinquished by: (Signature) [Signature] Date Time 1:30 2-8-00

Received by: (Signature) [Signature] 2/8/00 1:35

Turnaround Requested: _____ 24-Hour _____ 48-Hour _____ Normal _____ Other 5-7 Day Turn Date Required _____

Relinquished by: (Signature) [Signature] Date Time 2:15 2-8-00

Received by: (Signature) [Signature] and a page 3°C

Remarks/Comments: Lead Detection below 5' 1 soil 8705

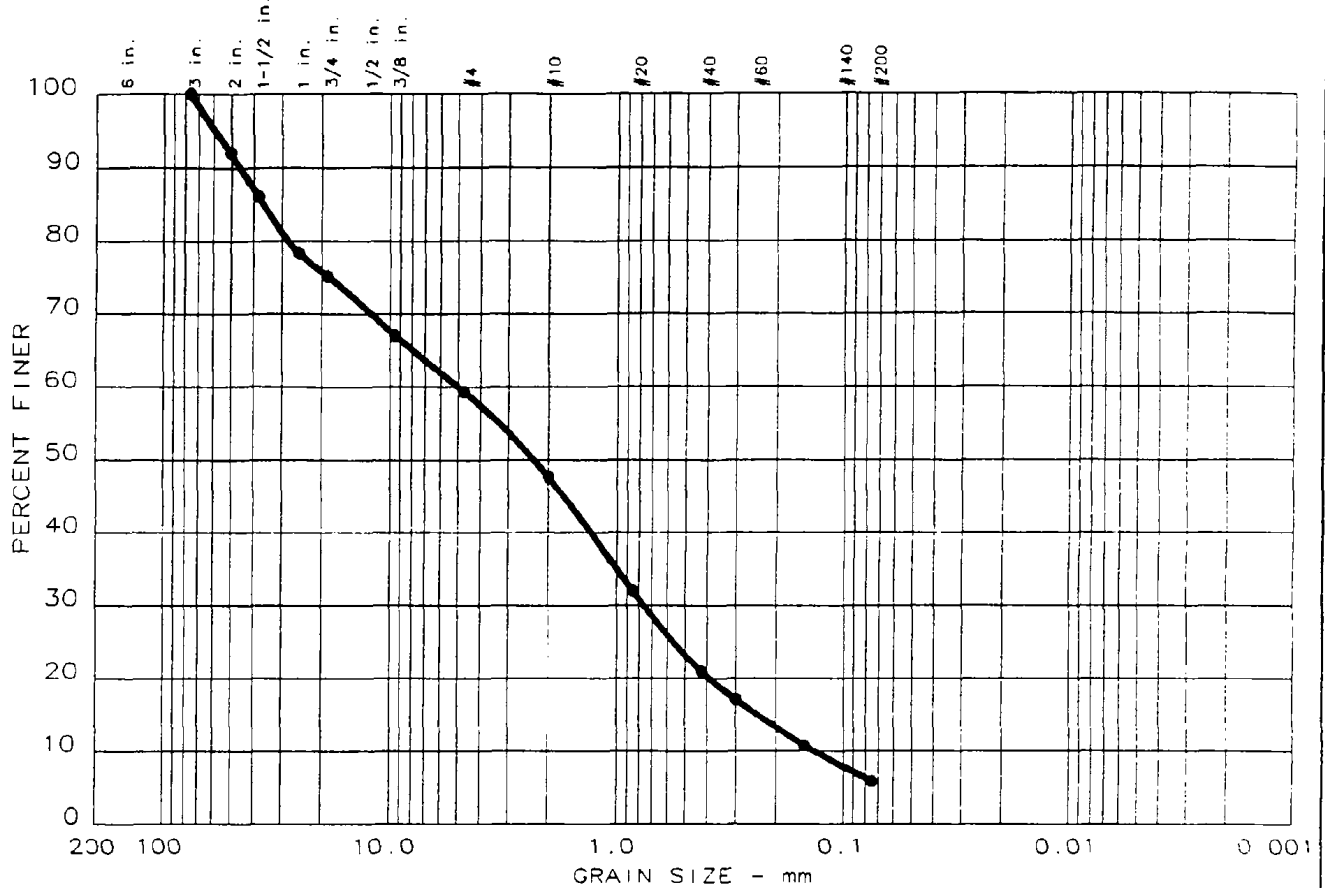
Relinquished by: (Signature) _____ Date Time _____

Received by: (Signature) _____

*MATRIX OTHER _____

Testing for soil class.

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
0.0	40.6	53.5		5.9	SP-SM		

SIEVE inches size	PERCENT FINER
3	100.0
2	92.1
1.5	86.1
1	78.4
0.75	75.2
0.375	67.0
GRAIN SIZE	
D ₆₀	5.01
D ₃₀	
D ₁₀	0.133
COEFFICIENTS	
C _c	0.86
C _u	37.6

SIEVE number size	PERCENT FINER
4	59.4
10	47.6
20	32.0
40	21.0
50	17.2
100	10.8
200	5.9

Location:
 ● CUMMINGS PROPERTY, PILE 1

Description:
 ● F-M-C SAND, AND GRAVEL, TRACE SILT

UTS OF MASSACHUSETTS, INC.
 REVIEWED BY: *Thomas Tuller*

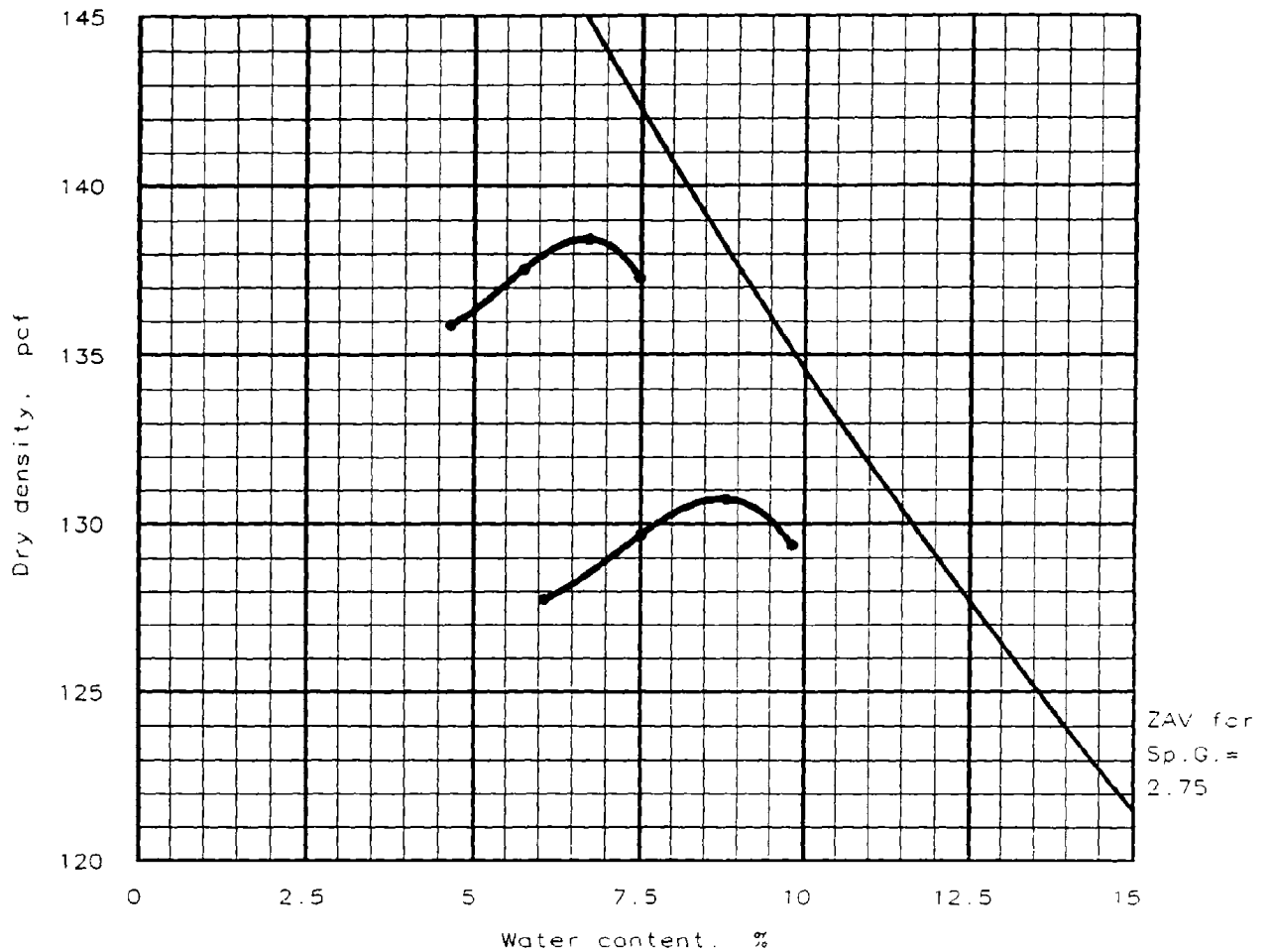
Remarks:
 #200 WASH SIEVE

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 APR 19 2000

UTS OF MASSACHUSETTS, INC.
 5 Richardson Lane
 Stoneham, MA 02180

Project No.: 6100
 Project: WOBURN REGIONAL TRANSPORTATION CENTER
 Date: 4/10/2000
 Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.
 Sample No. 8084

MOISTURE-DENSITY RELATIONSHIP TEST



Test specification: ASTM D 1557-91 Procedure C, Modified
 Oversize correction applied to each point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in	% < No. 200
	USCS	AASHTO						
	SP-SM			2.65			24.8 %	5.9 %

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 138.4 pcf Optimum moisture = 6.7 %	130.8 pcf 8.7 %	F-M-C SAND, AND GRAVEL, TRACE SILT

Project No.: 6100 Project: WOBURN REGIONAL TRANSPORTATION CENTER Location: CUMMINGS PROPERTY PILE 1 Date: 4-10-2000	Remarks:
MOISTURE-DENSITY RELATIONSHIP TEST UTS OF MASSACHUSETTS, INC.	
Sample No. 8084	



BATG Environmental, Inc.

April 13, 2000

The Middlesex Corporation
 One Spectacle Pond Road
 Littleton, Massachusetts 01460

Attn: Joseph Phinney
 Project Superintendent

Re: Analytical Summarization regarding
 Robert Francis West Cummings Properties Materials
 Woburn Regional Transportation Center, Woburn, MA

Dear Mr. Phinney:

Attached please find a summary table containing analytical data summarizing laboratory results for a representative sample of materials identified as Robert Francis West Cummings Properties Materials. The representative sample meets all analytical criteria established in the project specifications.

If you have any questions or require further clarification please feel free to contact the undersigned at (781) 740-2078. Thank you for the opportunity to provide quality environmental services.

Sincerely,
 BATG Environmental, Inc.

Adam B. Westhaver
 Project Manager

cc: Project Files

TABLE 1
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	R.F. West Cummings		RCS-1	Method 1
POLYAROMATIC HYDROCARBONS				
Acenaphthalene	-		100	20
Acenaphthylene	-		100	100
Aniline	-		1000	1,000
Anthracene	-		1000	1,000
Benzidine	-		10	NA
Benzoic Acid	-		1000	NA
Benzo(a)anthracene	-		0.7	0.7
Benzo(a)pyrene	-		0.7	0.7
Benzo(b)fluoranthene	-		0.7	0.7
Benzo(k)fluoranthene	-		1000	1,000
Benzo(x,h,i)perylene	-		NA	7
Benzyl Alcohol	-		NA	NA
Bis(2-chloroethoxy)methane	-		500	NA
Bis(2-chloroethyl)ether	-		0.7	0.7
Bis(2-chloroisopropyl)ether	-		NA	0.7
Bis(2-ethylhexyl)phthalate	-		100	100
4-Bromophenyl phenyl ether	-		100	NA
Burylbenzylphthalate	-		100	NA
4-Chloroaniline	-		NA	NA
4-Chloro-3-methylphenol	-		NA	NA
2-Chloronaphthalene	-		1000	NA
2-Chlorophenol	-		0.7	0.7
4-Chlorophenyl phenyl ether	-		1000	NA
Chrysene	-		7	7
Dibenzofuran	-		100	NA
Dibenz(a,h)anthracene	-		0.7	0.7
1,2-Dichlorobenzene	-		100	100
1,3-Dichlorobenzene	-		100	100
1,4-Dichlorobenzene	-		2	2
3,3'-Dichlorobenzidine	-		1	1
2,4-Dichlorobenzene	-		NA	NA
Diethylphthalate	-		0.7	0.7
2,4-Dimethylphenol	-		0.7	0.7
Dimethylphthalate	-		0.7	0.7
Di-n-burylphthalate	-		NA	NA
Di-n-octylphthalate	-		NA	NA
4,6-Dinitro-2-methylphenol	-		NA	NA
2,4-Dinitrophenol	-		3	3
2,4-Dinitrotoluene	-		0.7	0.7
2,6-Dinitrotoluene	-		100	NA
1,2-Diphenylhydrazine	-		50	NA
Fluoranthene	-		1000	1000
Fluorene	-		400	400
Hexachlorobenzene	-		0.7	0.7
Hexachlorobutadiene	-		3	3
Hexachlorocyclopentadiene	-		50	NA
Hexachloroethane	-		6	6
Indeno(1,2,3-cd)pyrene	-		0.7	0.7
Isophorone	-		100	NA
o-cresol	-		NA	NA
m&p-cresol(s)	-		NA	NA
2-Methylnaphthalene	-		4	4

TABLE 1
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	R.F. West Cummings		RCS-1	Method 1
POLYAROMATIZED HYDROCARBONS				
Napthalene	-		4	4
2-Nitroaniline	-		NA	NA
3-Nitroaniline	-		NA	NA
4-Nitroaniline	-		NA	NA
Nitrobenzene	-		500	NA
2-Nitrophenol	-		100	NA
4-Nitrophenol	-		100	NA
N-Nitrosodimethylamine	-		50	NA
N-Nitrosodiphenylamine	-		100	NA
N-Nitroso-di-n-propylamine	-		50	NA
1,2,4-Trichlorophenol	-		5	5
Phenanthrene	-		100	100
Phenol	-		60	60
Pyrene	-		700	700
Pyridine	-		500	NA
1,2,4-Trichlorobenzene	-		100	100
2,4,5-Trichlorophenol	-		2	2
2,4,6-Trichlorophenol	-		3	3

*- = Non Detect
 NA = Not Applicable

TABLE 2
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 II. CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/l)

	R.F. West Cummings	RCS-1	Method 1
Total Petroleum Hydrocarbons	-	200	200
Metals			
Arsenic	6.04	30	30
Barium	9.3	1000	1000
Cadmium	0.08	30	30
Chromium	5.15	1000	1000
Lead	3.52	300	300
Mercury	-	20	20
Selenium	-	400	400
Silver	-	100	100
Cyanide	-	100	100
PCPPs and PCBs			
Aldrin	-	0.03	0.03
alpha-BHC	-	50	NA
beta-BHC	-	10	NA
delta-BHC	-	10	NA
gamma-BHC (lindane)	-	NA	NA
Chlordane	-	1	NA
4,4'-DDD	-	2	2
4,4'-DDE	-	2	2
4,4'-DDT	-	2	2
Dieldrin	-	0.03	0.03
Endosulfan I	-	NA	NA
Endosulfan II	-	NA	NA
Endosulfan Sulfate	-	NA	NA
Endrin	-	0.6	0.6
Endrin Aldehyde	-	10	NA
Heptachlor	-	0.1	0.1
Heptachlor Epoxide	-	0.06	0.06
Methoxychlor	-	30	30
PCB-1221	-	NA	NA
PCB-1232	-	NA	NA
PCB-1242	-	NA	NA
PCB-1248	-	NA	NA
PCB-1254	-	NA	NA
PCB-1260	-	NA	NA
PCB's	-	2	2
Toxaphene	-	10	NA

"-" - Non Detect
 NA = Not Applicable



RECEIVED APR 17 2000

39 Spruce Street • 2nd Floor • East Longmeadow, MA 01028 • FAX 413/525-6405 • TEL. 413/525-2332

BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: BRIAN SULLIVAN

REPORT DATE: 04/12/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-47720
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WRTC

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
01	00B08156	SOIL	R.F. CNSTRCTN CUMMINGS PROPERTY WO.	8270-soil bn-2
01	00B08156	SOIL	R.F. CNSTRCTN CUMMINGS PROPERTY WO.	8270-soil bn1
01	00B08156	SOIL	R.F. CNSTRCTN CUMMINGS PROPERTY WO.	8270-soil-acid
01	00B08156	SOIL	R.F. CNSTRCTN CUMMINGS PROPERTY WO.	cyanide-tot sold
01	00B08156	SOIL	R.F. CNSTRCTN CUMMINGS PROPERTY WO.	metals-8rcra sol
01	00B08156	SOIL	R.F. CNSTRCTN CUMMINGS PROPERTY WO.	pest/pcbs - soil
01	00B08156	SOIL	R.F. CNSTRCTN CUMMINGS PROPERTY WO.	tph gc 8100m
01	00B08157	SOIL	R.F. CNSTRCTN CUMMINGS PROPERTY WO.	8240 - solid (a)
01	00B08157	SOIL	R.F. CNSTRCTN CUMMINGS PROPERTY WO.	8240 - solid (b)

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308	AIHA ELLAP (LEAD) 6838
MASSACHUSETTS MA100	NEW HAMPSHIRE 2516
CONNECTICUT PH-0567	VERMONT DOH (LEAD) No. 15036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 4/13/00
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director

JOHN SULLIVAN
BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043

04/13/00
 page 1 of 11

Purchase Order Number: 20-100

Project Location: WRTC
 Date Received: 04/10/00

LIMS-BAT #: LIMS-47720
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 04/07/00
 R.F. CNSTRCTN CUMMINGS PROPERTY WO.
 01

	Units	00B08157	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Acetone	mg/kg	ND	04/11/00	WSD	0.079		
Acrolein	mg/kg	ND	04/11/00	WSD	0.031		
Acrylonitrile	mg/kg	ND	04/11/00	WSD	0.012		
Benzene	mg/kg	ND	04/11/00	WSD	0.001		
Bromodichloromethane	mg/kg	ND	04/11/00	WSD	0.001		
Bromomethane	mg/kg	ND	04/11/00	WSD	0.002		
Bromoform	mg/kg	ND	04/11/00	WSD	0.002		
tanone (MEK)	mg/kg	ND	04/11/00	WSD	0.019		
Carbon Disulfide	mg/kg	ND	04/11/00	WSD	0.005		
Carbon Tetrachloride	mg/kg	ND	04/11/00	WSD	0.001		
Chlorobenzene	mg/kg	ND	04/11/00	WSD	0.001		
Chlorodibromomethane	mg/kg	ND	04/11/00	WSD	0.001		
Chloroethane	mg/kg	ND	04/11/00	WSD	0.001		
2-Chloroethylvinylether	mg/kg	ND	04/11/00	WSD	0.015		
Chloroform	mg/kg	ND	04/11/00	WSD	0.001		
Chloromethane	mg/kg	ND	04/11/00	WSD	0.024		
Dibromomethane	mg/kg	ND	04/11/00	WSD	0.002		
1,2-Dichlorobenzene	mg/kg	ND	04/11/00	WSD	0.001		
1,3-Dichlorobenzene	mg/kg	ND	04/11/00	WSD	0.001		
1,4-Dichlorobenzene	mg/kg	ND	04/11/00	WSD	0.001		
cis-1,4-Dichloro-2-Butene	mg/kg	ND	04/11/00	WSD	0.004		
trans-1,4-Dichloro-2-Butene	mg/kg	ND	04/11/00	WSD	0.003		
Dichlorodifluoromethane	mg/kg	ND	04/11/00	WSD	0.002		
1,1-Dichloroethane	mg/kg	ND	04/11/00	WSD	0.001		
1,2-Dichloroethane	mg/kg	ND	04/11/00	WSD	0.001		
1,1-Dichloroethylene	mg/kg	ND	04/11/00	WSD	0.001		
trans-1,2-Dichloroethylene	mg/kg	ND	04/11/00	WSD	0.001		
1,2-Dichloropropane	mg/kg	ND	04/11/00	WSD	0.001		
cis-1,3-Dichloropropene	mg/kg	ND	04/11/00	WSD	0.001		
trans-1,3-Dichloropropene	mg/kg	ND	04/11/00	WSD	0.001		
Ethyl Benzene	mg/kg	ND	04/11/00	WSD	0.001		
Ethyl Methacrylate	mg/kg	ND	04/11/00	WSD	0.001		

Method Detection Limit
 ND = Not Detected
 BDL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47720
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/07/00

R.F. CNSTRCTN CUMMINGS PROPERTY WO.
01

	Units	00808157	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
2-Hexanone	mg/kg	ND	04/11/00	WSD	0.015		
Iodomethane	mg/kg	ND	04/11/00	WSD	0.001		
MTBE	mg/kg	ND	04/11/00	WSD	0.001		
Methylene Chloride	mg/kg	ND	04/11/00	WSD	0.024		
MIBK	mg/kg	ND	04/11/00	WSD	0.014		
Styrene	mg/kg	ND	04/11/00	WSD	0.001		
1,1,2,2-Tetrachloroethane	mg/kg	ND	04/11/00	WSD	0.002		
Tetrachloroethylene	mg/kg	ND	04/11/00	WSD	0.001		
ene	mg/kg	ND	04/11/00	WSD	0.001		
1,1,1-Trichloroethane	mg/kg	ND	04/11/00	WSD	0.001		
1,1,2-Trichloroethane	mg/kg	ND	04/11/00	WSD	0.001		
Trichloroethylene	mg/kg	ND	04/11/00	WSD	0.002		
Trichlorofluoromethane	mg/kg	ND	04/11/00	WSD	0.001		
1,2,3-Trichloropropane	mg/kg	ND	04/11/00	WSD	0.002		
Vinyl Acetate	mg/kg	ND	04/11/00	WSD	0.026		
Vinyl Chloride	mg/kg	ND	04/11/00	WSD	0.000		
m-Xylene	mg/kg	ND	04/11/00	WSD	0.002		
o + p Xylene	mg/kg	ND	04/11/00	WSD	0.001		

Analytical Method(s):

SW846 8260

SAMPLES ARE CONCENTRATED BY PURGE AND TRAP, FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

= Method Detection Limit
ND = Not Detected
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NM = Not Measured

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47720
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/07/00
R.F. CNSTRCTN CUMMINGS PROPERTY WO.
01

	Units	00B08156	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Acenaphthene	mg/kg	ND	04/11/00	WSD	0.33		
Acenaphthylene	mg/kg	ND	04/11/00	WSD	0.33		
Aniline	mg/kg	ND	04/11/00	WSD	0.33		
Anthracene	mg/kg	ND	04/11/00	WSD	0.33		
Benzidine	mg/kg	ND	04/11/00	WSD	2.33		
Benzoic Acid	mg/kg	ND	04/11/00	WSD	1.00		
Benzo(a)anthracene	mg/kg	ND	04/11/00	WSD	0.33		
Benzo(a)pyrene	mg/kg	ND	04/11/00	WSD	0.67		
Benzo(b)fluoranthene	mg/kg	ND	04/11/00	WSD	0.33		
Benzo(g,h,i)perylene	mg/kg	ND	04/11/00	WSD	1.00		
Benzo(k)fluoranthene	mg/kg	ND	04/11/00	WSD	0.67		
Benzyl Alcohol	mg/kg	ND	04/11/00	WSD	0.67		
Bis(2-chloroethoxy)methane	mg/kg	ND	04/11/00	WSD	0.33		
Bis(2-chloroethyl)ether	mg/kg	ND	04/11/00	WSD	0.33		
Bis(2-chloroisopropyl)ether	mg/kg	ND	04/11/00	WSD	0.33		
Bis(2-ethylhexyl)phthalate	mg/kg	ND	04/11/00	WSD	0.33		
4-Bromophenyl phenyl ether	mg/kg	ND	04/11/00	WSD	0.33		
Butylbenzylphthalate	mg/kg	ND	04/11/00	WSD	0.67		
4-Chloroaniline	mg/kg	ND	04/11/00	WSD	0.67		
2-Chloronaphthalene	mg/kg	ND	04/11/00	WSD	0.33		
4-Chlorophenylphenyl ether	mg/kg	ND	04/11/00	WSD	0.33		
Chrysene	mg/kg	ND	04/11/00	WSD	0.67		
Dibenzofuran	mg/kg	ND	04/11/00	WSD	0.33		
Dibenz(a,h)anthracene	mg/kg	ND	04/11/00	WSD	0.67		
1,2-Dichlorobenzene	mg/kg	ND	04/11/00	WSD	0.33		
1,3-Dichlorobenzene	mg/kg	ND	04/11/00	WSD	0.33		
1,4-Dichlorobenzene	mg/kg	ND	04/11/00	WSD	0.33		
3,3'-Dichlorobenzidine	mg/kg	ND	04/11/00	WSD	0.67		
Diethylphthalate	mg/kg	ND	04/11/00	WSD	0.33		
Dimethylphthalate	mg/kg	ND	04/11/00	WSD	0.67		
Di-n-butylphthalate	mg/kg	ND	04/11/00	WSD	0.33		
Di-n-octylphthalate	mg/kg	ND	04/11/00	WSD	0.67		

☺ = Method Detection Limit
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BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47720
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 04/07/00
 R.F. CNSTRCTN CUMMINGS PROPERTY WO.
 01

	Units	00B08156	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
2,4-Dinitrotoluene	mg/kg	ND	04/11/00	WSD	0.33		
2,6-Dinitrotoluene	mg/kg	ND	04/11/00	WSD	0.33		
1,2-Diphenylhydrazine	mg/kg	ND	04/11/00	WSD	0.33		
Fluoranthene	mg/kg	ND	04/11/00	WSD	0.33		
Fluorene	mg/kg	ND	04/11/00	WSD	0.33		
Hexachlorobenzene	mg/kg	ND	04/11/00	WSD	0.33		
Hexachlorobutadiene	mg/kg	ND	04/11/00	WSD	0.33		
Hexachlorocyclopentadiene	mg/kg	ND	04/11/00	WSD	0.33		
Hexachloroethane	mg/kg	ND	04/11/00	WSD	0.33		
Indeno(1,2,3-cd)pyrene	mg/kg	ND	04/11/00	WSD	0.33		
Isophorone	mg/kg	ND	04/11/00	WSD	0.33		
2-Methylnaphthalene	mg/kg	ND	04/11/00	WSD	0.33		
Naphthalene	mg/kg	ND	04/11/00	WSD	0.33		
2-Nitroaniline	mg/kg	ND	04/11/00	WSD	0.33		
3-Nitroaniline	mg/kg	ND	04/11/00	WSD	0.33		
4-Nitroaniline	mg/kg	ND	04/11/00	WSD	0.33		
Nitrobenzene	mg/kg	ND	04/11/00	WSD	0.33		
N-Nitrosodimethylamine	mg/kg	ND	04/11/00	WSD	0.33		
N-Nitrosodiphenylamine	mg/kg	ND	04/11/00	WSD	0.33		
N-Nitroso-di-n-propylamine	mg/kg	ND	04/11/00	WSD	0.33		
Phenanthrene	mg/kg	ND	04/11/00	WSD	0.33		
Pyrene	mg/kg	ND	04/11/00	WSD	1.00		
Pyridine	mg/kg	ND	04/11/00	WSD	0.33		
1,2,4-Trichlorobenzene	mg/kg	ND	04/11/00	WSD	0.33		

Analytical Method(s):

SW846 8270

SAMPLES ARE EXTRACTED IN METHYLENE CHLORIDE/ACETONE AND FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

☪ = Method Detection Limit
 ND = Not Detected
 BDL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

04/13/00
page 5 of 11

Purchase Order Number: 20-100

REVISED LIMS-BAT #: LIMS-47720
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/07/00
R.F. CNSTRCTN CUMMINGS PROPERTY WO.
01

	Units	00B08156	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
4-Chloro-3-methylphenol	mg/kg	ND	04/11/00	WSD	0.67		
2-Chlorophenol	mg/kg	ND	04/11/00	WSD	0.33		
2,4-Dichlorophenol	mg/kg	ND	04/11/00	WSD	0.33		
2,4-Dimethylphenol	mg/kg	ND	04/11/00	WSD	0.67		
4,6-Dinitro-2-methylphenol	mg/kg	ND	04/11/00	WSD	0.33		
2,4-Dinitrophenol	mg/kg	ND	04/11/00	WSD	0.33		
o-cresol	mg/kg	ND	04/11/00	WSD	0.33		
m-cresol(s)	mg/kg	ND	04/11/00	WSD	0.33		
2-Nitrophenol	mg/kg	ND	04/11/00	WSD	0.33		
4-Nitrophenol	mg/kg	ND	04/11/00	WSD	0.33		
Pentachlorophenol	mg/kg	ND	04/11/00	WSD	0.33		
Phenol	mg/kg	ND	04/11/00	WSD	0.33		
2,4,5-Trichlorophenol	mg/kg	ND	04/11/00	WSD	0.33		
2,4,6-Trichlorophenol	mg/kg	ND	04/11/00	WSD	0.33		

Analytical Method(s):

SW846 8270

SAMPLES ARE EXTRACTED IN METHYLENE CHLORIDE/ACETONE AND FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47720

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/07/00

R.F. CNSTRCTN CUMMINGS PROPERTY WO.

01

	Units	00808156	Date	Analyst	MDL	SPEC	P/F
-----	-----	-----	-----	-----	---	-----	---
Cyanide	mg/kg	ND	04/12/00	SSK	0.91		

Analytical Method(s):

MODIFIED SW846 9012

DISTILLATION FOLLOWED BY REACTION WITH CHLORAMINE-T/PYRIDINE-BARBITURIC

AND PHOSPHATE BUFFER. ANALYSIS BY AUTOMATED FLOW INJECTION

SPECTROPHOTOMETRY.

 = Method Detection Limit

ND = Not Detected

BDL = Below Detection Limit

NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47720

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/07/00

R.F. CNSTRCTN CUMMINGS PROPERTY WO.

01

	Units	00808156	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Arsenic	mg/kg	6.04	04/11/00	PM	5.00		
Barium	mg/kg	9.30	04/11/00	PM	0.10		
Cadmium	mg/kg	0.08	04/11/00	PM	0.05		
Chromium	mg/kg	5.15	04/11/00	PM	0.35		
Lead	mg/kg	3.52	04/11/00	PM	2.50		
Mercury	mg/kg	ND	04/11/00	JER	0.009		
Selenium	mg/kg	ND	04/11/00	PM	5.00		
Ter	mg/kg	ND	04/11/00	PM	0.50		

Analytical Method(s):

Arsenic
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Barium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Cadmium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Chromium
SW846 3050/6010

☺ = Method Detection Limit
ND = Not Detected
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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Lead

SWB46 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Mercury

SWB46 3050/7471

SAMPLES ARE DIGESTED WITH ACIDS AND THEN ANALYZED BY
COLD VAPOR (FLAMELESS) ATOMIC ABSORPTION SPECTROPHOTOMETRY

Selenium

SWB46 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Silver

SWB46 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

 = Method Detection Limit

ND = Not Detected

BDL = Below Detection Limit

NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47720

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/07/00

R.F. CNSTRCTN CUMMINGS PROPERTY WO.

01

	Units	00B08156	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Aldrin	mg/kg	ND	04/11/00	JB	0.025		
alpha-BHC	mg/kg	ND	04/11/00	JB	0.025		
beta-BHC	mg/kg	ND	04/11/00	JB	0.025		
delta-BHC	mg/kg	ND	04/11/00	JB	0.025		
gamma-BHC (Lindane)	mg/kg	ND	04/11/00	JB	0.025		
Chlordane	mg/kg	ND	04/11/00	JB	0.100		
4,4'-DDD	mg/kg	ND	04/11/00	JB	0.025		
'-DDE	mg/kg	ND	04/11/00	JB	0.025		
'-DDT	mg/kg	ND	04/11/00	JB	0.025		
Dieldrin	mg/kg	ND	04/11/00	JB	0.025		
Endosulfan I	mg/kg	ND	04/11/00	JB	0.025		
Endosulfan II	mg/kg	ND	04/11/00	JB	0.025		
Endosulfan Sulfate	mg/kg	ND	04/11/00	JB	0.025		
Endrin	mg/kg	ND	04/11/00	JB	0.025		
Endrin Aldehyde	mg/kg	ND	04/11/00	JB	0.025		
Heptachlor	mg/kg	ND	04/11/00	JB	0.025		
Heptachlor Epoxide	mg/kg	ND	04/11/00	JB	0.025		
Methoxychlor	mg/kg	ND	04/11/00	JB	0.250		
PCB-1221	mg/kg	ND	04/11/00	JB			
PCB-1232	mg/kg	ND	04/11/00	JB			
PCB-1242	mg/kg	ND	04/11/00	JB			
PCB-1248	mg/kg	ND	04/11/00	JB			
PCB-1254	mg/kg	ND	04/11/00	JB			
PCB-1260	mg/kg	ND	04/11/00	JB			
PCB's	mg/kg	ND	04/11/00	JB	0.025		
Toxaphene	mg/kg	ND	04/11/00	JB	0.100		

Analytical Method(s):


SW846 3550/8082

SAMPLES ARE EXTRACTED WITH SONICATION, CONCENTRATED, AND ANALYZED BY GAS

☺ = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTION.

 = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47720
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 04/07/00
 R.F. CNSTRCTN CUMMINGS PROPERTY WO.
 01

	Units	00808156	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Unknown Hydrocarbons	MG/KG	ND	04/11/00	MFF	8.3		

Analytical Method(s):

MODIFIED SW846 B100

SAMPLES ARE EXTRACTED INTO METHYLENE CHLORIDE AND ANALYZED BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION (FID). ALL PEAKS OCCURRING IN THE PETROLEUM FUEL REGION ARE QUANTITATED AS #2 FUEL OIL.

MDL = Method Detection Limit
 ND = Not Detected
 BDL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GC/ECD-3097

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00B08156	alpha-BHC	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.084	mg/kg	
		Matrix Spike % Rec.	84.500	%	
	delta-BHC	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.072	mg/kg	
		Matrix Spike % Rec.	71.500	%	
	beta-BHC	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.088	mg/kg	
		Matrix Spike % Rec.	88.500	%	
	gamma-BHC (Lindane)	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.086	mg/kg	
		Matrix Spike % Rec.	86.500	%	
	Heptachlor	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.090	mg/kg	
		Matrix Spike % Rec.	89.500	%	
	Aldrin	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.092	mg/kg	
		Matrix Spike % Rec.	91.500	%	
	Heptachlor Epoxide	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.084	mg/kg	
		Matrix Spike % Rec.	83.500	%	
	Endosulfan I	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.059	mg/kg	
		Matrix Spike % Rec.	59.000	%	
	4,4'-DDE	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.074	mg/kg	
		Matrix Spike % Rec.	73.500	%	
	Dieldrin	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GC/ECD-3097

Sample Id	Analysis	QC Analysis	Values	Units	Limits
		MS Amt Measured	0.078	mg/kg	
		Matrix Spike % Rec.	78.000	%	
	Endrin	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.088	mg/kg	
		Matrix Spike % Rec.	88.000	%	
	4,4'-DDD	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.094	mg/kg	
		Matrix Spike % Rec.	94.000	%	
	Endosulfan II	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.065	mg/kg	
		Matrix Spike % Rec.	65.000	%	
	4,4'-DDT	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
	Endrin Aldehyde	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
		MS Amt Measured	0.110	mg/kg	
		Matrix Spike % Rec.	110.000	%	
	Endosulfan Sulfate	Sample Amount	<0.025	mg/kg	
		Matrix Spk Amt Added	0.100	mg/kg	
	Methoxychlor	Sample Amount	<0.250	mg/kg	
		Matrix Spk Amt Added	0.500	mg/kg	
		MS Amt Measured	0.451	mg/kg	
		Matrix Spike % Rec.	90.200	%	
	Dibutyl Chlorendate	Surrogate Recovery	80.5	%	
BLANK-25015	Chlordane	Blank	<0.100	mg/kg	
	PCB-1232	Blank	0.000	mg/kg	
	PCB-1242	Blank	0.000	mg/kg	
	PCB-1254	Blank	0.000	mg/kg	
	PCB-1260	Blank	0.000	mg/kg	
	PCB-1248	Blank	0.000	mg/kg	
	PCB-1221	Blank	0.000	mg/kg	
	alpha-BHC	Blank	<0.025	mg/kg	
	delta-BHC	Blank	<0.025	mg/kg	
	beta-BHC	Blank	<0.025	mg/kg	
	gamma-BHC (Lindane)	Blank	<0.025	mg/kg	
	Heptachlor	Blank	<0.025	mg/kg	

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GC/ECD-3097

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
	Aldrin	Blank	<0.025	mg/kg	
	Heptachlor Epoxide	Blank	<0.025	mg/kg	
	Endosulfan I	Blank	<0.025	mg/kg	
	4,4'-DDE	Blank	<0.025	mg/kg	
	Dieldrin	Blank	<0.025	mg/kg	
	Endrin	Blank	<0.025	mg/kg	
	4,4'-DDD	Blank	<0.025	mg/kg	
	Endosulfan II	Blank	<0.025	mg/kg	
	4,4'-DDT	Blank	<0.025	mg/kg	
	Endrin Aldehyde	Blank	<0.025	mg/kg	
	Endosulfan Sulfate	Blank	<0.025	mg/kg	
	Methoxychlor	Blank	<0.250	mg/kg	
	Toxaphene	Blank	<0.100	mg/kg	
	PCB's	Blank	<0.025	mg/kg	

QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LINS-47720

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QC Batch Number: GC/FID-3434

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00B08156	Unknown Hydrocarbons	Sample Amount	<8.3	MG/KG	
		Matrix Spk Amt Added	33.3	MG/KG	
		MS Amt Measured	25.4	MG/KG	
		Matrix Spike % Rec.	76.2	%	
BLANK-25019	Unknown Hydrocarbons	Blank	<8.3	MG/KG	
LFBLANK-11378	Unknown Hydrocarbons	Lab Fort Blank Amt.	33.3	MG/KG	
		Lab Fort Blk. Found	23.7	MG/KG	
		Lab Fort Blk. % Rec.	71.2	%	

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GCMS/SEMI-2363

Sample Id	Analysis	QC Analysis	Values	Units	Limits	
-----	-----	-----	-----	-----	-----	
00B08156	1,4-Dichlorobenzene	Sample Amount	<0.33	mg/kg		
		Duplicate Value	<0.33	mg/kg		
		Sample Amount	<0.33	mg/kg		
		Matrix Spk Amt Added	3.33	mg/kg		
		MS Amt Measured	2.42	mg/kg		
		Matrix Spike % Rec.	72.70	%		
	Naphthalene	Sample Amount	<0.33	mg/kg		
		Duplicate Value	<0.33	mg/kg		
	1,2-Dichlorobenzene	Sample Amount	<0.33	mg/kg		
		Duplicate Value	<0.33	mg/kg		
	1,3-Dichlorobenzene	Sample Amount	<0.33	mg/kg		
		Duplicate Value	<0.33	mg/kg		
	Acenaphthene	Sample Amount	<0.33	mg/kg		
		Duplicate Value	<0.33	mg/kg		
		Sample Amount	<0.33	mg/kg		
		Matrix Spk Amt Added	3.33	mg/kg		
		MS Amt Measured	2.89	mg/kg		
		Matrix Spike % Rec.	86.56	%		
	Acenaphthylene	Sample Amount	<0.33	mg/kg		
		Duplicate Value	<0.33	mg/kg		
Aniline	Sample Amount	<0.33	mg/kg			
	Duplicate Value	<0.33	mg/kg			
Anthracene	Sample Amount	<0.33	mg/kg			
	Duplicate Value	<0.33	mg/kg			
Benzidine	Sample Amount	<2.33	mg/kg			
	Duplicate Value	<2.33	mg/kg			
Benzo(a)anthracene	Sample Amount	<0.33	mg/kg			
	Duplicate Value	<0.33	mg/kg			
Benzo(a)pyrene	Sample Amount	<0.67	mg/kg			
	Duplicate Value	<0.67	mg/kg			
Benzo(b)fluoranthene	Sample Amount	<0.33	mg/kg			
	Duplicate Value	<0.33	mg/kg			
Benzo(g,h,i)perylene	Sample Amount	<1.00	mg/kg			
	Duplicate Value	<1.00	mg/kg			
Benzoic Acid	Sample Amount	<1.00	mg/kg			
	Duplicate Value	<1.00	mg/kg			
Benzyl Alcohol	Sample Amount	<0.67	mg/kg			
	Duplicate Value	<0.67	mg/kg			
Bis(2-chloroethyl)et	Sample Amount	<0.33	mg/kg			

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GCMS/SEM1-2363

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		Duplicate Value	<0.33	mg/kg	
	Bis(2-chloroethoxy)m	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Bis(2-chloroisopropy	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Bis(2-ethylhexyl)pht	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	4-Bromophenyl phenyl	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Butylbenzylphthalate	Sample Amount	<0.67	mg/kg	
		Duplicate Value	<0.67	mg/kg	
	4-Chloroaniline	Sample Amount	<0.67	mg/kg	
		Duplicate Value	<0.67	mg/kg	
	2-Chloronaphthalene	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	4-Chlorophenylphenyl	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Chrysene	Sample Amount	<0.67	mg/kg	
		Duplicate Value	<0.67	mg/kg	
	Dibenz(a,h)anthracen	Sample Amount	<0.67	mg/kg	
		Duplicate Value	<0.67	mg/kg	
	Dibenzofuran	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	3,3'-Dichlorobenzidi	Sample Amount	<0.67	mg/kg	
		Duplicate Value	<0.67	mg/kg	
	Diethylphthalate	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Dimethylphthalate	Sample Amount	<0.67	mg/kg	
		Duplicate Value	<0.67	mg/kg	
	Di-n-butylphthalate	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	2,4-Dinitrotoluene	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
		Sample Amount	<0.33	mg/kg	
		Matrix Spk Amt Added	3.33	mg/kg	
		MS Amt Measured	2.67	mg/kg	
		Matrix Spike % Rec.	80.10	%	
	2,6-Dinitrotoluene	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GCMS/SEM1-2363

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
	1,2-Diphenylhydrazin	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Di-n-octylphthalate	Sample Amount	<0.67	mg/kg	
		Duplicate Value	<0.67	mg/kg	
	Fluoranthene	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Fluorene	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Hexachlorobenzene	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Hexachlorobutadiene	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Hexachlorocyclopenta	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Hexachloroethane	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Indeno(1,2,3-cd)pyre	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Isophorone	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	2-Methylnaphthalene	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	2-Nitroaniline	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	3-Nitroaniline	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Nitrobenzene	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	N-Nitrosodimethylami	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	N-Nitroso-di-n-propy	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
		Sample Amount	<0.33	mg/kg	
		Matrix Spk Amt Added	3.33	mg/kg	
		MS Amt Measured	2.28	mg/kg	
		Matrix Spike % Rec.	68.39	%	
	N-Nitrosodiphenylami	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
		Phenanthrene	<0.33	mg/kg	

QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GCMS/SEMI-2363

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		Duplicate Value	<0.33	mg/kg	
	Pyrene	Sample Amount	<1.00	mg/kg	
		Duplicate Value	<1.00	mg/kg	
		Sample Amount	<1.00	mg/kg	
		Matrix Spk Amt Added	3.33	mg/kg	
		MS Amt Measured	2.96	mg/kg	
		Matrix Spike % Rec.	88.86	%	
	1,2,4-Trichlorobenze	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
		Sample Amount	<0.33	mg/kg	
		Matrix Spk Amt Added	3.33	mg/kg	
		MS Amt Measured	2.43	mg/kg	
		Matrix Spike % Rec.	72.79	%	
	4-Chloro-3-methylphe	Sample Amount	<0.67	mg/kg	
		Duplicate Value	<0.67	mg/kg	
		Sample Amount	<0.67	mg/kg	
		Matrix Spk Amt Added	6.67	mg/kg	
		MS Amt Measured	4.83	mg/kg	
		Matrix Spike % Rec.	72.50	%	
	2-Chlorophenol	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
		Sample Amount	<0.33	mg/kg	
		Matrix Spk Amt Added	6.67	mg/kg	
		MS Amt Measured	4.50	mg/kg	
		Matrix Spike % Rec.	67.49	%	
	2,4-Dichlorophenol	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	2,4-Dimethylphenol	Sample Amount	<1.33	mg/kg	
		Duplicate Value	<1.33	mg/kg	
	4,6-Dinitro-2-methyl	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	2,4-Dinitrophenol	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	o-cresol	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	m & p-cresol(s)	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	2-Nitrophenol	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GCMS/SEMI-2363

Sample Id	Analysis	QC Analysis	Values	Units	Limits
	4-Nitrophenol	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
		Sample Amount	<0.33	mg/kg	
		Matrix Spk Amt Added	6.67	mg/kg	
		MS Amt Measured	2.04	mg/kg	
		Matrix Spike % Rec.	30.64	%	
	Phenol	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
		Sample Amount	<0.33	mg/kg	
		Matrix Spk Amt Added	6.67	mg/kg	
		MS Amt Measured	4.33	mg/kg	
		Matrix Spike % Rec.	64.99	%	
	2,4,5-Trichloropheno	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	2,4,6-Trichloropheno	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Pentachlorophenol	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
		Sample Amount	<0.33	mg/kg	
		Matrix Spk Amt Added	6.67	mg/kg	
		MS Amt Measured	4.56	mg/kg	
		Matrix Spike % Rec.	68.33	%	
	Pyridine	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Benzo(k)fluoranthene	Sample Amount	<0.67	mg/kg	
		Duplicate Value	<0.67	mg/kg	
	4-Nitroaniline	Sample Amount	<0.33	mg/kg	
		Duplicate Value	<0.33	mg/kg	
	Phenol-d6	Surrogate Recovery	62.2	%	24.0-113.0
	Nitrobenzene-d5	Surrogate Recovery	75.6	%	23.0-120.0
	2-Fluorobiphenyl	Surrogate Recovery	67.0	%	25.0-121.0
	2,4,6-Tribromophenol	Surrogate Recovery	60.0	%	19.0-122.0
	Terphenyl-d14	Surrogate Recovery	95.8	%	18.0-137.0
	2-Fluorophenol	Surrogate Recovery	74.3	%	30.0-115.0
BLANK-25021	1,4-Dichlorobenzene	Blank	<0.33	mg/kg	
	Naphthalene	Blank	<0.33	mg/kg	
	1,2-Dichlorobenzene	Blank	<0.33	mg/kg	
	1,3-Dichlorobenzene	Blank	<0.33	mg/kg	
	Acenaphthene	Blank	<0.33	mg/kg	

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GCMS/SEMI-2363

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
	Acenaphthylene	Blank	<0.33	mg/kg	
	Aniline	Blank	<0.33	mg/kg	
	Anthracene	Blank	<0.33	mg/kg	
	Benidine	Blank	<2.33	mg/kg	
	Benzo(a)anthracene	Blank	<0.33	mg/kg	
	Benzo(a)pyrene	Blank	<0.67	mg/kg	
	Benzo(b)fluoranthene	Blank	<0.33	mg/kg	
	Benzo(g,h,i)perylene	Blank	<1.00	mg/kg	
	Benzoic Acid	Blank	<1.00	mg/kg	
	Benzyl Alcohol	Blank	<0.67	mg/kg	
	Bis(2-chloroethyl)et	Blank	<0.33	mg/kg	
	Bis(2-chloroethoxy)m	Blank	<0.33	mg/kg	
	Bis(2-chloroisopropyl)	Blank	<0.33	mg/kg	
	Bis(2-ethylhexyl)pht	Blank	<0.33	mg/kg	
	4-Bromophenyl phenyl	Blank	<0.33	mg/kg	
	Butylbenzylphthalate	Blank	<0.67	mg/kg	
	4-Chloroaniline	Blank	<0.67	mg/kg	
	2-Chloronaphthalene	Blank	<0.33	mg/kg	
	4-Chlorophenylphenyl	Blank	<0.33	mg/kg	
	Chrysene	Blank	<0.67	mg/kg	
	Dibenz(a,h)anthracene	Blank	<0.67	mg/kg	
	Dibenzofuran	Blank	<0.33	mg/kg	
	3,3'-Dichlorobenzidyl	Blank	<0.67	mg/kg	
	Diethylphthalate	Blank	<0.33	mg/kg	
	Dimethylphthalate	Blank	<0.67	mg/kg	
	Di-n-butylphthalate	Blank	<0.33	mg/kg	
	2,4-Dinitrotoluene	Blank	<0.33	mg/kg	
	2,6-Dinitrotoluene	Blank	<0.33	mg/kg	
	1,2-Diphenylhydrazine	Blank	<0.33	mg/kg	
	Di-n-octylphthalate	Blank	<0.67	mg/kg	
	Fluoranthene	Blank	<0.33	mg/kg	
	Fluorene	Blank	<0.33	mg/kg	
	Hexachlorobenzene	Blank	<0.33	mg/kg	
	Hexachlorobutadiene	Blank	<0.33	mg/kg	
	Hexachlorocyclopenta	Blank	<0.33	mg/kg	
	Hexachloroethane	Blank	<0.33	mg/kg	
	Indeno(1,2,3-cd)pyrene	Blank	<0.33	mg/kg	
	Isophorone	Blank	<0.33	mg/kg	
	2-Methylnaphthalene	Blank	<0.33	mg/kg	

QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GCMS/SEMI-2363

Sample Id	Analysis	QC Analysis	Values	Units	Limits
	2-Nitroaniline	Blank	<0.33	mg/kg	
	3-Nitroaniline	Blank	<0.33	mg/kg	
	Nitrobenzene	Blank	<0.33	mg/kg	
	N-Nitrosodimethylami	Blank	<0.33	mg/kg	
	N-Nitroso-di-n-propy	Blank	<0.33	mg/kg	
	N-Nitrosodiphenylami	Blank	<0.33	mg/kg	
	Phenanthrene	Blank	<0.33	mg/kg	
	Pyrene	Blank	<1.00	mg/kg	
	1,2,4-Trichlorobenze	Blank	<0.33	mg/kg	
	4-Chloro-3-methylphe	Blank	<0.67	mg/kg	
	2-Chlorophenol	Blank	<0.33	mg/kg	
	2,4-Dichlorophenol	Blank	<0.33	mg/kg	
	2,4-Dimethylphenol	Blank	<1.33	mg/kg	
	4,6-Dinitro-2-methyl	Blank	<0.33	mg/kg	
	2,4-Dinitrophenol	Blank	<0.33	mg/kg	
	o-cresol	Blank	<0.33	mg/kg	
	m & p-cresol(s)	Blank	<0.33	mg/kg	
	2-Nitrophenol	Blank	<0.33	mg/kg	
	4-Nitrophenol	Blank	<0.33	mg/kg	
	Phenol	Blank	<0.33	mg/kg	
	2,4,5-Trichloropheno	Blank	<0.33	mg/kg	
	2,4,6-Trichloropheno	Blank	<0.33	mg/kg	
	Pentachlorophenol	Blank	<0.33	mg/kg	
	Pyridine	Blank	<0.33	mg/kg	
	Benzo(k)fluoranthene	Blank	<0.67	mg/kg	
	4-Nitroaniline	Blank	<0.33	mg/kg	

QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GCMS/VOL-4934

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00B08157	1,2-Dichloroethane-d	Surrogate Recovery	117.400	%	56.000-128.000
	Toluene-d8	Surrogate Recovery	107.120	%	65.000-113.000
	Bromofluorobenzene	Surrogate Recovery	96.680	%	62.000-137.000
BLANK-25029	Acetone	Blank	<0.250	mg/kg	
	Benzene	Blank	<0.003	mg/kg	
	Carbon Tetrachloride	Blank	<0.002	mg/kg	
	Chloroform	Blank	<0.004	mg/kg	
	1,2-Dichloroethane	Blank	<0.004	mg/kg	
	1,4-Dichlorobenzene	Blank	<0.004	mg/kg	
	Ethyl Benzene	Blank	<0.003	mg/kg	
	2-Butanone (MEK)	Blank	<0.060	mg/kg	
	MIBK	Blank	<0.044	mg/kg	
	Styrene	Blank	<0.004	mg/kg	
	Tetrachloroethylene	Blank	<0.002	mg/kg	
	Toluene	Blank	<0.004	mg/kg	
	1,1,1-Trichloroethan	Blank	<0.004	mg/kg	
	Trichloroethylene	Blank	<0.005	mg/kg	
	Trichlorofluorometha	Blank	<0.004	mg/kg	
	o + p Xylene	Blank	<0.002	mg/kg	
	m-Xylene	Blank	<0.006	mg/kg	
	1,2-Dichlorobenzene	Blank	<0.004	mg/kg	
	1,3-Dichlorobenzene	Blank	<0.003	mg/kg	
	1,1-Dichloroethane	Blank	<0.004	mg/kg	
	1,1-Dichloroethylene	Blank	<0.003	mg/kg	
	MTBE	Blank	<0.004	mg/kg	
	trans-1,2-Dichloroet	Blank	<0.004	mg/kg	
	Vinyl Chloride	Blank	<0.002	mg/kg	
	Methylene Chloride	Blank	<0.075	mg/kg	
	Chlorobenzene	Blank	<0.003	mg/kg	
	Chloromethane	Blank	<0.075	mg/kg	
	Bromomethane	Blank	<0.006	mg/kg	
	Chloroethane	Blank	<0.004	mg/kg	
	cis-1,3-Dichloroprop	Blank	<0.002	mg/kg	
	trans-1,3-Dichloropr	Blank	<0.002	mg/kg	
	Chlorodibromomethane	Blank	<0.002	mg/kg	
	1,1,2-Trichloroethan	Blank	<0.004	mg/kg	
	2-Chloroethylvinylet	Blank	<0.048	mg/kg	
	Bromoform	Blank	<0.006	mg/kg	
	1,1,2,2-Tetrachloroe	Blank	<0.007	mg/kg	

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: GCMS/VOL-4934

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
	Dibromomethane	Blank	<0.006	mg/kg	
	1,2-Dichloropropane	Blank	<0.003	mg/kg	
	1,2,3-Trichloropropa	Blank	<0.006	mg/kg	
	Dichlorodifluorometh	Blank	<0.005	mg/kg	
	Iodomethane	Blank	<0.004	mg/kg	
	Acrolein	Blank	<0.100	mg/kg	
	Acrylonitrile	Blank	<0.038	mg/kg	
	Carbon Disulfide	Blank	<0.015	mg/kg	
	Vinyl Acetate	Blank	<0.082	mg/kg	
	2-Hexanone	Blank	<0.048	mg/kg	
	trans-1,4-Dichloro-2	Blank	<0.010	mg/kg	
	Ethyl Methacrylate	Blank	<0.004	mg/kg	
	cis-1,4-Dichloro-2-B	Blank	<0.012	mg/kg	
	Bromodichloromethane	Blank	<0.002	mg/kg	

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: HG-1443

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
BLANK-24999	Mercury	Blank	<0.010	mg/kg	

QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47720

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QC Batch Number: ICP-4314

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
LFBLANK-11372	Silver	Lab Fort Blank Amt.	100.00	mg/kg	
		Lab Fort Blk. Found	94.25	mg/kg	
		Lab Fort Blk. % Rec.	94.25	%	
	Arsenic	Lab Fort Blank Amt.	100.00	mg/kg	
		Lab Fort Blk. Found	110.95	mg/kg	
		Lab Fort Blk. % Rec.	110.95	%	
	Barium	Lab Fort Blank Amt.	100.00	mg/kg	
		Lab Fort Blk. Found	101.14	mg/kg	
		Lab Fort Blk. % Rec.	101.14	%	
	Cadmium	Lab Fort Blank Amt.	100.00	mg/kg	
		Lab Fort Blk. Found	108.00	mg/kg	
		Lab Fort Blk. % Rec.	108.00	%	
	Chromium	Lab Fort Blank Amt.	100.00	mg/kg	
		Lab Fort Blk. Found	114.20	mg/kg	
		Lab Fort Blk. % Rec.	114.20	%	
Lead	Lab Fort Blank Amt.	100.00	mg/kg		
	Lab Fort Blk. Found	103.20	mg/kg		
	Lab Fort Blk. % Rec.	103.20	%		
Selenium	Lab Fort Blank Amt.	100.00	mg/kg		
	Lab Fort Blk. Found	111.00	mg/kg		
	Lab Fort Blk. % Rec.	111.00	%		
LFBLANK-11373	Silver	Lab Fort Blank Amt.	100.00	mg/kg	
		Lab Fort Blk. Found	91.15	mg/kg	
		Lab Fort Blk. % Rec.	91.15	%	
	Arsenic	Lab Fort Blank Amt.	100.00	mg/kg	
		Lab Fort Blk. Found	107.10	mg/kg	
		Lab Fort Blk. % Rec.	107.10	%	
	Barium	Lab Fort Blank Amt.	100.00	mg/kg	
		Lab Fort Blk. Found	99.19	mg/kg	
		Lab Fort Blk. % Rec.	99.19	%	
	Cadmium	Lab Fort Blank Amt.	100.00	mg/kg	
		Lab Fort Blk. Found	102.60	mg/kg	
		Lab Fort Blk. % Rec.	102.60	%	
	Chromium	Lab Fort Blank Amt.	100.00	mg/kg	
		Lab Fort Blk. Found	110.25	mg/kg	
		Lab Fort Blk. % Rec.	110.25	%	
Lead	Lab Fort Blank Amt.	100.00	mg/kg		
	Lab Fort Blk. Found	97.10	mg/kg		
	Lab Fort Blk. % Rec.	97.10	%		

F.2 – CONCRETE INSPECTION REPORTS

U U TTTTTTTTTT S S S
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 U U T S S S OF MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 11/03/00 35
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 3 sets of cylinders cast on
 11/02/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
		#16	3/4"
REMARKS:		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- D. McCarthy

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755
 Of MASSACHUSETTS, INC.

CONCRETE INSPECTION REPORT II DATE 11/02/00 52
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 1 1/2" * CUBIC YARDS 120 ASTM C-39

TEST SAMPLES	LOCATION
4 cylinders	Slab: Bus Way Northend slump 6 1/2", air temp. 52, conc. temp. 75, truck #1144, ticket #230042, time 9:00
4 cylinders	Slab: Bus Way Southend slump 6 1/2", air temp. 53, conc. temp. 73, truck #1135, tickwt #230098, time 9:45
4 cylinders	Slab: Bus Way East end slump 6 1/2", air temp. 55, conc. temp. 74, truck #1132, ticket #230093, time 10:30

RECEIVED
 DEC 03 2000
 Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Total Pour: Bus Way slab on grade
 Method of Placement: Pump
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: End of Pump Hose
 Cylinder Storage: Curing Box
 Slump Specification: 4"-7"

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
X275	6x12	28.27	11/02/00	11/09/00	7	4,600
X276	6x12	28.27	11/02/00	11/30/00	28	6,400
X277	6x12	28.27	11/02/00	11/30/00	28	6,440
X278	6x12	28.27	11/02/00	11/30/00	28	6,370
X271	6x12	28.27	11/02/00	11/09/00	7	4,420
X272	6x12	28.27	11/02/00	11/30/00	28	7,070
X273	6x12	28.27	11/02/00	11/30/00	28	6,900
X274	6x12	28.27	11/02/00	11/30/00	28	6,970
X255	6x12	28.27	11/02/00	11/09/00	7	4,420
X256	6x12	28.27	11/02/00	11/30/00	28	5,940
X257	6x12	28.27	11/02/00	11/30/00	28	6,120
X258	6x12	28.27	11/02/00	11/30/00	28	6,260

REMARKS: *Superplasticizer

INSPECTOR:
 Field- J. Harr - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree *STC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 11/02/00 52
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 1 1/2" * CUBIC YARDS 120 ASTM C-39

TEST SAMPLES	LOCATION
4 cylinders	Slab: Bus Way Northend slump 6 1/2", air temp. 52, conc. temp. 75, truck #1144, ticket #230042, time 9:00
4 cylinders	Slab: Bus Way Southend slump 6 1/2", air temp. 53, conc. temp. 73, truck #1135, tickwt #230098, time 9:45
4 cylinders	Slab: Bus Way East end slump 6 1/2", air temp. 55, conc. temp. 74, truck #1132, ticket #230093, time 10:30

RECEIVED
 NOV 14 2000

Total Pour: Bus Way slab on grade
 Method of Placement: Pump
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: End of Pump Hose
 Cylinder Storage: Curing Box
 Slump Specification: 4"-7"
 TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
X275	6x12	28.27	11/02/00	11/09/00	7	4,600
X276	6x12	28.27	11/02/00	11/30/00	28	
X277	6x12	28.27	11/02/00	11/30/00	28	
X278	6x12	28.27	11/02/00	11/30/00	28	
X271	6x12	28.27	11/02/00	11/09/00	7	4,420
X272	6x12	28.27	11/02/00	11/30/00	28	
X273	6x12	28.27	11/02/00	11/30/00	28	
X274	6x12	28.27	11/02/00	11/30/00	28	
X255	6x12	28.27	11/02/00	11/09/00	7	4,420
X256	6x12	28.27	11/02/00	11/30/00	28	
X257	6x12	28.27	11/02/00	11/30/00	28	
X258	6x12	28.27	11/02/00	11/30/00	28	

REMARKS: *Superplasticizer

INSPECTOR: Field- J. Harr - Min Day
 U T S OF MASSACHUSETTS, INC.
 Reviewed By: Steven T. Crabtree

STC

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 11/01/00 50
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 1 1/2" * CUBIC YARDS 100 ASTM C-39

TEST SAMPLES	LOCATION
4 cylinders	Slab: Column line east Bus ramp #7 slump 5", air temp. 47, conc. temp. 65, truck #1150, ticket #9530, time 11:00
4 cylinders	Slab: Column line west Bus ramp #7 slump 4 1/2", air temp. 47, conc. temp. 66, truck #1124, ticket #9600, time 12:00
Total Pour: Slab on grade column line Bus Ramp #7 Method of Placement: Pump Method of Concrete Consolidation: Vibrator Screed Cyl. Fabrication Location: End of Pump Hose Cylinder Storage: Curing Box Slump Specification: 5"	

RECEIVED
 DEC 04 2000

Middlesex Corp. Job 405
 Woburn Regional Trans Ctr

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
W926	6x12	28.27	11/01/00	11/08/00	7	4,780
W927	6x12	28.27	11/01/00	11/29/00	28	6,900
W928	6x12	28.27	11/01/00	11/29/00	28	6,720
W929	6x12	28.27	11/01/00	11/29/00	28	6,650
W930	6x12	28.27	11/01/00	11/08/00	7	4,600
W931	6x12	28.27	11/01/00	11/29/00	28	6,370
W932	6x12	28.27	11/01/00	11/29/00	28	6,540
W933	6x12	28.27	11/01/00	11/29/00	28	6,680

REMARKS: *HRW/Pump Mix

INSPECTOR:
 Field- D. Currier

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 10/30/00 34
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 7 sets of cylinders cast on
 10/27/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
		#16	3/4"
REMARKS:		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- D. McCarthy

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *W.P.C.*

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 U T S OF MASSACHUSETTS, INC.
 NOV 29 2000
 Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.
 781-438-7755

CONCRETE INSPECTION REPORT II DATE 10/27/00 49
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 1 1/2" * CUBIC YARDS 280 ASTM C-39

TEST SAMPLES **LOCATION**
 4 cylinders Slab: West end Section 4
 slump 4", air temp. 65, conc. temp. 71,
 truck #1132, ticket #227978, time 1:15

 Total Pour: Slab Section 6, 4, 2
 Method of Placement: Pump
 Method of Concrete Consolidation: Vibrating Screed
 Cylinder Fabrication Loc.: 1st set Truck Discharge
 Chute, Remaining sets at End of Pump Hose
 Slump Specification: 4" - 7"
 No. of Slumps Out of Specification: (1) 7 1/2"
 Reported to and Approved by: Chris Ambrose
 Locations Supplied by: Chris Ambrose
 1st set made at truck discharge chute 7 1/2" slump
 1" slump loss at end of hose. Remaining slumps and
 cylinders made at end of discharge chute.

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
T994	6x12	28.27	10/27/00	11/03/00	7	4,600
T995	6x12	28.27	10/27/00	11/24/00	28	7,600
T996	6x12	28.27	10/27/00	11/24/00	28	7,360
T997	6x12	28.27	10/27/00	11/24/00	28	6,970

REMARKS: Superplasticizer
 Corrected report: Added remarks per fax
 from Laura Robinson Clements.

INSPECTOR:
 Field- D. Lent

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree *STC*

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 Of MASSACHUSETTS, INC.
 Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

CONCRETE INSPECTION REPORT II DATE 10/27/00 48

The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co. Wakefield

CLASS CONCRETE 5000# 1 1/2" * CUBIC YARDS 280 ASTM C-39

TEST SAMPLES	LOCATION
4 cylinders	Slab: Center of Eastside Section 2 slump 6", air temp. 58, conc. temp. 71, truck #1107, ticket #227876, time 10:45
4 cylinders	Slab: NE corner Section 2 slump 5 1/4", air temp. 62, conc. temp. 69, truck #1101, ticket #227945, time 12:00

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
T986	6x12	28.27	10/27/00	11/03/00	7	4,810
T987	6x12	28.27	10/27/00	11/24/00	28	7,750
T988	6x12	28.27	10/27/00	11/24/00	28	7,570
T989	6x12	28.27	10/27/00	11/24/00	28	7,610
W013	6x12	28.27	10/27/00	11/03/00	7	4,390
W014	6x12	28.27	10/27/00	11/24/00	28	6,930
W015	6x12	28.27	10/27/00	11/24/00	28	7,000
W016	6x12	28.27	10/27/00	11/24/00	28	6,900

REMARKS: * Superplasticizer

INSPECTOR:
 Field- D. Lent

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree *STC*

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 U T S OF MASSACHUSETTS, INC.
 NOV 29 2000
 Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

CONCRETE INSPECTION REPORT II DATE 10/27/00 47

The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 1 1/2" * CUBIC YARDS 280 ASTM C-39

TEST SAMPLES	LOCATION
4 cylinders	Slab: SE Corner Section 6 slump 7 1/2", air temp. 50, conc. temp. 69, truck #1148, ticket #227635, time 7:00
4 cylinders	Slab: East end Section 6 slump 4 1/2", air temp. 51, conc. temp. 71, truck #1135, ticket #227663, time 7:40
4 cylinders	Slab: Center Section 6 slump 6", air temp. 59, conc. temp. 70, truck #1113, ticket #227723, time 8:20
4 cylinders	Slab: Southwest Corner Section 2 slump 5 1/2", air temp. 54, conc. temp. 70, truck #1148, ticket #2227789, time 10:00

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
T906	6x12	28.27	10/27/00	11/03/00	7	4,240
T907	6x12	28.27	10/27/00	11/24/00	28	6,720
T908	6x12	28.27	10/27/00	11/24/00	28	7,070
T909	6x12	28.27	10/27/00	11/24/00	28	7,290
W001	6x12	28.27	10/27/00	11/03/00	7	4,740
W002	6x12	28.27	10/27/00	11/24/00	28	7,360
W003	6x12	28.27	10/27/00	11/24/00	28	7,710
W004	6x12	28.27	10/27/00	11/24/00	28	7,500
W005	6x12	28.27	10/27/00	11/03/00	7	4,670
W006	6x12	28.27	10/27/00	11/24/00	28	7,430
W007	6x12	28.27	10/27/00	11/24/00	28	7,320
W008	6x12	28.27	10/27/00	11/24/00	28	7,820
W017	6x12	28.27	10/27/00	11/03/00	7	4,490
W018	6x12	28.27	10/27/00	11/24/00	28	7,070
W019	6x12	28.27	10/27/00	11/24/00	28	6,540
W020	6x12	28.27	10/27/00	11/24/00	28	6,720

REMARKS: * Superplasticizer

INSPECTOR:
 Field- D. Lent - 9 Hours

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree *STC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT

DATE

10/23/00

33

The Middlesex Corporation
 Attn: Mr. Rick Noblet
 30A Atlantic Avenue
 Woburn, MA 011801

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co.

CLASS CONCRETE

CUBIC YARDS

DRY WEIGHTS

Cement
 Fine Aggr.
 Coarse Aggr.
 Admixture
 Admixture
 Water

MATERIALS

Brand Name
 Source
 Source
 Brand Name
 Brand Name
 Source

TEST SAMPLES

LOCATION

Transportation of 4 sets of cylinders cast on
 10/20/00 to the lab for testing.

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 OCT 30 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand %
 Moisture in C. Aggr. %
 No. of Determinations
 Weights Adjusted to Compensate
 for Moisture
 Sand Colormetric Test

REMARKS:

PLANT GRADATIONS

F.M.	SAND	F.M.	C. AGGR.
		#8	
#100		#4	
#50		3/8"	
#30		1/2"	
#16		3/4"	
#8		1"	
#4		1 1/2"	

INSPECTORS:

Plant-
 Field- D. McCarthy

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 10/20/00 46
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 1 1/2" CUBIC YARDS 150 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Slab: North
 slump 3 1/2", air temp. 61, conc. temp. 70,
 truck #1145, ticket #4255, time 12:30

 Total Pour: Bus Ramp N/NE/S/SW

 Method of Placement: Pump
 Method of Concrete Consolidation: Razorback Air
 Screed
 Cylinder Fabrication Loc.: End of Pump Hose
 Slump Specification: 4"
 Locations Supplied by: Chris Ambros

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
S271	6x12	28.27	10/20/00	10/27/00	7	3,960
S272	6x12	28.27	10/20/00	11/17/00	28	5,270
S273	6x12	28.27	10/20/00	11/17/00	28	5,410
S274	6x12	28.27	10/20/00	11/17/00	28	5,020

REMARKS:

INSPECTOR:
 Field- D. Carrier

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree



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CONCRETE INSPECTION REPORT II DATE 10/20/00 45
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 1 1/2" CUBIC YARDS 150 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Slab: South
 slump 3 1/2", air temp. 42, conc. temp. 65,
 truck #1109, ticket #3955, time 7:55
 4 cylinders Slab: Southwest
 slump 4", air temp. 54, conc. temp. 70,
 truck #1127, ticket #4047, time 8:50
 4 cylinders Slab: Northeast
 slump 3 3/4", air temp. 60, conc. temp. 72,
 truck #1150, ticket #4129, time 10:30

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.
 TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
S243	6x12	28.27	10/20/00	10/27/00	7	4,030
S244	6x12	28.27	10/20/00	11/17/00	28	5,730
S245	6x12	28.27	10/20/00	11/17/00	28	5,800
S246	6x12	28.27	10/20/00	11/17/00	28	5,770
S263	6x12	28.27	10/20/00	10/27/00	7	4,070
S264	6x12	28.27	10/20/00	11/17/00	28	5,660
S265	6x12	28.27	10/20/00	11/17/00	28	5,380
S266	6x12	28.27	10/20/00	11/17/00	28	5,450
S282	6x12	28.27	10/20/00	10/27/00	7	4,140
S283	6x12	28.27	10/20/00	11/17/00	28	5,870
S284	6x12	28.27	10/20/00	11/17/00	28	5,690
S285	6x12	28.27	10/20/00	11/17/00	28	6,080

REMARKS:

INSPECTOR:
 Field- D. Currier - Max Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree *STC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 10/16/00 36
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 10/13/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate for Moisture		#100	#4
Sand Colormetric Test		#50	3/8"
		#30	1/2"
		#16	3/4"
REMARKS:		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- J. Harr

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *wpc*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 10/13/00 42
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 18 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Pedestrian Ramp Base Between 20 to 22
 slump 5", air temp. 78, conc. temp. 76,
 truck #29, ticket #2201012, time 12:30
 Total Pour: Pedestrian Ramp Base between 20-22
 Method of Placement: Bucket
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 5"

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Q454	6x12	28.27	10/13/00	10/20/00	7	3,470
Q455	6x12	28.27	10/13/00	11/10/00	28	4,780
Q456	6x12	28.27	10/13/00	11/10/00	28	4,880
Q457	6x12	28.27	10/13/00	12/08/00	56	5,270

REMARKS: Cylinder will be held for a 56-Day Break due to a low 28-Day Break

INSPECTOR:
Field- W. Crabtree

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree



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CONCRETE INSPECTION REPORT II DATE 09/06/00 53
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE N/A CUBIC YARDS N/A ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders -- No other information available

--CYLINDERS CAST BY OTHERS--


TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
H284	6x12	28.27	09/06/00	09/13/00	7	3,780
H285	6x12	28.27	09/06/00	10/04/00	28	5,660
H286	6x12	28.27	09/06/00	10/04/00	28	5,410
H287	6x12	28.27	09/06/00	10/04/00	28	5,480

REMARKS:

INSPECTOR:
Field-

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree



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CONCRETE INSPECTION REPORT II DATE 08/25/00 40
 Office Copy Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 15 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: R.R. Platform Foundations
 slump 4", air temp. 88, conc. temp. 84,
 truck #1132, ticket #198544, time 1:22
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
E247	6x12	28.27	08/25/00	09/01/00	7	3,710
E248	6x12	28.27	08/25/00	09/22/00	28	
E249	6x12	28.27	08/25/00	09/22/00	28	
E250	6x12	28.27	08/25/00	09/22/00	28	

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- R. Chaisson - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 08/28/00 32
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 8/23/00 to the lab for testing.

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS		
Moisture in C. Aggr.	%	F.M.	SAND	F.M.
No. of Determinations				#8
Weights Adjusted to Compensate		#100		#4
for Moisture		#50		3/8"
Sand Colormetric Test		#30		1/2"
REMARKS:		#16		3/4"
		#8		1"
		#4		1 1/2"

INSPECTORS:
 Plant-
 Field- J. Driscoll

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/25/00 40
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 15 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: R.R. Platform Foundations
 slump 4", air temp. 88, conc. temp. 84,
 truck #1132, ticket #198544, time 1:22

 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
E247	6x12	28.27	08/25/00	09/01/00	7	3,710
E248	6x12	28.27	08/25/00	09/22/00	28	
E249	6x12	28.27	08/25/00	09/22/00	28	
E250	6x12	28.27	08/25/00	09/22/00	28	

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 SEP 08 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- R. Chaisson - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 08/25/00 31
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 2 sets of cylinders cast on
 8/21/00 and 8/24/00 to the lab for testing.

RECEIVED
 SEP 01 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- J. Driscoll

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *wpc*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/24/00 41
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 11 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Retaining wall footing
 slump 4 3/4", air temp. 80, conc. temp. 79,
 truck #1136, ticket #52496, time 11:20
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 4"
 Locationns Supplied by Joe Finney.

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
I085	6x12	28.27	08/24/00	08/31/00	7	4,280
I086	6x12	28.27	08/24/00	09/21/00	28	5,100
I087	6x12	28.27	08/24/00	09/21/00	28	5,060
I088	6x12	28.27	08/24/00	09/21/00	28	4,950

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 SEP 26 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- P. Treska

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/24/00 41
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 11 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Retaining wall footing
 slump 4 3/4", air temp. 80, conc. temp. 79,
 truck #1136, ticket #52496, time 11:20
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 4"
 Locationns Supplied by Joe Finney.

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
I085	6x12	28.27	08/24/00	08/31/00	7	4,280
I086	6x12	28.27	08/24/00	09/21/00	28	
I087	6x12	28.27	08/24/00	09/21/00	28	
I088	6x12	28.27	08/24/00	09/21/00	28	

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- P. Treska

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 08/22/00 30
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 8/21/00 to the lab for testing.

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- R. Larson

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/21/00 39
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 30 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: Platform #43, 1st lift
 slump 4 1/2", air temp. 75, conc. temp. 75,
 truck #1454, ticket #195930, time: 1:30
 Total Pour: Footing platform #43
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 3"-5"

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
E049	6x12	28.27	08/21/00	08/28/00	7	3,640
E050	6x12	28.27	08/21/00	09/18/00	28	5,060
E051	6x12	28.27	08/21/00	09/18/00	28	5,130
E052	6x12	28.27	08/21/00	09/18/00	28	5,100

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 SEP 21 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- J. Harr - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/21/00 39
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 30 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: Platform #43, 1st lift
 slump 4 1/2', air temp. 75, conc. temp. 75,
 truck #1454, ticket #195930, time: 1:30
 Total Pour: Footing platform #43
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 3"-5"

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TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	Middlesex Corp. Job 405 Woburn Regional Trans. Ctr. AGE	DAYS	P.S.I.
E049	6x12	28.27	08/21/00	08/28/00	7		3,640
E050	6x12	28.27	08/21/00	09/18/00	28		
E051	6x12	28.27	08/21/00	09/18/00	28		
E052	6x12	28.27	08/21/00	09/18/00	28		

REMARKS:

INSPECTOR:
Field- J. Harr - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

Handwritten initials

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/16/00 38
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 6 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Column line 18-22 + 10
 slump 5", air temp. 75, conc. temp. 80,
 truck #1144, ticket #193764, time 3:00
 Method of Placement: Chute Discharge
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 4" - 5"
 Locations Supplied by: Chris Downey

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
D182	6x12	28.27	08/16/00	08/23/00	7	3,930
D183	6x12	28.27	08/16/00	09/13/00	28	
D184	6x12	28.27	08/16/00	09/13/00	28	
C185	6x12	28.27	08/16/00	09/13/00	28	

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- D. Miles - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 08/16/00 29
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 8/15/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS		
Moisture in C. Aggr.	%	F.M.	SAND F.M.	C.AGGR.
No. of Determinations			#8	
Weights Adjusted to Compensate		#100	#4	
for Moisture		#50	3/8"	
Sand Colormetric Test		#30	1/2"	
REMARKS:		#16	3/4"	
		#8	1"	
		#4	1 1/2"	

INSPECTORS:
 Plant-
 Field- D. McCarthy

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/15/00 37
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" * CUBIC YARDS 10 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Wall: Track #'s 23, 24, 25, 26
 slump 4 1/4", air temp. 68, conc. temp. 83,
 truck #1104, ticket #193209, time 1:30
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 5"

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
C053	6x12	28.27	08/15/00	08/22/00	7	3,860
C054	6x12	28.27	08/15/00	09/12/00	28	
C055	6x12	28.27	08/15/00	09/12/00	28	
C056	6x12	28.27	08/15/00	09/12/00	28	

REMARKS: * w/MRWR

INSPECTOR:
Field- F. Baxter

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 08/14/00 28
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 8/11/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS		
Moisture in C. Aggr.	%	F.M.	SAND	F.M.
No. of Determinations				#8
Weights Adjusted to Compensate		#100		#4
for Moisture		#50		3/8"
Sand Colormetric Test		#30		1/2"
		#16		3/4"
REMARKS:		#8		1"
		#4		1 1/2"

INSPECTORS:
 Plant -
 Field- D. McCarthy

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/11/00 36
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 10 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Slab: Column line 17 pedestrian bridge
 slump 4 1/4", air temp. 80, conc. temp. 86,
 truck #1125, ticket #192112, time 12:00
 Total Pour: Column lines 11 to 18 pedestrian
 bridge slab
 Method of placement: bucket
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 4"-5"
 Locations supplied by Joe Finney

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
B650	6x12	28.27	08/11/00	08/18/00	7	3,150
B651	6x12	28.27	08/11/00	10/06/00	56	5,310
B652	6x12	28.27	08/11/00	09/08/00	28	4,030
B653	6x12	28.27	08/11/00	09/08/00	28	4,240

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 OCT 12 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS: Cylinder will be held for a
 56-Day Break due to a low 28-Day Break

INSPECTOR:
 Field- N. Rhoden - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/11/00 36
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 10 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Slab: Column line 17 pedestrian bridge
 slump 4 1/4", air temp. 80, conc. temp. 86,
 truck #1125, ticket #192112, time 12:00

 Total Pour: Column lines 11 to 18 pedestrian
 bridge slab
 Method of placement: bucket
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 4"-5"
 Locations supplied by Joe Finney

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
B650	6x12	28.27	08/11/00	08/18/00	7	3,150
B651	6x12	28.27	08/11/00	09/08/00	28	
B652	6x12	28.27	08/11/00	09/08/00	28	
B653	6x12	28.27	08/11/00	09/08/00	28	

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 SEP 05 2000

Middlesex Corp. Job #
 Woburn Regional Trans

REMARKS:

INSPECTOR:
 Field- N. Rhoden - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/10/00 35
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 3 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Column - line 1
 slump 5 1/2", air temp. 76, conc. temp. 80,
 truck #1113, ticket #50981, time 11:20
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 5"

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
B347	6x12	28.27	08/10/00	08/17/00	7	4,350
B348	6x12	28.27	08/10/00	09/07/00	28	5,060
B349	6x12	28.27	08/10/00	09/07/00	28	5,200
B350	6x12	28.27	08/10/00	09/07/00	28	5,020

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 SEP 12 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- C. Harr

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/10/00 35
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 3 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Column - line 1
 slump 5 1/2", air temp. 76, conc. temp. 80,
 truck #1113, ticket #50981, time 11:20
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 5"

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
B347	6x12	28.27	08/10/00	08/17/00	7	4,350
B348	6x12	28.27	08/10/00	09/07/00	28	
B349	6x12	28.27	08/10/00	09/07/00	28	
B350	6x12	28.27	08/10/00	09/07/00	28	

REMARKS:

INSPECTOR:
Field- C. Harr

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/10/00 34
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE CUBIC YARDS ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders CAST BY OTHERS

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
B351	6x12	28.27	08/10/00	08/17/00	7	1,840
B352	6x12	28.27	08/10/00	08/28/00	18	4,600
B353	6x12	28.27	08/10/00	09/07/00	28	
B354	6x12	28.27	08/10/00	09/07/00	28	

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 SEP 06 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ct.

REMARKS:

INSPECTOR:
 Field- CAST BY OTHERS

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree



JTS Construction Testing People Inc.
"The Construction Testing People"

Fax Transmittal

TO: LAURA Middlesex

FROM: Len Coabtree

DATE: ~~8-25-00~~ 8-28-00

RE: Conc. Ppts

FAX NUMBER: 935 0383 ph. 935-0779

Please find 1 pages including the cover sheet.
Please notify us if you do not receive all the pages.

Comments

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Signed: Len Co

Richardson Lane, Stoneham, Massachusetts 02180 (781) 438-7755 Fax (781) 438-6216

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/08/00 33
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 7 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Wall: Column line A at 21
 slump 5", air temp. 92, conc. temp. 90,
 truck #1138, ticket #0295, time 2:25
 Total Pour: Wall column line A at 21 & 22
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 5"

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
A658	6x12	28.27	08/08/00	08/15/00	7	3,500
A659	6x12	28.27	08/08/00	09/05/00	28	
A660	6x12	28.27	08/08/00	09/05/00	28	
A661	6x12	28.27	08/08/00	09/05/00	28	

REMARKS:

INSPECTOR:
 Field- D. Currier

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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CONCRETE INSPECTION REPORT DATE 08/08/00 26
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 8/7/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS		
Moisture in C. Aggr.	%	F.M.	SAND F.M.	C.AGGR.
No. of Determinations			#8	
Weights Adjusted to Compensate		#100	#4	
for Moisture		#50	3/8"	
Sand Colormetric Test		#30	1/2"	
REMARKS:		#16	3/4"	
		#8	1"	
		#4	1 1/2"	

INSPECTORS:
 Plant-
 Field- J. Driscoll

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/07/00 32
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 14 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Wall: Plat. Bents at R.R. Tracks
 slump 4", air temp. 80, conc. temp. 82,
 truck #1132, ticket #189551, time 11:55
 Total Pour: Site Platform Foundation Bents
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump specification: 4"

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
A588	6x12	28.27	08/07/00	08/14/00	7	3,860
A589	6x12	28.27	08/07/00	09/04/00	28	5,020
A590	6x12	28.27	08/07/00	09/04/00	28	5,230
A591	6x12	28.27	08/07/00	09/04/00	28	5,200

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- B. Lumenello - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/07/00 32
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 14 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Wall: Plat. Bents at R.R. Tracks
 slump 4", air temp. 80, conc. temp. 82,
 truck #1132, ticket #189551, time 11:55
 Total Pour: Site Platform Foundation Bents
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump specification: 4"

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
A588	6x12	28.27	08/07/00	08/14/00	7	3,860
A589	6x12	28.27	08/07/00	09/04/00	28	
A590	6x12	28.27	08/07/00	09/04/00	28	
A591	6x12	28.27	08/07/00	09/04/00	28	

REMARKS:

INSPECTOR:
Field- B. Lumenello - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/04/00 31
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 10 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: Platform 16
 slump 4 1/2", air temp. 75, conc. temp. 72,
 truck #1140, ticket #188915, time 1:00
 Total Pour: Platform footings 14, 15, 16, 17
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 4+/-1

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
A250	6x12	28.27	08/04/00	08/11/00	7	2,940
A251	6x12	28.27	08/04/00	09/01/00	28	5,100
A252	6x12	28.27	08/04/00	09/01/00	28	4,950
A253	6x12	28.27	08/04/00	09/01/00	28	5,130

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- J. Harr - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/04/00 31
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 10 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: Platform 16
 slump 4 1/2", air temp. 75, conc. temp. 72,
 truck #1140, ticket #188915, time 1:00
 Total Pour: Platform footings 14, 15, 16, 17
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 4+/-1

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
A250	6x12	28.27	08/04/00	08/11/00	7	2,940
A251	6x12	28.27	08/04/00	09/01/00	28	
A252	6x12	28.27	08/04/00	09/01/00	28	
A253	6x12	28.27	08/04/00	09/01/00	28	

REMARKS:

INSPECTOR:
 Field- J. Harr - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 08/04/00 27
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 8/2/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS		
Moisture in C. Aggr.	%	F.M.	SAND F.M.	C.AGGR.
No. of Determinations			#8	
Weights Adjusted to Compensate		#100	#4	
for Moisture		#50	3/8"	
Sand Colormetric Test		#30	1/2"	
REMARKS:		#16	3/4"	
		#8	1"	
		#4	1 1/2"	

INSPECTORS:
 Plant-
 Field- J. Driscoll

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/02/00 30
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 26 ASTM 39

TEST SAMPLES LOCATION
 4 cylinders Station Platform Walls 11 and 12
 slump 4 1/2", air temp. 70, conc. temp. 80,
 truck #1124, ticket #187556, time 1:15
 Total Pour: Station Platform Walls, 11, 12 and 13
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 2"-5"

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y890	6x12	28.27	08/02/00	08/09/00	7	3,710
Y891	6x12	28.27	08/02/00	08/30/00	28	5,520
Y892	6x12	28.27	08/02/00	08/30/00	28	5,310
Y893	6x12	28.27	08/02/00	08/30/00	28	5,380

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- R. Doyle, Min day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 08/02/00 30
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 26 ASTM 39

TEST SAMPLES LOCATION
 4 cylinders Station Platform Walls 11 and 12
 slump 4 1/2", air temp. 70, conc. temp. 80,
 truck #1124, ticket #187556, time 1:15
 Total Pour: Station Platform Walls, 11, 12 and 13
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 2"-5"

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y890	6x12	28.27	08/02/00	08/09/00	7	3,710
Y891	6x12	28.27	08/02/00	08/30/00	28	
Y892	6x12	28.27	08/02/00	08/30/00	28	
Y893	6x12	28.27	08/02/00	08/30/00	28	

REMARKS:

INSPECTOR:
Field- R. Doyle, Min day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/28/00 29
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE 5000# CUBIC YARDS ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Platform - CAST BY OTHERS

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y451	6x12	28.27	07/28/00	08/04/00	7	3,960
Y452	6x12	28.27	07/28/00	08/25/00	28	5,940
Y453	6x12	28.27	07/28/00	08/25/00	28	5,800
Y454	6x12	28.27	07/28/00	08/25/00	28	5,770

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- CAST BY OTHERS

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree *luc*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/28/00 28
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE 4000# 3/4" CUBIC YARDS ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Track Line 22 - CAST BY OTHERS

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y455	6x12	28.27	07/25/00	08/01/00	7	3,540
Y456	6x12	28.27	07/25/00	08/22/00	28	4,670
Y457	6x12	28.27	07/25/00	08/22/00	28	4,780
Y458	6x12	28.27	07/25/00	08/22/00	28	4,810

REMARKS:

INSPECTOR:
 Field- CAST BY OTHERS

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/28/00 28
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE 4000# 3/4" CUBIC YARDS ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Track Line 22 - CAST BY OTHERS

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y455	6x12	28.27	07/25/00	08/01/00	7	3,540
Y456	6x12	28.27	07/25/00	08/22/00	28	
Y457	6x12	28.27	07/25/00	08/22/00	28	
Y458	6x12	28.27	07/25/00	08/22/00	28	

REMARKS:

INSPECTOR:
 Field- CAST BY OTHERS

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree *StC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/21/00 27
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE 5000# CUBIC YARDS ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders ****CYLINDERS CAST BY OTHERS****

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y443	6x12	28.27	07/21/00	07/28/00	7	3,680
Y444	6x12	28.27	07/21/00	08/18/00	28	5,840
Y445	6x12	28.27	07/21/00	08/18/00	28	5,730
Y446	6x12	28.27	07/21/00	08/18/00	28	5,690

REMARKS:

INSPECTOR:
 Field-

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/21/00 27
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE 5000# CUBIC YARDS ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders *****CYLINDERS CAST BY OTHERS*****

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y443	6x12	28.27	07/21/00	07/28/00	7	3,680
Y444	6x12	28.27	07/21/00	08/18/00	28	
Y445	6x12	28.27	07/21/00	08/18/00	28	
Y446	6x12	28.27	07/21/00	08/18/00	28	

REMARKS:

INSPECTOR:
 Field-

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/20/00 25
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 28 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: Platform footings 11 and 13
 slump 4 1/2", air temp. 65, conc. temp. 75,
 truck #24, ticket #182160, time 8:00
 Total Pour: Platform footings 11 and 13, walls
 1 and 2
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 5"
 Locations supplied by Joe Finney

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
X425	6x12	28.27	07/20/00	07/27/00	7	3,180
X426	6x12	28.27	07/20/00	08/17/00	28	5,660
X427	6x12	28.27	07/20/00	08/17/00	28	5,870
X428	6x12	28.27	07/20/00	08/17/00	28	5,020

REMARKS:

INSPECTOR:
Field- S. Shanaver - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/20/00 25
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 28 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: Platform footings 11 and 13
 slump 4 1/2", air temp. 65, conc. temp. 75,
 truck #24, ticket #182160, time 8:00
 Total Pour: Platform footings 11 and 13, walls
 1 and 2
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 5"
 Locations supplied by Joe Finney

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
X425	6x12	28.27	07/20/00	07/27/00	7	3,180
X426	6x12	28.27	07/20/00	08/17/00	28	
X427	6x12	28.27	07/20/00	08/17/00	28	
X428	6x12	28.27	07/20/00	08/17/00	28	

REMARKS:

INSPECTOR:
 Field- S. Shanaver - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 07/19/00 24
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 7/17/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS		
Moisture in C. Aggr.	%	F.M.	SAND	F.M.
No. of Determinations				C.AGGR.
Weights Adjusted to Compensate		#100		#8
for Moisture		#50		#4
Sand Colormetric Test		#30		3/8"
		#16		1/2"
REMARKS:		#8		3/4"
		#4		1"
				1 1/2"

INSPECTORS:
 Plant-
 Field- J. Driscoll

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/18/00 26
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE 5000# CUBIC YARDS ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders ****CYLINDERS CAST BY OTHERS****

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y447	6x12	28.27	07/18/00	07/25/00	7	3,710
Y448	6x12	28.27	07/18/00	08/15/00	28	4,420
Y449	6x12	28.27	07/18/00	08/15/00	28	4,460
Y450	6x12	28.27	07/18/00	09/12/00	56	

REMARKS: Cylinder will be held for a 56-Day Break due to a low 28-Day Break

INSPECTOR:
Field-

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/18/00 26
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE 5000# CUBIC YARDS ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders ****CYLINDERS CAST BY OTHERS****

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y447	6x12	28.27	07/18/00	07/25/00	7	3,710
Y448	6x12	28.27	07/18/00	08/15/00	28	
Y449	6x12	28.27	07/18/00	08/15/00	28	
Y450	6x12	28.27	07/18/00	08/15/00	28	

REMARKS:

INSPECTOR:
 Field-

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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CONCRETE INSPECTION REPORT

DATE 07/18/00

23

The Middlesex Corporation
 Attn: Mr. Rick Noblet
 30A Atlantic Avenue
 Woburn, MA 011801

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co.

CLASS CONCRETE

CUBIC YARDS

DRY WEIGHTS

MATERIALS

Cement
 Fine Aggr.
 Coarse Aggr.
 Admixture
 Admixture
 Water

Brand Name
 Source
 Source
 Brand Name
 Brand Name
 Source

TEST SAMPLES

LOCATION

Transportation of 1 set of cylinders cast on
 7/17/00 to the lab for testing.

Moisture in Sand %
 Moisture in C. Aggr. %
 No. of Determinations
 Weights Adjusted to Compensate
 for Moisture
 Sand Colormetric Test

PLANT GRADATIONS

F.M.	SAND	F.M.	C.AGGR.
		#8	
#100		#4	
#50		3/8"	
#30		1/2"	
#16		3/4"	
#8		1"	
#4		1 1/2"	

REMARKS:

INSPECTORS:
 Plant-
 Field- D. Campolini

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/17/00 24
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 32 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing column line A at 5
 slump 5", air temp. 68, conc. temp. 70,
 truck #1141, ticket #0369, time 9:30
 Total Pour: Footing column line A at 5, 6, 7, 8
 and 9.
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 5"

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y275	6x12	28.27	07/17/00	07/24/00	7	3,400
V276	6x12	28.27	07/17/00	08/14/00	28	5,660
V277	6x12	28.27	07/17/00	08/14/00	28	5,270
V278	6x12	28.27	07/17/00	08/14/00	28	5,590

REMARKS:

INSPECTOR:
Field- D. Currier

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/13/00 23
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 27 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: Platform footings 1-2
 slump 5", air temp. 85, conc. temp. 75,
 truck #92, ticket #179157, time 12:00

 Total Pour: Platform footings 1-4
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 4" +/- 5"
 Locations supplied by Chris Downey

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
T341	6x12	28.27	07/13/00	07/20/00	7	2,870
T342	6x12	28.27	07/13/00	08/10/00	28	5,060
T343	6x12	28.27	07/13/00	08/10/00	28	5,130
T344	6x12	28.27	07/13/00	08/10/00	28	5,020

REMARKS:

INSPECTOR:
 Field- S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/13/00 23
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 27 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: Platform footings 1-2
 slump 5", air temp. 85, conc. temp. 75,
 truck #92, ticket #179157, time 12:00
 Total Pour: Platform footings 1-4
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 4" +/- 5"
 Locations supplied by Chris Downey

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
T341	6x12	28.27	07/13/00	07/20/00	7	2,870
T342	6x12	28.27	07/13/00	08/10/00	28	
T343	6x12	28.27	07/13/00	08/10/00	28	
T344	6x12	28.27	07/13/00	08/10/00	28	

REMARKS:

INSPECTOR:
 Field- S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree *STC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 07/10/00 21
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of 5 cylinders cast on
 7/6/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- D. Miles

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/06/00 22
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 7 ASTM C-39

TEST SAMPLES LOCATION
 5 cylinders Slab: Footing Platform Foundation for Stairs
 slump 4", air temp. 78, conc. temp. 82,
 truck #1125, ticket #175820, time 10:30
 Total Pour: Platform Foundation for Stairs at
 14' 8" x 12" Slab for Compressor
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 4"
 Locations Supplied by: Chris Downing

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
R438	6x12	28.27	07/06/00	07/11/00	5	2,940
R439	6x12	28.27	07/06/00	07/13/00	7	3,150
R440	6x12	28.27	07/06/00	08/03/00	28	
R441	6x12	28.27	07/06/00	08/03/00	28	
R442	6x12	28.27	07/06/00	08/03/00	28	

REMARKS:

INSPECTOR:
Field- D. Harr

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree



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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 07/06/2000 19
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of 5 cylinders cast on
 7/5/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- E. Henderson

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 07/05/00 21
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/4" CUBIC YARDS 15 ASTM C-39

TEST SAMPLES LOCATION
 5 cylinders Wall: Pedestrian Bridge II
 slump 4", air temp. 80, conc. temp. 79,
 truck #1126, ticket #175488, time: 1:30

 Total Pour: Pedestrian Bridge II, foundation

 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 4"
 Locations supplied by Chris Dawnie

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
P872	6x12	28.27	07/05/00	07/10/00	5	2,300
P873	6x12	28.27	07/05/00	07/12/00	7	3,250
P874	6x12	28.27	07/05/00	07/19/00	14	3,890
P875	6x12	28.27	07/05/00	08/02/00	28	5,130
P876	6x12	28.27	07/05/00	08/02/00	28	5,060

REMARKS:

INSPECTOR:
Field- N. Callahan

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 06/29/00 18
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of 6 cylinders cast on
 6/28/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

INSPECTORS: U T S OF MASSACHUSETTS, INC.
 Plant- Reviewed
 Field- E. Henderson By: William P. Crabtree *WPC*

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CONCRETE INSPECTION REPORT DATE 06/27/00 22
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 6/26/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
		#16	3/4"
REMARKS:		#8	1"
		#4	1 1/2"

INSPECTORS: U T S OF MASSACHUSETTS, INC.
 Plant- Reviewed
 Field- C. Fraser By: William P. Crabtree *WPC*

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CONCRETE INSPECTION REPORT II DATE 06/26/00 19
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 14 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Footing: Northeast corner of parking lot
 slump 4 1/2", air temp. 87, conc. temp. 82,
 truck #1134, ticket #172223, time: 12:13
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 5"
 Locations supplied by Joe Phinny.
 A set of six was cast at the request of Joe Finney
 for early breaks.

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
N576	6x12	28.27	06/26/00	06/29/00	3	2,020
N577	6x12	28.27	06/26/00	06/30/00	4	2,300
N578	6x12	28.27	06/26/00	07/03/00	7	2,720
N579	6x12	28.27	06/26/00	07/24/00	28	4,320
N580	6x12	28.27	06/26/00	07/24/00	28	4,350
N581	6x12	28.27	06/26/00	07/24/00	28	4,030

REMARKS: 3-day break reported to Christopher Downey of Middlesex.

INSPECTOR:
Field- R. Granada - Min Day + 1/2 Hr Tr

U T S OF MASSACHUSETTS, INC.
Reviewed
By: Steven T. Crabtree



Of Massachusetts Inc.
"The Construction Testing People"

Fax Transmittal

TO: Joe - Middlesex

FROM: Len Crabtree

DATE: 7-5-00

RE: Concrete Report 6/26/00

FAX NUMBER: (781) 935-0383 ph. (781) 935 0779

Please find 2 pages including the cover sheet.
 Please notify us if you do not receive all the pages.

Comments _____

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Signed: LWC

Richardson Lane, Stoneham, Massachusetts 02180 (781) 438-7755 Fax (781) 438-6216

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 06/26/00 19
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 14 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Footing: Northeast corner of parking lot
 slump 4 1/2", air temp. 87, conc. temp. 82,
 truck #1134, ticket #172223, time: 12:13
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 5"
 Locations supplied by Joe Phinny.
 A set of six was cast at the request of Joe Finney
 for early breaks.

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
N576	6x12	28.27	06/26/00	06/29/00	3	2,020
N577	6x12	28.27	06/26/00	06/30/00	4	
N578	6x12	28.27	06/26/00	07/03/00	7	
N579	6x12	28.27	06/26/00	07/24/00	28	
N580	6x12	28.27	06/26/00	07/24/00	28	
N581	6x12	28.27	06/26/00	07/24/00	28	

REMARKS: 3-day break reported to Christopher Downey of Middlesex.

INSPECTOR:
Field- R. Granada - Min Day + 1/2 Hr Tr

U T S OF MASSACHUSETTS, INC.
Reviewed
By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 06/26/00 17
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set cylinders cast 06/23/00
 to the lab for testing.

RECEIVED
 JUL 10 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

INSPECTORS: U T S OF MASSACHUSETTS, INC.
 Plant- Reviewed
 Field- D. Miles By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 06/21/00 16
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast 6/20/00
 to the lab for testing.

RECEIVED
 JUN 30 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate for Moisture		#100	#4
Sand Colormetric Test		#50	3/8"
		#30	1/2"
		#16	3/4"
REMARKS:		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- D.McCarthy

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 06/20/00 18
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 6 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Slab: Column line transformer slab at storage shed
 slump 3 1/2", air temp. 66, conc. temp. 79,
 truck #1128, ticket #9580, time: 7:15

 Total Pour: Transformer slab, storage shed
 foundation

 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 4"
 Locations supplied Joe Finney

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
M211	6x12	28.27	06/20/00	06/27/00	7	3,250
M212	6x12	28.27	06/20/00	07/18/00	28	4,350
M213	6x12	28.27	06/20/00	07/18/00	28	4,100
M214	6x12	28.27	06/20/00	07/18/00	28	4,170

REMARKS:

INSPECTOR:
 Field- D. Currier - Min Day + 1/2 Hr Tr

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 06/20/00 18
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 6 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Slab: Column line transformer slab at storage shed
 slump 3 1/2", air temp. 66, conc. temp. 79,
 truck #1128, ticket #9580, time: 7:15
 Total Pour: Transformer slab, storage shed
 foundation
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 4"
 Locations supplied Joe Finney

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
M211	6x12	28.27	06/20/00	06/27/00	7	3,250
M212	6x12	28.27	06/20/00	07/18/00	28	
M213	6x12	28.27	06/20/00	07/18/00	28	
M214	6x12	28.27	06/20/00	07/18/00	28	

RECEIVED
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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- D. Currier - Min Day + 1/2 Hr Tr

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 06/19/00 20
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Scheduled concrete placement cancelled by
 Jack Phinney of Middlesex; due to inclement
 weather.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
		#16	3/4"
REMARKS:		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- N. Callahan - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 06/19/00 15
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 06/16/00 to the lab for testing.

RECEIVED
 JUN 27 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate for Moisture		#100	#4
Sand Colormetric Test		#50	3/8"
		#30	1/2"
		#16	3/4"
REMARKS:		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- J. Driscoll

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 06/16/00 17
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 40 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Station Building, 2nd floor - Slab on Deck A-I
 and 1-2
 slump 5"/4", air temp. 74, conc. temp. 76,
 truck #1131, ticket #168405, time 8:30
 Total Pour: Second floor Station Building
 Slab on Deck line A-I and 1-2, A-I and 3-4,
 A-B and 1-4.

Method of Placement: Pump
 Method of Conc. Consolidation: Motorized Screed
 Cyl. Fabrication Location: Truck Discharge Chute
 Cylinder Storage: Rigid Foam Insulation
 Slump Specification: 5"

Two slumps indicated truck discharge/end of hose.
 TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
L857	6x12	28.27	06/16/00	06/23/00	7	3,110
L858	6x12	28.27	06/16/00	07/14/00	28	4,630
L859	6x12	28.27	06/16/00	07/14/00	28	4,810
L860	6x12	28.27	06/16/00	07/14/00	28	4,850

REMARKS:

INSPECTOR:
 Field- c. Lund, Min day + .5hr. trv.

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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OF MASSACHUSETTS, INC.

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 JUN 29 2000

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Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr. 17

CONCRETE INSPECTION REPORT II

DATE 06/16/00

The Middlesex Corporation
 Attn: Mr. Rick Noblet
 30A Atlantic Avenue
 Woburn, MA 011801

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 40 ASTM C-39

TEST SAMPLES
 4 cylinders

LOCATION
 Station Building, 2nd floor - Slab on Deck A-I
 and 1-2
 slump 5"/4", air temp. 74, conc. temp. 76,
 truck #1131, ticket #168405, time 8:30

Total Pour: Second floor Station Building
 Slab on Deck line A-I and 1-2, A-I and 3-4,
 A-B and 1-4.

Method of Placement: Pump
 Method of Conc. Consolidation: Motorized Screed
 Cyl. Fabrication Location: Truck Discharge Chute
 Cylinder Storage: Rigid Foam Insulation
 Slump Specification: 5"

Two slumps indicated truck discharge/end of hose.
 TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
L857	6x12	28.27	06/16/00	06/23/00	7	3,110
L858	6x12	28.27	06/16/00	07/14/00	28	
L859	6x12	28.27	06/16/00	07/14/00	28	
L860	6x12	28.27	06/16/00	07/14/00	28	

REMARKS:

INSPECTOR:
 Field- c. Lund, Min day + .5hr. trv.

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 06/15/00 13
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 6/14/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
		#16	3/4"
REMARKS:		#8	1"
		#4	1 1/2"

INSPECTORS: U T S OF MASSACHUSETTS, INC.
 Plant- Reviewed
 Field- J. Driscoll By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 06/14/00 16
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 20 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing - light pole bases, north of station house
 slump 4 1/2", air temp. 58, conc. temp. 70,
 truck #1109, ticket #167221, time 9:30
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Slump Specification: 5"

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
L252	6x12	28.27	06/14/00	06/21/00	7	2,690
L253	6x12	28.27	06/14/00	07/12/00	28	
L254	6x12	28.27	06/14/00	07/12/00	28	
L255	6x12	28.27	06/14/00	07/12/00	28	

REMARKS:

INSPECTOR:
 Field- S. Shanaver, Min day + .5hr.trv.

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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CONCRETE INSPECTION REPORT DATE 06/08/00 12
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 3 sets of cylinders cast on
 6/7/00 to the lab for testing.

RECEIVED
 JUN 16 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

INSPECTORS: U T S OF MASSACHUSETTS, INC.
 Plant- Reviewed
 Field- D. McCarthy By: William P. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 06/07/00 14
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 130 ASTM C-39

TEST SAMPLES	LOCATION
4 cylinders	Slab: Column line C-D at 3-4 slump 3 1/2", air temp. 60, conc. temp. 68, truck #1146, ticket #164307, time 10:45
4 cylinders	Slab: Column line B-C at 1-2 slump 4", air temp. 62, conc. temp. 71, truck #1128, ticket #164359, time 12:30

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
K108	6x12	28.27	06/07/00	06/14/00	7	2,790
K109	6x12	28.27	06/07/00	07/05/00	28	4,420
K110	6x12	28.27	06/07/00	07/05/00	28	4,530
K111	6x12	28.27	06/07/00	07/05/00	28	4,560
K104	6x12	28.27	06/07/00	06/14/00	7	3,290
K105	6x12	28.27	06/07/00	07/05/00	28	5,620
K106	6x12	28.27	06/07/00	07/05/00	28	5,550
K107	6x12	28.27	06/07/00	07/05/00	28	5,660

REMARKS:

INSPECTOR:
Field- C. Lund

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 06/07/00 15
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 130 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Slab: Column line G-H at 2-3
 slump 4", air temp. 62, conc temp. 72,
 truck #1103, ticket #164498, time 2:30

 Total Pour: Station Building 1st Floor Slab
 A.Z-I lines at 1-4.1

 Method of Placement: Pump
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 4"

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
K116	6x12	28.27	06/07/00	06/14/00	7	3,110
K117	6x12	28.27	06/07/00	07/05/00	28	
K118	6x12	28.27	06/07/00	07/05/00	28	
K119	6x12	28.27	06/07/00	07/05/00	28	

RECEIVED
 JUN 20 2000

Middlesex Corp. Dept. 10
 Woburn Regional Transportati

REMARKS:

INSPECTOR:
 Field- C. Lund

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

REPORT OF CONCRETE POUR

SUBJECT: Woburn Reservoir Turbine Case PROJECT NO: _____

DATE: 6-7-00 AIR TEMP: 58° TOTAL YARDS: 120

LOCATION OF POUR: Station 100

TRUCK#	LOAD & SLUMP INCHES	BATCHING TIME IN	BATCHING TIME OUT	TIME IN MINS	CONC YARDS	CONC TEMP	Temp % AIR	TICKET#	NO OF CYLS
1146	3 1/2"	10:00	11:00	60	10	69°	60°	164307	* 4 (A)
1133		10:30	11:25	55	20			164351	
1124		10:45	11:45	60	30			164335	
1105		11:15	12:05	50	40			164338	
1127		12:00	12:35	35	50			164372	
1128	4"	12:35	12:45	40	50	71°	62°	164359	* 4 (B)
1109		12:15	1:05	50	70			164387	
1141		12:45	1:20	35	80			164396	
1124		1:10	1:35	25	90			164422	
1105		1:50	2:25	35	100			164455	
1103	4"	2:15	2:45	30	110	72°	62°	164498	* 4 (C)
1135		2:20	3:00	40	120			164513	
1132		2:40	3:40	60	130			164523	

INSPECTOR: C. Lund REMARKS: _____

TIME: 7:00 - 4:00

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 Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 06/07/00 14
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 130 ASTM C-39

TEST SAMPLES	LOCATION
4 cylinders	Slab: Column line C-D at 3-4 slump 3 1/2", air temp. 60, conc. temp. 68, truck #1146, ticket #164307, time 10:45
4 cylinders	Slab: Column line B-C at 1-2 slump 4", air temp. 62, conc. temp. 71, truck #1128, ticket #164359, time 12:30

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
K108	6x12	28.27	06/07/00	06/14/00	7	2,790
K109	6x12	28.27	06/07/00	07/05/00	28	
K110	6x12	28.27	06/07/00	07/05/00	28	
K111	6x12	28.27	06/07/00	07/05/00	28	
K104	6x12	28.27	06/07/00	06/14/00	7	3,290
K105	6x12	28.27	06/07/00	07/05/00	28	
K106	6x12	28.27	06/07/00	07/05/00	28	
K107	6x12	28.27	06/07/00	07/05/00	28	

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 JUN 20 2000

REMARKS:

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.
 INSPECTOR: Field- C. Lund
 U T S OF MASSACHUSETTS, INC.
 Reviewed By: Steven T. Crabtree

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CONCRETE INSPECTION REPORT DATE 05/30/00 11
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 05/17/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C. AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate for Moisture		#100	#4
Sand Colormetric Test		#50	3/8"
		#30	1/2"
		#16	3/4"
REMARKS:		#8	1"
		#4	1 1/2"

INSPECTORS: U T S OF MASSACHUSETTS, INC.
 Plant- Reviewed
 Field- D. Miles By: William P. Crabtree *WPC*

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CONCRETE INSPECTION REPORT DATE 05/22/00 14
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Scheduled concrete placement cancelled by Joe
 Finney of Middlesex; contractor not ready.

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 JUN 27 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- D. Horn - Min Day + .5 Hr. Tr.

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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CONCRETE INSPECTION REPORT

DATE

05/17/00

9

The Middlesex Corporation
 Attn: Mr. Rick Noblet
 30A Atlantic Avenue
 Woburn, MA 011801

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co.

CLASS CONCRETE

CUBIC YARDS

DRY WEIGHTS

Cement
 Fine Aggr.
 Coarse Aggr.
 Admixture
 Admixture
 Water

MATERIALS

Brand Name
 Source
 Source
 Brand Name
 Brand Name
 Source

TEST SAMPLES

LOCATION

Transportation of 1 set of cylinders cast on
 05/16/00 to the lab for testing.

Moisture in Sand %
 Moisture in C. Aggr. %
 No. of Determinations
 Weights Adjusted to Compensate
 for Moisture
 Sand Colormetric Test

PLANT GRADATIONS

F.M.	SAND	F.M.	C.AGGR.
		#8	
#100		#4	
#50		3/8"	
#30		1/2"	
#16		3/4"	
#8		1"	
#4		1 1/2"	

REMARKS:

RECEIVED
 MAY 30 2000

INSPECTORS:

Plant-
 Field- D. Miles

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

U T S OF MASSACHUSETTS, INC.

Reviewed
 By: William P. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 05/16/00 13
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 6 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: Van pool canopy foundation
 slump 4 1/2", air temp. 70, conc. temp. 72,
 truck #1148, ticket #156176, time: 1:30
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cyl. Fabrication Location: Truck Discharge Chute
 Cylinder Storage: Curing Box
 Slump Specification: 3"-5"
 Locations supplied by Chris Downey

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
D220	6x12	28.27	05/16/00	05/23/00	7	2,650
D221	6x12	28.27	05/16/00	06/13/00	28	
D222	6x12	28.27	05/16/00	06/13/00	28	
D223	6x12	28.27	05/16/00	06/13/00	28	

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 MAY 26 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR: U T S OF MASSACHUSETTS, INC.
 Field- S. Shanaver - Min Day + .5 Hr Tr Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 05/15/00 10
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 05/12/00 to the lab for testing.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

RECEIVED
 MAY 30 2000

INSPECTORS:
 Plant-
 Field- D. Miles

Middlesex Corp Job 608
 Woburn Regional Transportation

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

QC book-concrete

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 05/12/00 12
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 6 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Footing: Bus Canopy Station 7 + 02.02
 slump 4", air temp. 76, conc. temp. 64,
 truck #1146, ticket #154734, time 12:15
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
C615	6x12	28.27	05/12/00	05/19/00	7	3,080
C616	6x12	28.27	05/12/00	06/09/00	28	4,950
C617	6x12	28.27	05/12/00	06/09/00	28	5,020
C618	6x12	28.27	05/12/00	06/09/00	28	4,780

REMARKS:

INSPECTOR:
Field- M. Konjkavfard

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree *[Signature]*

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CONCRETE INSPECTION REPORT DATE 05/08/00 5
 The Middlesex Corporation Job No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportati
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transporation of 1 set of cylinders cast on 5/4/00
 to the lab for testing.

RECEIVED
 MAY 18 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS		
Moisture in C. Aggr.	%	F.M.	SAND F.M.	C. AGGR.
No. of Determinations			#8	
Weights Adjusted to Compensate		#100	#4	
for Moisture		#50	3/8"	
Sand Colormetric Test		#30	1/2"	
REMARKS:		#16	3/4"	
		#8	1"	
		#4	1 1/2"	

INSPECTORS:
 Plant-
 Field- D. Miles

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *APC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT

DATE 05/08/00

6

The Middlesex Corporation
 Attn: Eileen Bean
 30 A Atlantic Avenue
 Woburn, MA 01801

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co.

CLASS CONCRETE

CUBIC YARDS

DRY WEIGHTS
 Cement
 Fine Aggr.
 Coarse Aggr.
 Admixture
 Admixture
 Water

MATERIALS
 Brand Name
 Source
 Source
 Brand Name
 Brand Name
 Source

TEST SAMPLES

LOCATION

Transportation of 9 Field Cures 2 cast on 4/24,
 2 cast 4/28, 2 cast 5/1, 1 cast 5/4, 2 cast 5/5/00
 to the lab for testing.

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 MAY 18 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand %
 Moisture in C. Aggr. %
 No. of Determinations
 Weights Adjusted to Compensate
 for Moisture
 Sand Colormetric Test

PLANT GRADATIONS

F.M.	SAND	F.M.	C.AGGR.
		#8	
#100		#4	
#50		3/8"	
#30		1/2"	
#16		3/4"	
#8		1"	
#4		1 1/2"	

REMARKS:

INSPECTORS:
 Plant-
 Field- D. Miles

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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CONCRETE INSPECTION REPORT II DATE 05/05/00 10
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 5000# 3/8" CUBIC YARDS 20 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Wall: Interior piers B line at 2 and 3 lines
 (field cures)
 slump 3/12", air temp. 78, conc. temp. 72,
 truck #1141, ticket #15238, time 12:30

 Total Pour: 1 line at D-E lines wall, piers B
 line at 2 and 3 lines, A.6 line at 3.7 line
 duct bank ext station bldg to interior station
 building D-E at 1-1.5
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specificastion: 4"
 Two cylinders are field cures

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
A834	6x12	28.27	05/05/00	05/12/00	7	3,150
A835	6x12	28.27	05/05/00	05/12/00	7	3,220
A836	6x12	28.27	05/05/00	06/02/00	28	6,300
A837	6x12	28.27	05/05/00	06/02/00	28	6,190
A868	6x12	28.27	05/05/00	06/30/00	56	
A869	6x12	28.27	05/05/00	06/30/00	56	

REMARKS:

INSPECTOR:
Field- C. Lund

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 05/04/00 11
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 12 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Wall: (A.3) 1 line - (2.8) A line; (3.4) A2 line
 (A.5) 4.1 line
 slump 4", air temp. 70, conc. temp. 62,
 truck #1106, ticket #151329, time 11:00

Method of Placement: Chute Discharge, Bucket
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 5"
 Locations Supplied by: Chris Downing

****FIELD CURE CYLINDERS****

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
A862	4x8	12.56	05/04/00	05/11/00	7	3,040
A863	4x8	12.56	05/04/00	06/01/00	28	3,640
A864	4x8	12.56	05/04/00	06/01/00	28	3,780
A865	4x8	12.56	05/04/00	06/29/00	56	5,130
A866	4x8	12.56	05/04/00	06/29/00	56	5,020
A867	4x8	12.56	05/04/00	06/29/00	56	5,160

REMARKS: Cylinder will be held for a 56-Day Break due to a low 28-day Break.

INSPECTOR:
Field- S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 05/04/00 11
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 12 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Wall: (A.3) 1 line - (2.8) A line; (3.4) A2 line
 (A.5) 4.1 line
 slump 4", air temp. 70, conc. temp. 62,
 truck #1106, ticket #151329, time 11:00
 Method of Placement: Chute Discharge, Bucket
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 5"
 Locations Supplied by: Chris Downing

****FIELD CURE CYLINDERS****

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
A862	4x8	12.56	05/04/00	05/11/00	7	3,040
A863	4x8	12.56	05/04/00	06/01/00	28	3,640 ←
A864	4x8	12.56	05/04/00	06/01/00	28	3,780 ←
A865	4x8	12.56	05/04/00	06/29/00	56	
A866	4x8	12.56	05/04/00	06/29/00	56	
A867	4x8	12.56	05/04/00	06/29/00	56	

REMARKS: Cylinder will be held for a 56-day Break due to a low 28-day Break.

INSPECTOR:
Field- S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 05/02/00 8
 The Middlesex Corporation Job No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportati
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 2 sets of cylinders 1 cast on
 4/28, 1 cast on 5/1, to the lab for testing.

RECEIVED
 MAY 18 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C.AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

INSPECTORS: U T S OF MASSACHUSETTS, INC.
 Plant- Reviewed
 Field- D. Miles By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 05/01/00 9
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 8 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Wall: Column liune elevator pit ET all A and
 A.Z, 2.8 and 3.4
 slump 4 3/4", air temp. 64, conc. temp. 68,
 truck #1130, ticket #149767, time 2:45

 Total Pour: Column line elevator pit ET all
 A and A.Z, 2.8 and 3.4
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 4"
 Locations supplied by Chris Downey

 2 Cylinders are field cures #Z663, #Z664

TESTS ACCORDING TO ASTM: C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Z659	6x12	28.27	05/01/00	05/08/00	7	2,480
Z660	6x12	28.27	05/01/00	05/12/00	11	3,290
Z661	6x12	28.27	05/01/00	05/30/00	29	5,130
Z662	6x12	28.27	05/01/00	05/30/00	29	5,020
Z663	6x12	28.27	05/01/00	06/26/00	56	5,910
Z664	6x12	28.27	05/01/00	06/26/00	56	6,010

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 JUN 30 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS: 11-Day Break done at the request
 of Laura Robinson of Middlesex

INSPECTOR:
 Field- D. Horn

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 05/01/00 9
 The Middlesex Corporation Job No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportat:
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 8 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Wall: Column liune elevator pit ET all A and
 A.Z, 2.8 and 3.4
 slump 4 3/4", air temp. 64, conc. temp. 68,
 truck #1130, ticket #149767, time 2:45

 Total Pour: Column line elevator pit ET all
 A and A.Z, 2.8 and 3.4
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 4"
 Locations supplied by Chris Downey

 2 Cylinders are field cures #Z663, #Z664

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Z659	6x12	28.27	05/01/00	05/08/00	7	2,480
Z660	6x12	28.27	05/01/00	05/29/00	28	
Z661	6x12	28.27	05/01/00	05/29/00	28	
Z662	6x12	28.27	05/01/00	05/29/00	28	
Z663	6x12	28.27	05/01/00	06/26/00	56	
Z664	6x12	28.27	05/01/00	06/26/00	56	

RECEIVED
 MAY 16 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- D. Horn

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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MAY 11 2000

CONSTRUCTION DEPT

CONCRETE INSPECTION REPORT II DATE 05/01/00 9
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp
 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 8 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Wall: Column liune elevator pit ET all A and
 A.Z, 2.8 and 3.4
 slump 4 3/4", air temp. 64, conc. temp. 68,
 truck #1130, ticket #149767, time 2:45
 Total Pour: Column line elevator pit ET all
 A and A.Z, 2.8 and 3.4
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Slump specification: 4"
 Locations supplied by Chris Downey
 2 Cylinders are field cures #Z663, #Z664

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Z659	6x12	28.27	05/01/00	05/08/00	7	2,480
Z660	6x12	28.27	05/01/00	05/29/00	28	
Z661	6x12	28.27	05/01/00	05/29/00	28	
Z662	6x12	28.27	05/01/00	05/29/00	28	
Z663	6x12	28.27	05/01/00	06/26/00	56	
Z664	6x12	28.27	05/01/00	06/26/00	56	

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 MAY 12 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- D. Horn

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 04/28/00 8
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 16 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Wall: Station Building (wall, line (1) D1-A3, line
 (4) D3-4.1)
 slump 5", air temp. 57, conc. temp. 69,
 truck #1127, ticket #149175, time 3:00
 Set of 6 (2 are FIELD CURES)
 Total Pour: Station Bldg. walls 1 line D1-A3, 4
 line D.3-4.1, Ftg. 2 line C, D, E
 Method of Placement: Bucket
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 5"
 Locations Supplied by: Chris Downing

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Z665	6x12	28.27	04/28/00	05/05/00	7	2,830
Z666	6x12	28.27	04/28/00	05/26/00	28	4,560
Z667	6x12	28.27	04/28/00	05/26/00	28	5,020
Z668	6x12	28.27	04/28/00	05/26/00	28	5,200
Z669	6x12	28.27	04/28/00	04/28/00	**	
Z670	6x12	28.27	04/28/00	04/28/00	**	

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 JUN 02 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS: **Cylinders Z669 & Z670 are FIELD CURE CYLINDERS

INSPECTOR:
 Field- S. Shanaver -Max Day + .50 Hr Tr

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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CONCRETE INSPECTION REPORT II DATE 04/28/00 8
 The Middlesex Corporation Job No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportati.
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 16 ASTM C-39

TEST SAMPLES-- LOCATION
 6 cylinders Wall: Station Building (wall, line (1) D1-A3, line (4) D3-4.1)
 slump 5", air temp. 57, conc. temp. 69,
 truck #1127, ticket #149175, time 3:00
 Set of 6 (2 are FIELD CURES)
 Total Pour: Station Bldg. walls 1 line D1-A3, 4 line D.3-4.1, Ftg. 2 line C, D, E
 Method of Placement: Bucket
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 5"
 Locations Supplied by: Chris Downing

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Z665	6x12	28.27	04/28/00	05/05/00	7	2,830
Z666	6x12	28.27	04/28/00	05/26/00	28	
Z667	6x12	28.27	04/28/00	05/26/00	28	
Z668	6x12	28.27	04/28/00	05/26/00	28	
Z669	6x12	28.27	04/28/00	04/28/00	**	
Z670	6x12	28.27	04/28/00	04/28/00	**	

RECEIVED
 MAY 12 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS: **Cylinders Z669 & Z670 are FIELD CURE CYLINDERS

INSPECTOR:
 Field- S. Shanaver -Max Day + .50 Hr Tr

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 04/25/00 7
 The Middlesex Corporation Job No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportati
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 4/24/00 to the lab for testing.

RECEIVED
 MAY 18 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS		
Moisture in C. Aggr.	%	F.M.	SAND F.M.	C.AGGR.
No. of Determinations			#8	
Weights Adjusted to Compensate		#100	#4	
for Moisture		#50	3/8"	
Sand Colormetric Test		#30	1/2"	
REMARKS:		#16	3/4"	
		#8	1"	
		#4	1 1/2"	

INSPECTORS:
 Plant-
 Field- D. Miles

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 04/24/00 7
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 15 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Footing: Interior footings station house 2 line
 F. G. H, 3 line C, D, E, F, G, H
 slump 4", air temp. 50, conc. temp. 60,
 truck #1135, ticket #147391, time 1:30

 1 set of 6 cylinders (4x8) were made 2 cylinders
 are field cures
 Method of placement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Cylinders were placed in a curing box
 Locations supplied by Chris Downing

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y131	4x8	12.56	04/24/00	05/01/00	7	2,830
Y132	4x8	12.56	04/24/00	05/01/00	7	2,580
Y133	4x8	12.56	04/24/00	05/22/00	28	4,880
Y134	4x8	12.56	04/24/00	05/22/00	28	4,950
Y135	4x8	12.56	04/24/00	05/22/00	28	5,020
Y136	4x8	12.56	04/24/00	05/22/00	28	5,270

RECEIVED
 MAY 26 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180

MAY 05 2000
 Of MASSACHUSETTS, INC.

781-438-7755

CONCRETE INSPECTION REPORT II

DATE 04/24/00

7

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 15 ASTM C-39

TEST SAMPLES
6 cylinders

LOCATION

Footing: Interior footings station house 2 line
 F. G. H, 3 line C, D, E, F, G, H
 slump 4", air temp. 50, conc. temp. 60,
 truck #1135, ticket #147391, time 1:30

1 set of 6 cylinders (4x8) were made 2 cylinders
 are field cures
 Method of plcement: chute discharge
 Method of conc. consolidation: vibrator
 Cyl. fabrication location: truck discharge chute
 Cylinders were placed in a curing box
 Locations supplied by Chris Downing

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
Y131	4x8	12.56	04/24/00	05/01/00	7	2,830
Y132	4x8	12.56	04/24/00	05/01/00	7	2,580
Y133	4x8	12.56	04/24/00	05/22/00	28	
Y134	4x8	12.56	04/24/00	05/22/00	28	
Y135	4x8	12.56	04/24/00	05/22/00	28	
Y136	4x8	12.56	04/24/00	05/22/00	28	

REMARKS:

INSPECTOR:
Field- S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT

DATE 04/21/00

4

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co.

CLASS CONCRETE

CUBIC YARDS

DRY WEIGHTS
 Cement
 Fine Aggr.
 Coarse Aggr.
 Admixture
 Admixture
 Water

MATERIALS
 Brand Name
 Source
 Source
 Brand Name
 Brand Name
 Source

TEST SAMPLES

LOCATION

Transportation of 1 set of cylinders cast on
 04/20/00 to the lab for testing.

Moisture in Sand %
 Moisture in C. Aggr. %
 No. of Determinations
 Weights Adjusted to Compensate
 for Moisture
 Sand Colormetric Test

PLANT GRADATIONS

F.M.	SAND	F.M.	C.AGGR.
		#8	
		#4	
#100		3/8"	
#50		1/2"	
#30		3/4"	
#16		1"	
#8		1 1/2"	
#4			

REMARKS:

INSPECTORS:
 Plant-
 Field- D. Miles

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 04/20/00 5
 The Middlesex Corporation Job No. UTS 6100
 Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 16 ASTM C-39

TEST SAMPLES LOCATION
 6 cylinders Footing: A-B.2 lines at 1 line
 slump 3 1/2", air temp. 58, conc. temp. 75,
 truck #1146, ticket #146388, time 1:30
 Total Pour: 1 line A-B.2, A line 1-2.8, AZ line
 2.8-4, 4 line A.Z-B
 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 4"

** Two cylinder are FIELD CURES **

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
X738	6x12	28.27	04/20/00	04/27/00	7	3,180
X739	6x12	28.27	04/20/00	05/18/00	28	4,600
X740	6x12	28.27	04/20/00	05/18/00	28	4,490
X741	6x12	28.27	04/20/00	05/18/00	28	4,950
X742	6x12	28.27	04/20/00	04/20/00		
X743	6x12	28.27	04/20/00	04/20/00		

RECEIVED
 MAY 23 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- C. Lund

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT DATE 04/19/00 3
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp
 Conc. Co.

CLASS CONCRETE	CUBIC YARDS
DRY WEIGHTS	MATERIALS
Cement	Brand Name
Fine Aggr.	Source
Coarse Aggr.	Source
Admixture	Brand Name
Admixture	Brand Name
Water	Source

TEST SAMPLES LOCATION
 Transportation of 1 set of cylinders cast on
 04/18/00 to the lab for testing.

RECEIVED
 APR 28 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand	%	PLANT GRADATIONS	
Moisture in C. Aggr.	%	F.M.	SAND F.M. C. AGGR.
No. of Determinations			#8
Weights Adjusted to Compensate		#100	#4
for Moisture		#50	3/8"
Sand Colormetric Test		#30	1/2"
REMARKS:		#16	3/4"
		#8	1"
		#4	1 1/2"

INSPECTORS:
 Plant-
 Field- D. niles

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180

Of MASSACHUSETTS, INC.

distributed to:
 Project Manager
 CONSTRUCTION DEPT
 03/2000

781-438-7755

CONCRETE INSPECTION REPORT II

DATE 04/18/00

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4"

CUBIC YARDS 19

ASTM C-39

TEST SAMPLES

LOCATION

4 cylinders

Wall: 1 line at E line
 slump 4 3/4", air temp. 44, conc. temp. 72,
 truck #1109, ticket #145130, time 9:30

2 cylinders

Wall: 1 line at E line (field cures)

Total Pour: Station bldg. foundation walls 1 line
 at D.5 - G.5 lines, G.5 line - I line at 4 line,
 I line at 3-4 lines

Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge Chute
 Slump Specification: 4"
 Two Cylinders are FIELD CURES

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
X145	6x12	28.27	04/18/00	04/25/00	7	3,500
X146	6x12	28.27	04/18/00	05/16/00	28	4,670
X147	6x12	28.27	04/18/00	05/16/00	28	4,420
X148	6x12	28.27	04/18/00	05/16/00	28	4,600
X149	6x12	28.27	04/18/00	04/21/00	3	1,520
X150	6x12	28.27	04/18/00	04/21/00	3	1,410

RECEIVED
 MAY 25 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- C. Lund

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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CONCRETE INSPECTION REPORT

DATE 04/12/00 2

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co.

CLASS CONCRETE

CUBIC YARDS

DRY WEIGHTS

MATERIALS

Cement
 Fine Aggr.
 Coarse Aggr.
 Admixture
 Admixture
 Water

Brand Name
 Source
 Source
 Brand Name
 Brand Name
 Source

TEST SAMPLES

LOCATION

Transportation of 1 set of cylinders cast on
 04/11/00 to the lab for testing.

Moisture in Sand %
 Moisture in C. Aggr. %
 No. of Determinations
 Weights Adjusted to Compensate
 for Moisture
 Sand Colormetric Test

PLANT GRADATIONS

F.M.	SAND	F.M.	C. AGGR.
		#8	
		#4	
#100		3/8"	
#50		1/2"	
#30		3/4"	
#16		1"	
#8		1 1/2"	
#4			

REMARKS:

INSPECTORS:
 Plant-
 Field- D. Miles

RECEIVED
 APR 27 2000

Middlesex Corp. Job # 6100
 Woburn Regional Trans. Corp.

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

CONCRETE INSPECTION REPORT II DATE 04/11/00 4
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp
 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 13 ASTM C-39

TEST SAMPLES LOCATION
 2 cylinders Wall: Column line 4 at E.3 top pour
 slump 3 1/4", air temp. 40, conc. temp. 73,
 truck #1131, ticket #142246, time 9:10
 Total Pour: Wall column line I at 2.7 - G.7
 column line 4 at D.3 - F.3

FIELD CURES

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
X523	6x12	28.27	04/11/00	04/21/00	10	3,180
X524	6x12	28.27	04/11/00	04/21/00	10	3,150

RECEIVED
 APR 27 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- B. Lumenello

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree *mm*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

OF MASSACHUSETTS, INC.

MAY 12 2000

CONSTRUCTION DEPT.

CONCRETE INSPECTION REPORT II DATE 04/11/00 3

The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp
 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4" CUBIC YARDS 13 ASTM C-39

TEST SAMPLES LOCATION
 4 cylinders Wall: Column line F at F.3 Lower Pour
 slump 3 1/4", air temp. 40, conc. temp. 73,
 truck #1131, ticket #142246, time 9:10

 Total Pour: Wall Column line I at 2.7-G.7,
 Column line 4 at D.3-F.3

 Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
T755	6x12	28.27	04/11/00	04/18/00	7	3,250
T756	6x12	28.27	04/11/00	05/09/00	28	5,480
T757	6x12	28.27	04/11/00	05/09/00	28	5,380
T758	6x12	28.27	04/11/00	05/09/00	28	5,310

RECEIVED
 MAY 16 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR: U T S OF MASSACHUSETTS, INC.
 Field- B. Lumenello-Min Day + .50 Hr.Tr Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180

Of MASSACHUSETTS, INC.

APR 21 2000

CONSTRUCTION DEPT.

781-438-7755

CONCRETE INSPECTION REPORT II

DATE

04/11/00

3

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp
 Conc. Co. Wakefield

CLASS CONCRETE 4000# 3/4"

CUBIC YARDS 13

ASTM C-39

TEST SAMPLES
 4 cylinders

LOCATION

Wall: Column line F at F.3 Lower Pour
 slump 3 1/4", air temp. 40, conc. temp. 73,
 truck #1131, ticket #142246, time 9:10

Total Pour: Wall Column line I at 2.7-G.7,
 Column line 4 at D.3-F.3

Method of Placement: Chute Discharge
 Method of Concrete Consolidation: Vibrator
 Cylinder Fabrication Loc.: Truck Discharge

TESTS ACCORDING TO ASTM:C-172 C-31 C-143 C-1064

LAB NO.	SIZE	AREA	DATE CAST	DATE TESTED	AGE DAYS	P.S.I.
T755	6x12	28.27	04/11/00	04/18/00	7	3,250
T756	6x12	28.27	04/11/00	05/09/00	28	
T757	6x12	28.27	04/11/00	05/09/00	28	
T758	6x12	28.27	04/11/00	05/09/00	28	

RECEIVED
 APR 24 2000

Middlesex Corp Job 405
 Woburn Regional Trans. Ctr.

REMARKS:

INSPECTOR:
 Field- B. Lumenello-Min Day + .50 Hr.Tr

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: Steven T. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180

OF MASSACHUSETTS, INC.

APR 17 2000

CONSTRUCTION DEPT.

781-438-7755

CONCRETE INSPECTION REPORT

DATE 03/31/00

1

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati.
 Contractor The Middlesex Corp
 Conc. Co.

CLASS CONCRETE

CUBIC YARDS

DRY WEIGHTS

MATERIALS

Cement
 Fine Aggr.
 Coarse Aggr.
 Admixture
 Admixture
 Water

Brand Name
 Source
 Source
 Brand Name
 Brand Name
 Source

TEST SAMPLES

LOCATION

Transportation of 1 set of cylinders cast on
 03/31/00 to the lab for testing.

RECEIVED
 APR 18 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Moisture in Sand %
 Moisture in C. Aggr. %
 No. of Determinations
 Weights Adjusted to Compensate
 for Moisture
 Sand Colormetric Test

PLANT GRADATIONS
 F.M. SAND F.M. C.AGGR.
 #8
 #4
 #100
 #50 3/8"
 #30 1/2"
 #16 3/4"
 #8 1"
 #4 1 1/2"

REMARKS:

INSPECTORS:
 Plant-
 Field- R. Chaisson

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*



SDMS DocID 257988

BATG
Environmental



Industri-plex

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257988

*7.6 Industri-plex CU 1
Institutional Controls -
AS-BUILT Records for
ANDERSON RTC 7-13-01*

ANDERSON RTC COVER MODIFICATION AS-BUILT

**INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS 01801**

BATG PROJECT NO. 20-100

Prepared For:

**THE MASSACHUSETTS PORT AUTHORITY
CAPITAL PROGRAMS DIVISION
ONE HARBORSIDE DRIVE SUITE 200S
EAST BOSTON, MASSACHUSETTS 02128-2909**

Prepared By:

**BATG ENVIRONMENTAL, INC.
150 RECREATION PARK DRIVE, SUITE 5
HINGHAM, MASSACHUSETTS 02043
(781) 740-2078 FAX (781) 740-2079**

JULY 10, 2001

VOLUME 2 OF 2

F.3 – REINFORCING STEEL INSPECTION REPORTS

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 11/01/00 23
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

CONTACTS: Joe Phinney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S-1 dated 8/4/00
 SHOP DRAWING(S) R-1 dated 8/4/00
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

AREA REVIEWED: East/west bus ramp #7

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom)	X	
Clearance	X	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	X	
Bar Supports	X	
Bar Spacing	X	
Bar Quantity	X	
Placement (position and tying)	X	

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 7:00 AM Time of Concrete Placement: 10:45 AM

INSPECTOR: D. Currier-Max day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

WPC

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 10/13/00 22
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

CONTACTS: Chris Downey of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S-113 and S-1-101
 SHOP DRAWING(S)
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

AREA REVIEWED: Pedestrian ramp base between 20-22
 Pedestrian stair base

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom)	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: A spot check inspection of reinforcing steel was performed at the above referenced area(s).

Time of Inspection: 10:30 AM Time of Concrete Placement: 12:30 PM

INSPECTOR: W. Crabtree-Min day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

Reinforcing Steel Inspection Report

03/30/2000	Footing	max day plus 1/2
03/30/2000	Footing	max day
03/31/2000	Footing	9 hours plus 1/2
04/14/2000		
04/18/2000	Station building foundation wall elevator pad	max day
04/20/2000	Station building footing	max day
04/24/2000	Interior footings	
04/28/2000	Station building	max day
05/01/2000	Elevator pit walls	min day
05/04/2000	Wall	min day
05/12/2000	Footings for bus canopy	min day
05/24/2000	inspection cancelled due to inclement weather	min day
05/25/2000	summary of inspection activities	min day
06/07/2000	Station building 1st floor thickened slab areas	9 hours plus 1/2
06/07/2000	cancelled due to inclement weather	min day
06/13/2000	summary of inspection activities	
06/15/2000	summary of inspection activities	
06/20/2000	summary of inspection activities	min day
06/22/2000	summary of inspection activities	min day
06/26/2000	cancelled - contractor not ready	min day
06/28/2000	Footings for bus canopy	max day
06/29/2000	summary of inspection activities	min day
06/30/2000	summary of inspection activities	min day
07/05/2000	pedestrian bridge II	min day
07/06/2000	Platform foundation	min day
07/13/2000	Platform Footings 1 - 4	
07/17/2000	Footings - Column Line A @ 5-9	max day
07/20/2000	Platform Footings 11&13	min day
07/20/2000	Platform Walls 1 & 2	min day
08/08/2000	Wall column line A @ 21 and 22	max day
08/10/2000	Column line 1	min day
08/24/2000	Retaining Wall Footage	min day
08/25/2000	Footings Platform	min day

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 U U T S S S OF MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 08/25/00 21
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

CONTACTS: Chris Downey of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) PF-1 Rev. #1 dated 5/10/00
 SHOP DRAWING(S) PF-1 Section #2
 PROJECT SPECIFICATIONS 03300 (Footing Type #2)
 OTHER Drawings stamped: Yes

AREA REVIEWED: Footing platform

RECEIVED
 SEP 12 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom)	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: Completed to approved shop drawings, with no deficiencies found.

Time of Inspection: 7:00 AM Time of Concrete Placement: N/A

INSPECTOR: F. Jones-Min day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 08/24/00 20
 Office Copy Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

CONTACTS: Joe Phinney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S)
 SHOP DRAWING(S) Stone & Webster Addendum
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: No

AREA REVIEWED: Retaining wall footing

RECEIVED
 SEP 25 2000

VERIFY: Coverage (top and bottom) Clearance Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted) Bar Supports Bar Spacing Bar Quantity Placement (position and tying)	Middlesex Corp. Job 405 Woburn Regional Trans. Ctr. ACCEPTABLE YES NO X X X X X X X
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REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 9:00 AM Time of Concrete Placement: 11:00 AM

INSPECTOR: P. Treska-Min day
 U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180

RECEIVED
 OF MASSACHUSETTS, INC. SEP 06 2000
 Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.
 781-438-7755

REINFORCING STEEL INSPECTION DATE 08/24/00 20
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

CONTACTS: Joe Phinney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S)
 SHOP DRAWING(S) Stone & Webster Addendum
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: No

AREA REVIEWED: Retaining wall footing

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom)	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 9:00 AM Time of Concrete Placement: 11:00 AM

INSPECTOR: P. Treska-Min day U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 08/15/00 19
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

CONTACTS: Joe Phinney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S)
 SHOP DRAWING(S)
 PROJECT SPECIFICATIONS 03300
 OTHER

AREA REVIEWED: Walls at tracks 23, 24, 25, and 26

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: A spot check inspection of reinforcing steel was performed at the above referenced area(s).

Time of Inspection: 12:00 PM Time of Concrete Placement: 2:00 PM

INSPECTOR: F. Baxter-Min day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 08/10/00 18
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180

CONTACTS: Joe Finney of The Middlesex Corp.

SPECIFICATION: ASTM A615 Grade 40 Grade 60 x Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S-1, S-3
 SHOP DRAWING(S)
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings Stamped: Yes

AREA REVIEWED: Column Line 1

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: A spot check inspection of reinforcing steel was performed at the above referenced area(s).

Time of Inspection: 10:00AM Time of Concrete Placement:

INSPECTOR: C. Harr - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 08/08/00 17
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180

CONTACTS: Joe Finney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) PF1 Rev. #1 dated 5/10/00
 SHOP DRAWING(S)
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

AREA REVIEWED: Wall column line A at 21 and 22

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom, inside and outside face)	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 10:00 AM Time of Concrete Placement: 2:00 PM

INSPECTOR: D. Currier-Max day U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 07/20/00 16
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01180

CONTACTS: Joe Finney of The Middlesex Corp

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) PF-1 Dated 04/11/00
 SHOP DRAWING(S)
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings Stamped: Yes

AREA REVIEWED: Platform footing 11 and 13, walls 1 and 2

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage -	X	
Clearance	X	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	X	
Bar Supports	X	
Bar Spacing	X	
Bar Quantity	X	
Placement (position and tying)	X	

REMARKS: A spot check inspection of reinforcing steel was performed at the above referenced area(s).

Time of Inspection: 6:30 AM Time of Concrete Placement: 7:30 AM

INSPECTOR: S. Shanaver - Min Day U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 07/17/00 15
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

CONTACTS: Chris Downing of The Middlesex Corp

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S101 Dated 10/09/00
 SHOP DRAWING(S) PF1 Dated 04/24/00
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings Stamped: Yes

AREA REVIEWED: Footings xolumn line A at 5, 6, 7, 8, 9

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom, insdie and outside face)	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 7:30 AM Time of concrete Placement: 9:20 AM

INSPECTOR: D. Currier - Max Day U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 07/13/00 14
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

CONTACTS: Joe Finney of Middlesex

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S3.1
 SHOP DRAWING(S) R-01
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings Stamped: No

AREA REVIEWED: Platform footings 1-4

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage -	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: Ther was sufficient tiem to perform this inspection.

Time of Inspection: 10:00 AM Time of Concrete Inspection: 12:00 PM

INSPECTOR: S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 06/28/00 12
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

CONTACTS: Joe Finney of The Middlesex Corp.

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) Stone & Webster Rev #02/11/00
 SHOP DRAWING(S) Barker Steel PG, PF-1, PF-2 10/99
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings Stamped: Yes

AREA REVIEWED: Footings: Pedestrian bridge footing Sta. 677, 21.0'
 pedestrian bridge footing Sta. 671, 30.52'

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom, inside and outside face)	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 10:00 AM Time of Concrete Placement: 2:00 PM

INSPECTOR: T. Regan - Max Day U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 07/05/00 11
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

CONTACTS: Chris Downing of The Middlesex Corp

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) Rev #1 Dated 05/10/00
 SHOP DRAWING(S) PF-1
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings Stamped: Yes

AREA REVIEWED: Pedestrian bridge II on 36 line foundation for stairs
 at pedestrian bridge slab at storage building

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom, inside and outside face)	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: A spot check inspection of reinforcing steel was performed at the above referenced area(s).

Time of Inspection: 12:00 PM Time of Concrete Placement: 1:00 PM

INSPECTOR: N. Callahan - Min Day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180

Of MASSACHUSETTS, INC.

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 JUN 14 2000

781-438-7751

REINFORCING STEEL INSPECTION DATE 06/07/00
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.
 10

CONTACTS: Joe Phinney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S-2 Rev. #26368 dated 10/7/99
 SHOP DRAWING(S) SP
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

AREA REVIEWED: Station building first floor thickened slab areas

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 7:00 AM Time of Concrete Placement: 10:00 AM

INSPECTOR: C. Lund-9 hours plus .5 hr. travel U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 05/12/00 9
 The Middlesex Corporation Job No. UTS 6100
 Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

CONTACTS: Joe Phinney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S-12
 SHOP DRAWING(S) Barker Steel PF_3
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

AREA REVIEWED: Footings for bus canopy, STA 7+02.02

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom)	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

RECEIVED
 MAY 23 2000

REMARKS: A spot check inspection of reinforcing steel was performed at the above referenced area(s).
Middlesex Corp. Job 405
 Trans. Ctr.

Time of Inspection: 11:30 AM Time of Concrete Placement: 11:50 AM

INSPECTOR: M. Konjkavfard-Min day plus 1/2 hour travel
 U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 05/04/00 8
 The Middlesex Corporation Job No. UTS 6100
 Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

CONTACTS: Chris Downey of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S-1
 SHOP DRAWING(S) R0-02
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

RECEIVED
 MAY 23 2000

AREA REVIEWED: Wall: A.3, 1 line, 2.8 at A line;
 3.4 A(Z) line, A.5, 4(1) line
 Pier footings: 2 and 3 at B line

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: A spot check inspection of reinforcing steel was performed at the above referenced area(s).

Time of Inspection: 10:00 AM Time of Concrete Placement: 11:00 AM

INSPECTOR: S. Shanaver-Min day plus 1/2 hour travel
 U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180

MAY 05 2000
 OF MASSACHUSETTS, INC.
 CONSTRUCTION CO.

781-438-7755

REINFORCING STEEL INSPECTION DATE 04/28/00 5
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

CONTACTS: Chris Downing of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S-1
 SHOP DRAWING(S) R-002, dated 3/17/00
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

AREA REVIEWED: Station building:
 Wall, line 1, D1-A3; line 4, D3-4.1
 Interior footings, 2 line, C, D, and E

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 MAY 09 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

VERIFY:	ACCEPTABLE
	YES NO
Coverage	X
Clearance	X
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	X
Bar Supports	X
Bar Spacing	X
Bar Quantity	X
Placement (position and tying)	X

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 11:30 AM Time of Concrete Placement: 3:30 PM

INSPECTOR: S. Shanaver-Max day plus .5 hour travel U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180

Of MASSACHUSETTS, INC.

781-438-7755

RECEIVED
 APR 28 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.
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REINFORCING STEEL INSPECTION

DATE

04/20/00

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

CONTACTS: Jay Finney

SPECIFICATION: ASTM A615 Grade 40 Grade 60 x Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S-2, Rev. #26368, Dated 10/7/99
 SHOP DRAWING(S)
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings Stamped Yes

AREA REVIEWED: Station Building Footing A-B.2 line at 1 line, A.2 line
 at 3-4 lines, A line at 1-2.8 line and A.2-B.2 line at
 4 line.

VERIFY:

ACCEPTABLE
 YES NO

Coverage	x
Clearance	x
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x
Bar Supports	x
Bar Spacing	x
Bar Quantity	x
Placement (position and tying)	x

REMARKS: A spot check inspection of reinforcing steel was performed at
 the above referenced area(s).

Time of Inspection: 12:30 Time of Concrete Placement: 1:00 PM

INSPECTOR: C. Lund, Max day plus 1/2
 hour travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180

Of MASSACHUSETTS, INC.

781-438-7755

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 APR 28 2000

REINFORCING STEEL INSPECTION

DATE 04/18/00

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

CONTACTS: Jay Finney

SPECIFICATION: ASTM A615 Grade 40 Grade 60 x Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S-1/S-3, Rev.26368, Dated
 SHOP DRAWING(S) 10/7/99
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings Stamped Yes

AREA REVIEWED: Station Building Foundation Wall Elevator Pad A.2 line
 at 2.8 line, A line at 2.8 line, I line at 3-4 lines and
 G.5 line-I line at 4 line.

VERIFY:

ACCEPTABLE
 YES NO

Coverage - Inside and Outside Face	X
Clearance	X
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	X
Bar Supports	X
Bar Spacing	X
Bar Quantity	X
Placement (position and tying)	X

REMARKS: A spot check inspection of reinforcing steel was performed at the above referenced area(s).

Time of Inspection: 8:30 AM Time of Concrete Placement: 9:00 AM

INSPECTOR: C. Lund, Max day plus
 1/2 hour travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*



Of Massachusetts Inc.
"The Construction Testing People"

UTS PROJECT # _____

Subject : REINFORCING STEEL INSPECTION
 Contractor : MIDDLESEX
 Project Name : RTC
 Date : 4-14-00
 CONTACTS : JOE FINNEY

SPECIFICATION : ASTM A615 Grade 40 ___ Grade 60 Grade 75 ___
 ASTM A616 Grade 50 ___ Grade 60 ___
 ASTM A617 Grade 40 ___ Grade 60 ___

ACCEPTANCE CRITERIA: CONTRACT DRAWINGS(S) S3.1 REV. # 03300-001-00 DATED 3-17-00
 SHOP DRAWINGS(S) R-002
 PROJECT SPECIFICATIONS 03300
 OTHER _____
 DRAWINGS STAMPED: YES NO ___

AREA REVIEWED:

VERIFY:

ACCEPTABLE:

Coverage (Top ___ Bottom ___ and/or IF* ___ OF* ___)
 Clearance
 Cleanliness (heavy rust/scale, mud, dirt, oil, etc. not permitted)
 Bar Supports
 Bar Spacing
 Bar Quantity
 Placement (position and tying)

YES	NO
<input checked="" type="checkbox"/>	___
<input checked="" type="checkbox"/>	___
<input checked="" type="checkbox"/>	___
<input checked="" type="checkbox"/>	___
<input checked="" type="checkbox"/>	___
<input checked="" type="checkbox"/>	___
<input checked="" type="checkbox"/>	___

Remarks:

Time of Inspection: 12:00 Time of Concrete Placement: _____

*Inside Face or Outside Face

UTS Inspector: S. Sharkey Time On: 6:30 Time Off: _____

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 03/31/00 2
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

CONTACTS: Joe Phinney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S2, S3
 SHOP DRAWING(S)
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

AREA REVIEWED: Footing, Station Building B.5-I lines at 1 line
 I line at 1-1.5 line

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 12:00 PM Time of Concrete Placement: 2:00 PM

INSPECTOR: C. Lund-9 hours plus .5 hr. travel U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180

OF MASSACHUSETTS, INC.

REGISTERED PROFESSIONAL ENGINEER

781-438-7755

REINFORCING STEEL INSPECTION

DATE

03/31/00

2

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

CONTACTS: Joe Phinney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S2, S3
 SHOP DRAWING(S)
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

AREA REVIEWED: Footing, Station Building B.5-I lines at 1 line
 I line at 1-1.5 line

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage	X	
Clearance	X	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	X	
Bar Supports	X	
Bar Spacing	X	
Bar Quantity	X	
Placement (position and tying)	X	

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 12:00 PM Time of Concrete Placement: 2:00 PM

INSPECTOR: C. Lund-9 hours plus .5 hr.
 travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 03/30/00 1
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

CONTACTS: Joe Phinney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S2, S3 dated 10/12/99
 SHOP DRAWING(S)
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

AREA REVIEWED: Footing B.5-I line at 4 line; I line at 1-4

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom)	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

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 APR 11 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 12:00 PM Time of Concrete Placement: 1:00 PM

INSPECTOR: C. Lund-Max day plus 1/2 hour travel
 U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

REINFORCING STEEL INSPECTION DATE 03/30/00 1
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

CONTACTS: Joe Phinney of The Middlesex Corporation

SPECIFICATION: ASTM A615 Grade 40 Grade 60 X Grade 75
 ASTM A616 Grade 50 Grade 60
 ASTM A617 Grade 40 Grade 60

ACCEPTANCE CRITERIA: CONTRACT DRAWING(S) S2, S3 dated 10/12/99
 SHOP DRAWING(S)
 PROJECT SPECIFICATIONS 03300
 OTHER Drawings stamped: Yes

AREA REVIEWED: Footing B.5-I line at 4 line; I line at 1-4

RECEIVED
 APR 11 2000
 THE MIDDLESEX CORPORATION

VERIFY:	ACCEPTABLE	
	YES	NO
Coverage (top and bottom)	x	
Clearance	x	
Cleanliness (heavy rust, scale, mud, dirt, oil, etc. not permitted)	x	
Bar Supports	x	
Bar Spacing	x	
Bar Quantity	x	
Placement (position and tying)	x	

RECEIVED
 APR 11 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

REMARKS: There was sufficient time to perform this inspection.

Time of Inspection: 12:00 PM Time of Concrete Placement: 1:00 PM

INSPECTOR: C. Lund-Max day plus 1/2 hour travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

F.4 – SOIL INSPECTION REPORTS

U U TTTTTTTTTT S S S
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 10-17-00 26
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	6.6	133.5	132.0	98.8
2	6.0	133.5	129.1	96.7
3	5.8	133.5	128.5	96.2
4	6.6	138.4	134.2	96.9
5	6.6	138.4	136.2	98.4
6	6.3	138.4	131.9	95.3
7	6.0	138.4	132.3	95.5
8	7.1	133.5	131.3	98.3
9	6.1	133.5	130.5	97.7
10	6.6	133.5	129.2	96.7
11	6.2	133.5	128.8	96.4

LOCATION:

ELEVATION:

- Test #1 - Northern Parking area, sketch Base of pvement
- Test #2 - " "
- Test #3 - " "
- Test #4 - Parking, north of station house "
- Test #5 - " "
- Test #6 - " "
- Test #7 - " "
- Test #8 - Bus turnaround, see sketch "
- Test #9 - " "
- Test #10 - " "
- Test #11 - " "

continued on next page

INSPECTOR: S. Shanaver Min day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL FIELD REPORT	DATE	10-17-00	6
The Middlesex Corporation	Job. No.	UTS 6100	
Attn: Mr. Rick Noblet	Project	Woburn Regional Transportati	
30A Atlantic Avenue	Contractor	The Middlesex Corp	
Woburn, MA 011801			

WEATHER: Overcast, 55 degrees

PURPOSE: Perform field density tests

EQUIPMENT OPERATING: Dozer, excavator, vibratory drum roller

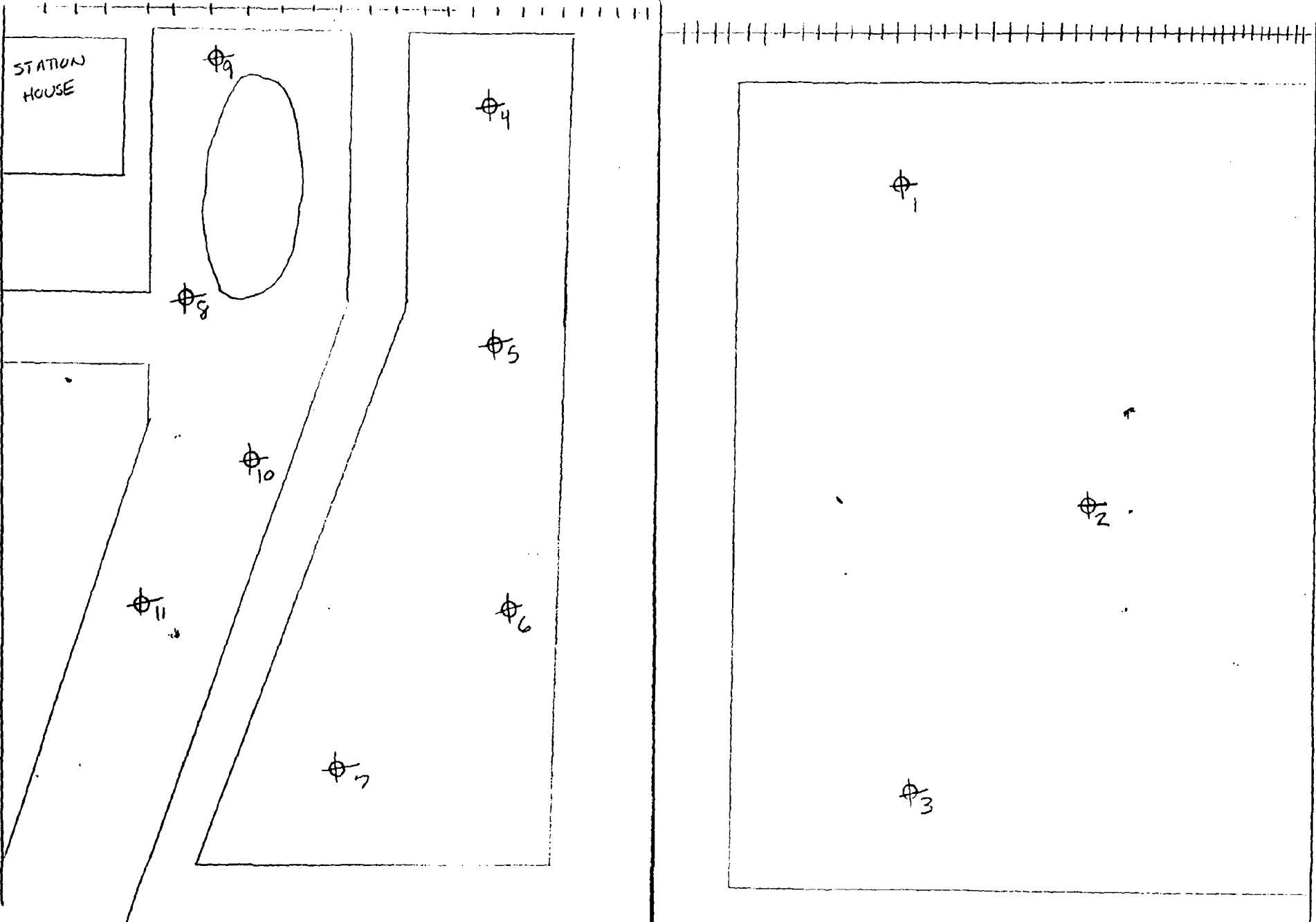
SUMMARY: The writer arrived at the project site at 6:30 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The following was observed: the site contractor had filled, graded off to base of asphalt elevation and compacted in the following areas prior to the writer's arrival on site: the northern end of the parking area, the bus turnaround area north of station house and the parking area adjacent to (north of) the bus turnaround (see attached sketch). Material from Littleton Pit and Cummings Property were used as fill in these areas.

A total of eleven field density tests were performed according to ASTM D2922 using the Troxler density gauge. Test results exceeded 95% of the MDD obtained from the modified proctor ASTM D1557.

These observations were related to Mr. Finney prior to departure.

INSPECTOR: S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



5 Richardson Lane
Stoneham, Ma 02180

JOB N. E: WOBURN LLC

FIELD

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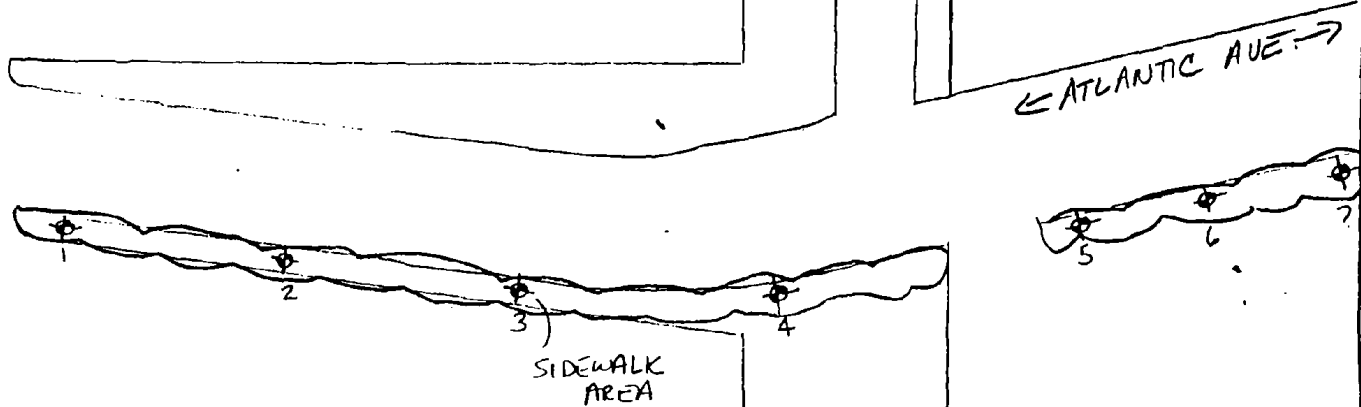
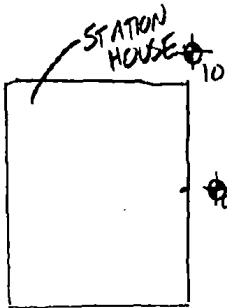
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SEP 25 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.



* NOT TO SCALE
⊕ TEST LOCATION



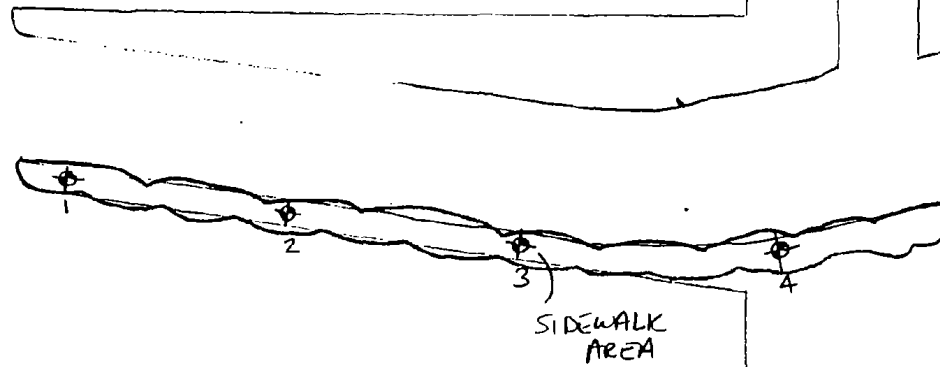
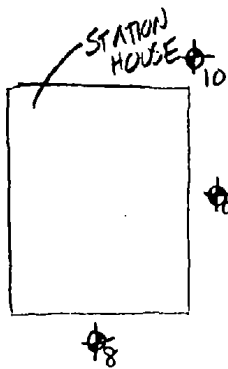
5 Richardson Lane
Stoneham, Ma 02180

JOB ME: R.T.C.

FIELD



* NOT TO SCALE
⊙ TEST LOCATION



← ATLANTIC AVE →



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: R.T.C.

PROJECT NO. 6100

FIELD
SKETCH



U U TTTTTTTTTT S S S
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 07-13-00 24
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	3.7	138.4	131.9	95.3
2	4.3	138.4	133.0	96.0
3	3.4	138.4	132.6	95.8
4	4.0	138.4	131.7	95.1
5	3.9	138.4	132.8	95.9
6	4.7	138.4	133.3	96.3
7	4.1	138.4	132.5	95.7

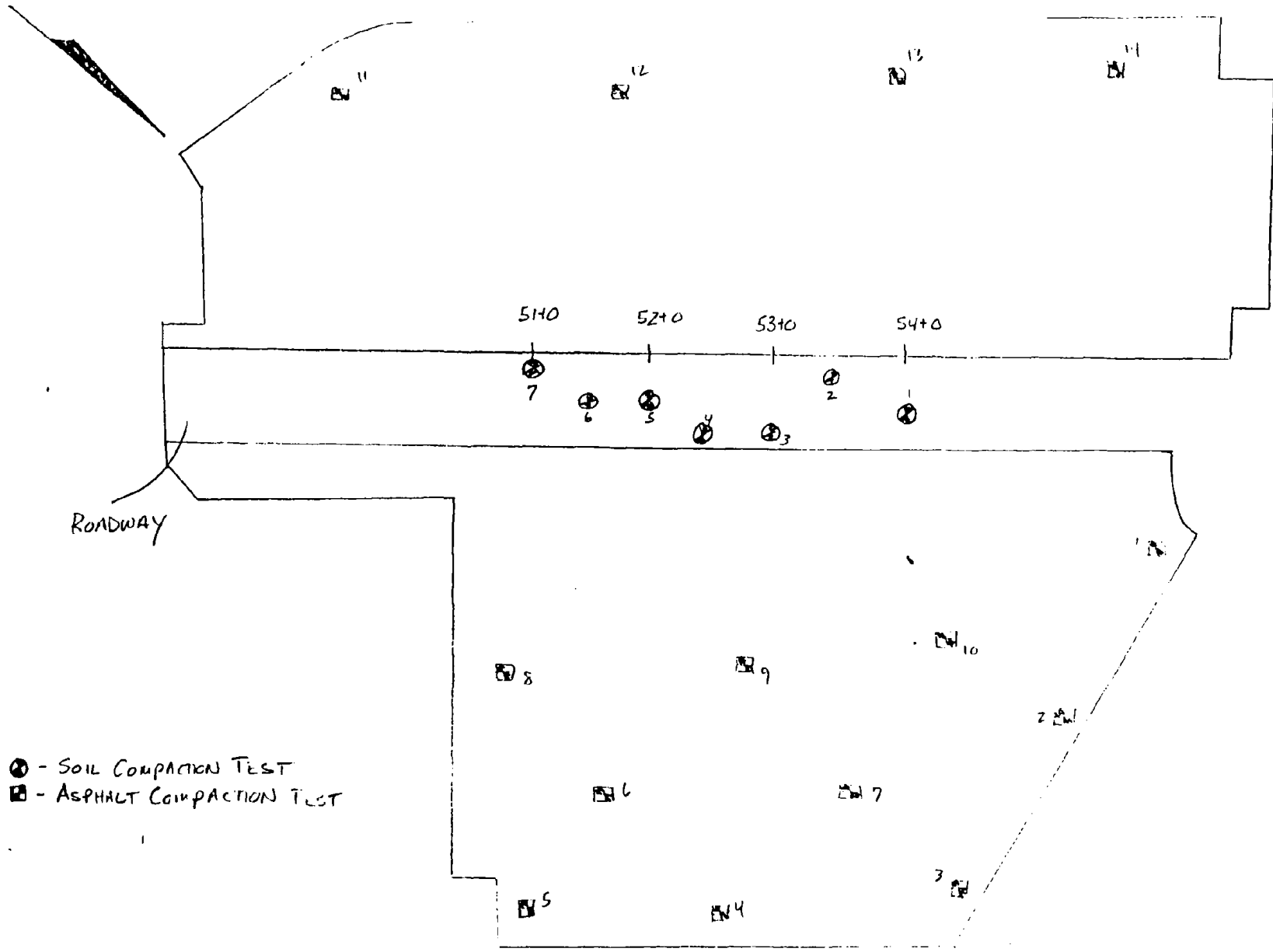
LOCATION: ELEVATION:

Test #1 -	Station 54+00	Subgrade
Test #2 -	" 53+50	"
Test #3 -	" 53+00	"
Test #4 -	" 52+50	"
Test #5 -	" 52+00	"
Test #6 -	" 51+50	"
Test #7 -	" 51+00	"

Weather: Clear, 82 degrees
 Purpose: Observe earthwork construction and perform field density tests
 Equip: Grader, dozer, vibratory drum roller

Summary: The writer arrived at the project site at 6:30 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The following was observed: the site contractor had previously compacted the roadway area from approx. Stations 51+00 to 54+00, see sketch. Structural fill from Cummings Property was used as fill in this area. The vibratory drum roller was used for soil densification. A total of 7 field density tests were performed using the Troxler density gauge according to ASTM D2922. Test results were in excess of specifications of 95% of ASTM D1557 modified. These observations were related to Mr. Finney prior to departure.

INSPECTOR: S. Shanaver 10 hours U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



- ⊗ - SOIL COMPACTION TEST
- ⊠ - ASPHALT COMPACTION TEST

* NOT TO SCALE


 5 Richardson Lane
 Stoneham, Ma 02180
"The Construction Testing People"
 Massachusetts Inc.

JOB NAME: R.T.C.
 PROJECT NO.: 6100

FIELD
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 07-11-00 22
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	5.4	138.4	132.4	95.7
2	4.1	138.4	133.2	96.3
3	3.8	138.4	134.5	97.2
4	4.4	138.4	133.9	96.8
5	6.3	138.4	132.7	95.9
6	4.8	138.4	132.0	95.4
7	5.5	138.4	134.1	96.9
8	4.3	138.4	132.5	95.8
9	6.3	138.4	134.8	97.4
10	5.2	138.4	133.9	96.8
11	6.4	138.4	134.5	97.2
12	5.0	138.4	133.0	96.1

LOCATION:

ELEVATION:

Test #1 -	See sketch	Finish grade
Test #2 -	"	"
Test #3 -	"	"
Test #4 -	"	"
Test #5 -	"	"
Test #6 -	"	"
Test #7 -	"	"
Test #8 -	"	"
Test #9 -	"	"
Test #10 -	"	"
Test #11 -	"	"
Test #12 -	"	"

INSPECTOR: M. Konjkavfard Min day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 07-11-00 23
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
13	4.2	138.4	132.0	95.4
14	5.6	138.4	134.2	97.0
15	4.8	138.4	131.7	95.2

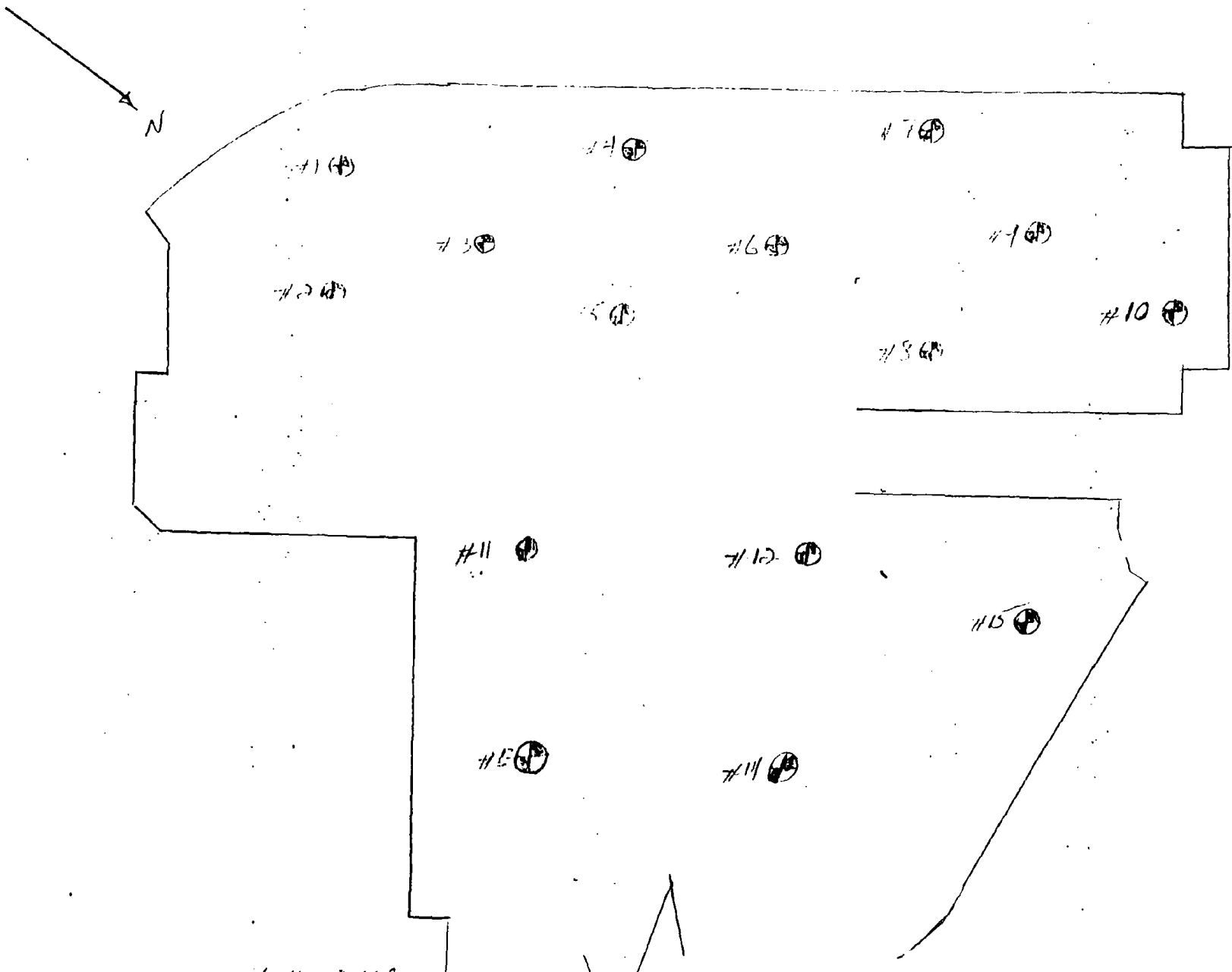
	LOCATION:	ELEVATION:
Test #13-	See sketch	Finish grade
Test #14-	"	"
Test #15-	"	"

Weather: Sunny, 80 degrees
 Purpose: Perform field density tests
 Equip: None

Summary: The writer arrived at the above site at 11:30 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The following was observed: the parking area was backfilled and compacted to finish grade elevation prior to the writer's arrival on site. The material consisted of a F-M-C sand and gravel with trace silt from Cumming's Property. Fifteen field density tests were performed in accordance with ASTM D2922 using a Troxler density gauge. Test results exceeded specifications of 95% of the MDD obtained from the modified proctor ASTM D1557. These observations were related to Mr. Finney prior to departure.

INSPECTOR: M. Konjkavfard

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



5 Richardson Lane
 Stoughton, Ma 02180

"The Construction Testing People"

JOB NAME: MARSHALL FIELD

PROJECT NO.: 6100

FIELD
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 06-13-00 21
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
13	5.8	138.4	134.6	97.2
14	4.9	138.4	132.8	95.9
15	6.3	138.4	133.3	96.3
16	7.4	138.4	134.7	97.3
17	6.6	138.4	131.9	95.3
18	6.4	138.4	132.8	95.9

RECEIVED
 JUN 23 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

LOCATION:

ELEVATION:

Test #13-	Station 201, see sketch	Base of asphalt
Test #14-	" 101+00 "	"
Test #15-	" 102+00 "	"
Test #16-	" 103+00 "	"
Test #17-	" 104+00 "	"
Test #18-	" 202 "	"

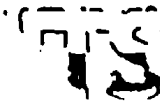
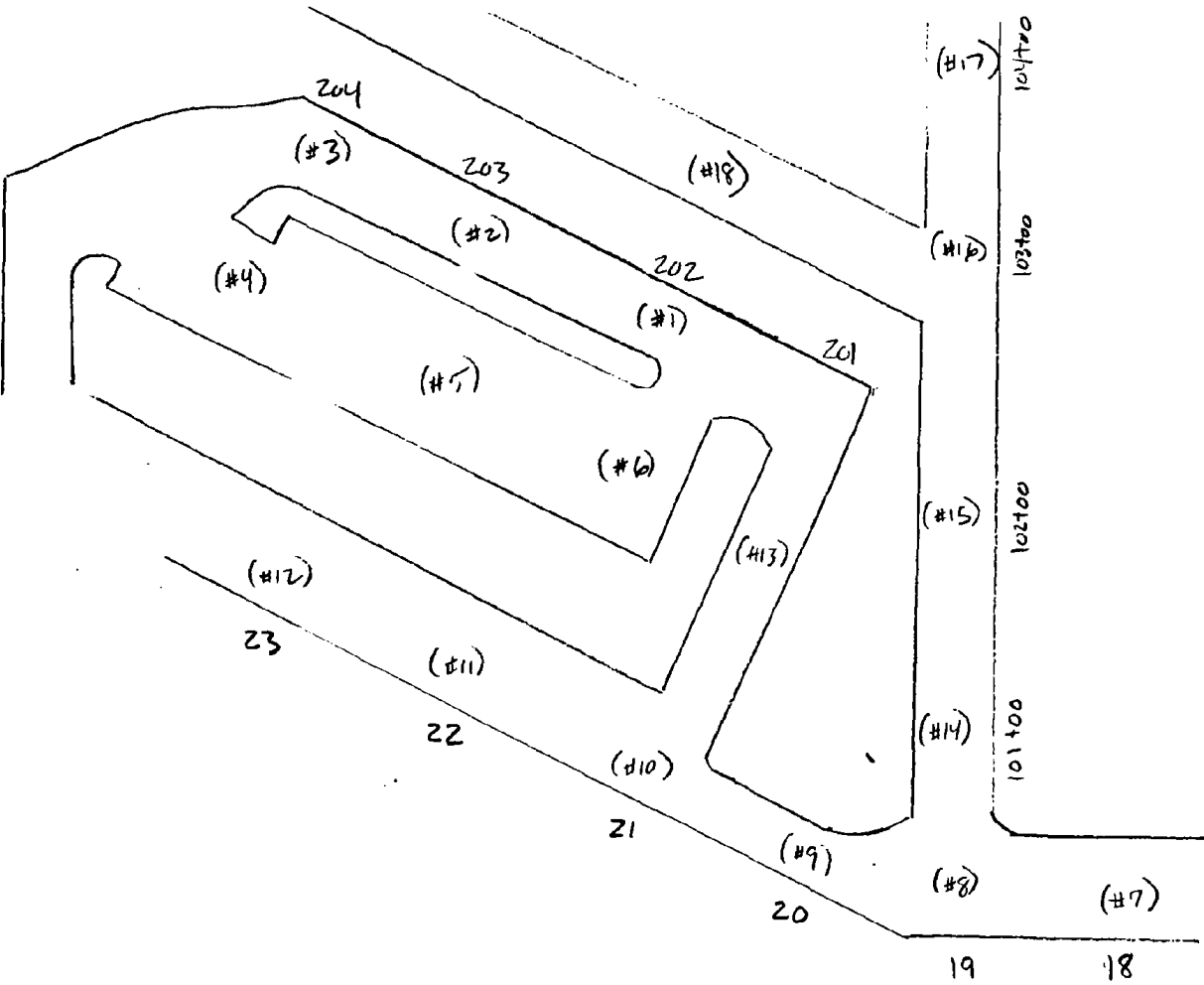
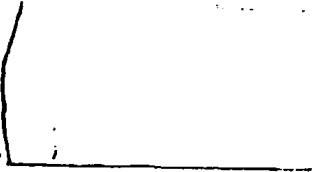
Weather: Clear, 70 degrees
 Purpose: Perform field density tests
 Equip: Vibratory drum roller

Summary: The writer arrived at the project site at 8:00 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The following was observed: the site contractor had previously fine graded and compacted the roadway area leading from Atlantic Way up to the station building (see sketch). This area had been graded to base of asphalt elevation and compacted using the vibratory drum roller. Gravel from Cummings Pit was used as fill material. A total of 18 field density tests were performed using the Troxler density gauge in accordance with ASTM D2922. All tests exceeded specifications of 95% of ASTM D1557 modified. These observations were related to Mr. Finney prior to departure.

INSPECTOR: S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

STATION BUILDING



5 Richardson Lane
Toneham, Ma 02180

"The Construction Testing People"

JOB NAME: R.T.C.

PROJECT NO.:

(0100)

FIELD SKETCH

U U TTTTTTTTTT S S S
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 06-13-00 20
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	5.1	138.4	131.7	95.1
2	5.0	138.4	135.1	97.6
3	6.0	138.4	135.2	99.6
4	7.9	138.4	136.7	98.7
5	6.4	138.4	133.3	96.3
6	5.6	138.4	134.3	97.0
7	6.5	138.4	131.9	95.3
8	5.7	138.4	136.0	98.2
9	6.9	138.4	132.0	95.3
10	7.3	138.4	133.7	96.6
11	6.7	138.4	134.4	97.1
12	7.1	138.4	135.0	97.5

LOCATION:

ELEVATION:

Test #1 -	Station 202 (see sketch)	Base of asphalt
Test #2 -	" 203 "	"
Test #3 -	" 204 "	"
Test #4 -	" 204 "	"
Test #5 -	" 203 "	"
Test #6 -	" 202 "	"
Test #7 -	" 18 "	"
Test #8 -	" 19 "	"
Test #9 -	" 20 "	"
Test #10-	" 21 "	"
Test #11-	" 22 "	"
Test #12-	" 23 "	"

RECEIVED
 JUN 23 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

INSPECTOR: S. Shanaver Min day + 1/2
 hour travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

U U TTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 06-01-00 18
 The Middlesex Corporation Job No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	4.9	138.4	134.7	97.3
2	4.7	138.4	134.6	97.2
3	5.5	138.4	137.7	99.4
4	3.9	138.4	136.9	98.9
5	3.7	138.4	133.2	96.2
6	3.7	138.4	133.6	96.5
7	3.5	138.4	135.5	97.9

TEST #	LOCATION:	ELEVATION
Test #1 -	See sketch	-6" FF
Test #2 -	Station 4+50	-8" FG
Test #3 -	" 2+50	76.00'
Test #4 -	" 200+00	75.75'
Test #5 -	" 20+50	74.35'
Test #6 -	" 23+00	74.25'
Test #7 -	" 51+50	73.45'

RECEIVED
 JUN 12 2000
 Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Weather: Clear, 68 degrees
 Purpose: Observe earthwork construction and perform field density tests
 Equip: TBH10 excavator, Bomag BPR 30/38D plate compactor

Summary: The writer arrived at the project site at 7:00 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The backfill of interior foundation of proposed station building is in progress. The excavator was placing loads of Cummings Pit soil (F-M sand & gravel, trace silt) and laborers spread to 6" lifts. The Bomag plate compactor compacted area making repeated and overlapping passes. One field density test was performed in the interior of station building. Backfill of utilities at south and southeast corner of station is in progress. Elsewhere throughout the site, roadways and parking areas are being graded with the Cummings Pit soil.

continued on next page

INSPECTOR: C. Lund Min day + 1/2 hour U T S OF MASSACHUSETTS, INC.
 travel Reviewed
 By: William P. Crabtree

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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL FIELD REPORT	DATE	06-01-00	5
The Middlesex Corporation	Job. No.	UTS 6100	
Attn: Mr. Rick Noblet	Project	Woburn Regional Transportati	
30A Atlantic Avenue	Contractor	The Middlesex Corp	
Woburn, MA 011801			

WEATHER: Clear, 68 degrees

PURPOSE: Continued from previous page

EQUIPMENT OPERATING: See previous page

SUMMARY: Six additional field density tets were performed according to ASTM D1556 using the sand cone method. All field density tests exceeded specifications of 95% of ASTM D1557 modified. These observations were related to Mr. Finney prior to departure.

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JUN 1 2 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

INSPECTOR: C. Lund

U T S OF MASSACHUSETTS, INC.
Reviewed
By: William P. Crabtree

Woburn Regional
Trans. ctr
proposed parking + roads

Backfill
in progress

station
building

Paved
Area

52 FD #7 51 proposed road + parking

Proposed parking



FD #5
Main entrance



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

June 6-1-00

JOB NAME: Woburn Regional Transportation Ctr

PROJECT NO.: 6600

FIELD

SKETCH

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT

DATE 05-10-00

17

The Middlesex Corporation
 Attn: Mr. Rick Noblet
 30A Atlantic Avenue
 Woburn, MA 011801

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	5.8	123.4	117.5	95.2
2	2.7	123.4	119.3	96.6
3	3.1	123.4	120.1	97.3
4	2.8	123.4	117.4	95.1
5	3.7	123.4	118.3	95.8
6	4.0	123.4	120.5	97.6
7	5.1	123.4	121.0	98.0
8	2.9	123.4	117.9	95.5
9	3.4	123.4	118.3	95.8

LOCATION:

ELEVATION:

Test #1 - Station 55+00, base line B
 Test #2 - " " west 100'
 Test #3 - " 56+00 west 50'
 Test #4 - " " base line B
 Test #5 - " 57+00 "
 Test #6 - " " west 100'
 Test #7 - " 100+50 east end roadway
 Test #8 - " 101+50 "
 Test #9 - " 102+50 "

Base of gravel borrow

RECEIVED
MAY 25 2000

Middlesex Corp
Woburn Reg

Weather: Overcast/rain, 45 degrees

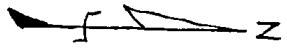
Purpose: Observe earthwork construction and perform field density tests

Equip: Dozer, grader, vibratory drum roller

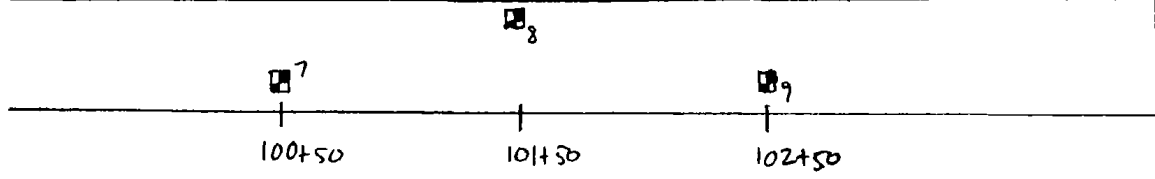
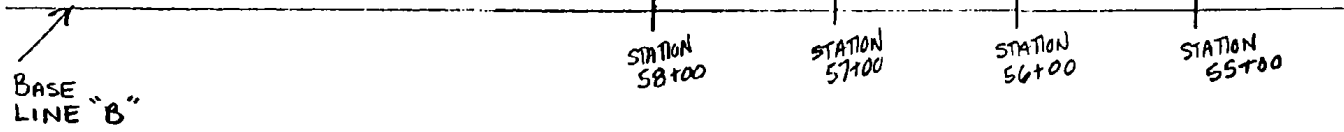
Summary: The writer arrived at the project site at 6:30 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The site contractor continued grading and compacting in the southwest end of the parking area as well as the roadway in the east end of the site between Stations 100+50 to 102+50 (see sketch) on this date. Approximately 6" of ordinary borrow material from Littleton Pit was placed above the 3/4" stone and compacted using the vibratory drum roller making at least 8 passes. Nine field density tests were performed according to ASTM D2922 using the Troxler density gauge. Test results exceeded 95% of ASTM D1557 modified & were related to Mr. Finney.

INSPECTOR: S. Shanaver Min day + 1/2
 hour travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



STATION BUILDING



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: R.T.C.

PROJ. NO.: 6100

FIELD

SKETCH 1

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 05-05-00 16
 The Middlesex Corporation Job No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportati
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	5.9	138.4	135.7	98.0
2	5.9	138.4	134.1	96.8
3	5.8	138.4	134.2	96.9
4	5.8	138.4	135.3	97.7
5	5.8	138.4	133.5	96.4
6	5.6	138.4	132.3	95.5
7	5.6	138.4	133.2	96.2
8	5.6	138.4	134.2	96.9
9	5.4	138.4	134.6	97.2
10	5.4	138.4	135.1	97.6
11	5.3	138.4	135.3	97.7

	LOCATION:	ELEVATION:
Test #1 -	Station 303+50, right 200'	79.65'
Test #2 -	" " right 50'	"
Test #3 -	" " left 50'	"
Test #4 -	" " left 140'	"
Test #5 -	" 303+00, right 300'	"
Test #6 -	" " right 200'	"
Test #7 -	" " right 100'	"
Test #8 -	" " left 50'	"
Test #9 -	" " left 150'	"
Test #10 -	" 302+50, right 100'	"
Test #11 -	" " right 50'	"

RECEIVED
 MAY 18 2000
 Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

continued on next page
 INSPECTOR: C. Lund
 U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 05-04-00 15
 The Middlesex Corporation Job No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportati
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
13	4.9	138.4	132.0	95.3
14	4.2	138.4	131.6	95.0
15	4.1	138.4	133.7	96.6
16	4.8	138.4	132.8	95.9
17	5.0	138.4	134.7	97.3
18	4.0	138.4	134.0	96.8

LOCATION:

ELEVATION:

Test #13- Station 303+50, right 250'
 Test #14- " 304+50, "
 Test #15- " 305+50, "
 Test #16- " 305.50, right 350'
 Test #17- " 304+50, "
 Test #18- " 303+50, "

Base of asphalt
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RECEIVED
 MAY 18 2000

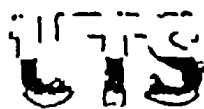
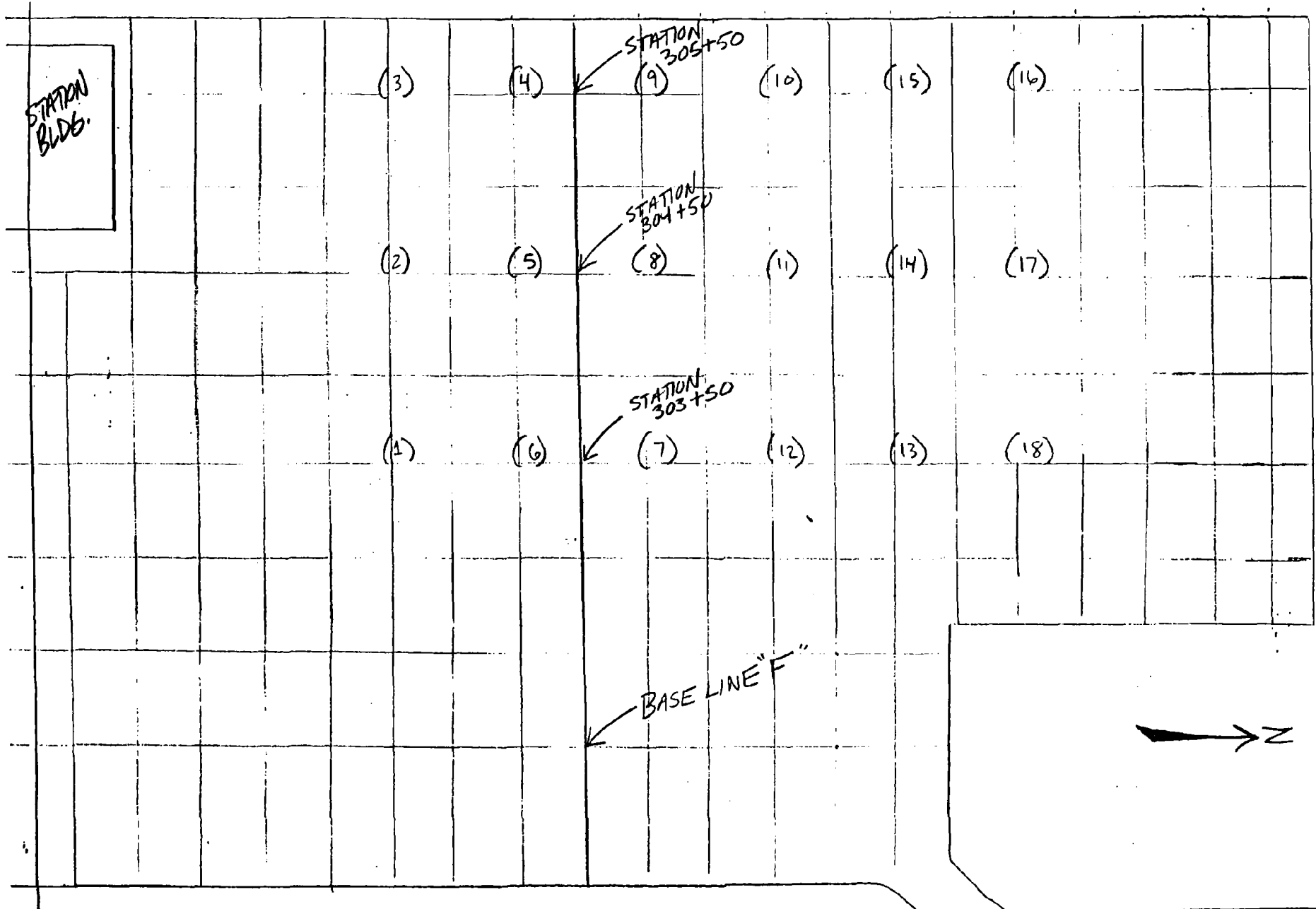
Weather: Clear, 70 degrees
 Purpose: Perform field density tests
 Equip: Grader, vibratory drum roller

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Summary: The writer arrived at the project site at 6:00 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The site contractor had previously placed gravel borrow material in the northwestern end of the parking area (see field sketch). The area tested on this date was from Stations 303+50 to 305+50 and 150 feet left (south) and 350 feet right (north) of baseline "F". The material that had previously been placed, graded and compacted in this area was gravel from Cummings property. Eighteen field density tests were performed according to ASTM D2922 using the Troxler density gauge. All test results exceeded 95% of ASTM D1557 modified. These observations were related to Mr. Finney prior to departure.

INSPECTOR: S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: R.T.C. WOBURN

PROJECT NO.: 6100

FIELD
SKETCH

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755 MAY 1 - 2000

SOIL INSPECTION REPORT

DATE 04-28-00 13

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
13	6.4	138.4	132.6	95.8

RECEIVED
 MAY 16 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

LOCATION:

ELEVATION:

Test #13- Station 303+00, right 550' Base of asphalt

Weather: Clear, 60 degrees

Purpose: Observe earthwork construction and perform field density tests

Equip: Grader, dozer, vibratory drum roller

Summary: The writer arrived at the above site at 11:00 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The site contractor continued placement of the gravel borrow material from Cummings property along the eastern end of the parking area (see sketch) on this date. The area filled with this material today was from Stations 303+00 to 302+00 west to east and 150' left (south) of baseline "F" and 550' right (north) of baseline "F". Material was placed in approximately 6 inch lifts and compacted using the vibratory drum roller making at least 10 passes over the area. A total of thirteen field density tests were performed according to ASTM D2922 using the Troxler density gauge. All test results exceeded job specifications of 95% of ASTM D1557 modified. These observations were related to Mr. Finney prior to departure.

INSPECTOR: S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

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Of MASSACHUSETTS, INC.

5 Richardson Lane, Stoneham, MA 02180

781-438-7755

MAY 15 2000

SOIL INSPECTION REPORT

DATE

04-28-00

12

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD	
			DRY DENSITY	% COMPACTION
1	6.7	138.4	131.6	95.0
2	6.2	138.4	133.4	96.3
3	7.7	138.4	134.5	97.1
4	7.9	138.4	131.9	95.3
5	6.8	138.4	132.8	95.9
6	6.0	138.4	131.7	95.1
7	6.4	138.4	133.0	96.0
8	7.5	138.4	132.8	95.9
9	7.0	138.4	132.7	95.8
10	5.9	138.4	131.7	95.1
11	6.3	138.4	134.0	96.8
12	7.0	138.4	131.9	95.3

LOCATION:

ELEVATION:

Test #1 - Station 303+00, left 150'
 Test #2 - " 302+00 "
 Test #3 - " 303+00, left 50'
 Test #4 - " 302+00 "
 Test #5 - " 303+00, right 50'
 Test #6 - " 302+00 "
 Test #7 - " 303+00, right 150'
 Test #8 - " 302+00 "
 Test #9 - " 303+00, right 250'
 Test #10 - " 302+00 "
 Test #11 - " 303+00, right 350'
 Test #12 - " 303+00, right 450'

Base of asphalt
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RECEIVED
 MAY 15 2000

Middlesex Corporation
 Woburn Regional Trans. Co.

INSPECTOR: S. Shanaver Max day + 1/2
 hour travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 04-28-00 13
 The Middlesex Corporation Job No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportati
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
13	6.4	138.4	132.6	95.8

LOCATION: ELEVATION:
 Test #13- Station 303+00, right 550' Base of asphalt

Weather: Clear, 60 degrees
 Purpose: Observe earthwork construction and perform field density tests
 Equip: Grader, dozer, vibratory drum roller

Summary: The writer arrived at the above site at 11:00 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The site contractor continued placement of the gravel borrow material from Cummings property along the eastern end of the parking area (see sketch) on this date. The area filled with this material today was from Stations 303+00 to 302+00 west to east and 150' left (south) of baseline "F" and 550' right (north) of baseline "F". Material was placed in approximately 6 inch lifts and compacted using the vibratory drum roller making at least 10 passes over the area. A total of thirteen field density tests were performed according to ASTM D2922 using the Troxler density gauge. All test results exceeded job specifications of 95% of ASTM D1557 modified. These observations were related to Mr. Finney prior to departure.

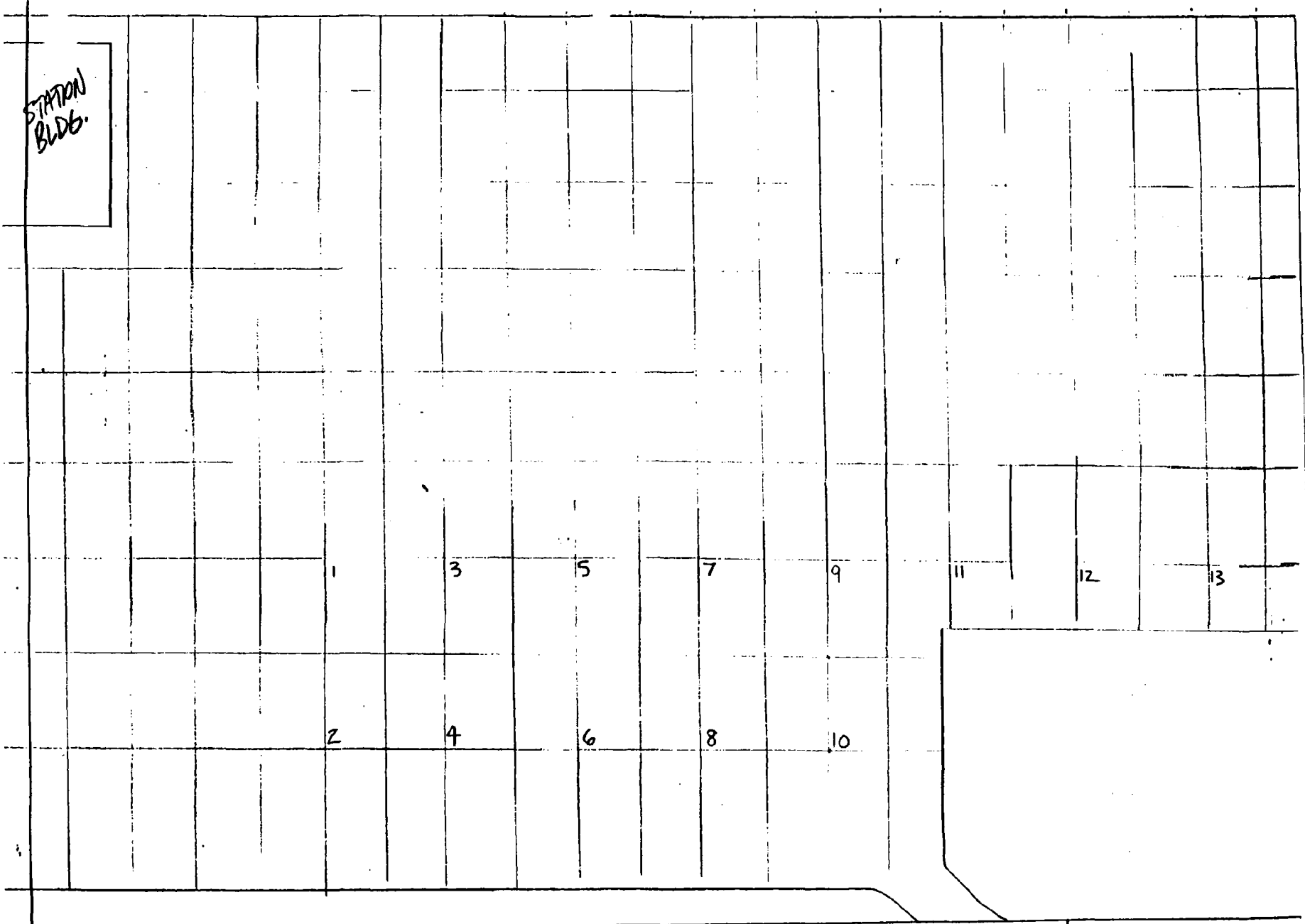
INSPECTOR: S. Shanaver U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

COMPACTION CONTROL SUMMARY

Test No.	Date	Location	Elev	Soil Description	Optimum Moisture Content	Field Moisture Content	Max Dry Density	Field Dry Density	% Comp
1	5-4	STATION 303 + 50 ; LEFT 150'	B.O.A.	GRAVEL BORROWS	6.7	3.8	138.4	137.2	99.1
2	"	STATION 304 + 50 ; LEFT 150'	"	"	"	4.3	"	131.5	95.0
3	"	STATION 305 + 50 ; LEFT 150'	"	"	"	5.0	"	131.9	95.3
4	"	STATION 305 + 50 ; LEFT 50'	"	"	"	3.4	"	134.1	96.8
5	"	STATION 304 + 50 ; LEFT 50'	"	"	"	4.0	"	136.3	98.4
6	"	STATION 303 + 50 ; LEFT 50'	"	"	"	4.7	"	134.3	97.0
7	"	STATION 303 + 50 ; RIGHT 50'	"	"	"	4.4	"	131.7	95.1
8	"	STATION 304 + 50 ; RIGHT 50'	"	"	"	5.1	"	135.5	97.9
9	"	STATION 305 + 50 ; RIGHT 50'	"	"	"	4.8	"	131.8	95.2
10	"	STATION 305 + 50 ; RIGHT 150'	"	"	"	5.0	"	132.0	95.3
11	"	STATION 304 + 50 ; RIGHT 150'	"	"	"	3.8	"	134.7	97.3
12	"	STATION 303 + 50 ; RIGHT 150'	"	"	"	4.1	"	134.3	97.0
13	"	STATION 303 + 50 ; RIGHT 250'	"	"	"	4.9	"	132.0	95.3
14	"	STATION 304 + 50 ; RIGHT 250'	"	"	"	4.2	"	131.6	95.0
15	"	STATION 305 + 50 ; RIGHT 250'	"	"	"	4.1	"	133.7	96.6
16	"	STATION 305 + 50 ; RIGHT 350'	"	"	"	4.8	"	132.8	95.9
17	"	STATION 304 + 50 ; RIGHT 350'	"	"	"	5.0	"	134.7	97.3
18	"	STATION 303 + 50 ; RIGHT 350'	"	"	"	4.0	"	134.0	96.8

STATION
BLDG.

3	4	9	10	15	16
2	5	8	11	14	17
1	6	7	12	13	18



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: R.T.C. WOBURN

PROJECT NO.: _____

FIELD
SKETCH

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OF MASSACHUSETTS, INC.

5 Richardson Lane, Stoneham, MA 02180 781-438-7755

MAY 04 2000

SOIL INSPECTION REPORT

DATE 04-24-00

CONSTRUCTION DEPT.

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	6.7	133.5	130.5	97.7
2	6.2	133.5	126.9	95.0
3	7.7	133.5	129.4	96.9
4	7.9	133.5	130.1	97.4
5	6.8	133.5	129.5	97.0

LOCATION:

ELEVATION:

Test #1 - See sketch Subgrade
 Test #2 - " "
 Test #3 - " "
 Test #4 - " "
 Test #5 - " "

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 MAY 05 2000

Weather: Partly cloudy, 50 degrees
 Purpose: Perform field density tests
 Equip: Dozer, grader, vibratory drum roller

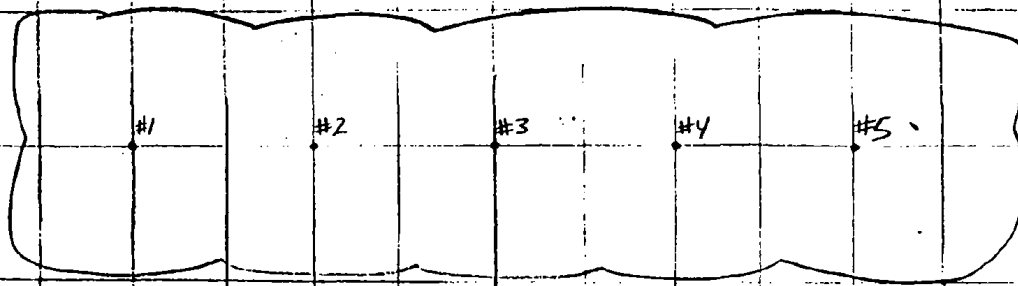
Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Summary: The writer arrived at the project site at 6:30 AM and met with Joe Finney From Middlesex Corp. The purpose of this visit was to perform a soil inspection. The following was observed: the site contractor had previously graded and compacted a section of the parking lot area (see sketch) northeast of the station building. The area tested was approximately 100 feet wide by 500 feet long. Gravel borrow material from Littleton Pit had been placed in this area, graded to a lift thickness of approx. 12" and compacted using the vibratory drum roller making at least 10 passes. Five field density tests were performed according to ASTM D2922 using the Troxler density gauge. All test results were in excess of 95% of the MDD obtained from the modified proctor ASTM D1557. These observations were related to Mr. Feeney prior to departure

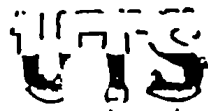
INSPECTOR: S. Shanaver Max day + 1/2
 hour travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

STATION
BLDG.



● = GRADE STAKES



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: R.T.C. WOBURN

PROJECT NO.: 600

FIELD
SKETCH

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 5 Richardson Lane, Stoneham, MA 02180

OF MASSACHUSETTS, INC.

781-438-7755

RECEIVED
 MAY 01 2000

SOIL INSPECTION REPORT

DATE 04-20-00

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	6.8	138.4	134.3	97.0
2	6.9	138.4	133.8	96.6
3	7.1	138.4	134.2	96.9
4	7.0	138.4	134.5	97.1
5	6.8	138.4	133.8	96.6

LOCATION:

ELEVATION:

Test #1 - See sketch -12" to finish grade
 Test #2 - " "
 Test #3 - " "
 Test #4 - " "
 Test #5 - " "

Weather: Partly cloudy, 50 degrees

Purpose: Observe earthwork construction and perform field density tests

Equip: D6R dozer, R24 vibrating drum roller

Summary: The writer arrived at the above site at 10:30 AM and met with Joe Finney from Middlesex. The purpose of this visit was to perform a soil inspection. The following was observed: the east side of the site had been capped with a 6"-12" lift of ordinary gravel borrow (F-M sand & gravel, trace silt). The area had been compacted with the R24 vibrating roller making repeated and overlapping passes. The area tested was approx. station 301-303 at 106+00 - 109+00. Five field density tests were performed according to ASTM D1556 using the sand cone method. Test results were in excess of 95% of the MDD obtained from the modified proctor ASTM D1557. These observations were related to Mr. Finney prior to departure.

INSPECTOR: C. Lund Max day + 1/2
 hours travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

Beam

FD #1

FD #2

FD #3

FD #4

FD #5

303

302

301

x
106100

x
107100

x
108100

x
109100

x
110100

Presidential
way

pond

pond

(see c-6 grading plan)

pond



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

4-20-00

JOB NAME: Woburn Regional Transctr

PROJEC NO.:

6100

FIELD

SKETCH

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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE **04-18-00** 9
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

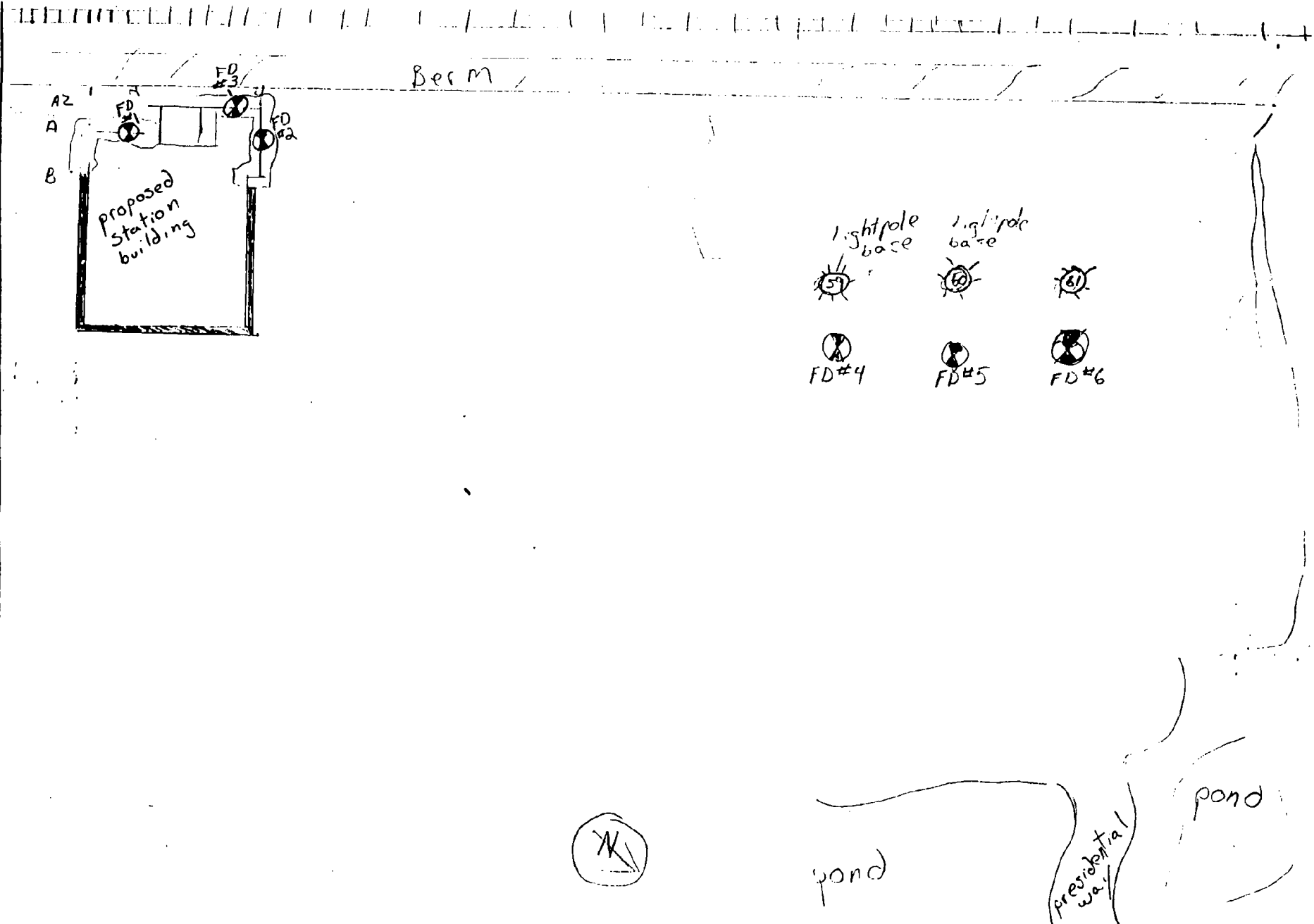
TEST #	% MOISTURE	M.D.D.	FIELD	
			DRY DENSITY	% COMPACTION
1	5.8	112.8	110.3	97.7
2	6.2	112.8	109.9	97.4
3	6.0	112.8	109.0	96.9
4	6.1	138.4	136.4	98.3
5	6.4	138.4	135.8	98.1
6	6.2	138.4	135.3	97.7

LOCATION: ELEVATION:
 Test #1 - See sketch 73.67'
 Test #2 - " "
 Test #3 - " "
 Test #4 - " -12" to final grade
 Test #5 - " "
 Test #6 - " "

Weather: Rain/windy, 36 degrees
 Purpose: Observe earthwork construction and perform field density tests
 Equip: R24 vibrating roller

Summary: The writer arrived at the project site at 7:00 AM and met with Joe Finney from Middlesex. The purpose of this visit was to perform a soil inspection. The base of footing for proposed station building had been compacted prior to the writer's arrival (A line at 1-2.8; A.7 at 2.8-4 line; 4 line at A.Z-B.2 and A-B at 1 line). The onsite soil at base of footing consists of F-M sand, trace silt. Three field density tests were performed in these areas using the sand cone method according to ASTM D1556. Test results exceeded 95% of ASTM D1557 modified. The southeast side of site had been capped with 6" lift of ordinary gravel borrow and the R24 vibrating roller made continuous overlapping passes throughout the day. Three field density tests were performed at approx. station 306, 10'N of light pole bases 59,60,61. Test results exceeded 95% of ASTM D1557 modified and were related to Mr. Finney.

INSPECTOR: C. Lund Max day + 1/2 hour U T S OF MASSACHUSETTS, INC.
 travel Reviewed
 By: William P. Crabtree



5 Richardson Lane
Stoneham, Ma 02180

4-18-00

"The Construction Testing People"

JOB NAME: Woburn Branch of ...

PROJECT NO.: _____

FIELD
SKETCH

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 04-14-00 7
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
13	6.0	125.4	119.9	95.6
14	6.7	125.4	123.1	98.1
15	4.1	125.4	123.7	98.6
16	7.1	125.4	121.3	96.7
17	7.3	125.4	120.4	96.0
18	6.7	125.4	123.4	98.4
19	5.9	125.4	120.8	96.3
20	3.5	112.8	107.9	95.6
21	3.1	112.8	109.1	96.7
22	3.6	112.8	108.0	95.7
23	4.6	112.8	107.7	95.4
24	6.2	112.8	110.0	97.5

LOCATION: ELEVATION:

Test #13- See sketch Subgrade
 Test #14- " "
 Test #15- " "
 Test #16- Pres.Way, Sta. 118+00 retest 3/31 "
 Test #17- " 116+00 "
 Test #18- " 115+00 "
 Test #19- " 114+00 "
 Test #20- See sketch "
 Test #21- " "
 Test #22- " "
 Test #23- " Base of concrete footing
 Test #24- " "

INSPECTOR: S. Shanaver U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 04-14-00 8
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
25	6.0	112.8	111.3	98.6

LOCATION:

ELEVATION:

Test #25 See sketch Base of concrete footing

Weather: Clear, 55 degrees

Purpose: Observe earthwork construction and perform field density tests

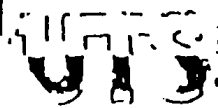
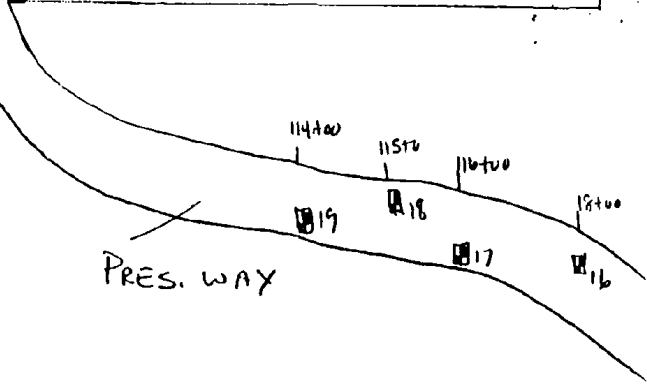
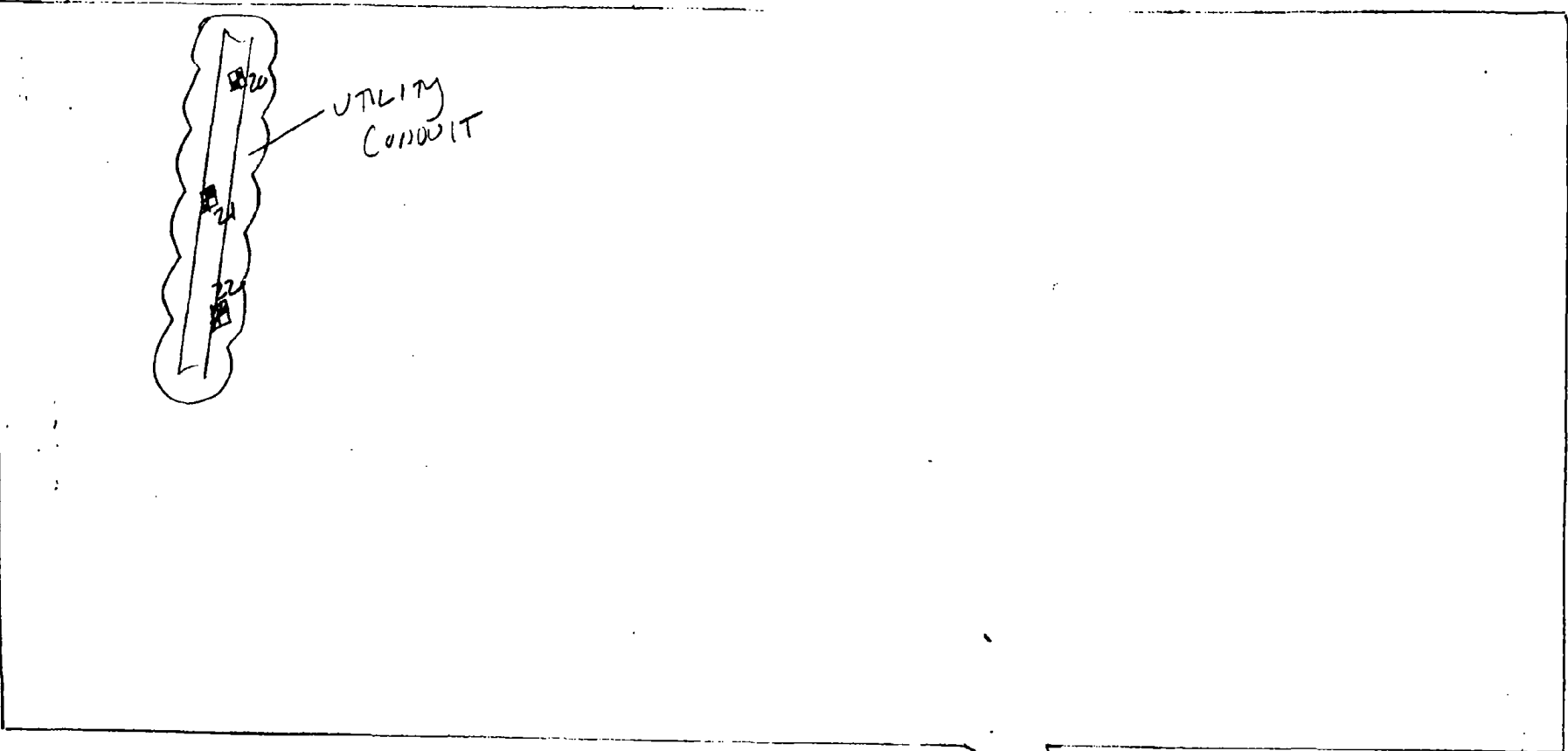
Equip: Dozer, grader, vibratory drum roller

Summary: The writer arrived at the above site at 6:30 AM and met with Joe Feeney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The site contractor had previously placed material in the parking area to the north of the station house (see sketch A) on this date. Ordinary borrow material was placed in this area above the 3/4" stone, in depths varying from 2 to 8 inches due to the sloping topography. The area was wet down using the water truck and rolled with the vibratory drum roller making at least 10 passes. Kevin of Massport requested this area be retested (initial tests were performed on 4/10) using proctor results on the ordinary borrow material obtained from A.T.C. Associates. A total of 15 field density tests were performed in this area using the Troxler density gauge according to ASTM D2922. All tests were performed within 2' of the corresponding grade stake (see sketch A). Field density tests were also performed at Stations 118+00, 116+00, 115+00 and 114+00 along Presidential way. These were retests of areas tested on 3/31 that failed to reach 95% compaction. Tests were

continued on next page

INSPECTOR: S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: RTC

PROJ. NO.: 6100

FIELD (B)
SKETCH 1

STATION
BLDG.

105

104

103

102

101

110

109

108

107

106

111

112

113

114

115

- - TEST LOCATIONS
- - GRADE STAKES



5 Richardson Lane
Stoneham, Ma 02180

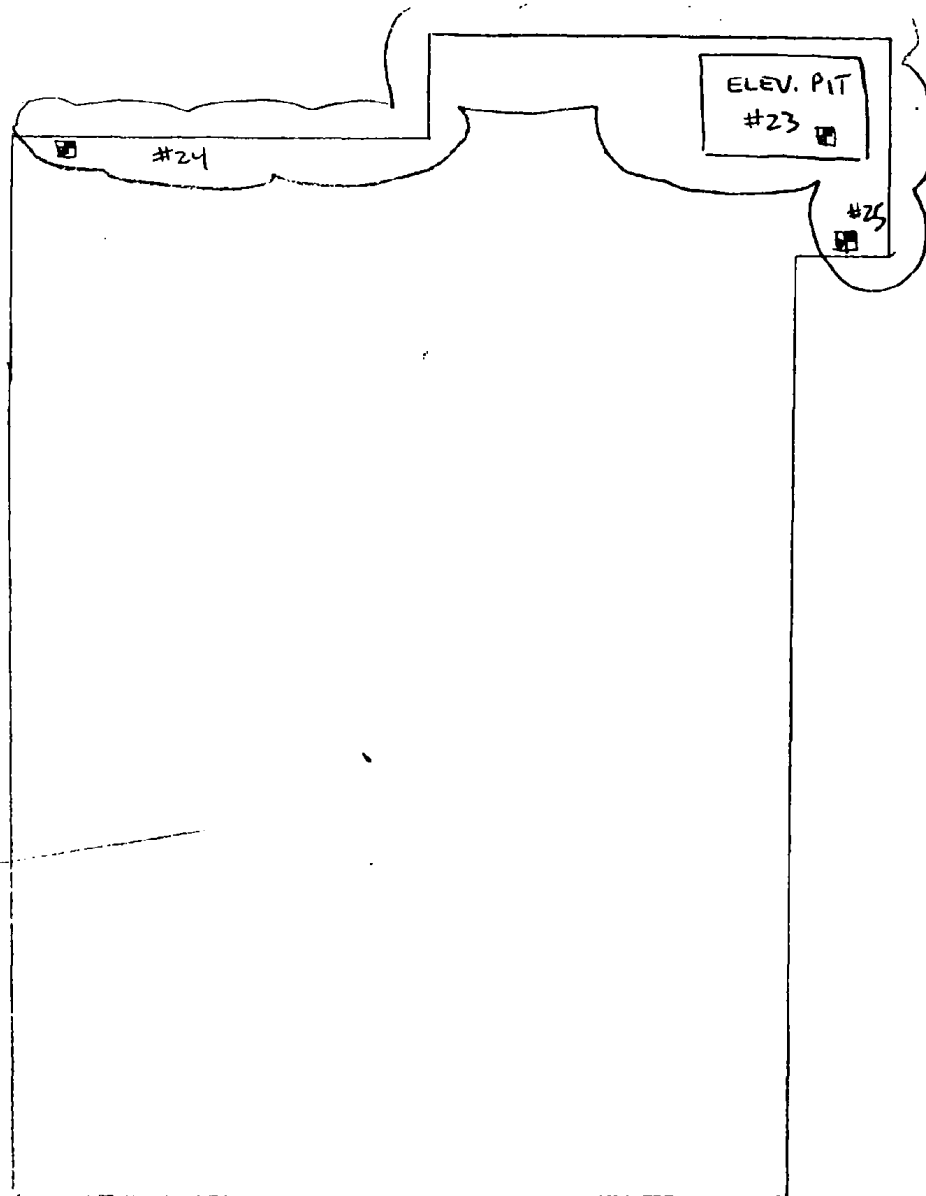
The Construction Testing People™

JOB NAME: R.T.C. WOBURN

PROJECT NO.: 6100

FIELD (A)
SKETCH

☐ - TEST AREAS



STATION
BUILDING



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: RTC

PROJE NO.: 6100

FIELD SKETCH (C)



"The Construction Testing People"

of Massachusetts Inc.

Richardson Lane
Stoneham, Ma 02180

FIELD REPORT

Project Name: R.T.C.

Date: 4-14-00

Project No.: _____

Report No.: _____

Client: MIDDLESEX CORP.

Weather: CLEAR 55°

Purpose: TO PERFORM FIELD DENSITY TESTING

Equipment Operating: DOZER, GRADER, VIBRATORY DRUM ROLLER

Summary: The writer arrived at the above site at 6:30 AM/PM and met

JOE FINNEY of MIDDLESEX CORP. The purpose of this visit was to perform

field density testing. The following was observed: THE SITE CONTRACTOR HAD

PREVIOUSLY PLACED MATERIAL IN THE PARKING AREA TO THE NORTH

OF THE STATION HOUSE (SEE ATTACHED SKETCH (A)) ON THIS

DATE. ORDINARY BORROW MATERIAL WAS PLACED IN THIS AREA, ABOVE

THE 3/4 INCH STONE, IN DEPTHS VARYING FROM 2 TO 8 INCHES DUE

TO THE SLOPING TOPOGRAPHY. THE AREA WAS WET DOWN USING THE

WATER TRUCK AND ROLLED WITH THE VIBRATORY DRUM ROLLER MAKING

AT LEAST (10) PASSES OVER THE AREA. OF

REQUESTED THIS AREA BE RETESTED (INITIAL TEST WERE

PERFORMED ON 4-10) USING PROCTOR RESULTS ON THE ORDINARY

BORROW MATERIAL OBTAINED FROM A.T.C. ASSOCIATES. A TOTAL

OF (15) FIELD DENSITY TEST WERE PERFORMED IN THIS AREA USING

THE TROXLER NUCLEAR DENSITY GAUGE IN ACCORDANCE WITH

ASTM - D2922. ALL TEST WERE PERFORMED WITHIN (2) FEET

OF THE CORRESPONDING GRADE STAKE (SEE SKETCH A).

FIELD DENSITY TEST WERE ALSO PERFORMED ON THIS DATE

These test results/observations were related to JOE FINNEY prior to departure

Time On: _____

Time Off: _____

signed: _____

Shaw Sharan

Materials Technician

COMPACTION CONTROL SUMMARY

Test No.	Date	Location	Elev	Soil Description	Optimum Moisture Content	Field Moisture Content	Max Dry Density	Field Dry Density	% Comp
1	4-14	PARKING AREA (SEE SKETCH)	S.G.	ORDINARY BORROW, LITRETON PIT	9.7	6.6	125.4	120.8	96.3
2	"	"	"	"	"	4.7	"	119.4	95.2
3	"	"	"	"	"	6.0	"	123.6	98.5
4	"	"	"	"	"	4.2	"	120.7	96.2
5	"	"	"	"	"	3.7	"	120.4	96.0
6	"	"	"	"	"	6.0	"	122.0	97.2
7	"	"	"	"	"	4.6	"	122.1	97.3
8	"	"	"	"	"	4.6	"	123.4	98.4
9	"	"	"	"	"	7.1	"	119.3	95.1
10	"	"	"	"	"	4.7	"	120.3	95.9
11	"	"	"	"	"	4.9	"	119.9	95.6
12	"	"	"	"	"	5.6	"	119.4	95.2
13	"	"	"	"	"	6.0	"	119.9	95.6
14	"	"	"	"	"	6.7	"	123.1	98.1
15	"	"	"	"	"	4.1	"	123.7	98.6
16	"	PRES. WAY; STATION 118+00 (RETEST FROM 3-31)	"	"	"	7.1	"	121.3	96.7
17	"	PRES. WAY; STATION 116+00 (RETEST FROM 3-31)	"	"	"	7.3	"	120.4	96.0
18	"	PRES. WAY; STATION 115+00 (RETEST FROM 3-31)	"	"	"	6.7	"	123.4	98.4



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

Project No.: _____

Project Name: RTC

Client: MIDDLEBURY CORP

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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL FIELD REPORT DATE 05-05-00 4
 The Middlesex Corporation Job. No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportati
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

WEATHER: Light drizzle AM, sunny PM, 68 degrees

PURPOSE: Perform field density tests

EQUIPMENT OPERATING: N/A

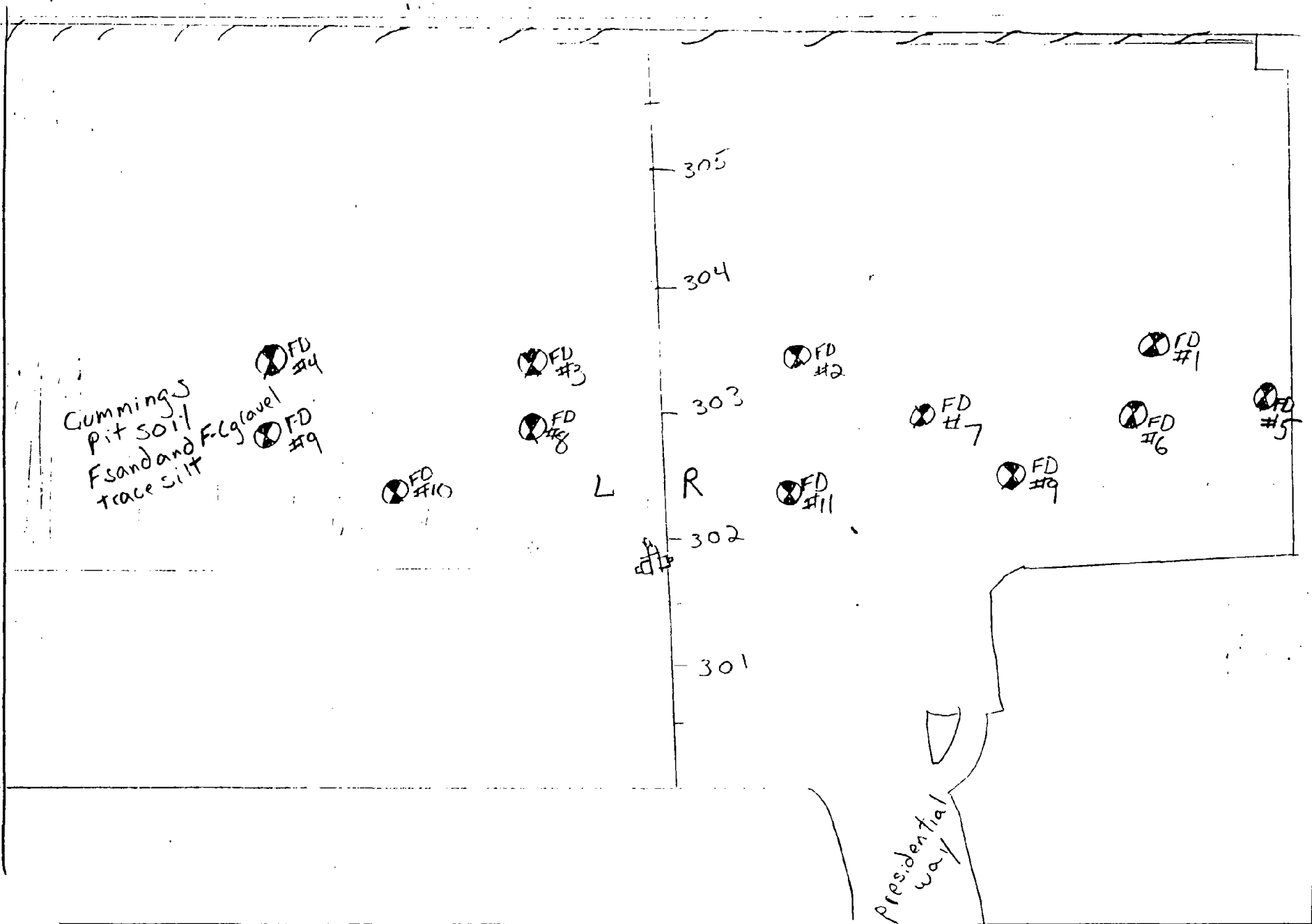
SUMMARY: The writer arrived at the project site at 8:00 AM and met with
 Joe Finney from Middlesex Corp. The purpose of this visit was to per-
 form a soil inspection. The following was observed: the area to be
 tested had been placed, graded and compacted prior to the writer's
 arrival, using Cummings property soil. The Cummings pit soil appeared
 stable and compacted. Eleven field density tests were performed in
 accordance with ASTM D1556 using the sand cone method. All test results
 exceeded 95% of the MDD obtained from the modified proctor ASTM D1557.
 The area tested is approximately Stations 303+50 to 302+00, east 300'
 and west 200'. These observations were related to Mr. Finney prior to
 departure.

RECEIVED
 MAY 18 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

INSPECTOR: C. Lund

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



5 Richardson Lane
Stoneham, Ma 02180

5-5-00

"The Construction Testing People"

JOB NAME: Woburn Regional Trans Ctr

PROJECT NO.: 6160

FIELD
SKETCH

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 5 Richardson Lane, Stoneham, MA 02180

OF MASSACHUSETTS, INC.

781-438-7755

APR 19 2000
 CONSTRUCTION DEPT.

SOIL INSPECTION REPORT

DATE 04-10-00 4

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	8.9	123.4	117.5	95.2
2	6.8	123.4	118.9	96.3
3	6.6	123.4	117.7	95.3
4	7.4	123.4	120.4	97.5
5	7.9	123.4	121.7	98.6
6	8.1	123.4	117.7	95.3
7	8.4	123.4	118.0	95.6
8	8.9	123.4	121.0	98.0
9	9.1	123.4	120.0	97.2
10	6.9	123.4	118.4	95.9
11	7.6	123.4	118.3	95.8
12	7.4	123.4	117.5	95.2

LOCATION:

ELEVATION:

Test #1 - See sketch
 Test #2 - "
 Test #3 - "
 Test #4 - "
 Test #5 - "
 Test #6 - "
 Test #7 - "
 Test #8 - "
 Test #9 - "
 Test #10 - "
 Test #11 - "
 Test #12 - "

Subgrade
 "
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RECEIVED
 APR 20 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

INSPECTOR: S. Shanaver Max day + 1/2
 hour travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 04-10-00 5
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
13	7.8	123.4	117.3	95.0
14	6.7	123.4	119.9	97.1
15	9.1	123.4	120.4	97.5
16	9.3	123.4	121.0	98.0
17	8.4	123.4	117.6	95.2
18	8.3	123.4	118.1	95.7
19	8.4	123.4	117.7	95.3
20	7.9	123.4	118.4	95.9

LOCATION:

ELEVATION:

Test #13- See sketch Subgrade
 Test #14- " "
 Test #15- " "
 Test #16- " "
 Test #17- " "
 Test #18- " "
 Test #19- " "
 Test #20- " "

Weather: Clear/windy, 50 degrees
 Purpose: Observe earthwork construction and perform field density tests
 Equip: Dozer, grader, vibratory drum roller

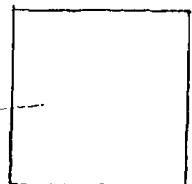
Summary: The writer arrived at the project site at 6:30 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The site contractor continued filling in the parking area (see sketch) on this date. Ordinary borrow material was used as fill material placed in lifts that ranged from 2 to 8 inches, depending upon the sloping topography. In area where lift thickness was under 6 inches, density tests were performed with gauge set on back-scatter mode, otherwise tests were performed at 6 inch depth. Lifts were compacted using the vibratory drum roller making at least 8 passes. Twenty field density tests were performed according to ASTM D2922. Test results exceeded 95% of ASTM D1557 modified & were related to Mr. Finney

INSPECTOR: S. Shanaver

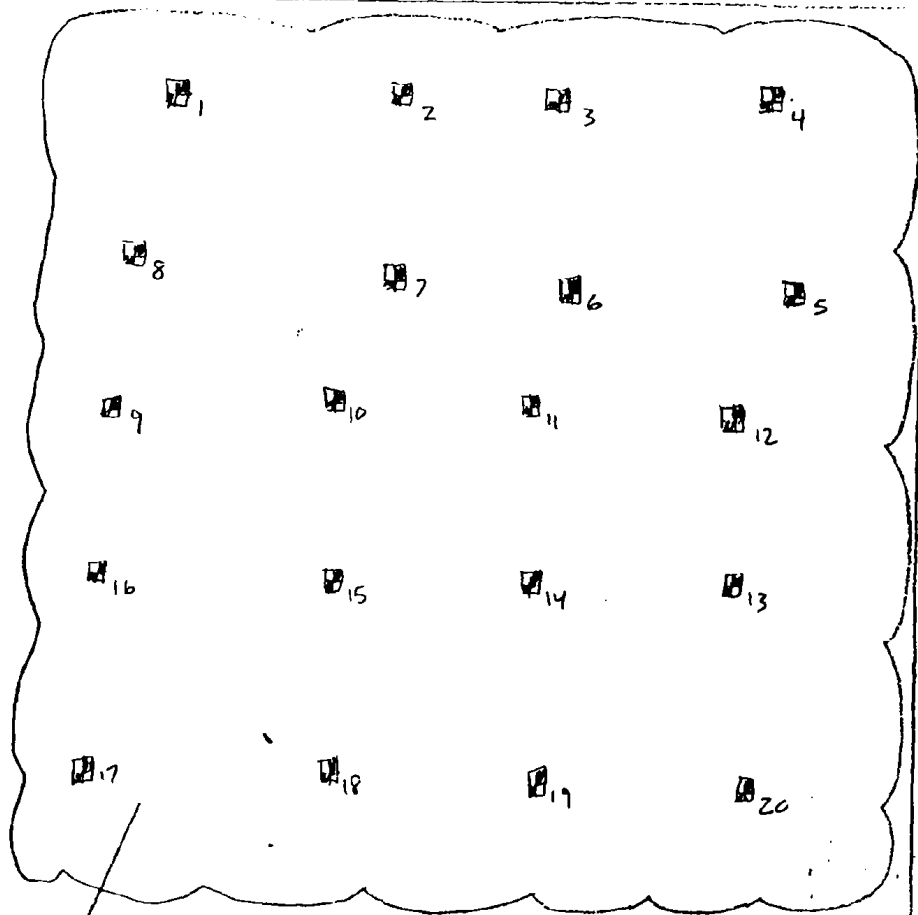
U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

COMMUTER
RAIL

PROPOSED
BUILDING.



PARKING
AREA



FILL AREA

☐ - COMPACTION TEST LOCATIONS



5 Richardson Lane
Stoneham, Ma 02180

'The Construction Testing People'

JOB NAME: RTC WOBURN

PROJEC. NO.: 6600

FIELD
SKETCH

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 03-31-00 3
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD DRY DENSITY	% COMPACTION
1	10.1	127.5	118.8	93.2
2	10.4	127.5	125.6	98.5
3	10.2	127.5	118.4	92.9
4	10.2	127.5	118.1	92.6
5	10.1	127.5	118.3	92.8
6	10.0	127.5	125.7	98.6

LOCATION:

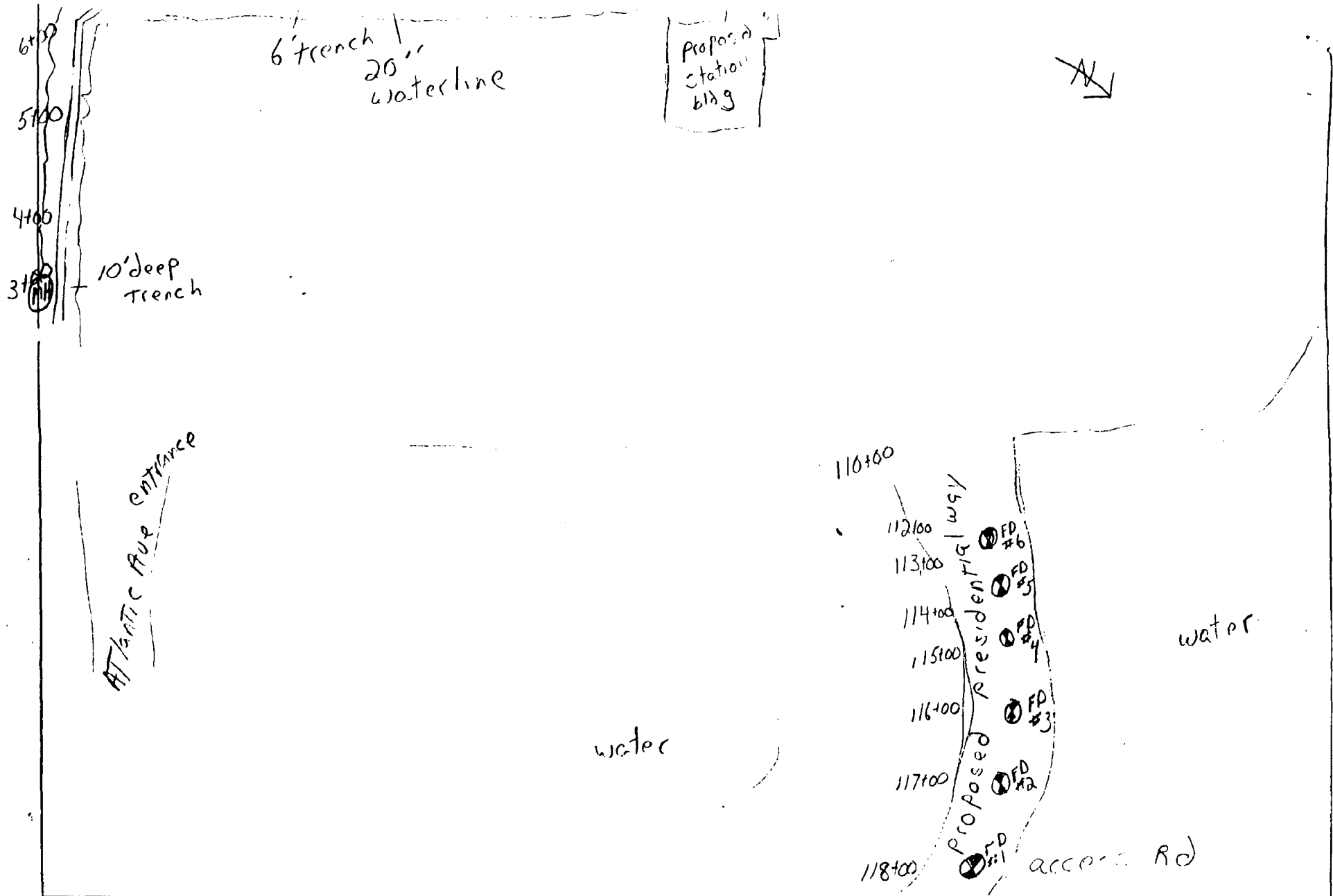
ELEVATION:

Test #1 - Presidential Way, Station 118+00 79.66'
 Test #2 - " " 117+00 78.99'
 Test #3 - " " 116+00 78.66'
 Test #4 - " " 115+00 78.31'
 Test #5 - " " 114+00 77.74'
 Test #6 - " " 113+00 77.38'

Weather: Sunny, 46 degrees
 Purpose: Observe earthwork construction and perform field density tests
 Equip: Cat D5HXL dozer; R24 roller; Cat PC400LC excavator; Mikasa compac

Summary: The writer arrived at the project site at 7:00 AM and met with Joe Finney from Middlesex. The purpose of this visit was to perform a soil inspection. The road to be Presidential Way was graded by the Cat D5H dozer and compacted by the R24 vibratory drum roller the previous day. The road appeared stable and compacted. The soil consists of F-M sand, little gravel, little silt. Six field density tests were performed according to ASTM D1556 using the sand cone method. A sample of the subgrade soil which was tested was returned to the lab for sieve and proctor analysis and results will be included upon completion. The water line is being placed on south side of site heading east using the PC400LC excavator. Water was then covered with onsite soil and lightly compacted with 3-4 passes of the Mikasa compactor. Mr. Finney informed.

INSPECTOR: C. Lund 9 hours + 1/2 hour U T S OF MASSACHUSETTS, INC.
 travel Reviewed
 By: William P. Crabtree *WPC*



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

3-31-00

JOB NAME: Webster Regional Transfer Center

PRO. JT NO.: 6100

FIELD
SKETCH 1

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL INSPECTION REPORT DATE 03-30-00 2
 The Middlesex Corporation Job No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD	
			DRY DENSITY	% COMPACTION
1	10.1	112.8	110.8	98.2
2	10.0	112.8	110.5	97.9
3	10.0	112.8	109.9	97.4
4	11.1	112.8	111.4	98.7
5	10.8	112.8	109.8	97.3
6	10.0	112.8	110.1	97.6
7	10.4	112.8	108.4	96.0
8	10.4	112.8	108.9	96.5

	LOCATION:	ELEVATION:
Test #1 -	See sketch	73.16'
Test #2 -	"	"
Test #3 -	"	"
Test #4 -	"	"
Test #5 -	"	"
Test #6 -	"	"
Test #7 -	Water line, Station 12+00	69'
Test #8 -	" " 12+00 SE	68'

Weather: Sunny/windy, 46 degrees
 Purpose: Observe earthwork construction and perform field density tests
 Equip: TBH10 excavator, BRP30/38D Bomag compactor, Cat PC400LC compac

Summary: The writer arrived at the project site at 7:00 AM and met with Joe Finney from Middlesex. The purpose of this visit was to perform a soil inspection. A 6" deep trench had been excavated using the TBH10 excavator for the base of footing of proposed station building, see sketch. The base of the trench had been compacted with the Bomag plate compactor making repeated and overlapping passes. The existing soil consisted of fine sand, little silt, little gravel. Six field density tests were performed according to ASTM D1556 using the sand cone method. Test results exceeded 95% of the MDD obtained from the modified proctor ASTM D1557.

continued on next page

INSPECTOR: C. Lund Max day + 1/2 hour U T S OF MASSACHUSETTS, INC.
 travel Reviewed
 By: William P. Crabtree *WPC*

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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL FIELD REPORT	DATE	03-30-00	2
The Middlesex Corporation	Job. No.	UTS 6100	
1 Spectacle Pond Road	Project	Woburn Regional Transportati	
Littleton, MA 01460-1110	Contractor	The Middlesex Corp	

WEATHER: Sunny/windy, 46 degrees

PURPOSE: Continued from previous page

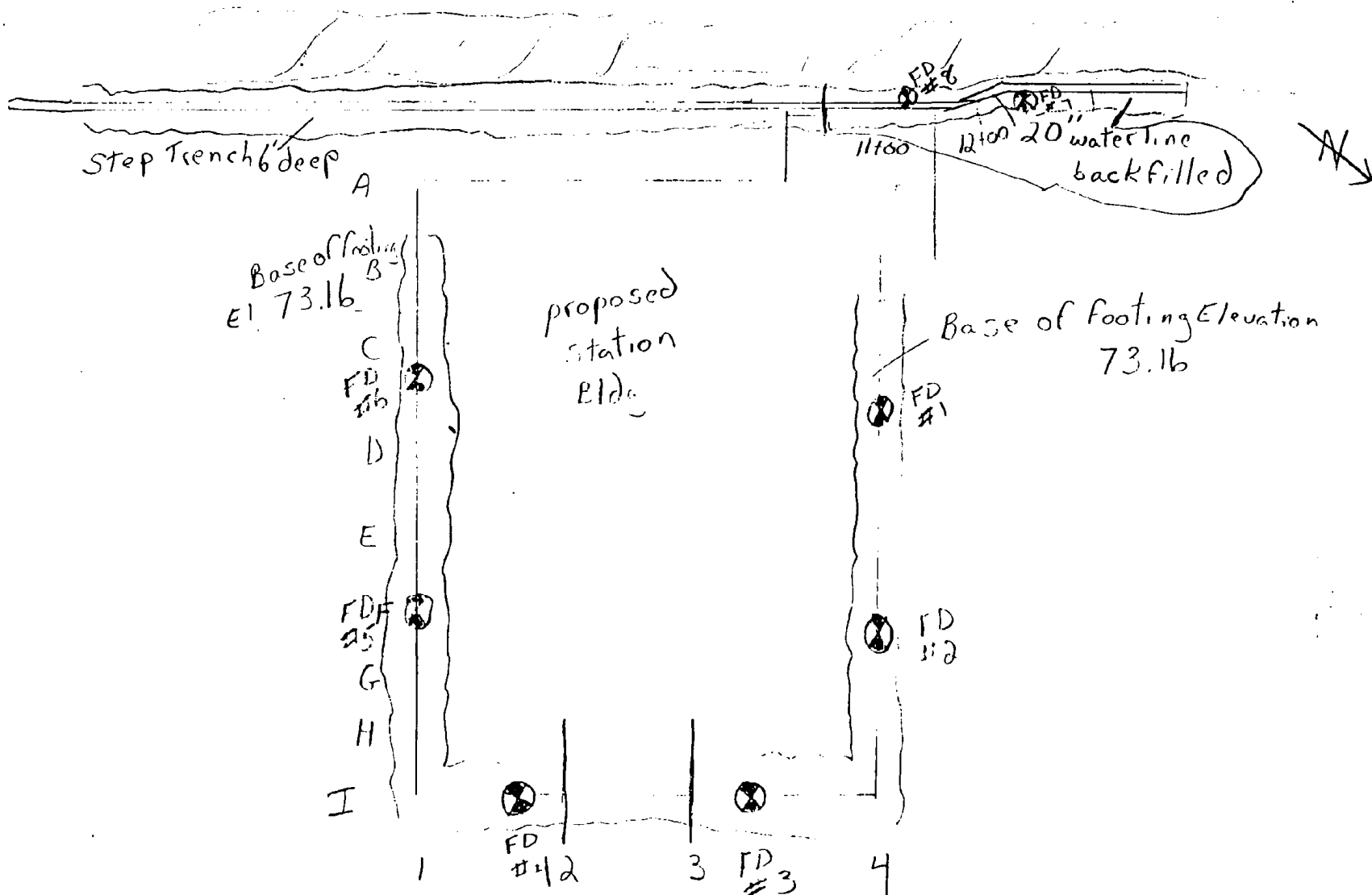
EQUIPMENT OPERATING: See previous page

SUMMARY: Also, a 6' trench had been excavated using the Cat PC400LC excavator for placement of a 20" water line. The water line was covered with existing soil then backfilled with 12" lifts of fine sand, little silt, little gravel, then compacted with the Bomag plate compactor making overlapping passes. Two field density tests were performed in this area and both exceeded 95% of ASTM D1557 modified. These observations were related to Mr. Finney prior to departure.

INSPECTOR: C. Lund

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

B.R. Trac S



3-30-00

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

APR 12 2000

CONSTRUCTION DEPT.

SOIL INSPECTION REPORT

DATE 03-27-00

The Middlesex Corporation
 1 Spectacle Pond Road
 Littleton, MA 01460-1110

Job No. UTS 6100
 Project Woburn Regional Transportati
 Contractor The Middlesex Corp

TEST #	% MOISTURE	M.D.D.	FIELD	
			DRY DENSITY	% COMPACTION
1	5.0	123.4	119.7	97.0
2	5.5	123.4	121.8	98.7
3	6.3	123.4	120.0	97.2
4	5.1	123.4	122.5	99.2
5	5.4	123.4	120.3	97.4
6	6.1	123.4	121.0	98.0
7	3.2	112.8	112.5	99.7

LOCATION:

ELEVATION:

Test #1 - Presidential Way, Station 111+00 Top of ordinary borrow
 Test #2 - " " 112+00 "
 Test #3 - " " 112+50 "
 Test #4 - " " 113+00 "
 Test #5 - " " 113+50 "
 Test #6 - " " 114+00 "
 Test #7 - Water line, see sketch 3' - subgrade

Weather: Clear, 50 degrees

Purpose: Observe earthwork construction and perform field density tests

Equip: Dozer, vibratory drum roller

Summary: The writer arrived at the project site at 6:30 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform a soil inspection. The site contractor continued construction of the Presidential Way (see field sketch) on this date. Ordinary borrow from Littleton pit was placed in this area, graded with the dozer to approximately 12" lifts and compacted using the vibratory drum roller making at least 10 passes over the area. Six field density tests were performed according to ASTM D2922 using a Troxler density gauge. Test results exceeded 95% of ASTM D1557 modified. Also on this date, water pipe was being installed in the western end of the site, see sketch.

continued on next page

INSPECTOR: S. Shanaver Min day + 1/2

hour travel

U T S OF MASSACHUSETTS, INC.

Reviewed

By: William P. Crabtree *WPC*

U U TTTTTTTTTT S S S
 U U T S S S
 U U T S S S Of MASSACHUSETTS, INC.
 U U T S S S
 J U U T S S S
 U U U T S S S
 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

SOIL FIELD REPORT DATE 03-27-00 1
 The Middlesex Corporation Job. No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

WEATHER: Clear, 50 degrees

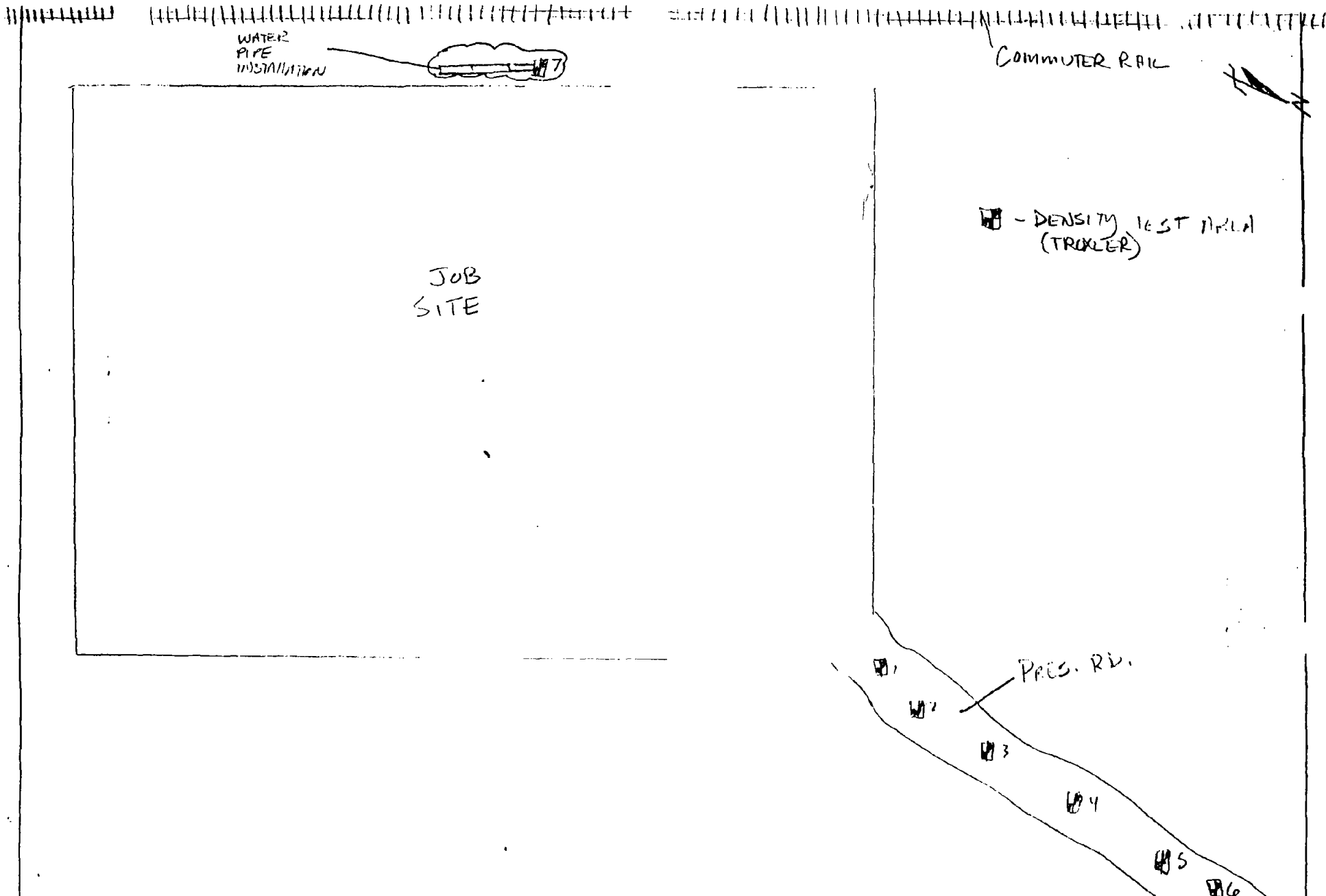
PURPOSE: Continued from previous page

EQUIPMENT OPERATING: See previous page

SUMMARY: Onsite material was used as backfill material and placed in
 approximately 12 inch lifts and compacted using the plate compactor.
 A sample of this material was returned to the UTS lab for sieve and
 proctor analysis. These observations were related to Mr. Finney prior
 to departure.

INSPECTOR: S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: RTC WOBURN

PROJECT NO: 1100

FIELD

SKETCH

F.5 - ASPHALT INSPECTION REPORTS

[REDACTED]
Vanasse Hangen Brustlin, Inc.

Transportation
Land Development
Environmental Service



101 Walnut St., Watertown, MA. 02272
TEL 617-924-1770 FAX 617-924-2286
54 Tuttle Pl., Middletown, CT. 06457
TEL 860 632-1500 FAX 860 632-7879

Boston Area: TEL 617-825-7650

Transmittal

To: Mr. Chris Ambrose
30A Atlantic Avenue
Woburn, MA 01801

Date: November 13, 2000

Project No.: 45676-31003

From: Dan Kosalski

Re: Regional Transportation
Center, Woburn, MA - MPA
Contract No. 1.727

Attached please find the hot mix asphalt and field density reports for the hot mix asphalt base material produced by Aggregate Industries on October 17, 2000, for the Regional Transportation Center in Woburn, MA. The test results indicated that the gradation and the average Marshall structural properties conformed to the submitted design criteria. The field density report indicates that the average density based on the average Marshall specific gravity was 102.2%. The average density indicates that the material conforms to typical FAA specification requirements of 96.3% minimum for mat cores.

If you have any questions or need any additional information, please do not hesitate to call.

cc. Harry Ruffner, MassPort

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: BASE	SOURCE OF SUPPLY: Aggregate Industries
SAMPLED BY: BILL SHEA	LOCATION: Chelmsford, MA
SAMPLE TAKEN FROM: TRUCK	WHERE SAMPLED: PLANT
USING AGENCY: MIDDLESEX	DATE SAMPLED: 10/17/00
PURPOSE: BASE	SAMPLE TYPE: RANDOM
DEPARTMENT: MASSPORT No. 1.727	TONNAGE: 1100
WHERE USED: Woburn Regional Transportation Center	

SIEVE SIZE	PERCENT PASSING						Master Specification	
	Sample A @ B	Sample C @ D	Sample	Sample	JMF	Min	Max	
	50.0mm (2")							
38.1mm (1-1/2")		100			100	100		
25.0mm (1")	100	99			98 ± 7	86	98	
19.5mm (3/4")	95	96			93 ± 7	68	93	
12.5mm (1/2")	68	68			72 ± 7	57	81	
9.5mm (3/8")	45	45			49 ± 7	49	69	
4.75mm (#4)	35	36			40 ± 7	34	54	
2.36mm (#8)	29	30			31 ± 6	22	42	
1.18mm (#16)	20	20			22 ± 6	13	33	
.600mm (#30)	14	15			16 ± 5	8	24	
.300mm (#50)	9	9			11 ± 5	6	18	
.150mm (#100)	5	5			6 ± 3	4	12	
.075mm (#200)	2.5	2.7			3 ± 3	3	6	
Bitumen Content, %	4.62	4.73			4.9 ± .45	4.5	7.0	
Mixture Temp., F	310	305			300 ± 20	265	325	

MARSHALL STRUCTURAL VALUES							Specification Limits	
ASTM D-1559							Min	Max
Number of Blows:	75	75			Average			
Stability, lbs. :	2319	2078			2198	1800	-	
Flow, 0.01 inches:	11.5	11.0			11.3	8	16	
Air Voids, %:	4.1%	4.1%			4.1%	2	5	
VMA, %:	15.0%	15.3%			15.2%	13	-	
Voids Filled, %:	72.9%	73.5%			73.2%	n/a	n/a	
Bulk Gravity:	2.424	2.426			2.425	-	-	
Max Theo. Gravity:	2.527	2.528			2.528	-	-	
Bulk Unit Wt., lbs/c.f.	151.3	151.4			151.3	-	-	
Yield, lbs/s.y./in.	113.5	113.5			113.5	-	-	

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements.


 Dan Kosalski, Department Manager

BITUMINOUS CONCRETE FIELD DENSITY REPORT



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Vanasse Hangen Brustlin, Inc.

STREET: Regional Transportation Center

LOCATION: Woburn, MA

PRODUCER: Aggregate Industries

LOCATION: Chelmsford, MA

GENERAL CONTRACTOR: Middlesex

DATE PLACED: 10/17/00

DATE SAMPLED: 10/24/00

SAMPLE SIZE & TYPE: 6 in. dia. cores

SAMPLED BY: Aggregate Industries

SAMPLING PLAN:

RANDOM:

REPRESENTATIVE:

CONTROL STRIP:

CORE NUMBER

*****LOCATION*****

1
2

not available
not available

*****LABORATORY ANALYSIS*****

PAVING COURSE:	FAA Base		
SAMPLE NUMBER:	1	2	SPECS
Average Marshall Sp. Gr.		2.425	
Core Bulk Sp. Gr.	2.460	2.496	
% Compaction	101.4	102.9	96.3%+
Thickness(in.)	3.00	2.50	

REMARKS: % AVERAGE DENSITY = 102.2
AVERAGE THICKNESS = 2.75

The average compaction indicates that the material conforms to typical FAA specification requirements of 96.3% minimum for mat cores.

Daniel Kosalski

Daniel Kosalski, Department Manager

54 Tuttle Place
Middletown, Connecticut 06457-1847
860.632.1500 • FAX 860.632.7879
email: info@vhb.com
www.vhb.com

[REDACTED]
Vanasse Hangen Brustlin, Inc.

Transportation
Land Development
Environmental Services

VHB

101 Walnut St., Watertown, MA. 02272
TEL 617-924-1770 FAX 617-924-2286
54 Tuttle Pl., Middletown, CT. 06457
TEL 860 632-1500 FAX 860 632-7879

Boston Area: TEL 617-825-7650 .

Transmittal

To: Mr. Chris Ambrose
30A Atlantic Avenue
Woburn, MA 01801

Date: November 13, 2000

Project No.: 45676-31003

From: Dan Kosalski

Dan

Re: Regional Transportation
Center, Woburn, MA - MPA
Contract No. 1.727

Attached please find the hot mix asphalt and field density reports for the hot mix asphalt base material produced by Aggregate Industries on October 17, 2000, for the Regional Transportation Center in Woburn, MA. The test results indicated that the gradation and the average Marshall structural properties conformed to the submitted design criteria. The field density report indicates that the average density based on the average Marshall specific gravity was 102.2%. The average density indicates that the material conforms to typical FAA specification requirements of 96.3% minimum for mat cores.

If you have any questions or need any additional information, please do not hesitate to call.

✓ cc. Harry Ruffner, MassPort

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: BASE
 SAMPLED BY: BILL SHEA
 SAMPLE TAKEN FROM: TRUCK
 USING AGENCY: MIDDLESEX
 PURPOSE: BASE
 DEPARTMENT: MASSPORT No. 1.727
 WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: Aggregate Industries
 LOCATION: Chelmsford, MA
 WHERE SAMPLED: PLANT
 DATE SAMPLED: 10/17/00
 SAMPLE TYPE: RANDOM
 TONNAGE: 1100

SIEVE SIZE	PERCENT PASSING						Master Specification	
	Sample A @ B	Sample C @ D	Sample	Sample	JMF	Min	Max	
	50.0mm (2")							
38.1mm (1-1/2")		100			100	100		
25.0mm (1")	100	99			98 ± 7	86	98	
19.5mm (3/4")	95	96			93 ± 7	68	93	
12.5mm (1/2")	68	68			72 ± 7	57	81	
9.5mm (3/8")	45	45			49 ± 7	49	69	
4.75mm (#4)	35	36			40 ± 7	34	54	
2.36mm (#8)	29	30			31 ± 6	22	42	
1.18mm (#16)	20	20			22 ± 6	13	33	
.600mm (#30)	14	15			16 ± 5	8	24	
.300mm (#50)	9	9			11 ± 5	6	18	
.150mm (#100)	5	5			6 ± 3	4	12	
.075mm (#200)	2.5	2.7			3 ± 3	3	6	
Bitumen Content, %	4.62	4.73			4.9 ± .45	4.5	7.0	
Mixture Temp., F	310	305			300 ± 20	265	325	

MARSHALL STRUCTURAL VALUES
ASTM D-1559

	Average						Specification Limits	
	Min	Max	Min	Max	Min	Max	Min	Max
Number of Blows:	75	75						
Stability, lbs. :	2319	2078			2198	1800	-	
Flow, 0.01 inches:	11.5	11.0			11.3	8	16	
Air Voids, %:	4.1%	4.1%			4.1%	2	5	
VMA, %:	15.0%	15.3%			15.2%	13	-	
Voids Filled, %:	72.9%	73.5%			73.2%	n/a	n/a	
Bulk Gravity:	2.424	2.426			2.425	-	-	
Max Theo. Gravity:	2.527	2.528			2.528	-	-	
Bulk Unit Wt., lbs/c.f.	151.3	151.4			151.3	-	-	
Yield, lbs/s.y./in.	113.5	113.5			113.5	-	-	

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements.

Dan Kosalski

 Dan Kosalski, Department Manager

BITUMINOUS CONCRETE FIELD DENSITY REPORT



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Vanasse Hangen Brustlin, Inc.

STREET: Regional Transportation Center

LOCATION: Woburn, MA

PRODUCER: Aggregate Industries

LOCATION: Chelmsford, MA

GENERAL CONTRACTOR: Middlesex

DATE PLACED: 10/17/00

DATE SAMPLED: 10/24/00

SAMPLE SIZE & TYPE: 6 in. dia. cores

SAMPLED BY: Aggregate Industries

SAMPLING PLAN:

RANDOM:

REPRESENTATIVE:

CONTROL STRIP:

CORE NUMBER

LOCATION

1
2

not available
not available

LABORATORY ANALYSIS

PAVING COURSE:

FAA Base

SAMPLE NUMBER:

1

2

SPECS

Average Marshall Sp. Gr.

2.425

Core Bulk Sp. Gr.

2.460

2.496

% Compaction

101.4

102.9

96.3%+

Thickness(in.)

3.00

2.50

REMARKS:

% AVERAGE DENSITY = 102.2

AVERAGE THICKNESS = 2.75

The average compaction indicates that the material conforms to typical FAA specification requirements of 96.3% minimum for mat cores.

Daniel Kosalski

Daniel Kosalski, Department Manager

[REDACTED]
Vanasse Hangen Brustlin, Inc.

Transportation
Land Development
Environmental Service



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TEL 860 632-1500 FAX 860 632-7879

Boston Area: TEL 617-825-7650

Transmittal

To: Mr. Chris Ambrose
30A Atlantic Avenue
Woburn, MA 01801

Date: November 17, 2000

Project No.: 45676-31003

From: Dan Kosalski *Dan*

Re: Regional Transportation
Center, Woburn, MA – MPA
Contract No. 1.727

Attached please find the hot mix asphalt reports for the hot mix asphalt surface material produced by Aggregate Industries on November 8th, 9th, 12th, and 13th, for the Regional Transportation Center in Woburn, MA. The test results indicated that the gradations and the average Marshall structural properties conformed to the submitted design criteria.

If you have any questions or need any additional information, please do not hesitate to call.

cc. Harry Ruffner, MassPort

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP
 SAMPLED BY: BILL SHEA
 SAMPLE TAKEN FROM: TRUCK
 USING AGENCY: MIDDLESEX
 PURPOSE: TOP
 DEPARTMENT: MASSPORT No. 1.727
 WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
 LOCATION: CHELMSFORD, MA
 WHERE SAMPLED: PLANT
 DATE SAMPLED: 11/8/00
 SAMPLE TYPE: RANDOM
 TONNAGE: 1500

SIEVE SIZE	PERCENT PASSING					JMF	Master Specification	
	Sample A & B	Sample C & D	Sample E & F	Sample	Min		Max	
	50.0mm (2")							
38.1mm (1-1/2")								
25.0mm (1")						100		
19.5mm (3/4")	100	100	100			100 ± 7	100	
12.5mm (1/2")	93	94	93			93 ± 7	79 - 99	
9.5mm (3/8")	74	72	73			77 ± 7	68 - 88	
4.75mm (#4)	51	53	53			55 ± 7	48 - 68	
2.36mm (#8)	33	34	34			38 ± 6	33 - 53	
1.18mm (#16)	24	25	25			25 ± 6	20 - 40	
.600mm (#30)	16	17	17			18 ± 5	14 - 30	
.300mm (#50)	10	10	10			13 ± 5	9 - 21	
.150mm (#100)	6	6	6			9 ± 3	6 - 16	
.075mm (#200)	3.8	3.8	3.7			4 ± 3	3 - 6	
Bitumen Content, %	5.77	5.65	5.69			5.6 ± .45	5.5 - 7.5	
Mixture Temp., F	310	305	307			300 ± 20	265 - 325	

MARSHALL STRUCTURAL VALUES
ASTM D-1559

						Average	Specification Limits	
	Min	Max	Min	Max	Min	Min	Max	
Number of Blows:	75	75	75					
Stability, lbs. :	1801	1973	2018		1931	1800	-	
Flow, 0.01 inches:	11.5	12.5	11.0		11.7	8	16	
Air Voids, %:	4.4%	3.9%	3.9%		4.1%	2	5	
VMA, %:	17.8%	17.1%	17.3%		17.4%	15	-	
Voids Filled, %:	75.5%	77.2%	77.2%		76.6%	n/a	n/a	
Bulk Gravity:	2.377	2.386	2.392		2.385	-	-	
Max Theo. Gravity:	2.486	2.483	2.490		2.486	-	-	
Bulk Unit Wt., lbs/c.f.	148.4	148.9	149.2		148.8	-	-	
Yield, lbs/s.y./in.	111.3	111.7	111.9		111.6	-	-	

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.

Dan Kosalski
 Dan Kosalski, Department Manager

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP
 SAMPLED BY: BILL SHEA
 SAMPLE TAKEN FROM: TRUCK
 USING AGENCY: MIDDLESEX
 PURPOSE: TOP
 DEPARTMENT: MASSPORT No. 1.727
 WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
 LOCATION: CHELMSFORD, MA
 WHERE SAMPLED: PLANT
 DATE SAMPLED: 11/9/00
 SAMPLE TYPE: RANDOM
 TONNAGE: 1500

SIEVE SIZE	PERCENT PASSING					JMF	Master Specification	
	Sample A & B	Sample C & D	Sample E & F	Sample	Min		Max	
50.0mm (2")	.....	.....	.....	.....	.....
38.1mm (1-1/2")	.....	.....	.....	.....	.....
25.0mm (1")	.....	.....	.....	.....	.....	100		
19.5mm (3/4")	100	100	100	.....	.....	100 ± 7	100	
12.5mm (1/2")	93	93	93	.....	.....	93 ± 7	79 - 99	
9.5mm (3/8")	74	72	73	.....	.....	77 ± 7	68 - 88	
4.75mm (#4)	52	54	53	.....	.....	55 ± 7	48 - 68	
2.36mm (#8)	34	35	35	.....	.....	38 ± 6	33 - 53	
1.18mm (#16)	24	25	26	.....	.....	25 ± 6	20 - 40	
.600mm (#30)	17	17	17	.....	.....	18 ± 5	14 - 30	
.300mm (#50)	11	10	10	.....	.....	13 ± 5	9 - 21	
.150 mm (#100)	6	7	6	.....	.....	9 ± 3	6 - 16	
.075 mm (#200)	3.7	3.9	3.7	.....	.....	4 ± 3	3 - 6	
Bitumen Content, %	5.69	5.63	5.68	.....	.....	5.6 ± .45	5.5 - 7.5	
Mixture Temp., F	310	305	307	.....	.....	300 ± 20	265 - 325	

MARSHALL STRUCTURAL VALUES
ASTM D-1559

						Average	Specification Limits	
	Min	Max	Min	Max	Min		Max	
Number of Blows:	75	75	75	.....	.....	1950	1800	-
Stability, lbs. :	1977	1835	2040	.....	.....	10.8	8	16
Flow, 0.01 inches:	11.0	11.5	10.0	.....	.....	3.8%	2	5
Air Voids, %:	3.9%	3.8%	3.8%	.....	.....	17.1%	15	-
VMA, %:	17.2%	17.0%	17.1%	.....	.....	77.8%	n/a	n/a
Voids Filled, %:	77.6%	77.7%	78.0%	.....	.....	2.396	-	-
Bulk Gravity:	2.394	2.394	2.398	.....	.....	2.490	-	-
Max Theo. Gravity:	2.491	2.488	2.492	.....	.....	149.5	-	-
Bulk Unit Wt., lbs/c.f.	149.4	149.4	149.7	.....	.....	112.1	-	-
Yield, lbs/s.y./in.	112.1	112.0	112.2	.....	.....	

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.



 Dan Kosalski, Department Manager

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP
SAMPLED BY: BILL SHEA
SAMPLE TAKEN FROM: TRUCK
USING AGENCY: MIDDLESEX
PURPOSE: TOP
DEPARTMENT: MASSPORT No. 1.727
WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
LOCATION: CHELMSFORD, MA
WHERE SAMPLED: PLANT
DATE SAMPLED: 11/12/00
SAMPLE TYPE: RANDOM
TONNAGE: 900

SIEVE SIZE	PERCENT PASSING					JMF	Master Specification	
	Sample A & B	Sample C & D	Sample	Sample	Min		Max	
50.0mm (2")	.....	.....	.....	.....	.....
38.1mm (1-1/2")	.....	.....	.....	.....	.....
25.0mm (1")	.....	.....	.....	.....	.....	100		
19.5mm (3/4")	100	100	.....	.....	.....	100 ± 7	100	
12.5mm (1/2")	97	96	.....	.....	.....	93 ± 7	79 - 99	
9.5mm (3/8")	78	77	.....	.....	.....	77 ± 7	68 - 88	
4.75mm (#4)	51	52	.....	.....	.....	55 ± 7	48 - 68	
2.36mm (#8)	33	34	.....	.....	.....	38 ± 6	33 - 53	
1.18mm (#16)	24	25	.....	.....	.....	25 ± 6	20 - 40	
.600mm (#30)	17	18	.....	.....	.....	18 ± 5	14 - 30	
.300mm (#50)	11	11	.....	.....	.....	13 ± 5	9 - 21	
.150mm (#100)	7	7	.....	.....	.....	9 ± 3	6 - 16	
.075mm (#200)	4.6	4.4	.....	.....	.....	4 ± 3	3 - 6	
Bitumen Content, %	5.98	5.86	.....	.....	.....	5.6 ± .45	5.5 - 7.5	
Mixture Temp., F	310	305	.....	.....	.....	300 ± 20	265 - 325	

MARSHALL STRUCTURAL VALUES
ASTM D-1559

						Average	Specification Limits	
	Sample A & B	Sample C & D	Sample	Sample	Sample		Min	Max
Number of Blows:	75	75	.....	.....	.....
Stability, lbs. :	2215	2035	.....	.....	.....	2125	1800	-
Flow, 0.01 inches:	11.5	12.0	.....	.....	.....	11.8	8	16
Air Voids, %:	2.0%	2.8%	.....	.....	.....	2.4%	2	5
VMA, %:	16.1%	16.6%	.....	.....	.....	16.4%	15	-
Voids Filled, %:	87.8%	82.9%	.....	.....	.....	85.4%	n/a	n/a
Bulk Gravity:	2.417	2.404	.....	.....	.....	2.410	-	-
Max Theo. Gravity:	2.465	2.474	.....	.....	.....	2.470	-	-
Bulk Unit Wt., lbs/c.f.	150.8	150.0	.....	.....	.....	150.4	-	-
Yield, lbs/s.y./in.	113.1	112.5	.....	.....	.....	112.8	-	-

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.

Dan Kosalski

Dan Kosalski, Department Manager

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP
 SAMPLED BY: BILL SHEA
 SAMPLE TAKEN FROM: TRUCK
 USING AGENCY: MIDDLESEX
 PURPOSE: TOP
 DEPARTMENT: MASSPORT No. 1.727
 WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
 LOCATION: CHELMSFORD, MA
 WHERE SAMPLED: PLANT
 DATE SAMPLED: 11/13/00
 SAMPLE TYPE: RANDOM
 TONNAGE: 850

SIEVE SIZE	PERCENT PASSING					Master Specification	
	Sample A & B	Sample C & D	Sample	Sample	JMF	Min	Max
	50.0mm (2")
38.1mm (1-1/2")	.....	.....	.....	.....	.....	.....	.....
25.0mm (1")	.....	.....	.....	.....	.....	100	.....
19.5mm (3/4")	100	100	.....	.....	.....	100 ± 7	100
12.5mm (1/2")	97	96	.....	.....	.....	93 ± 7	79 - 99
9.5mm (3/8")	81	79	.....	.....	.....	77 ± 7	68 - 88
4.75mm (#4)	49	50	.....	.....	.....	55 ± 7	48 - 68
2.36mm (#8)	33	33	.....	.....	.....	38 ± 6	33 - 53
1.18mm (#16)	25	25	.....	.....	.....	25 ± 6	20 - 40
.600mm (#30)	19	18	.....	.....	.....	18 ± 5	14 - 30
.300mm (#50)	12	11	.....	.....	.....	13 ± 5	9 - 21
.150mm (#100)	8	7	.....	.....	.....	9 ± 3	6 - 16
.075mm (#200)	4.8	4.2	.....	.....	.....	4 ± 3	3 - 6
Bitumen Content, %	5.80	5.77	.....	.....	.....	5.6 ± .45	5.5 - 7.5
Mixture Temp., F	315	310	.....	.....	.....	300 ± 20	265 - 325

MARSHALL STRUCTURAL VALUES
 ASTM D-1559

					Average	Specification Limits	
	Min	Max	Min	Max		Min	Max
Number of Blows:	75	75	.....	.....	.....	.....	.....
Stability, lbs. :	1878	2030	.....	.....	1954	1800	-
Flow, 0.01 inches:	10.0	12.0	.....	.....	11.0	8	16
Air Voids, %:	2.4%	2.8%	.....	.....	2.6%	2	5
VMA, %:	16.1%	16.4%	.....	.....	16.2%	15	-
Voids Filled, %:	85.2%	83.2%	.....	.....	84.2%	n/a	n/a
Bulk Gravity:	2.414	2.406	.....	.....	2.410	-	-
Max Theo. Gravity:	2.473	2.475	.....	.....	2.474	-	-
Bulk Unit Wt., lbs/c.f.	150.6	150.2	.....	.....	150.4	-	-
Yield, lbs/s.y./in.	113.0	112.6	.....	.....	112.8	-	-

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.

Dan Kosalski, Department Manager

[REDACTED]
Vanasse Hangen Brustlin, Inc.

Transportation
Land Development
Environmental Services



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TEL 617-924-1770 FAX 617-924-2286
54 Tuttle Pl., Middletown, CT. 06457
TEL 860 632-1500 FAX 860 632-7879

Boston Area: TEL 617-825-7650

Transmittal

To: Mr. Chris Ambrose
30A Atlantic Avenue
Woburn, MA 01801

Date: November 21, 2000

Project No.: 45676-31003

From: Dan Kosalski

Re: Regional Transportation
Center, Woburn, MA - MPA
Contract No. 1.727

Attached please find the hot mix asphalt reports for the hot mix asphalt surface material produced by Aggregate Industries on November 14th, 15th, 16th, and 17th, for the Regional Transportation Center in Woburn, MA. The test results from November 14th indicated that the extraction and gradation of the materials conformed to specification requirements. However the average Marshall structural property for stability did not conform to specification requirements. The test results from November 15th, 16th, and 17th indicated that the gradations and the average Marshall structural properties conformed to the submitted design criteria.

If you have any questions or need any additional information, please do not hesitate to call.

cc. Harry Ruffner, MassPort

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP
 SAMPLED BY: BILL SHEA
 SAMPLE TAKEN FROM: TRUCK
 USING AGENCY: MIDDLESEX
 PURPOSE: TOP
 DEPARTMENT: MASSPORT No. 1.727
 WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
 LOCATION: CHELMSFORD, MA
 WHERE SAMPLED: PLANT
 DATE SAMPLED: 11/14/00
 SAMPLE TYPE: RANDOM
 TONNAGE: 966

SIEVE SIZE	PERCENT PASSING					Master Specification	
	Sample A & B	Sample C & D	Sample	Sample	JMF	Min	Max
50.0mm (2")							
38.1mm (1-1/2")							
25.0mm (1")							
19.5mm (3/4")	100	100			100 ± 7	100	
12.5mm (1/2")	99	98			93 ± 7	79 - 99	
9.5mm (3/8")	83	83			77 ± 7	68 - 88	
4.75mm (#4)	59	60			55 ± 7	48 - 68	
2.36mm (#8)	41	43			38 ± 6	33 - 53	
1.18mm (#16)	26	28			25 ± 6	20 - 40	
.600mm (#30)	19	20			18 ± 5	14 - 30	
.300mm (#50)	13	14			13 ± 5	9 - 21	
.150mm (#100)	8	9			9 ± 3	6 - 16	
.075mm (#200)	4.9	5.1			4 ± 3	3 - 6	
Bitumen Content, %	5.78	5.65			5.6 ± .45	5.5 - 7.5	
Mixture Temp., F	315	315			300 ± 20	265 - 325	

MARSHALL STRUCTURAL VALUES
ASTM D-1559

			Average	Specification Limits	
	Min	Max		Min	Max
Number of Blows:	75	75			
Stability, lbs. :	1810	1784 (a)	1797	1800	-
Flow, 0.01 inches:	12.0	10.5	11.3	8	16
Air Voids, %:	2.3%	2.7%	2.5%	2	5
VMA, %:	16.0%	16.0%	16.0%	15	-
Voids Filled, %:	85.4%	83.1%	84.3%	n/a	n/a
Bulk Gravity:	2.413	2.401	2.407	-	-
Max Theo. Gravity:	2.471	2.468	2.469	-	-
Bulk Unit Wt., lbs/c.f.	150.6	149.8	150.2	-	-
Yield, lbs/s.y./in.	112.9	112.4	112.7	-	-

REMARKS: (a) low off specification requirements; the average Marshall structural property for stability indicates that this material does not conform to specification requirements.

Dan Kosalski
 Dan Kosalski, Department Manager

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP
 SAMPLED BY: BILL SHEA
 SAMPLE TAKEN FROM: TRUCK
 USING AGENCY: MIDDLESEX
 PURPOSE: TOP
 DEPARTMENT: MASSPORT No. 1.727
 WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
 LOCATION: CHELMSFORD, MA
 WHERE SAMPLED: PLANT
 DATE SAMPLED: 11/15/00
 SAMPLE TYPE: RANDOM
 TONNAGE: 1066

SIEVE SIZE	PERCENT PASSING					JMF	Master Specification	
	Sample A & B	Sample C & D	Sample	Sample	Sample		Min	Max
	50.0mm (2")	
38.1mm (1-1/2")	.....	.....	.....	.....	.....
25.0mm (1")	.....	.....	.....	.....	.....
19.5mm (3/4")	100	100	.....	.....	.....	100 ± 7	100
12.5mm (1/2")	96	96	.....	.....	.....	93 ± 7	79 - 99
9.5mm (3/8")	78	79	.....	.....	.....	77 ± 7	68 - 88
4.75mm (#4)	49	50	.....	.....	.....	55 ± 7	48 - 68
2.36mm (#8)	32	33	.....	.....	.....	38 ± 6	33 - 53
1.18mm (#16)	24	25	.....	.....	.....	25 ± 6	20 - 40
.600mm (#30)	18	19	.....	.....	.....	18 ± 5	14 - 30
.300mm (#50)	12	13	.....	.....	.....	13 ± 5	9 - 21
.150mm (#100)	8	9	.....	.....	.....	9 ± 3	6 - 16
.075mm (#200)	5.0	5.4	.....	.....	.....	4 ± 3	3 - 6
Bitumen Content, %	5.46	5.58	.....	.....	.....	5.6 ± .45	5.5 - 7.5
Mixture Temp., F	305	310	.....	.....	.....	300 ± 20	265 - 325

MARSHALL STRUCTURAL VALUES
ASTM D-1559

						Average	Specification Limits	
	Min	Max	Min	Max	Min	Max		
Number of Blows:	75	75	.....	.....	.....	.....	.....
Stability, lbs. :	1898	2123	.....	.....	.....	2010	1800 -
Flow, 0.01 inches:	10.0	10.0	.....	.....	.....	10.0	8 - 16
Air Voids, %:	2.9%	2.6%	.....	.....	.....	2.7%	2 - 5
VMA, %:	15.7%	15.8%	.....	.....	.....	15.8%	15 -
Voids Filled, %:	81.8%	83.5%	.....	.....	.....	82.7%	n/a - n/a
Bulk Gravity:	2.404	2.408	.....	.....	.....	2.406	- - -
Max Theo. Gravity:	2.475	2.473	.....	.....	.....	2.474	- - -
Bulk Unit Wt., lbs/c.f.	150.0	150.3	.....	.....	.....	150.2	- - -
Yield, lbs/s.y./in.	112.5	112.7	.....	.....	.....	112.6	- - -

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.

Dan Kosalski

 Dan Kosalski, Department Manager

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP
 SAMPLED BY: BILL SHEA
 SAMPLE TAKEN FROM: TRUCK
 USING AGENCY: MIDDLESEX
 PURPOSE: TOP
 DEPARTMENT: MASSPORT No. 1.727
 WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
 LOCATION: CHELMSFORD, MA
 WHERE SAMPLED: PLANT
 DATE SAMPLED: 11/16/00
 SAMPLE TYPE: RANDOM
 TONNAGE: 900

SIEVE SIZE	PERCENT PASSING					JMF	Master Specification	
	Sample A & B	Sample C & D	Sample	Sample	Sample		Min	Max
	50.0mm (2")	
38.1mm (1-1/2")	.....	.....	.....	.....	.....
25.0mm (1")	.....	.....	.....	.....	.....
19.5mm (3/4")	100	100	.....	.....	.....	100 ± 7	100
12.5mm (1/2")	96	96	.....	.....	.....	93 ± 7	79 - 99
9.5mm (3/8")	75	76	.....	.....	.....	77 ± 7	68 - 88
4.75mm (#4)	50	52	.....	.....	.....	55 ± 7	48 - 68
2.36mm (#8)	37	35	.....	.....	.....	38 ± 6	33 - 53
1.18mm (#16)	25	24	.....	.....	.....	25 ± 6	20 - 40
.600mm (#30)	18	19	.....	.....	.....	18 ± 5	14 - 30
.300mm (#50)	12	13	.....	.....	.....	13 ± 5	9 - 21
.150 mm (#100)	7	8	.....	.....	.....	9 ± 3	6 - 16
.075 mm (#200)	4.1	4.5	.....	.....	.....	4 ± 3	3 - 6
Bitumen Content, %	5.41	5.43	.....	.....	.....	5.6 ± .45	5.5 - 7.5
Mixture Temp., F	315	305	.....	.....	.....	300 ± 20	265 - 325

MARSHALL STRUCTURAL VALUES
ASTM D-1559

						Average	Specification Limits	
	Sample A & B	Sample C & D	Sample	Sample	Sample		Min	Max
	Number of Blows:	75	75	
Stability, lbs. :	2024	2150	.....	.....	.....	2087	1800 -
Flow, 0.01 inches:	11.0	11.5	.....	.....	.....	11.3	8 - 16
Air Voids, %:	2.2%	2.1%	.....	.....	.....	2.2%	2 - 5
VMA, %:	15.0%	14.9% (a)	.....	.....	.....	15.0%	15 -
Voids Filled, %:	85.2%	86.1%	.....	.....	.....	85.6%	n/a - n/a
Bulk Gravity:	2.415	2.416	.....	.....	.....	2.416	- - -
Max Theo. Gravity:	2.470	2.467	.....	.....	.....	2.469	- - -
Bulk Unit Wt., lbs/c.f.	150.7	150.8	.....	.....	.....	150.7	- - -
Yield, lbs/s.y/in.	113.0	113.1	.....	.....	.....	113.0	- - -

REMARKS: (a) low off specification requirements; the average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.

Dan Kosalski

 Dan Kosalski, Department Manager

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP
 SAMPLED BY: BILL SHEA
 SAMPLE TAKEN FROM: TRUCK
 USING AGENCY: MIDDLESEX
 PURPOSE: TOP
 DEPARTMENT: MASSPORT No. 1.727
 WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
 LOCATION: CHELMSFORD, MA
 WHERE SAMPLED: PLANT
 DATE SAMPLED: 11/17/00
 SAMPLE TYPE: RANDOM
 TONNAGE: 650

SIEVE SIZE	PERCENT PASSING					JMF	Master Specification	
	Sample A & B	Sample	Sample	Sample	Sample		Min	Max
	50.0mm (2")	
38.1mm (1-1/2")	.....	.....	.....	.....	.....
25.0mm (1")	.....	.....	.....	.....	.....
19.5mm (3/4")	100	.....	.....	.....	.....	100 ± 7	100
12.5mm (1/2")	97	.....	.....	.....	.....	93 ± 7	79 - 99
9.5mm (3/8")	75	.....	.....	.....	.....	77 ± 7	68 - 88
4.75mm (#4)	53	.....	.....	.....	.....	55 ± 7	48 - 68
2.36mm (#8)	36	.....	.....	.....	.....	38 ± 6	33 - 53
1.18mm (#16)	27	.....	.....	.....	.....	25 ± 6	20 - 40
.600mm (#30)	19	.....	.....	.....	.....	18 ± 5	14 - 30
.300mm (#50)	12	.....	.....	.....	.....	13 ± 5	9 - 21
.150 mm (#100)	8	.....	.....	.....	.....	9 ± 3	6 - 16
.075 mm (#200)	4.6	.....	.....	.....	.....	4 ± 3	3 - 6
Bitumen Content, %	5.59	.....	.....	.....	.....	5.6 ± .45	5.5 - 7.5
Mixture Temp., F	315	.....	.....	.....	.....	300 ± 20	265 - 325

MARSHALL STRUCTURAL VALUES
ASTM D-1559

					Average	Specification Limits	
						Min	Max
Number of Blows:	75	.....	.....	.....	.....
Stability, lbs. :	1940	.....	.....	.....	1940	1800	-
Flow, 0.01 inches:	11.5	.....	.....	.....	11.5	8	16
Air Voids, %:	3.0%	.....	.....	.....	3.0%	2	5
VMA, %:	16.3%	.....	.....	.....	16.3%	15	-
Voids Filled, %:	81.3%	.....	.....	.....	81.3%	n/a	n/a
Bulk Gravity:	2.412	.....	.....	.....	2.412	-	-
Max Theo. Gravity:	2.488	.....	.....	.....	2.488	-	-
Bulk Unit Wt., lbs/c.f.	150.5	.....	.....	.....	150.5	-	-
Yield, lbs/s.y./in.	112.9	.....	.....	.....	112.9	-	-

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.

Dan Kosalski

 Dan Kosalski, Department Manager

[REDACTED]
Vanasse Hangen Brustlin, Inc.

Transportation
Land Development
Environmental Services



101 Walnut St., Watertown, MA. 02272
TEL 617-924-1770 FAX 617-924-2286
54 Tuttle Pl., Middletown, CT. 06457
TEL 860 632-1500 FAX 860 632-7879

Boston Area: TEL 617-825-7650

Transmittal

To: Mr. Chris Ambrose
30A Atlantic Avenue
Woburn, MA 01801

Date: November 21, 2000

Project No.: 45676-31003

From: Dan Kosalski *Dan*

Re: Regional Transportation
Center, Woburn, MA - MPA
Contract No. 1.727

Attached please find the hot mix asphalt reports for the hot mix asphalt surface material produced by Aggregate Industries on November 14th, 15th, 16th, and 17th, for the Regional Transportation Center in Woburn, MA. The test results from November 14th indicated that the extraction and gradation of the materials conformed to specification requirements. However the average Marshall structural property for stability did not conform to specification requirements. The test results from November 15th, 16th, and 17th indicated that the gradations and the average Marshall structural properties conformed to the submitted design criteria.

If you have any questions or need any additional information, please do not hesitate to call.

cc. Harry Ruffner, MassPort

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP	SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
SAMPLED BY: BILL SHEA	LOCATION: CHELMSFORD, MA
SAMPLE TAKEN FROM: TRUCK	WHERE SAMPLED: PLANT
USING AGENCY: MIDDLESEX	DATE SAMPLED: 11/14/00
PURPOSE: TOP	SAMPLE TYPE: RANDOM
DEPARTMENT: MASSPORT No. 1.727	TONNAGE: 966
WHERE USED: Woburn Regional Transportation Center	

SIEVE SIZE	PERCENT PASSING					Master Specification	
	Sample A & B	Sample C & D	Sample	Sample	JMF	Min	Max
50.0mm (2")							
38.1mm (1-1/2")							
25.0mm (1")							
19.5mm (3/4")	100	100			100 ± 7	100	
12.5mm (1/2")	99	98			93 ± 7	79 - 99	
9.5mm (3/8")	83	83			77 ± 7	68 - 88	
4.75mm (#4)	59	60			55 ± 7	48 - 68	
2.36mm (#8)	41	43			38 ± 6	33 - 53	
1.18mm (#16)	26	28			25 ± 6	20 - 40	
.600mm (#30)	19	20			18 ± 5	14 - 30	
.300mm (#50)	13	14			13 ± 5	9 - 21	
.150mm (#100)	8	9			9 ± 3	6 - 16	
.075mm (#200)	4.9	5.1			4 ± 3	3 - 6	
Bitumen Content, %	5.78	5.65			5.6 ± .45	5.5 - 7.5	
Mixture Temp., F	315	315			300 ± 20	265 - 325	

MARSHALL STRUCTURAL VALUES
ASTM D-1559

						Specification Limits	
	Average					Min	Max
Number of Blows:	75	75					
Stability, lbs. :	1810	1784	(a)		1797	1800	-
Flow, 0.01 inches:	12.0	10.5			11.3	8	16
Air Voids, %:	2.3%	2.7%			2.5%	2	5
VMA, %:	16.0%	16.0%			16.0%	15	-
Voids Filled, %:	85.4%	83.1%			84.3%	n/a	n/a
Bulk Gravity:	2.413	2.401			2.407	-	-
Max Theo. Gravity:	2.471	2.468			2.469	-	-
Bulk Unit Wt., lbs/c.f.	150.6	149.8			150.2	-	-
Yield, lbs/s.y/in.	112.9	112.4			112.7	-	-

REMARKS: (a) low off specification requirements; the average Marshall structural property for stability indicates that this material does not conform to specification requirements.

Dan Kosalski

Dan Kosalski, Department Manager

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP
 SAMPLED BY: BILL SHEA
 SAMPLE TAKEN FROM: TRUCK
 USING AGENCY: MIDDLESEX
 PURPOSE: TOP
 DEPARTMENT: MASSPORT No. 1.727
 WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
 LOCATION: CHELMSFORD, MA
 WHERE SAMPLED: PLANT
 DATE SAMPLED: 11/15/00
 SAMPLE TYPE: RANDOM
 TONNAGE: 1066

SIEVE SIZE	PERCENT PASSING					Master Specification	
	Sample A & B	Sample C & D	Sample	Sample	JMF	Min	Max
50.0mm (2")	.....	.....	.....	.....	.....	100	
38.1mm (1-1/2")	.....	.....	.....	.....	.....	79 - 99	
25.0mm (1")	.....	.....	.....	.....	.....	68 - 88	
19.5mm (3/4")	100	100	.....	.....	100 ± 7		
12.5mm (1/2")	96	96	.....	.....	93 ± 7		
9.5mm (3/8")	78	79	.....	.....	77 ± 7		
4.75mm (#4)	49	50	.....	.....	55 ± 7		
2.36mm (#8)	32	33	.....	.....	38 ± 6		
1.18mm (#16)	24	25	.....	.....	25 ± 6		
.600mm (#30)	18	19	.....	.....	18 ± 5		
.300mm (#50)	12	13	.....	.....	13 ± 5		
.150mm (#100)	8	9	.....	.....	9 ± 3		
.075mm (#200)	5.0	5.4	.....	.....	4 ± 3		
Bitumen Content, %	5.46	5.58	.....	.....	5.6 ± .45		5.5 - 7.5
Mixture Temp., F	305	310	.....	.....	300 ± 20		265 - 325

MARSHALL STRUCTURAL VALUES
ASTM D-1559

						Average	Specification Limits	
	Sample A & B	Sample C & D	Sample	Sample	JMF	Min	Max	
Number of Blows:	75	75	.....	.....	.....	2010	1800	-
Stability, lbs. :	1898	2123	.....	.....	.....	10.0	8	16
Flow, 0.01 inches:	10.0	10.0	.....	.....	.....	2.7%	2	5
Air Voids, %:	2.9%	2.6%	.....	.....	.....	15.8%	15	-
VMA, %:	15.7%	15.8%	.....	.....	.....	82.7%	n/a	n/a
Voids Filled, %:	81.8%	83.5%	.....	.....	.....	2.406	-	-
Bulk Gravity:	2.404	2.408	.....	.....	.....	2.474	-	-
Max Theo. Gravity:	2.475	2.473	.....	.....	.....	150.2	-	-
Bulk Unit Wt., lbs/c.f.	150.0	150.3	.....	.....	.....	112.6	-	-
Yield, lbs/s.y/in.	112.5	112.7	.....	.....	.....		-	-

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.

Dan Kosalski

Dan Kosalski, Department Manager

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP	SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
SAMPLED BY: BILL SHEA	LOCATION: CHELMSFORD, MA
SAMPLE TAKEN FROM: TRUCK	WHERE SAMPLED: PLANT
USING AGENCY: MIDDLESEX	DATE SAMPLED: 11/16/00
PURPOSE: TOP	SAMPLE TYPE: RANDOM
DEPARTMENT: MASSPORT No. 1.727	TONNAGE: 900
WHERE USED: Woburn Regional Transportation Center	

SIEVE SIZE	PERCENT PASSING					Master Specification	
	Sample A & B	Sample C & D	Sample	Sample	JMF	Min	Max
50.0mm (2")							
38.1mm (1-1/2")							
25.0mm (1")							
19.5mm (3/4")	100	100			100 ± 7	100	
12.5mm (1/2")	96	96			93 ± 7	79 - 99	
9.5mm (3/8")	75	76			77 ± 7	68 - 88	
4.75mm (#4)	50	52			55 ± 7	48 - 68	
2.36mm (#8)	37	35			38 ± 6	33 - 53	
1.18mm (#16)	25	24			25 ± 6	20 - 40	
.600mm (#30)	18	19			18 ± 5	14 - 30	
.300mm (#50)	12	13			13 ± 5	9 - 21	
.150mm (#100)	7	8			9 ± 3	6 - 16	
.075mm (#200)	4.1	4.5			4 ± 3	3 - 6	
Bitumen Content, %	5.41	5.43			5.6 ± .45	5.5 - 7.5	
Mixture Temp., F	315	305			300 ± 20	265 - 325	

MARSHALL STRUCTURAL VALUES
ASTM D-1559

						Average	Specification Limits	
	Sample A & B	Sample C & D	Sample	Sample	JMF	Min	Max	
Number of Blows:	75	75						
Stability, lbs. :	2024	2150			2087	1800	-	
Flow, 0.01 inches:	11.0	11.5			11.3	8	16	
Air Voids, %:	2.2%	2.1%			2.2%	2	5	
VMA, %:	15.0%	14.9% (a)			15.0%	15	-	
Voids Filled, %:	85.2%	86.1%			85.6%	n/a	n/a	
Bulk Gravity:	2.415	2.416			2.416	-	-	
Max Theo. Gravity:	2.470	2.467			2.469	-	-	
Bulk Unit Wt., lbs/c.f.	150.7	150.8			150.7	-	-	
Yield, lbs/s.y./in.	113.0	113.1			113.0	-	-	

REMARKS: (a) low off specification requirements; the average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.

Dan Kosalski
 Dan Kosalski, Department Manager

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP	SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
SAMPLED BY: BILL SHEA	LOCATION: CHELMSFORD, MA
SAMPLE TAKEN FROM: TRUCK	WHERE SAMPLED: PLANT
USING AGENCY: MIDDLESEX	DATE SAMPLED: 11/17/00
PURPOSE: TOP	SAMPLE TYPE: RANDOM
DEPARTMENT: MASSPORT No. 1.727	TONNAGE: 650
WHERE USED: Woburn Regional Transportation Center	

SIEVE SIZE	PERCENT PASSING					Master Specification	
	Sample A & B	Sample	Sample	Sample	JMF	Min	Max
	50.0mm (2")	100
38.1mm (1-1/2")	.....	.....	.....	.....	.....	79 - 99	
25.0mm (1")	.....	.....	.....	.....	.....	68 - 88	
19.5mm (3/4")	100	.....	.....	.....	100 ± 7	79 - 99	
12.5mm (1/2")	97	.....	.....	.....	93 ± 7	68 - 88	
9.5mm (3/8")	75	.....	.....	.....	77 ± 7	48 - 68	
4.75mm (#4)	53	.....	.....	.....	55 ± 7	33 - 53	
2.36mm (#8)	36	.....	.....	.....	38 ± 6	20 - 40	
1.18mm (#16)	27	.....	.....	.....	25 ± 6	14 - 30	
.600mm (#30)	19	.....	.....	.....	18 ± 5	9 - 21	
.300mm (#50)	12	.....	.....	.....	13 ± 5	6 - 16	
.150mm (#100)	8	.....	.....	.....	9 ± 3	3 - 6	
.075mm (#200)	4.6	.....	.....	.....	4 ± 3		
Bitumen Content, %	5.59	.....	.....	.....	5.6 ± .45	5.5 - 7.5	
Mixture Temp., F	315	.....	.....	.....	300 ± 20	265 - 325	

MARSHALL STRUCTURAL VALUES
ASTM D-1559

	Average	Specification Limits	
		Min	Max
Number of Blows:	75		
Stability, lbs. :	1940	1800	-
Flow, 0.01 inches:	11.5	8	16
Air Voids, %:	3.0%	2	5
VMA, %:	16.3%	15	-
Voids Filled, %:	81.3%	n/a	n/a
Bulk Gravity:	2.412	-	-
Max Theo. Gravity:	2.488	-	-
Bulk Unit Wt., lbs/c.f.	150.5	-	-
Yield, lbs/s.y./in.	112.9	-	-

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.


 Dan Kosalski, Department Manager

[REDACTED]
Vanasse Hangen Brustlin, Inc.

Transportation
Land Development
Environmental Service

VHIB

101 Walnut St., Watertown, MA. 02272
TEL 617-924-1770 FAX 617-924-2286
54 Tuttle Pl., Middletown, CT. 06457
TEL 860 632-1500 FAX 860 632-7879

Boston Area: TEL 617-825-7650

Transmittal

To: Mr. Chris Ambrose
30A Atlantic Avenue
Woburn, MA 01801

Date: December 5, 2000

Project No.: 45676-31003

From: Dan Kosalski *Dan*

Re: Regional Transportation
Center, Woburn, MA - MPA
Contract No. 1.727

Attached please find the hot mix asphalt report for the hot mix asphalt surface material produced by Aggregate Industries on November 27th, for the Regional Transportation Center in Woburn, MA. The test results indicated that the extraction/gradation and average Marshall structural properties of the material conformed to the submitted design criteria.

If you have any questions or need any additional information, please do not hesitate to call.

✓ cc. Harry Ruffner, MassPort

**** REPORT OF TEST ****
BITUMINOUS CONCRETE

TYPE OF MATERIAL: TOP
 SAMPLED BY: BILL SHEA
 SAMPLE TAKEN FROM: TRUCK
 USING AGENCY: MIDDLESEX
 PURPOSE: TOP
 DEPARTMENT: MASSPORT No. 1.727
 WHERE USED: Woburn Regional Transportation Center

SOURCE OF SUPPLY: AGGREGATE INDUSTRIES
 LOCATION: CHELMSFORD, MA
 WHERE SAMPLED: PLANT
 DATE SAMPLED: 11/27/00
 SAMPLE TYPE: RANDOM
 TONNAGE: 600

SIEVE SIZE	PERCENT PASSING					Master Specification	
	Sample A & B	Sample C & D	Sample	Sample	JMF	Min	Max
	50.0mm (2")						
38.1mm (1-1/2")							
25.0mm (1")							
19.5mm (3/4")	100	100			100 ± 7	100	
12.5mm (1/2")	94	94			93 ± 7	79 - 99	
9.5mm (3/8")	73	73			77 ± 7	68 - 88	
4.75mm (#4)	54	54			55 ± 7	48 - 68	
2.36mm (#8)	34	35			38 ± 6	33 - 53	
1.18mm (#16)	25	26			25 ± 6	20 - 40	
.600mm (#30)	18	17			18 ± 5	14 - 30	
.300mm (#50)	11	11			13 ± 5	9 - 21	
.150mm (#100)	7	7			9 ± 3	6 - 16	
.075mm (#200)	4.1	3.9			4 ± 3	3 - 6	
Bitumen Content, %	5.6	5.6			5.6 ± .45	5.5 - 7.5	
Mixture Temp., F	310	305			300 ± 20	265 - 325	

MARSHALL STRUCTURAL VALUES
ASTM D-1559

						Average	Specification Limits	
	Sample A & B	Sample C & D	Sample	Sample	JMF	Min	Max	
Number of Blows:	75	75						
Stability, lbs. :	2190	2108			2149	1800	-	
Flow, 0.01 inches:	11.0	11.0			11.0	8	16	
Air Voids, %:	2.9%	3.0%			3.0%	2	5	
VMA, %:	16.1%	16.3%			16.2%	15	-	
Voids Filled, %:	82.1%	81.4%			81.8%	n/a	n/a	
Bulk Gravity:	2.405	2.407			2.406	-	-	
Max Theo. Gravity:	2.477	2.482			2.479	-	-	
Bulk Unit Wt., lbs/c.f.	150.1	150.2			150.1	-	-	
Yield, lbs/s.y./in.	112.6	112.6			112.6	-	-	

REMARKS: The average Marshall structural properties indicate that this material conforms to specification requirements, if compacted properly this material should perform satisfactorily.

Dan Kosalski

Dan Kosalski, Department Manager

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 U U T S S S OF MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 11-27-00 23
 The Middlesex Corporation Job. No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

Weather: Cloudy/windy, 40's

summary: The writer arrived at the project site at 7:00 AM and met with Chris Ambrose from Massport. The purpose of this visit was to perform an asphalt inspection. The following was observed:

A power sweeper was used over the base layer prior to paving with a FAA top mix. Prior to placing top mix a measured amount of emulsion was spread on base. Top coat was placed in a 1 1/2" thick layer. Temperatures were taken and ranged from 350 to 365 degrees Fahrenheit upon arrival and 315-335 degrees Fahrenheit at placement. A 10 ton, 5 ton and 1 ton and plate compactor were used to compact the mix in place. Catch basin inlets were covered with steel plates prior to placement. A total of 567.36 tons were placed.

These observations were related to Mr. Ambrose prior to departure.

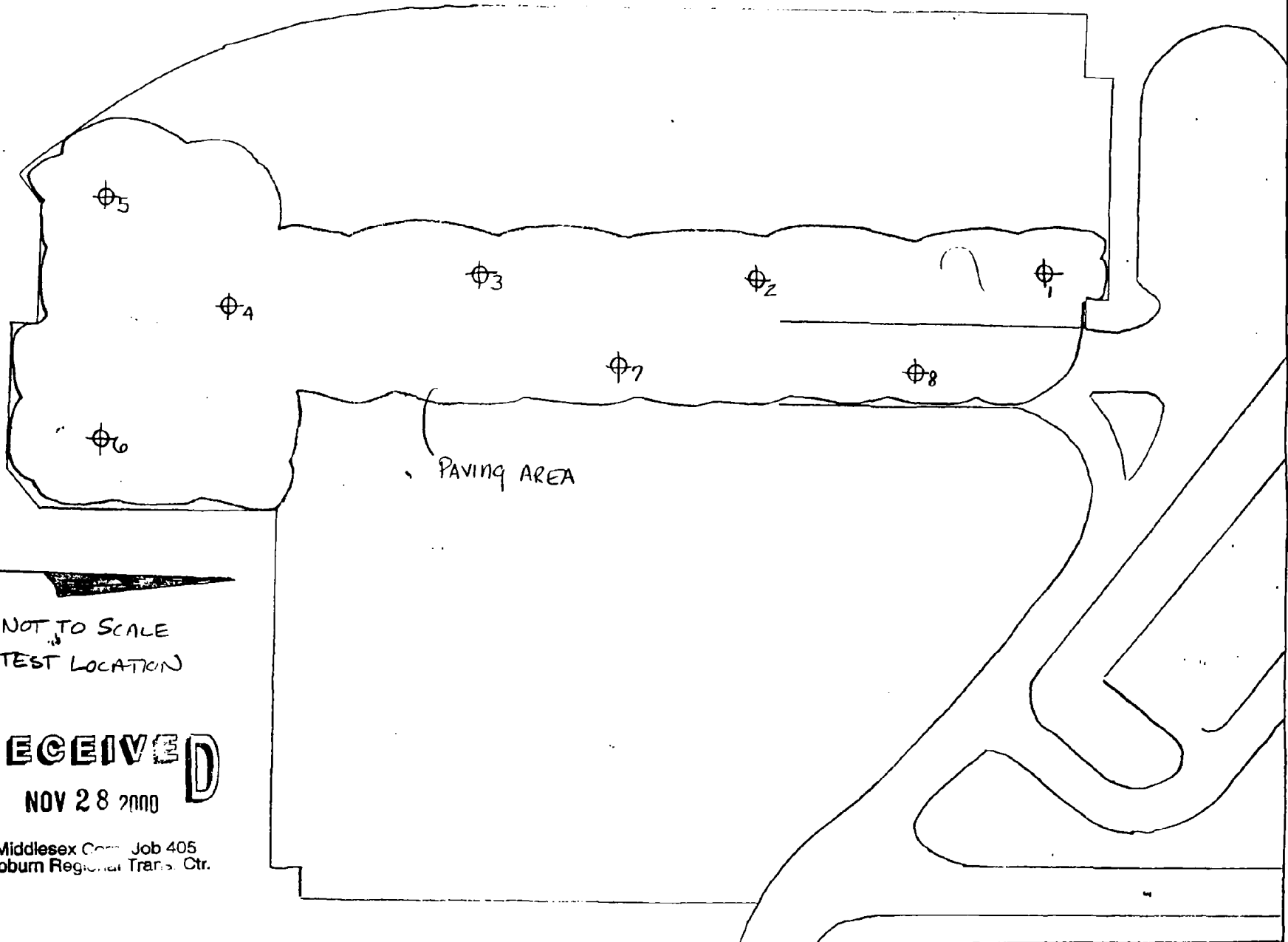
RECEIVED
 DEC 11 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

INSPECTOR: P. Leavitt Max day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

WPC



* NOT TO SCALE
⊕ TEST LOCATION

RECEIVED
NOV 28 2000

Middlesex Comm Job 405
Woburn Regional Trans. Ctr.

5 Richardson Lane
Stoneham, Ma 02180
"The Construction Testing People"

JOB NAME: R.T.C.
PROJECT NO: 6100

FIELD
SKETCH

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 11-16-00 22
 Massport Job. No. UTS 6100
 Attn: Chris Ambrose Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

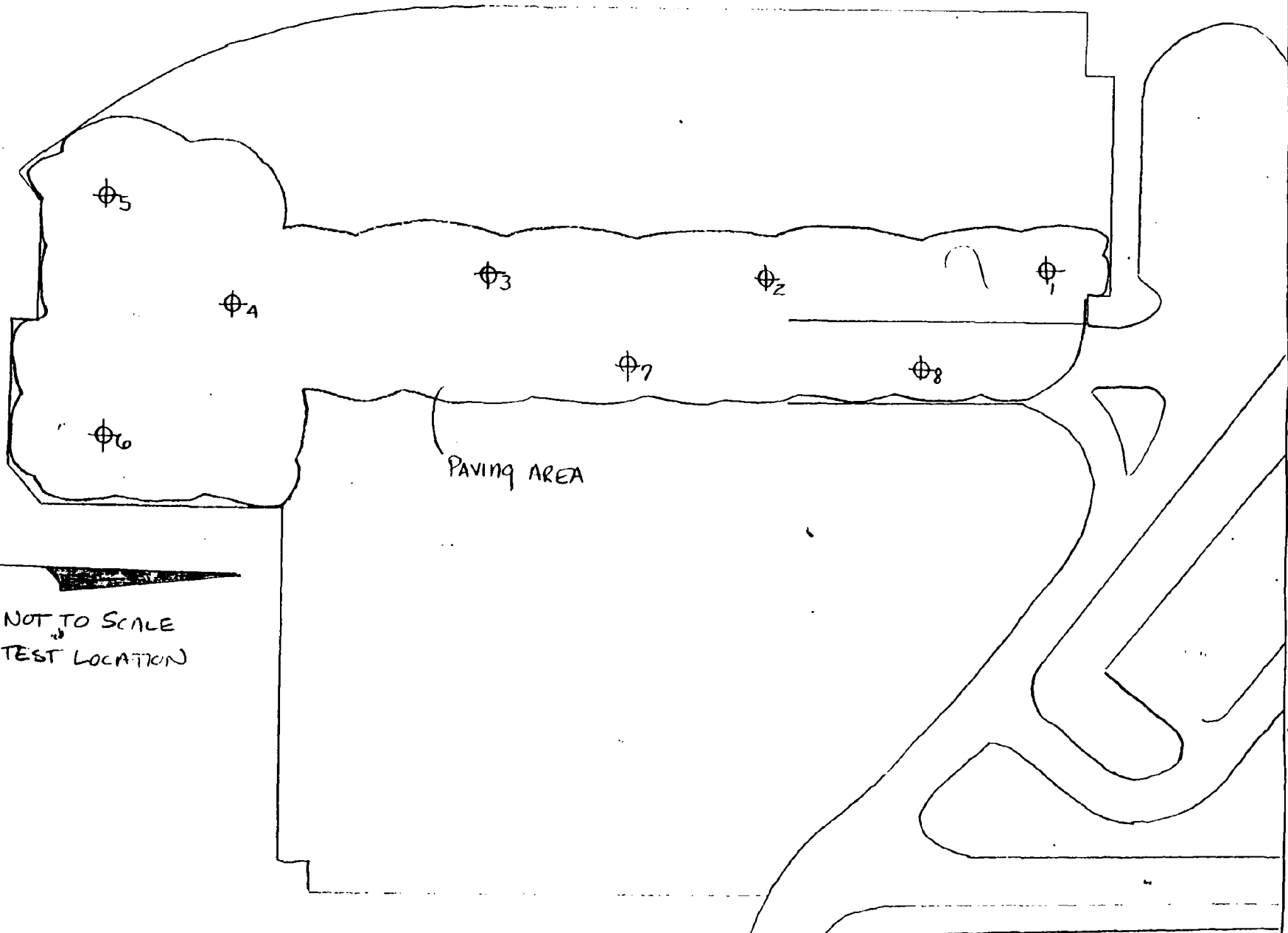
Weather: Clear, 45 degrees

Summary: The writer arrived at the project site at 6:00 AM and met with Chris Ambrose from Massport. The purpose of this visit was to perform an asphalt inspection. The site contractor continued bitumis our asphalt top coat placement in the southern parking area on this date, see sketch Asphalt was placed in an 1 1/2 inch layer and compacted using two 10,000 lb. vibratory drum rollers making at least 15 passes over the area. Several thickness and temperature measurements were performed throughout the paving process. Temperatures ranged from 270 to 300 degrees Fahrenheit at the time of placement. Eight field density tests were performed according to ASTM D1559 using the Troxler density gauge. Test results exceeded 95% of the Marshall density according to specifications. These observations were related to Mr. Ambrose prior to departure.

TEST #	LOCATION	MARSHALL DENSITY	FIELD WET DENSITY	% COMPACTION
1	Southern pkg, see sketch	150.0 PCF	143.0	95.3
2	"	"	145.3	96.8
3	"	"	148.0	98.6
4	"	"	143.9	95.9
5	"	"	144.2	96.1
6	"	"	142.8	95.2
7	"	"	146.1	97.4
8	"	"	145.0	96.6

INSPECTOR: S. Shanaver Max day U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

WPC



* NOT TO SCALE
 ⊕ TEST LOCATION

5 Richardson Lane
 Stoneham, Ma 02180

Construction Testing People

JOB NAME: R.T.C.

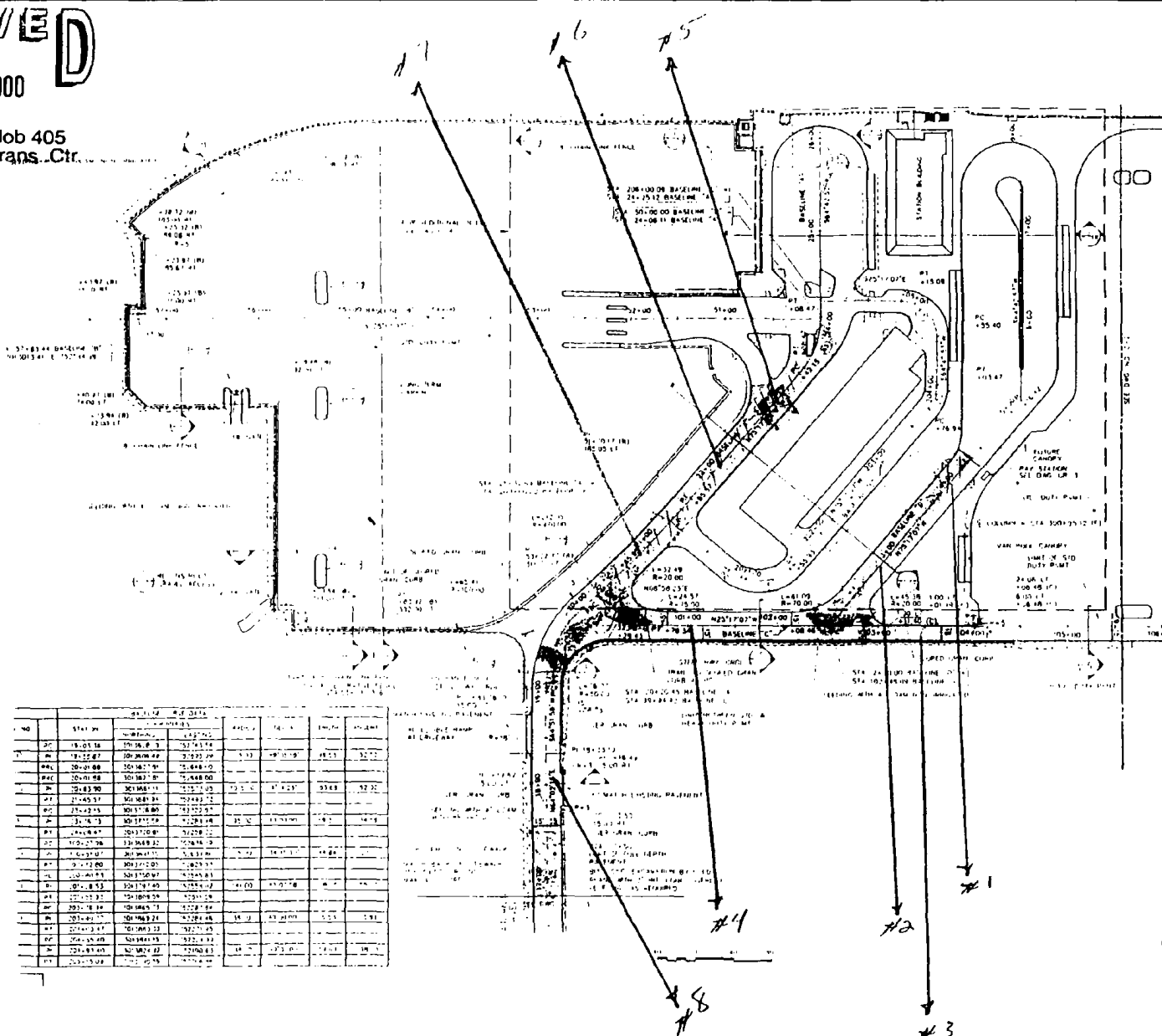
PROJECT

6100

FIELD
 SKETCH

RECEIVED
 NOV 28 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

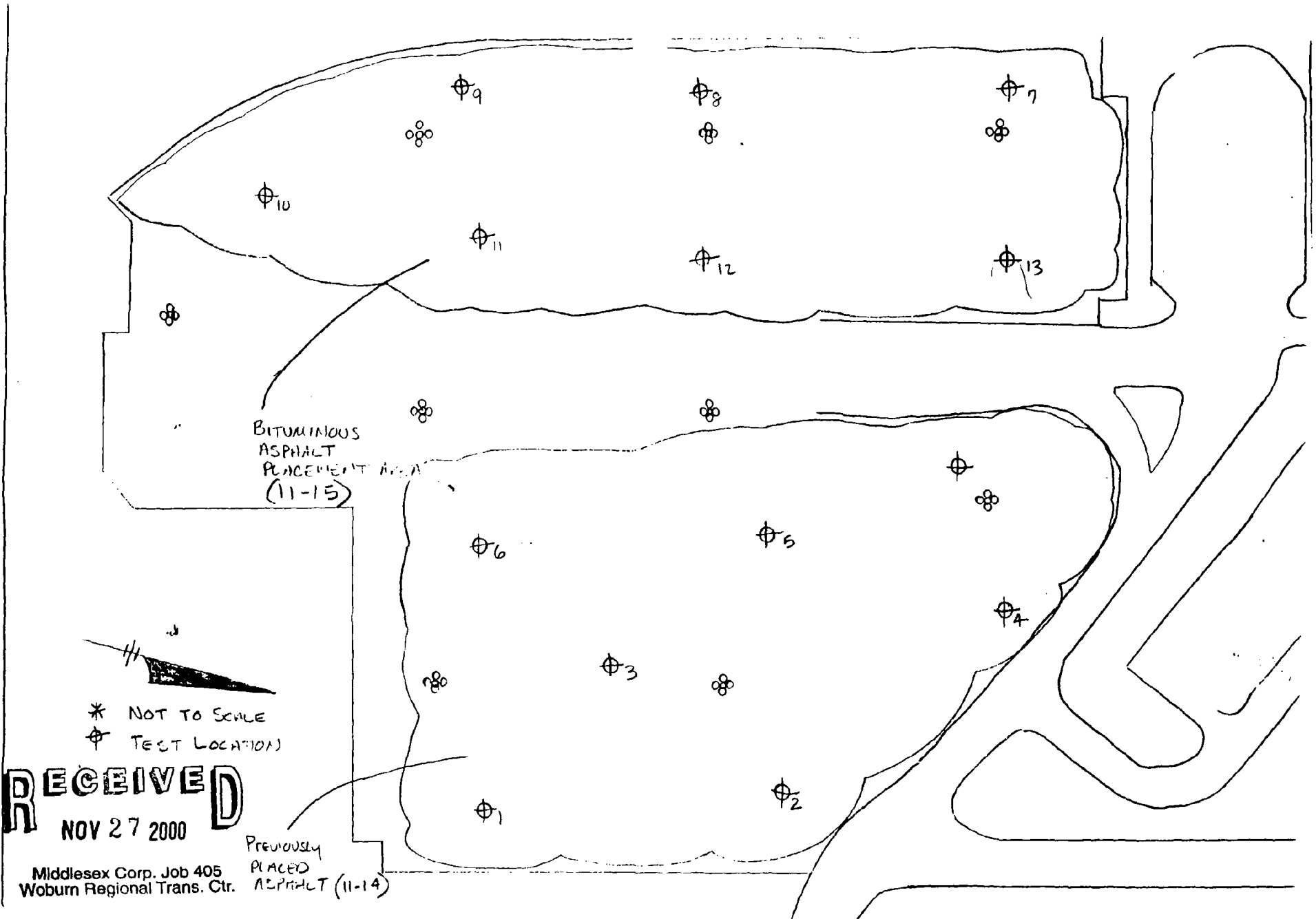


11-17-2000

Richardson Lane
 Woburn, Ma 02180

JOB NAME: MASS PORT AUTHORITY

FIELD SKETCH



RECEIVED
 NOV 27 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

PREVIOUSLY
 PLACED
 ASPHALT (11-14)

5 Richardson Lane
 Stoneham, Ma 02180
 Construction Testing People™

JOB NAME: R.T.C.
 PROJECT NO: 6100

FIELD
 SKETCH

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 11-15-00 19
 Massport Job. No. UTS 6100
 Attn: Chris Ambrose Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

Weather: Clear, 45 degrees

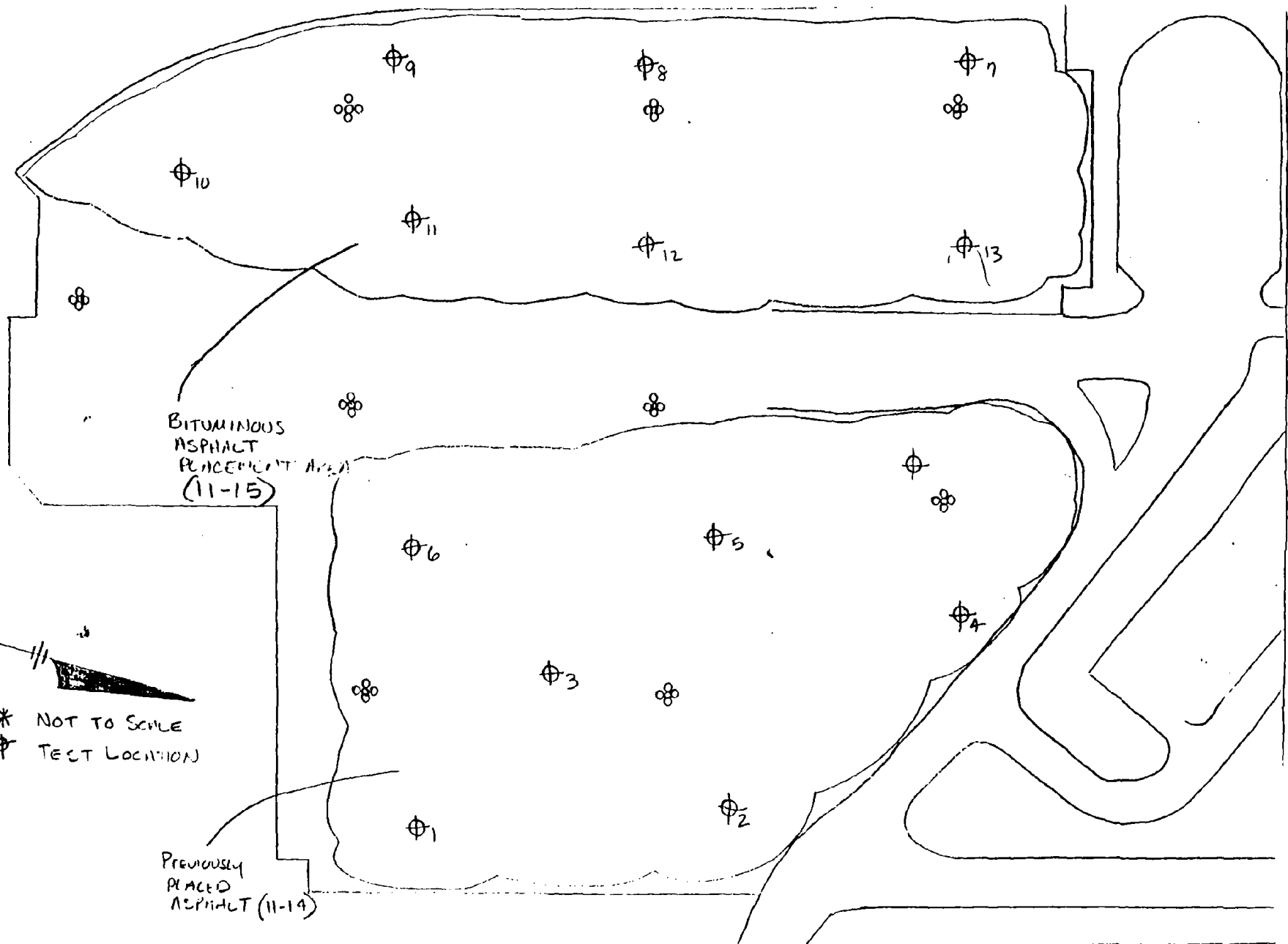
Summary: The writer arrived at the project site at 6:00 AM and met with
 Chris Ambrose from Massport. The purpose of this visit was to perform
 an asphalt inspection. The site contractor continued placement of bit-
 uminous asphalt top coat in the southwestern parking lot area on this
 date, see sketch. The bituminous asphalt was placed in a 1 1/2 inch
 layer. Temperature readings taken randomly resulted in temperatures
 between 265 to 295 degrees Fahrenheit. Asphalt compaction was performed
 using two double drum rollers making at least 15 passes over the area.
 Thirteen field density tests were performed on the asphalt placed today
 as well as the asphalt placed on 11/14. Testing was in accordance with
 ASTM D2922 using the Troxler density gauge. Test results exceeded 95%
 of the Marshall density & were related to Mr. Ambrose prior to departure

TEST #	LOCATION	MARSHALL DENSITY	FIELD WET DENSITY	% COMPACTION
1	Southern parking area	150.0 PCF	145.6	97.0
2	"	"	143.0	95.3
3	"	"	142.7	95.1
4	"	"	146.5	97.6
5	"	"	147.1	98.0
6	"	"	146.0	97.3
7	"	"	142.9	95.2
8	"	"	144.9	96.6
9	"	"	147.5	98.3
10	"	"	142.8	95.2
11	"	"	144.7	96.4
12	"	"	143.5	95.6
13	"	"	143.9	95.9

INSPECTOR: S. Shanaver Max day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

WPC



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

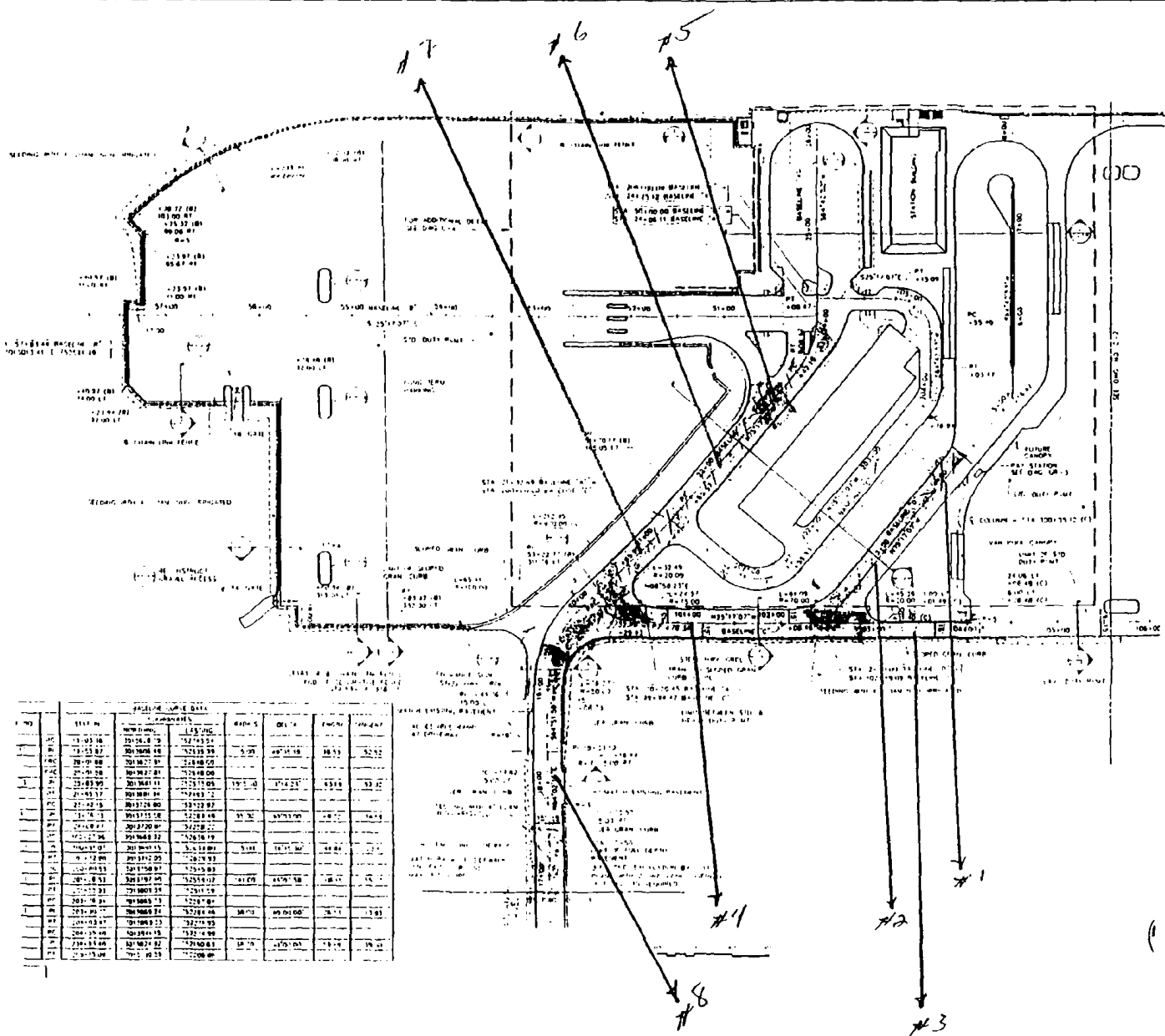
JOB NAME: R.T.C.

PROJECT NO:

6100

FIELD

SKETCH



NO	DATE	DESCRIPTION	AMOUNT	CHECK NO.	BANK	BALANCE
1	11-03-86	...	...	...	...	...
2	11-03-87	...	...	...	...	...
3	11-04-88	...	...	...	...	...
4	11-05-88	...	...	...	...	...
5	11-06-88	...	...	...	...	...
6	11-07-88	...	...	...	...	...
7	11-08-88	...	...	...	...	...
8	11-09-88	...	...	...	...	...
9	11-10-88	...	...	...	...	...
10	11-11-88	...	...	...	...	...
11	11-12-88	...	...	...	...	...
12	11-13-88	...	...	...	...	...
13	11-14-88	...	...	...	...	...
14	11-15-88	...	...	...	...	...
15	11-16-88	...	...	...	...	...
16	11-17-88	...	...	...	...	...
17	11-18-88	...	...	...	...	...
18	11-19-88	...	...	...	...	...
19	11-20-88	...	...	...	...	...
20	11-21-88	...	...	...	...	...
21	11-22-88	...	...	...	...	...
22	11-23-88	...	...	...	...	...
23	11-24-88	...	...	...	...	...
24	11-25-88	...	...	...	...	...
25	11-26-88	...	...	...	...	...
26	11-27-88	...	...	...	...	...
27	11-28-88	...	...	...	...	...
28	11-29-88	...	...	...	...	...
29	11-30-88	...	...	...	...	...
30	11-31-88	...	...	...	...	...

11-17-2007

Richardson Lane
 Framingham, Ma 02180

JOB NAME: MASS PORT AUTHORITY
 (6.1.10)

FIELD
 SKETCH

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 11-12-00 16
 The Middlesex Corporation Job. No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

Weather: Partly cloudy, 48 degrees

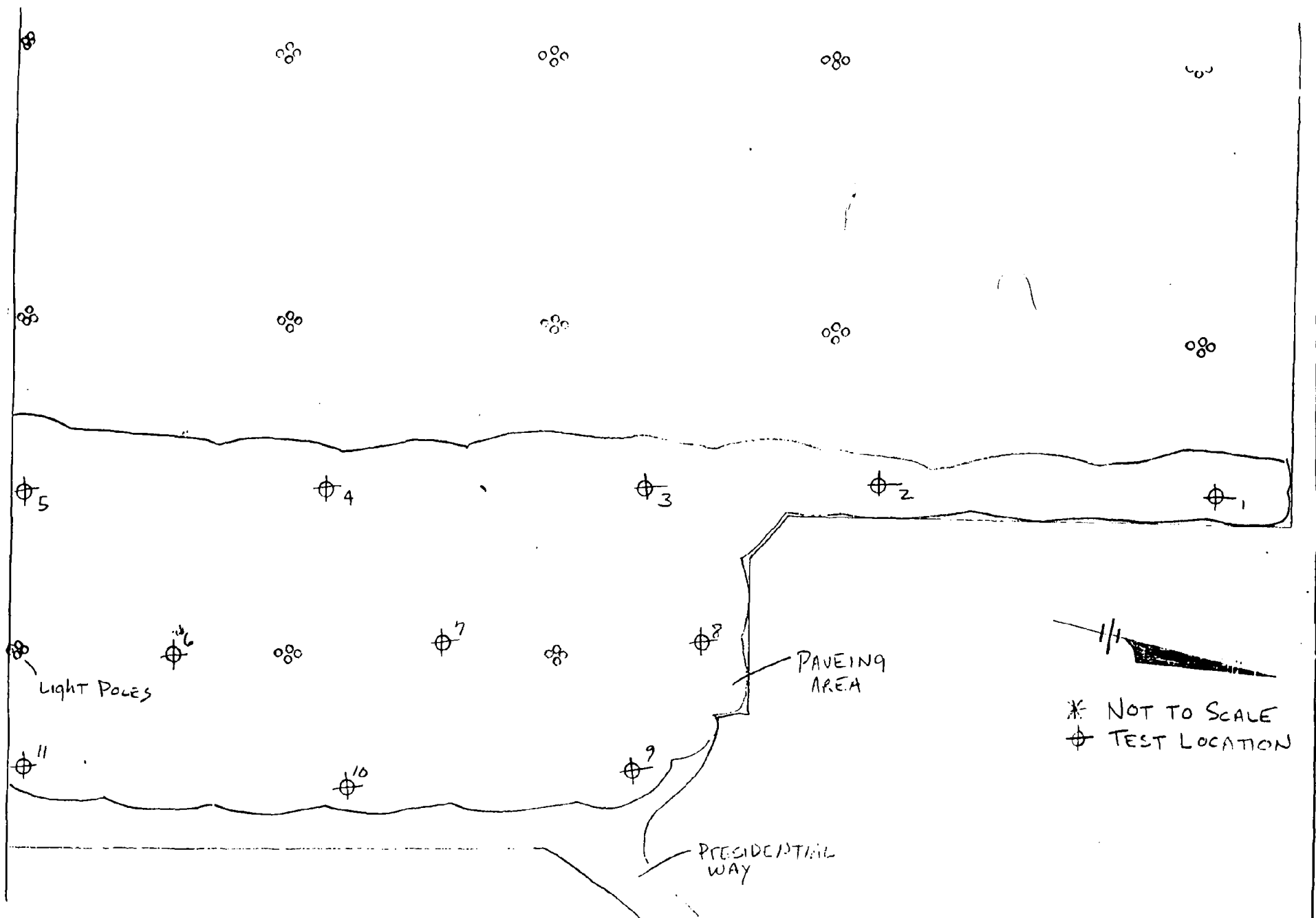
Summary: The writer arrived at the project site at 6:30 AM and met with Chris Ambrose from Massport. The purpose of this visit was to perform an asphalt inspection. The following was observed:

The paving contractor continued placement of the bituminous asphalt top course in the northern parking lot area on this date, see sketch. The bituminous asphalt material was placed in a 1 1/2 inch layer and compacted using 3 double drum rollers making at least 15 passes over the area. Temperature and thickness measurements were performed randomly throughout the paving process. Asphalt temperatures ranged from 275-315 degrees Fahrenheit. A total of eleven field density tests were performed according to ASTM D2922 using the Troxler density gauge. All test results exceeded 95% of the Marshall density according to specifications. These observations were related to Mr. Ambrose prior to departure.

TEST #	LOCATION	MARSHALL DENSITY	FIELD WET DENSITY	% COMPACTION
1	Northern parking area	149.0 PCF	144.1	96.7
2	"	"	144.2	96.7
3	"	"	145.2	97.4
4	"	"	146.6	98.3
5	"	"	142.1	95.3
6	"	"	143.5	96.3
7	"	"	142.8	95.8
8	"	"	144.3	96.8
9	"	"	145.0	97.3
10	"	"	142.7	95.7
11	"	"	144.5	96.3

INSPECTOR: S. Shanaver Max day U T S OF MASSACHUSETTS, INC.
 (Sunday) Reviewed
 By: William P. Crabtree

WPC



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: R.T.C.

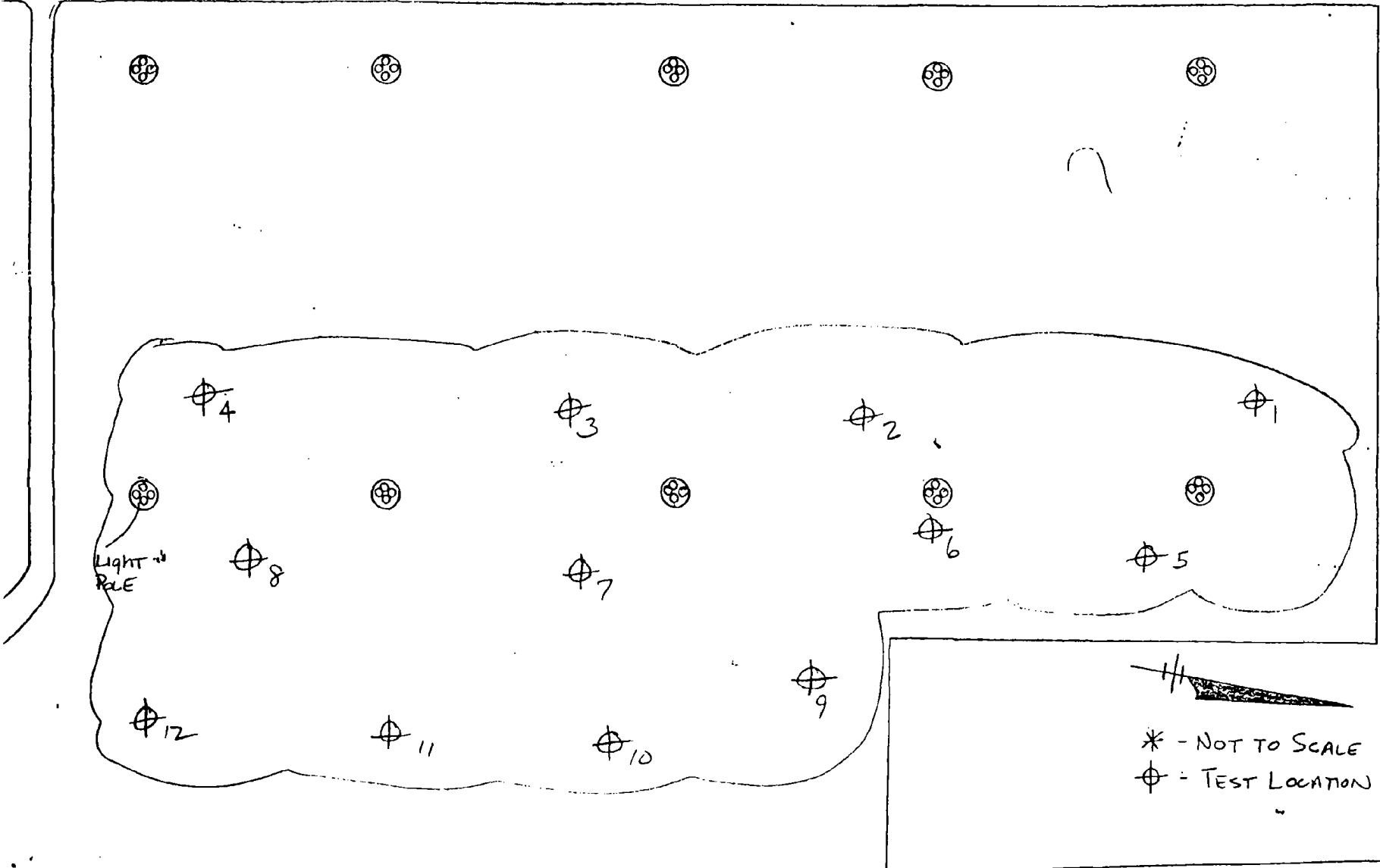
PROJECT NO: 6100

FIELD
SKETCH

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RR

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LIGHT POLE

* - NOT TO SCALE
⊕ - TEST LOCATION

Richardson Lane
Needham, Ma 02180
Construction Testing People

JOB NAME: R+D FACILITY
PROJECT NO: 6100

FIELD SKETCH

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 11-09-00 14
 The Middlesex Corporation Job. No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

Continued from previous page

TEST #	LOCATION	MAXIMUM WET DENSITY	FIELD WET DENSITY	% COMPACTION
6	See sketch	150.0 PCF	146.0	97.3
7	"	"	146.1	97.4
8	"	"	143.0	95.3
9	"	"	144.2	96.1
10	"	"	143.9	95.9
11	"	"	145.6	97.0
12	"	"	142.8	95.2

RECEIVED
 NOV 17 2000
 Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr

INSPECTOR: S. Shanaver

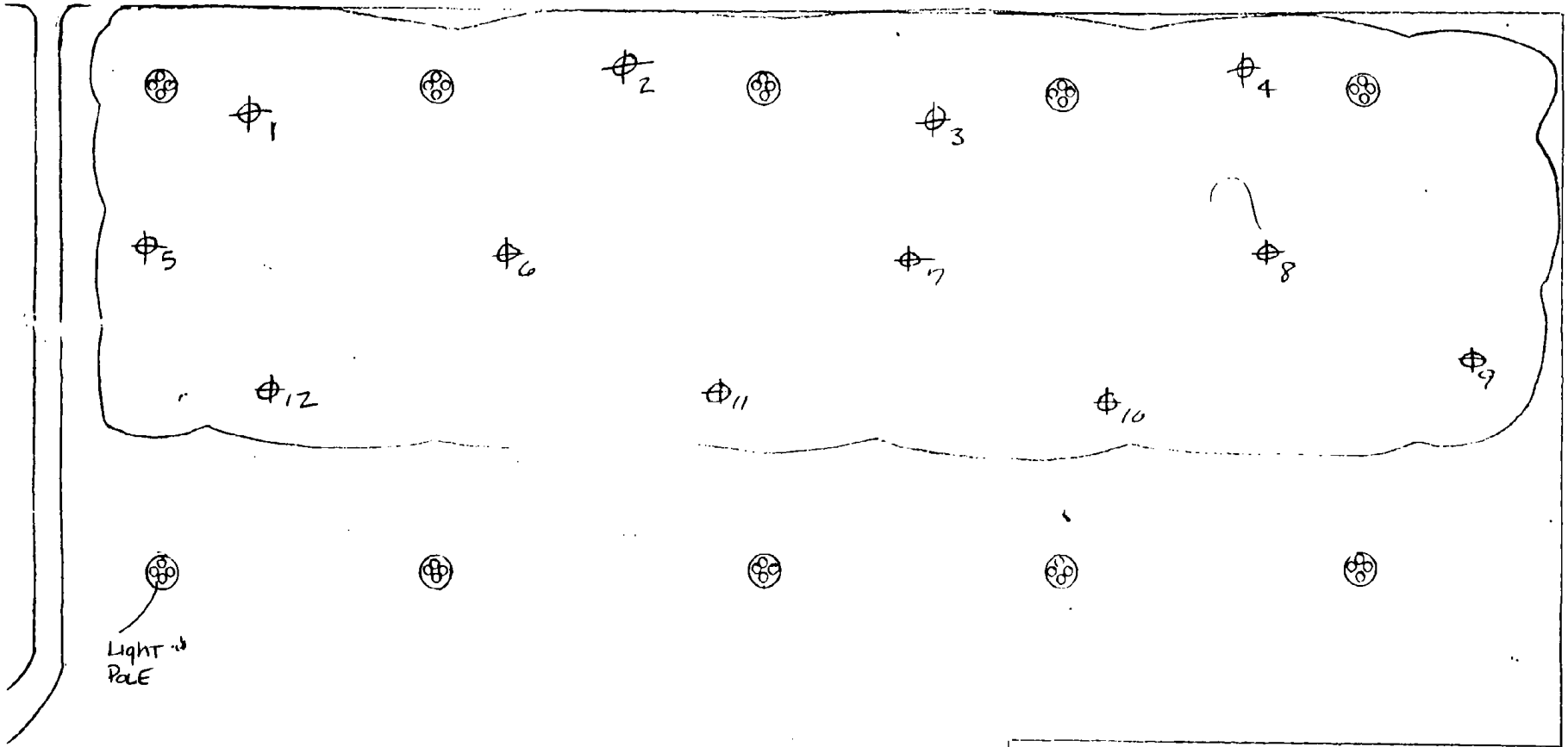
U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

WPC

RR

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Light Pole



* - NOT TO SCALE
 ⊕ - TEST LOCATION

Richardson Lane
 Framingham, Ma 02180
 Construction Testing People

JOB NAME: P.D. FACILITY
 PROJECT NO: 6100

FIELD
 SKETCH



U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 11-08-00 12
 The Middlesex Corporation Job. No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

Continued from previous page

TEST #	LOCATION	MAXIMUM WET DENSITY	FIELD WET DENSITY	% COMPACTION
4	See sketch	150 PCF	145.8	97.2
5	"	"	144.3	96.2
6	"	"	143.0	95.3
7	"	"	143.8	95.8
8	"	"	144.2	96.1
9	"	"	142.9	95.2
10	"	"	144.5	96.3
11	"	"	146.0	97.3
12	"	"	144.1	96.0

Elevation: top of asphalt top course

RECEIVED
 NOV 17 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr

INSPECTOR: S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

WPC

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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 10-17-00 10
 The Middlesex Corporation Job. No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

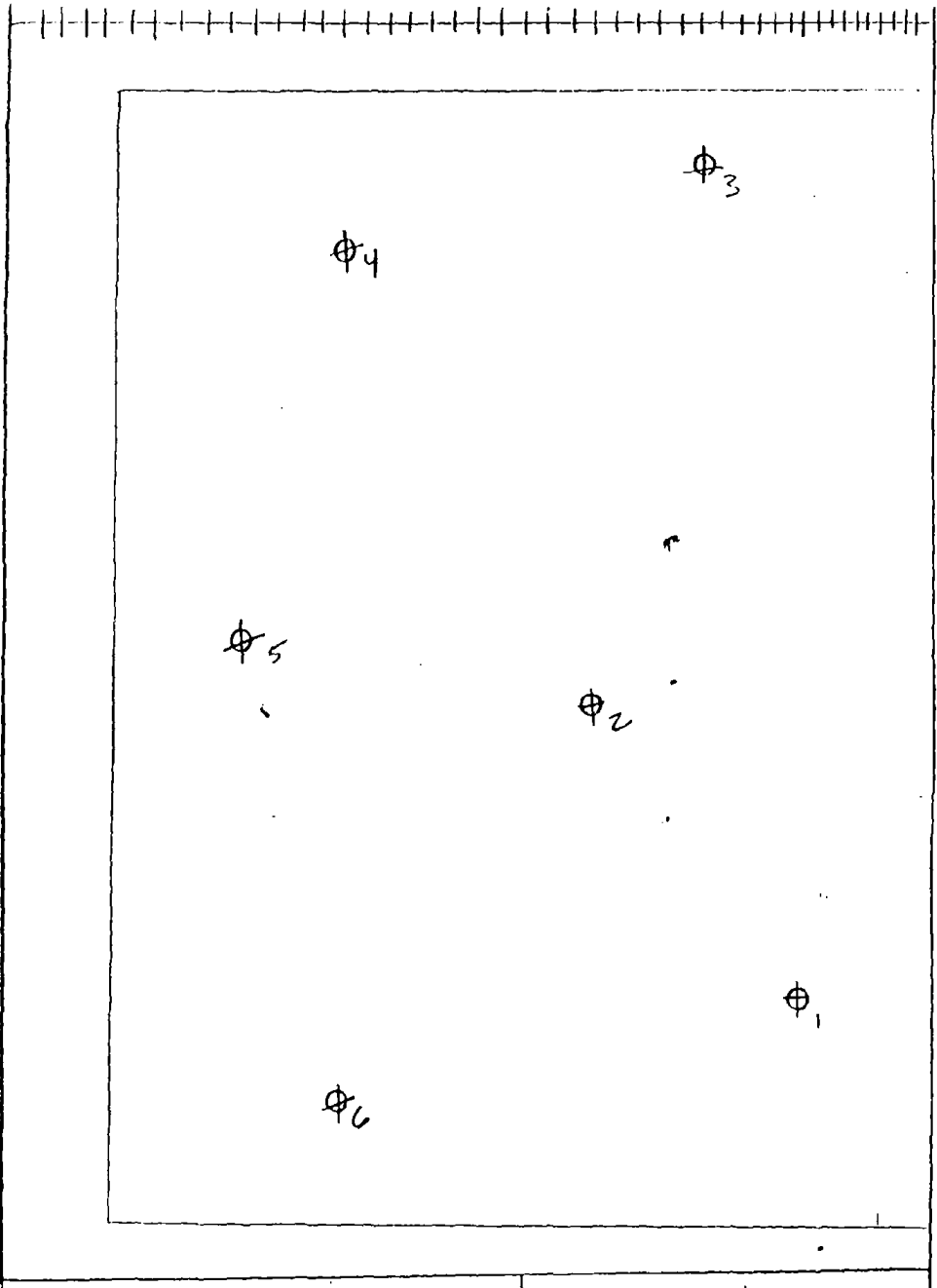
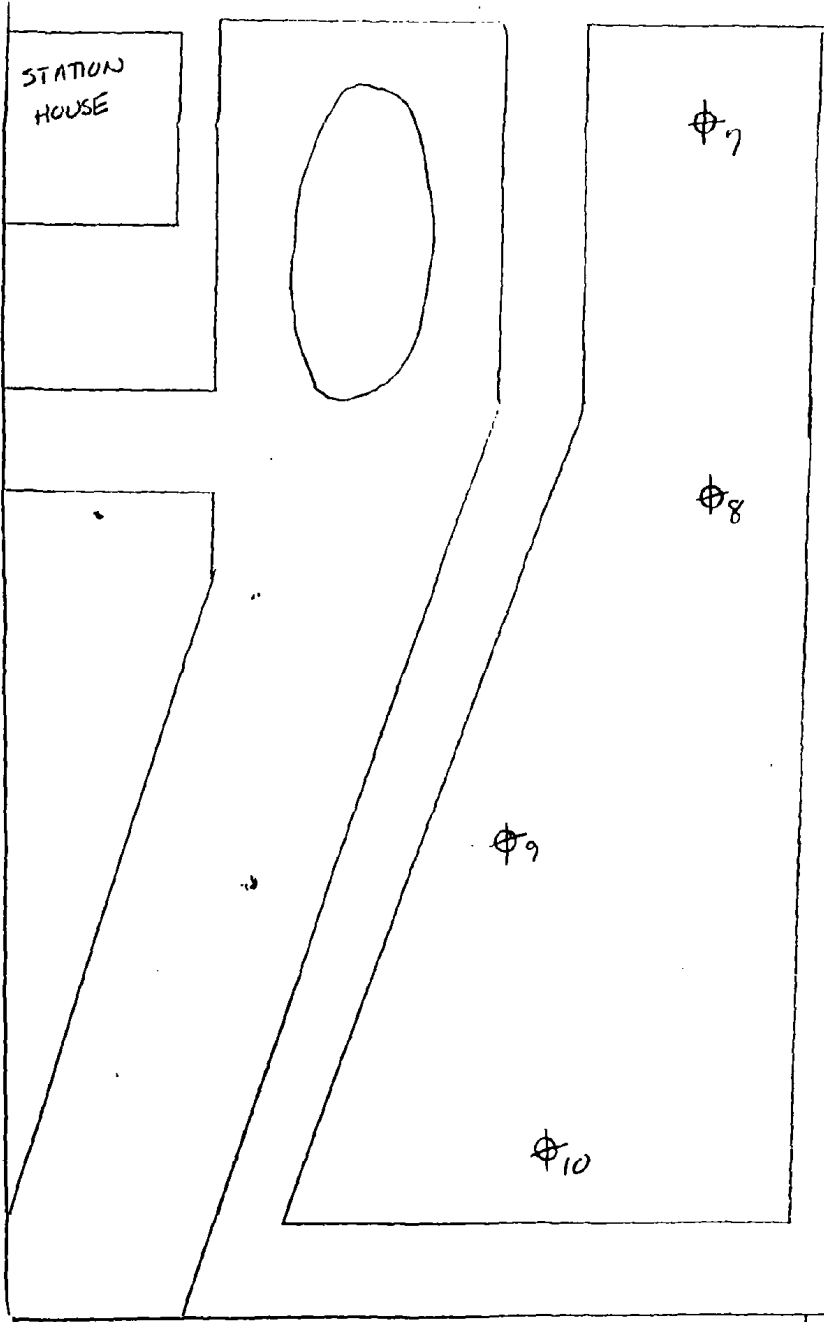
Weather: Overcast, 50 degrees

Summary: The writer arrived at the above site at 10:00 AM and met with
 Joe Finney from Middlesex Corp. The purpose of this visit was to per-
 form an asphalt inspection. The following was observed: the paving
 contractor placed bituminous asphalt base course in the following areas:
 northern end of parking area and parking area adjacent to (north of) bus
 turnaround on this date, see sketch. The asphalt base course was placed
 in a 2 1/2 inch layer and compacted using the two double drum rollers
 making at least 20 passes over the area. Random thickness and tempera-
 ture readings were performed throughout the asphalt placement. Tempera-
 ture readings ranged between 280 and 310 degrees Fahrenheit. A total of
 ten field density tests were performed using the Troxler density gauge
 in accordance with ASTM D2922. Test results exceeded 95% of ASTM D1557
 modified. These observations were related to Mr. Finney prior to depart-
 ure.

Test #	Location	Maximum Wet Density	Field Wet Density	% Compaction
1	Northern parking area	150.0	142.9	95.2
2	"	"	144.3	96.2
3	"	"	145.7	97.1
4	"	"	146.4	97.6
5	"	"	144.0	96.0
6	"	"	143.2	95.4
7	Parking, north of station hse	"	142.8	95.2
8	"	"	146.6	97.7
9	"	"	144.0	96.0
10	"	"	143.0	95.3

INSPECTOR: S. Shanaver Min day

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



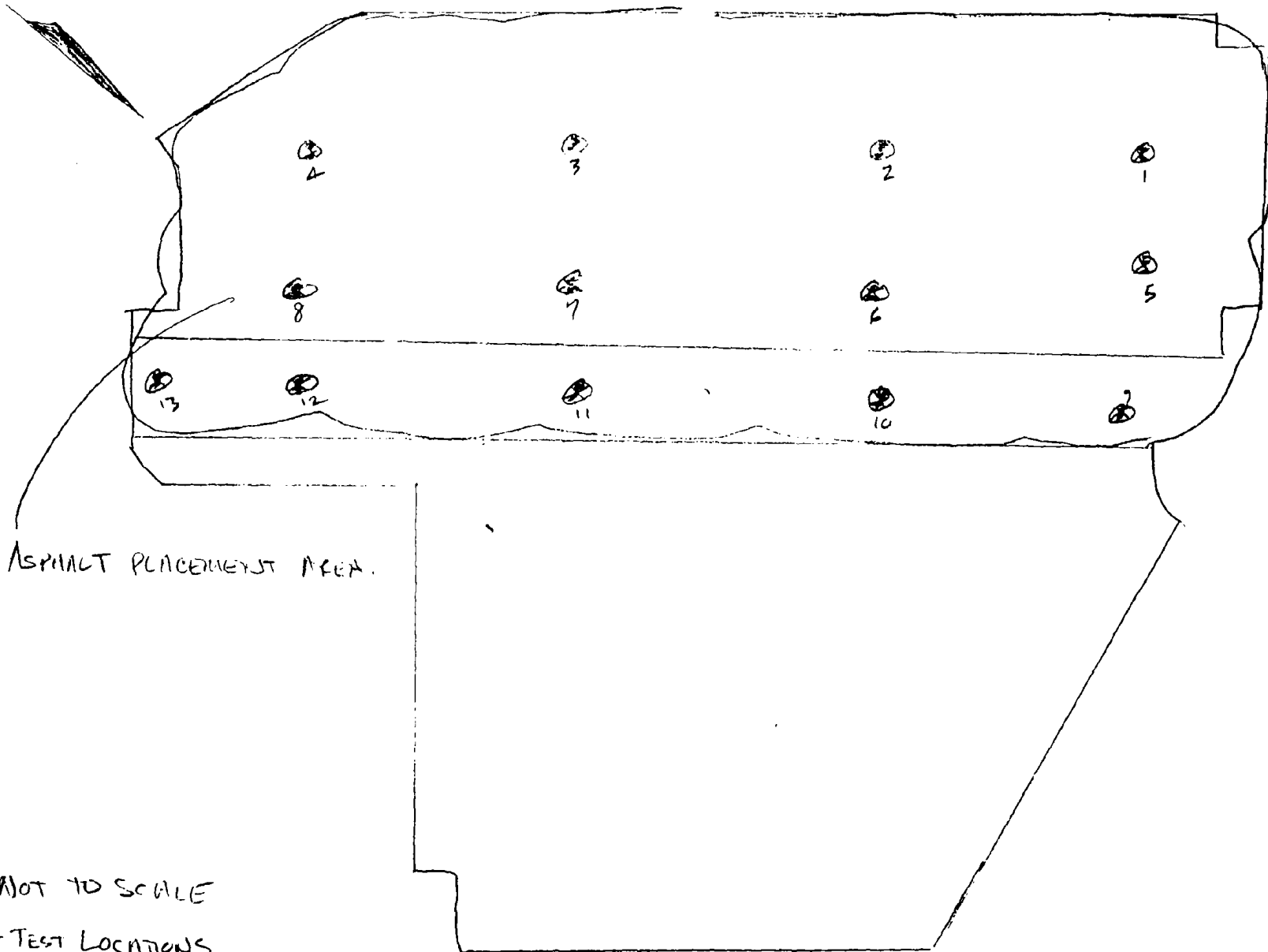
5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: WINDING OAKS WAY

PROJECT NO: 10100

FIELD SKETCH * - NOT TO SCALE



ASPHALT PLACEMENT AREA.

* NOT TO SCALE

⊙ - TEST LOCATIONS



5 Richardson Lane
Stoneham, Ma 02180

The Construction Testing People

JOB NAME: R.T.C.

PROJECT NO.: 0100

FIELD
SKETCH

U U TTTTTTTTTT S S S
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 U U T S S S OF MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 07-13-00 8
 The Middlesex Corporation Job. No. UTS 6100
 Attn: Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 011801

Weather: Clear, 82 degrees

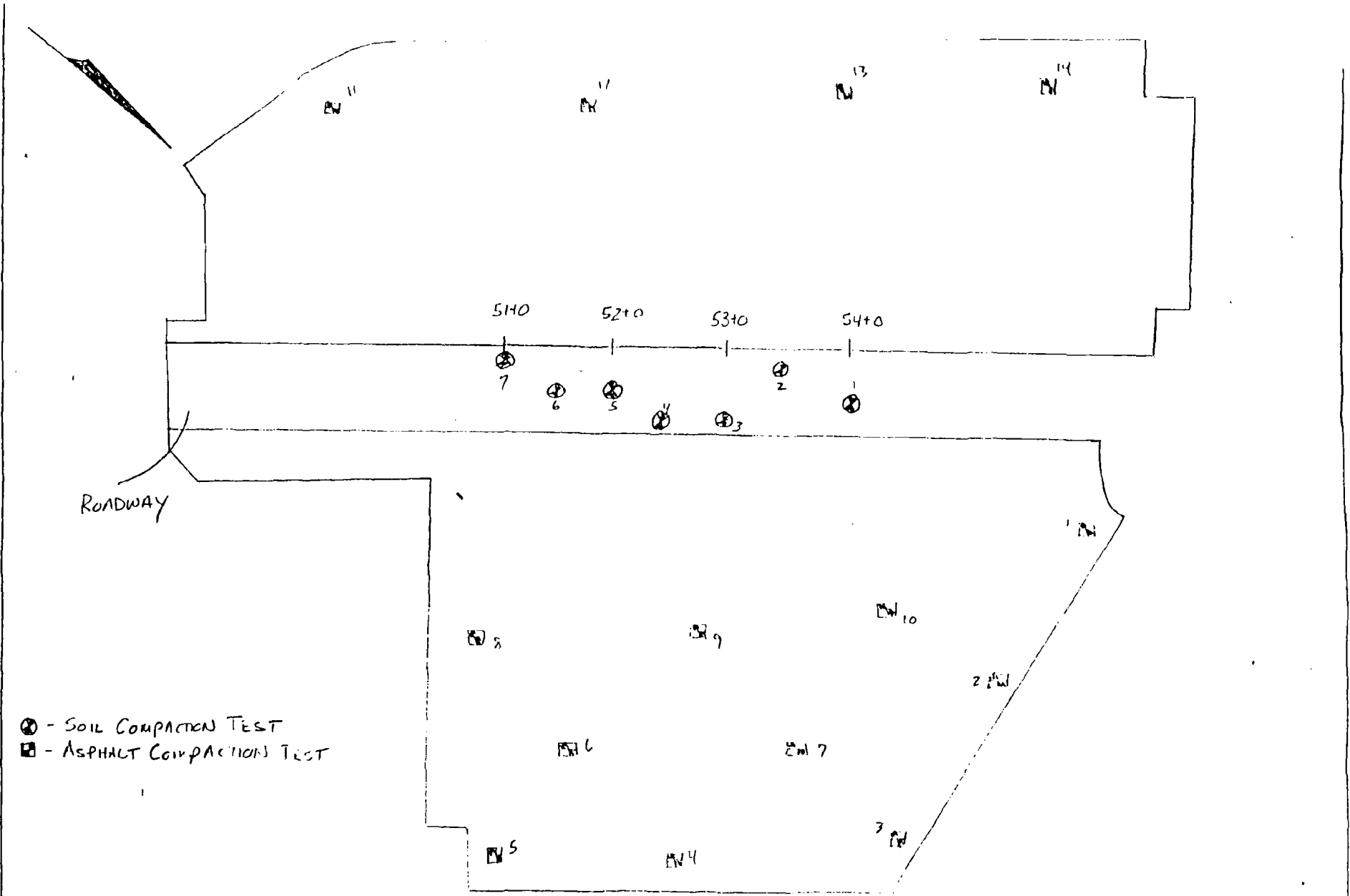
Summary: Bituminous asphalt base course was also placed on this date in
 the southeast and southwestern portions of the parking area, see sketch.
 Approximately 118,000 tons of asphalt were placed on this date. Random
 temperature measurements resulted in readings between 270 and 300
 degrees Fahrenheit. Asphalt was placed in uncompacted thickness of 3
 inches. Two double drum vibratory rollers were used for compaction.
 Density tests were performed using the Troxler density gauge. All tests
 resulted in compaction percentages above 95%.

TEST #	LOCATION	MARSHALL VALUE	WET DENSITY	% COMPACTION
1	See sketch	151.0 PCF	145.0	96.0
2	"	"	144.3	95.5
3	"	"	144.0	95.3
4	"	"	145.3	96.2
5	"	"	145.6	96.4
6	"	"	146.0	96.6
7	"	"	144.5	95.6
8	"	"	144.9	95.9
9	"	"	145.8	96.5
10	"	"	145.4	96.2
11	"	"	146.0	96.6
12	"	"	145.1	96.0
13	"	"	145.8	96.5
14	"	"	144.9	95.9

These observations were related to Mr. Finney prior to departure.

INSPECTOR: S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*

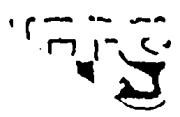
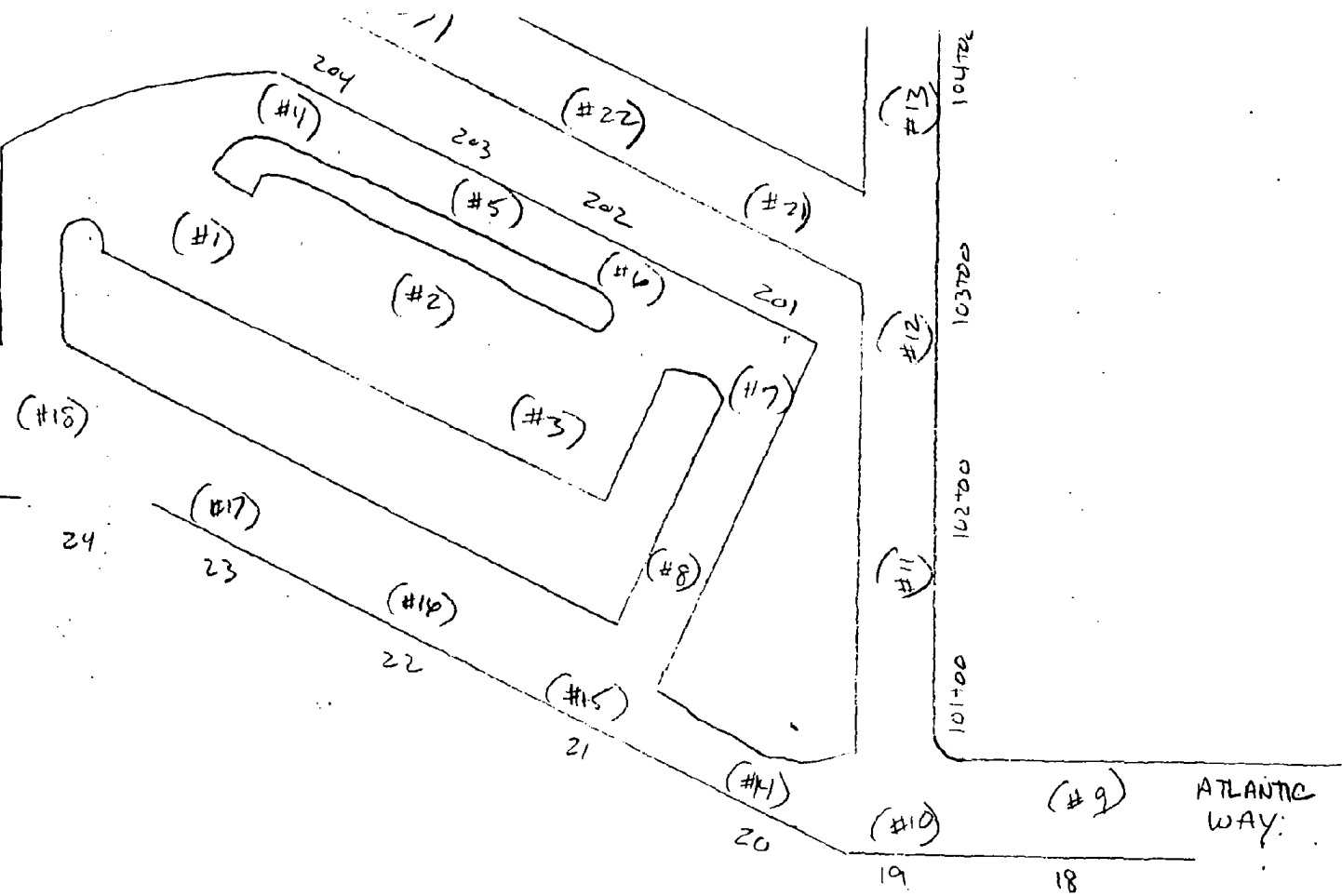


- ⊗ - SOIL COMPACTION TEST
- ⊠ - ASPHALT COMPACTION TEST

* NOT TO SCALE

STATION BUILDING

(#14)
(#20)



5 Richardson Lane
Stoneham, Ma 02180

The Construction Testing People™

JOB NAME: GREYSTONE ESTATES

PROJECT NO.: 6600

FIELD
SKETCH

U U TTTTTTTTTT S S S
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 U U T S S S Of MASSACHUSETTS, INC.
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 05-05-00 3
 The Middlesex Corporation Job. No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportati
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

Weather: Sunny, 68 degrees

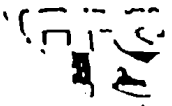
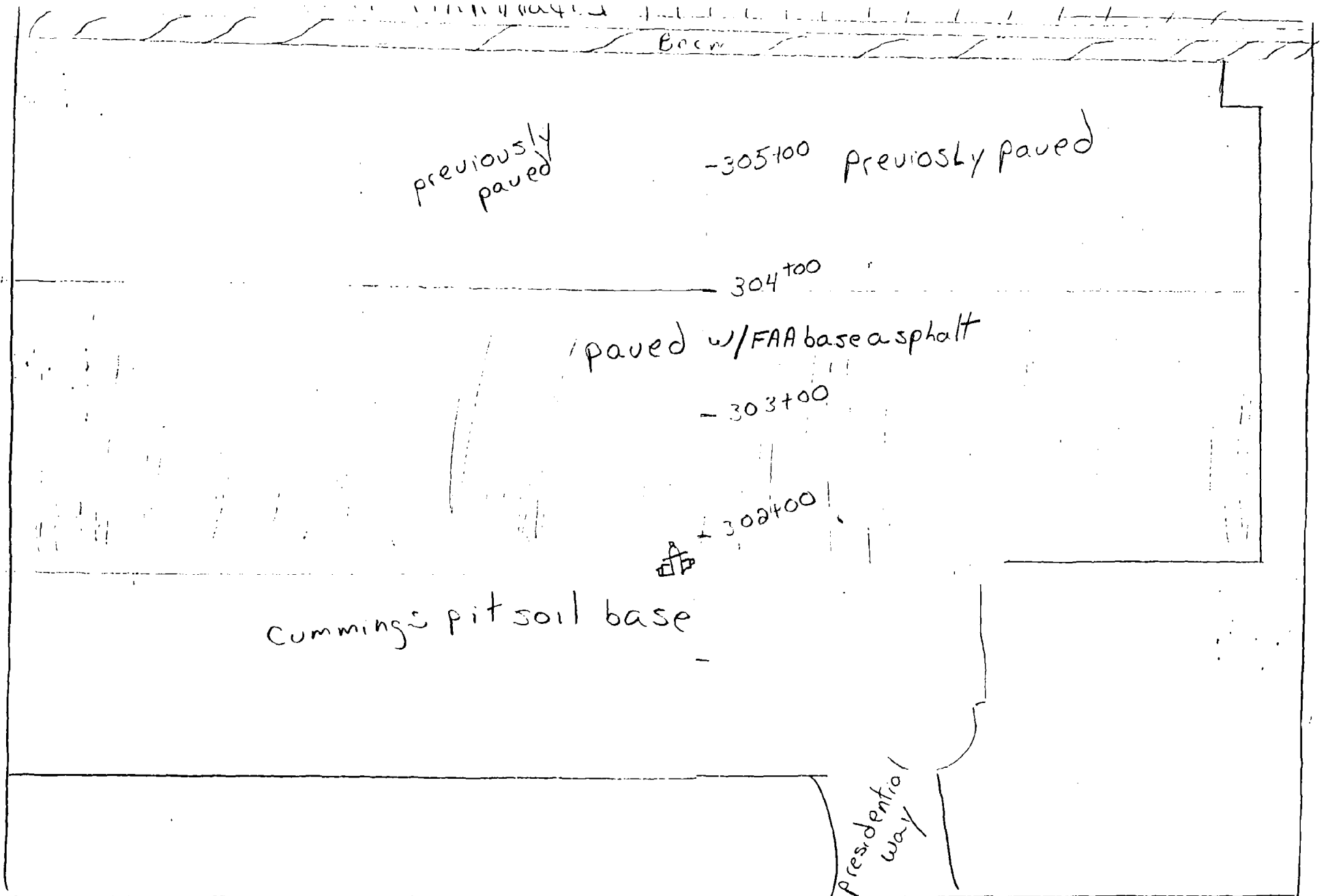
Summary: The writer arrived at the project site at 8:00 AM and met with
 Joe Finney from Middlesex Corp. The purpose of this visit was to per-
 form an asphalt inspection. The following was observed: the 45-124
 Easy Screed was placing 4 to 4 1/2 inches of asphalt in 10'-12' paths.
 Asphalt was from Middlesex Materials. The temperature of the asphalt
 ranged from 260 to 295 degrees Fahrenheit taken at point of placement.
 Three drum rollers were making repeated and overlapping passes contin-
 uously throughout the day. The area paved is 940' x 200' on the west
 side of the site, approximate Stations 304+00 to 302+00. Approximately
 2208.79 tons of FAA base asphalt were placed today. These observations
 were related to Mr. Finney prior to departure.

RECEIVED
 MAY 18 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

INSPECTOR: C. Lund Max day + 1/2
 our travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



5 Richardson Lane
Stoneham, Ma 02180

The Construction Testing People™

5-5-00

JOB NAME: Woburn Regional Transctr

PROJECT NO.: 6100

FIELD

SKETCH



U U TTTTTTTTTT S S S
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 U U U T S S S Of MASSACHUSETTS, INC.
 J U U T S S
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 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 05-04-00 1
 The Middlesex Corporation Job. No. UTS 6100
 Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

Weather: Clear, 70 degrees

Summary: The writer arrived at the project site at 6:30 AM and met with
 Joe Finney from Middlesex Corp. The purpose of this visit was to per-
 form an asphalt inspection. The following was observed: the contractor
 began placement of bituminous asphalt base coat material in northwestern
 end of the parking area from approximate Stations 34+00 to 36+00 (see
 sketch). Eight temperature readings of the asphalt material were taken
 randomly throughout the day, resulting in a range between 250 and 315
 degrees Fahrenheit. Random thickness measurements resulted in a thick-
 ness of 2 1/2 inches after rolling. After placement the asphalt was
 compacted using two power rollers passing over the material until dens-
 ity test exceeded 95%. Ten field density tests were performed using the
 Troxler nuclear density gauge according to ASTM D2922. All tests re-
 sulted in compaction percentages above 95% of ASTM D1557 modified.
 Marshall value used for this bituminous concrete material was provided
 by Aggregate Industries. These observations were related to Mr. Feeney
 prior to departure.

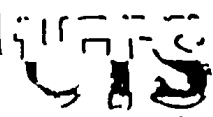
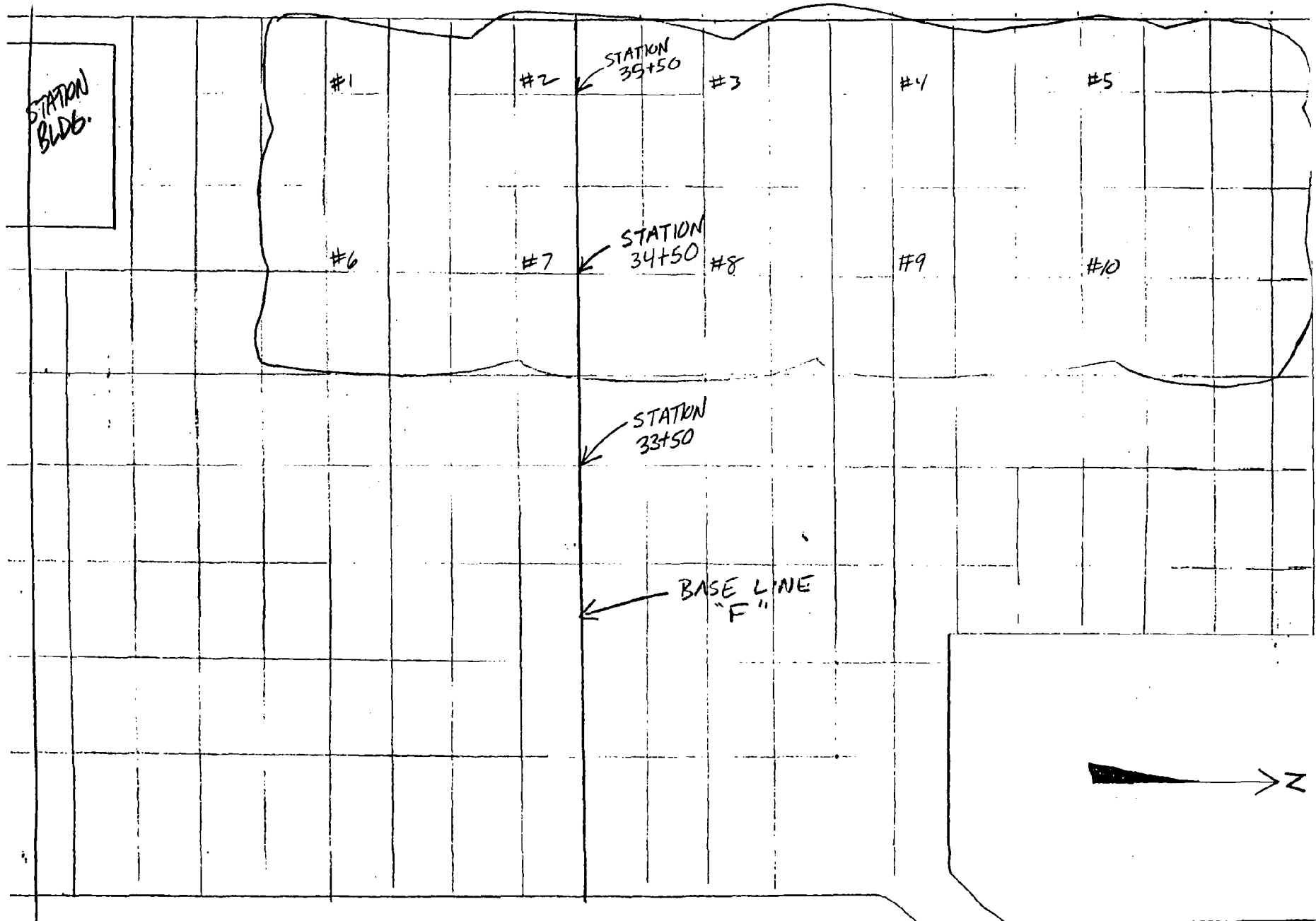
continued on next page

RECEIVED
 MAY 23 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

INSPECTOR: S. Shanaver 12 hours +
 1/2 hour travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: R.T.C. WOBURN

PROJECT NO.: 6100

FIELD
SKETCH

U U TTTTTTTTTT S S S
 U U U T S S
 U U U T S S S Of MASSACHUSETTS, INC.
 U U U T S S S
 U U U T S S S
 U U U T S S S
 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

MAY 2 2000

ASPHALT INSPECT'N REPORT DATE 05-04-00 1
 The Middlesex Corporation Job. No. UTS 6100
 1 Spectacle Pond Road Project Woburn Regional Transportati
 Littleton, MA 01460-1110 Contractor The Middlesex Corp

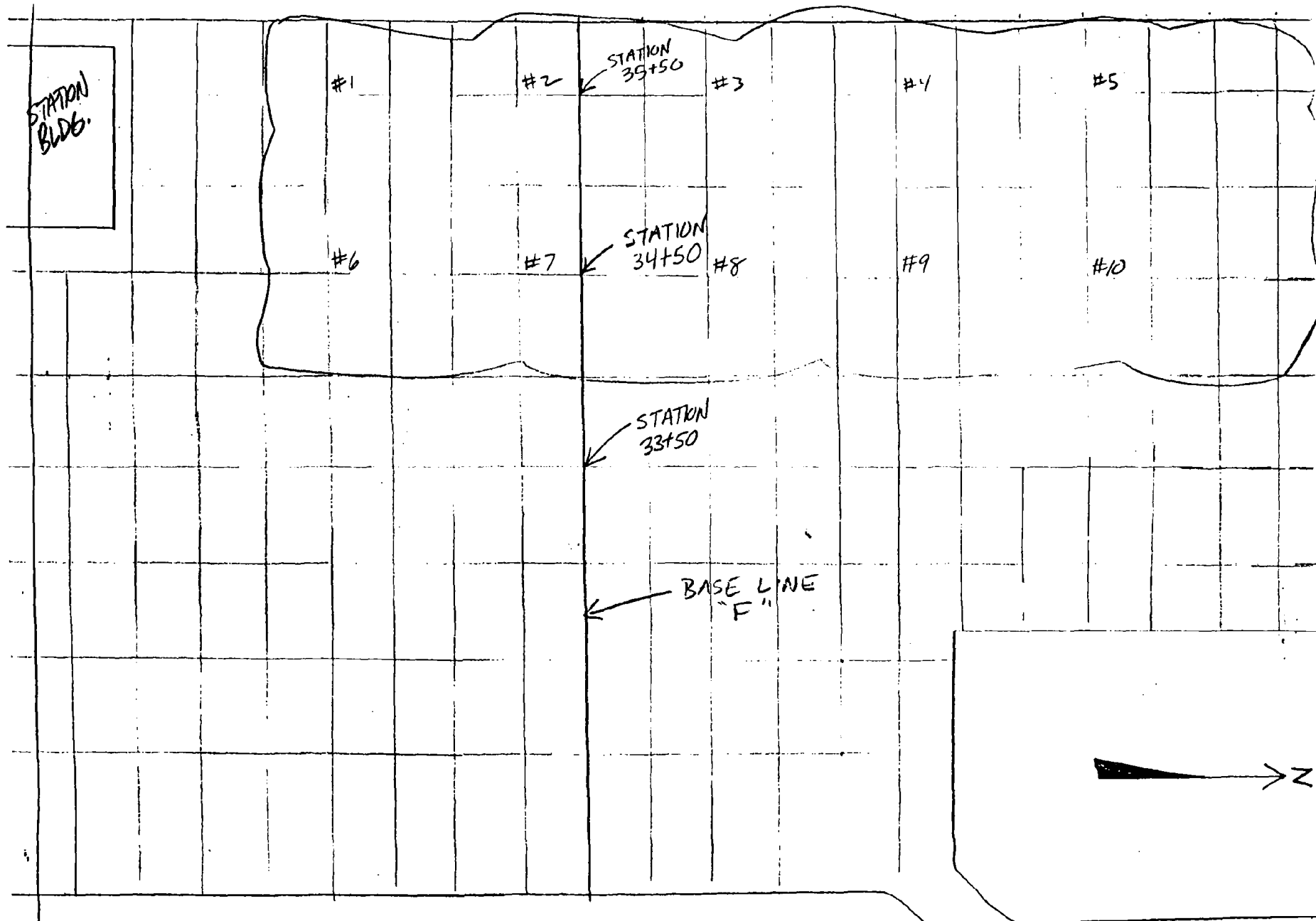
Weather: Clear, 70 degrees


Summary: The writer arrived at the project site at 6:30 AM and met with Joe Finney from Middlesex Corp. The purpose of this visit was to perform an asphalt inspection. The following was observed: the contractor began placement of bituminous asphalt base coat material in northwestern end of the parking area from approximate Stations 34+00 to 36+00 (see sketch). Eight temperature readings of the asphalt material were taken randomly throughout the day, resulting in a range between 250 and 315 degrees Fahrenheit. Random thickness measurements resulted in a thickness of 2 1/2 inches after rolling. After placement the asphalt was compacted using two power rollers passing over the material until density test exceeded 95%. Ten field density tests were performed using the Troxler nuclear density gauge according to ASTM D2922. All tests resulted in compaction percentages above 95% of ASTM D1557 modified. Marshall value used for this bituminous concrete material was provided by Aggregate Industries. These observations were related to Mr. Feeney prior to departure.

continued on next page

INSPECTOR: S. Shanaver 12 hours + 1/2 hour travel

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree *WPC*




 5 Richardson Lane
 Stoneham, Ma 02180
"The Construction Testing People"

JOB NAME: R.T.C. WOBURN
 PROJECT NO.: 6100

FIELD
 SKETCH

U U TTTTTTTTTT S S S
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 J U U T S
 U U T S
 U U U T S S S
 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 05-04-00 4
 The Middlesex Corporation Job. No. UTS 6100
 Mr. Rick Noblet Project Woburn Regional Transportati
 30A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

Continued from previous page

TEST NO.	LOCATION	MAXIMUM MARSHALL DENSITY	FIELD MARSHALL DENSITY	% COMPACTION
1	See sketch	152.50	145.0	95.0
2	"	152.50	146.1	95.8
3	"	152.50	145.2	95.2
4	"	152.50	145.3	95.2
5	"	152.50	145.4	95.3
6	"	152.50	145.3	95.2
7	"	152.50	145.7	95.5
8	"	152.50	145.1	95.1
9	"	152.50	145.6	95.4
10	"	152.50	145.3	95.2

RECEIVED
 MAY 23 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

INSPECTOR: S. Shanaver

U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree

U U TTTTTTTTTT S S S
 U U U S S
 U U U S S S Of MASSACHUSETTS, INC.
 J U U S S S
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 U U U T S S S
 5 Richardson Lane, Stoneham, MA 02180 781-438-7755

ASPHALT INSPECT'N REPORT DATE 05-04-00 1
 The Middlesex Corporation Job. No. UTS 6100
 Attn: Eileen Bean Project Woburn Regional Transportati
 30 A Atlantic Avenue Contractor The Middlesex Corp
 Woburn, MA 01801

Weather: Clear, 70 degrees

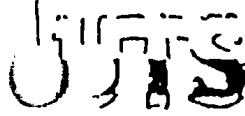
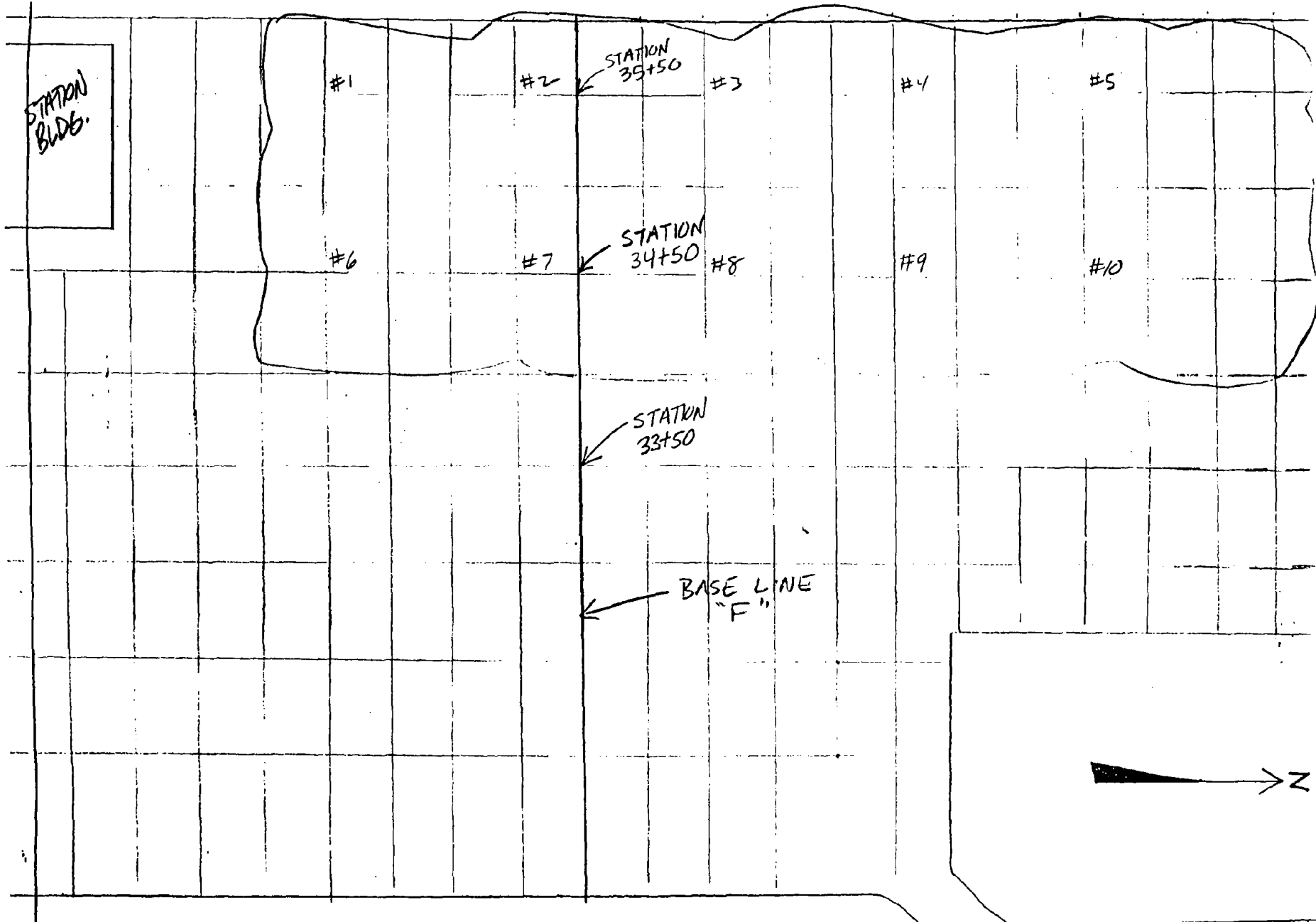
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 began placement of bituminous asphalt base coat material in northwestern
 end of the parking area from approximate Stations 34+00 to 36+00 (see
 sketch). Eight temperature readings of the asphalt material were taken
 randomly throughout the day, resulting in a range between 250 and 315
 degrees Fahrenheit. Random thickness measurements resulted in a thick-
 ness of 2 1/2 inches after rolling. After placement the asphalt was
 compacted using two power rollers passing over the material until dens-
 ity test exceeded 95%. Ten field density tests were performed using the
 Troxler nuclear density gauge according to ASTM D2922. All tests re-
 sulted in compaction percentages above 95% of ASTM D1557 modified.
 Marshall value used for this bituminous concrete material was provided
 by Aggregate Industries. These observations were related to Mr. Feeney
 prior to departure.

RECEIVED
 MAY 23 2000

continued on next page

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

INSPECTOR: S. Shanaver 12 hours + 1/2 hour travel U T S OF MASSACHUSETTS, INC.
 Reviewed
 By: William P. Crabtree



5 Richardson Lane
Stoneham, Ma 02180

"The Construction Testing People"

JOB NAME: R.T.C. WOBURN

PROJECT NO.: 6100

FIELD
SKETCH

F.6 – CERTIFICATES OF COMPLIANCE

SUPPLEMENT TO RTC ALTERNATE COVER

CERTIFICATES OF COMPLIANCE PROVIDED FOR PRODUCTS INSTALLED BELOW GRADE

CONTRACT ITEM NUMBER	CONTRACT ITEM DESCRIPTION	SUPPLIER	PRODUCT	MANUFACTURER/FABRICATOR
1566.000	EXCAVATE/HANDLE REGULATED MATERIAL	Penn Culvert Co.	24", 36", 48" Corrugated Metal Pipe	same
2400.201	CATCH BASIN	Scituate Ray Precast	4' Dia. Concrete Catch Basin	same
2400.202	DRAINAGE MANHOLE	Scituate Ray Precast	4' dia. Concrete Manhole	same
2400.202	DRAINAGE MANHOLE	Scituate Ray Precast	E-8 Loading Manhole	same
2400.202	DRAINAGE MANHOLE	Waldo Brothers	Barrel Blocks	A. Jandris & Sons
2400.202	DRAINAGE MANHOLE	Scituate Ray Precast	4' Dia. Leaching Manhole	Scituate Ray Precast
2400.221	FRAME AND COVER	LeBaron Foundry	LK 110 - Cast Iron Frame/cover	LeBaron Foundry
2400.222	FRAME AND GRATE	LeBaron Foundry	LF248-2 Cast Iron	LeBaron Foundry
2400.227	MASONRY PLUG	Waldo Brothers	Brick	A. Jandris & Sons
2400.227	MASONRY PLUG	Waldo Brothers	Cement for Mortar	Glens Falls Lehigh Cement Co.
2400.251	6" HDPE PIPE	Red Hed Supply	6" ADS Pipe	Advanced Drainage Systems Inc.
2400.252	12" HDPE PIPE	Red Hed Supply	12" ADS Pipe	Advanced Drainage Systems Inc.
2400.262	12" PERF PVC UNDERDRAIN PIPE	Contech Construction Products	PVC Truss Pipe & Fittings	same
2400.262B	CLEANOUT COVER - R.O.W	LeBaron Foundry	10" Round - Medium Duty	LeBaron Foundry
2400.262B	INSTALL CLEANOUTS	Contech Construction Products	PVC Fittings	same
2509.150	ORDINARY BORROW	Middlesex Corporation	Ordinary Borrow - North Pit	source: Littleton Pit
2509.151	GRAVEL BORROW	Middlesex Corporation	Gravel Borrow - Pile "A"	source: Littleton Pit
		Robert Francis Construction	Gravel Borrow	source: Cummings Property
2509.154	SAND BORROW	Middlesex Materials	Sand Borrow -Pile "Z"	same
2509.161	3/4" CR. STONE BORROW FOR UNDERDRAIN	Aggregate Industries	3/4" crushed stone	same
2509.162	CRUSHED STONE FOR SURFACE TREATMENT	Aggregate Industries	3/4" crushed stone	same
2509.163	STONE FOR SLOPE PROTECTION	Aggregate Industries	4"-6" surge stone	same
2700.210	SANITARY SEWER MANHOLE	Scituate Ray Precast	precast sewer manhole	same
2700.296	6" PVC SEWER PIPE	Red Hed Supply	6" Gasketed Sewer Pipe	Ipex, Inc.
	6" PVC SEWER PIPE FITTINGS	Red Hed Supply	Fernco Flexible Coupling	Fernco, Inc.
2713.306	6" DI PIPE FURNISH/INSTALL	Red Hed Supply	6" Ductile Iron Pipe	Griffin Pipe Products Co.
2713.308	8" DI PIPE FURNISH/INSTALL	Red Hed Supply	8" Ductile Iron Pipe	Griffin Pipe Products Co.
2713.309	DI PIPE FITTINGS	Red Hed Supply	Tyler Mechanical Joints	Tyler Pipe Company
2713.320	20" DI PIPE-INSTALL ONLY	<i>provided by City of Woburn</i>	20" Ductile Iron Pipe	
2713.320A	20" DI PIPE-FITTINGS< JOINTS	Red Hed Supply	Megalug Joints	EBAA Iron, Inc.
2713.356	6" GATE & GATE BOX FURNISH/INSTALL	Red Hed Supply	6" Mueller Resilient Gate Valve	Mueller Company
2713.356	6" GATE & GATE BOX FURNISH/INSTALL	Red Hed Supply	Valve Box	General Foundries, Inc.
2713.356	6" GATE & GATE BOX FURNISH/INSTALL	Red Hed Supply	Post Indicator	Mueller Company
2713.358	8" GATE & GATE BOX FURNISH/INSTALL	Red Hed Supply	8" Mueller Resilient Gate Valve	Mueller Company

SUPPLEMENT TO RTC ALTERNATE COVER

CERTIFICATES OF COMPLIANCE PROVIDED FOR PRODUCTS INSTALLED BELOW GRADE

CONTRACT ITEM NUMBER	CONTRACT ITEM DESCRIPTION	SUPPLIER	PRODUCT	MANUFACTURER/FABRICATOR
2713.358	8" GATE & GATE BOX FURNISH/INSTALL	Red Hed Supply	Valve Box	General Foundries, Inc.
2713.358	8" GATE & GATE BOX FURNISH/INSTALL	Red Hed Supply	Post Indicator	Mueller Company
3300.401	CONCRETE 4,000 PSI 3/4" AGGR	Wakefield Materials Corp.	Ready-mix concrete	same
3300.401	REINFORCING STEEL	Barker Steel Company, Inc.	reinforcing steel (rebar)	same
3400.000	SPECIAL PULL BOX R.O.W - 4'x 2'-6"x3'	Scituate Ray Precast	MBTA pull boxes- 4'x2'-6"x3'	same
3400.000	PULLBOX COVERS	LeBaron Foundry	Neenah R6665-3JP - heavy duty	same
3400.161	PREC CONC HANDHOLE 2'X2'X2' DEEP	Scituate Ray Precast	2'x2'x2' Conc. Handhole	same
3400.161	2'x2'x2' CASTINGS	LeBaron Foundry	LF245/L24SC1	same
3400.162	PREC CONC HANDHOLE 4'X4'X3' DEEP	Scituate Ray Precast	4'x4'x3' Conc. Manhole	same
3400.162	4'x4'x3' CASTINGS	LeBaron Foundry	LE 320 / L32C13	same
3400.163	PREC CONC MANHOLE 4'X6'X4' DEEP	Scituate Ray Precast	4'x6'x4' Conc Manhole	same
3400.163	4'x6'x4' MANHOLE CASTING	LeBaron Foundry	LE 380	same
3400.201	PREC CONC LIGHTPOLE FDN TYPE A	Scituate Ray Precast	28" Dia. Conc. Base	same
3400.202	PREC CONC LIGHTPOLE FDN TYPE B	Scituate Ray Precast	26" Dia. Con. Light base	same
3400.203	PREC CONC LIGHTPOLE FDN TYPE C	Scituate Ray Precast	24" Dia. Conc. Light base	same
3400.204	PREC CONC LIGHTPOLE FDN TYPE D	Scituate Ray Precast	18" Dia. Conc. Light base	same
3400.301	PREC CONC TYPE J SIGN POLE FDN	Scituate Ray Precast	18" Dia. Conc. Sign Foundation	same
18000.000	HD POLYMER CONCRETE CABLE TRENCH SYSTEM	City Lights Electrical Co., Inc. (subcontractor)	Electrical Trough	Synertech
18000.000	PVC ELECTRICAL CONDUIT	City Lights Electrical Co., Inc. (subcontractor)	PVC Conduit: Schedule 40, Schedule 80	Cantex

Penn Culvert Company

1100 IRON HORSE PARK NORTH BILLERICA, MASSACHUSETTS 01862 Tel: (978) 667-3837 / (978) 667-4121 Fax: (978) 667-0924

CERTIFICATES OF COMPLIANCE

(Manufactured or Fabricated Material)

Date: JUNE 8, 2000

WE HEREBY CERTIFY THAT: CORRUGATED METAL
(Description of Material)

FURNISHED TO: MIDDLESEX CORP
(Name of Contractor/Prime or Sub)

FOR USE ON: REG TRANSPORTATION CENTER WOBURN MA
(Project Name & Location)

FEDERAL NO. _____ STATE NO. _____

IN THE AMOUNT OF: 400ft-36"16GA GALV STEEL: 160FT-48"16GA GALV STEEL
(Quantity Represented)

IDENTIFIED BY: 67-5839 SHIPPED ON: 3/8/00 SHIPPED VIA: TRUCK
(Our Order No.) (Date) (Method)

All records and documents pertinent to this certificate and not submitted herewith will be maintained available by the undersigned for a period of not less than three years from date of final payment to the State from Federal funds.

PENN CULVERT COMPANY

BY: Anne J. Sokel
Anne J. Sokel, TREASURER

John T. Sokel
John T. Sokel
NOTARY PUBLIC

MY COMMISSION EXPIRES: August 9, 2002

Penn Culvert Company

1100 IRON HORSE PARK NORTH BILLERICA, MASSACHUSETTS 01862 Tel: (978) 667-3837 / (978) 667-4121 Fax: (978) 667-0924

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(Description of Material)

FURNISHED TO: MIDDLESEX CORP
(Name of Contractor/Prime or Sub)

FOR USE ON: REG TRANSPORTATION CENTER WOBURN MA
(Project Name & Location)

FEDERAL NO. _____ STATE NO. _____

IN THE AMOUNT OF: 40FT-24" 16GA GALV STEEL; 20FT-36" 16GA GALV STEEL;
(Quantity Represented)
2EA-24" GALV STEEL END SECTION; 2EA-36" GALV STEEL END SECTIONS; 1EA-24"
GALV STEEL END SECTION

IDENTIFIED BY: 67-5839 SHIPPED ON: 5/22/00 SHIPPED VIA: TRUCK
(Our Order No.) (Date) (Method)

All records and documents pertinent to this certificate and not submitted herewith will be maintained available by the undersigned for a period of not less than three years from date of final payment to the State from Federal funds.

PENN CULVERT COMPANY

BY: Anne J. Sokel
Anne J. Sokel, PRESURER

John T. Sokel
John T. Sokel

NOTARY PUBLIC

MY COMMISSION EXPIRES: August 9, 2002

Penn Culvert Company

1100 IRON HORSE PARK NORTH BILLERICA, MASSACHUSETTS 01862 Tel: (978) 667-3837 / (978) 667-4121 Fax: (978) 667-0924

CERTIFICATES OF COMPLIANCE

(Manufactured or Fabricated Material)

Date: JUNE 8, 2000

WE HEREBY CERTIFY THAT: CORRUGATED METAL
(Description of Material)

FURNISHED TO: MIDDLESEX CORP
(Name of Contractor/Prime or Sub)

FOR USE ON: REG TRANSPORTATION CENTER WOBURN MA
(Project Name & Location)

FEDERAL NO. _____ STATE NO. _____

IN THE AMOUNT OF: 3 EA - 36" STEEL DIMPLE BANDS
(Quantity Represented)

IDENTIFIED BY: 67-5839 SHIPPED ON: 4/20/00 SHIPPED VIA: PICK UP
(Our Order No.) (Date) (Method)

All records and documents pertinent to this certificate and not submitted herewith will be maintained available by the undersigned for a period of not less than three years from date of final payment to the State from Federal funds.

PENN CULVERT COMPANY

BY: Anne J. Sokel
Anne J. Sokel, TREASURER

John T. Sokel
John T. Sokel
NOTARY PUBLIC

MY COMMISSION EXPIRES: August 9, 2002



SCITUATE RAY PRECAST

If You Can Draw It • We Can Build It

Certificate of Compliance

Date 1-10-01

We hereby certify that Scituate Precast

Furnished to Middlesex Corporation

For use on Woburn Regional Transportation ctr. Job #405

RECEIVED
JAN 24 2001

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

<u>ITEM</u>	<u>DESCRIPTION</u>
2400.002	Drain Manhole
2700.201	Catch Basin
2700.201	Leaching Basin
2700.210	Sewer Manhole
2700.201	Gutter Inlet
3400.161	Handhole 2x2x2
3400.162	Handhole 4x4x4
3400.163	Handhole 4x6x4
3400.201/3400.204	Lightpole Foundations A-D
3400.301	Type "J" Pole Foundation

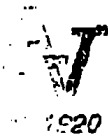
Shipped on FEBRUARY 2000 / OCTOBER 2000

Shipped via Scituate Precast truck

Meets the requirement of the pertinent project plans, special provisions and specifications of the project contract stated above. In all respects, processing, product testing and inspection control of raw materials are in conformance with all applicable specifications, drawing and/or standards of all articles furnished.

All records and documents pertinent to this certificate are not submitted herewith will be maintained available by the undersigned for a period of not less than three years from the date of final payment.

Scituate Precast



A. JANDRIS & SONS, INC.

302 High Street
Gardner, MA 01440-3632
Telephone: 608-632-0000 FAX: 608-632-0000

CERTIFICATE OF COMPLIANCE

Date: March 1, 2000

We hereby certify that all catch basin block, manhole block, clay sewer brick, precast throats, and precast tube manufactured or supplied by A. Jandris & Sons, Inc.,

Furnished To: Waldo Bros Company

For Use On: Woburn Regional Transport Center

Architect:

General Contractor: Middlesex Corp

Mason Contractors: Middlesex Corp

meet or exceed all the requirements of pertinent project plans, special provisions and specifications of the Massachusetts Department of Public Works, in all respects. Processing, product testing and inspection control of raw materials are in conformance with all applicable specifications, drawings, and/or standards of all articles furnished.

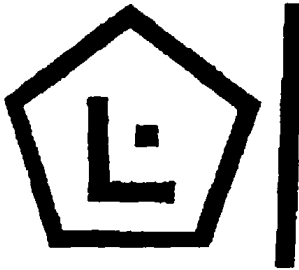
All records and documents pertinent to the certificate and not submitted herewith will be maintained available by the undersigned for a period of not less than three years from the final payment to the State from Federal Funds.

Sincerely,
A. Jandris & Sons, Inc.

Signed By:

manufacturer of
CONCRETE PRODUCTS

Groundstone • Architectural Colored C.M.U.'s • Precast



Le BARON FOUNDRY INC.

DESIGNERS AND MANUFACTURERS OF AMERICAN
MADE IRON CASTINGS AND CONSTRUCTION SUPPLIES

14 EAST UNION STREET
P.O. BOX 746

BROCKTON, MA 02303
AREA (508) 586-3130
FAX (508) 580-2740

We hereby certify that Manhole/Catch Basin Castings
 Furnished to Middlesex Corp.
 For use on Regional Transportation Center, Woburn, MA
 Amount of Any & All
 Contract Number Mass. Port Contract 1.727
 Supplier & Location LeBaron Foundry Inc., Brockton, MA
 Manufacturer & Location LeBaron Foundry Inc., Brockton, MA
 Shipped on January 1, 2000 - December 28, 2000
 Shipped Via Our Truck

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS. IN ALL ASPECTS, PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL ARTICLES FURNISHED, AND ALL AMENDMENTS THERETO.

All records and documents pertinent to this certificate and not submitted here with will be maintained available by the undersigned for a period of not less than three years from date of final payment to the State from Federal funds.

Date 12-29-00

LeBaron Foundry Inc.

Signed *John A. Macaione*
 John A. Macaione

Pamela M. Spillane
 Pamela M. Spillane, Notary
 My Commission Expires on 9/24/04

Title Vice President Administration



American Cast Metals Association
 American Foundrymen's Society
 Construction Industries of Massachusetts
 Utility Contractor's Association



GLENS FALLS LEHIGH CEMENT COMPANY



November 30, 1999

Re: Type II Portland Bag Cement

Dear Sir:

The following data represents a typical analysis of Canakkal Type II cement, Iron Clad bag, shipped to you by Glens Falls Lehigh Cement Co. meeting the respective requirements of ASTM Specification C 150 for Type II portland cement.

SiO ₂	20.9 %
Al ₂ O ₃	4.3 %
Fe ₂ O ₃	3.5 %
MgO.....	2.1 %
SO ₃	2.6 %
Loss on ignition.....	1.5 %
Insoluble residue.....	0.07 %
Air Content.....	6.4 %
Fineness, Blaine.....	3900 cm ² /g
Autoclave expansion.....	0.03 %
Compressive Strength	
3 day.....	3550 psi
7 day.....	4410 psi
Setting Time, Gilmore	
Initial.....	170 min.
Final.....	275 min.

Sincerely,

James D. Parker
Chief Chemist



RED HED SUPPLY
RED HED MFG.

Divisions of Ghelton, Inc.

38 ALBION ROAD (RT. 123), LINCOLN, RHODE ISLAND 02865
TEL. (401) 333-1317 FAX: (401) 333-9035

We hereby certify that ADS PIPE
Furnished to THE MIDDLESEX CORPORATION, ONE SPECTACLE POND ROAD, LITTLETON, MA 01460
For use on REGIONAL TRANSPORTATION CENTER
Amount of ANY & ALL
Contract Number 1.727 Federal Aid Number _____
Supplier & Location RED HED SUPPLY, MFG., 38 ALBION ROAD, LINCOLN, RI 02865
Manufacturer & Location ADVANCED DRAINAGE SYSTEMS, INC., P.O. BOX 389, LUDLOW, MA 01056
Identified by ADVANCED DRAINAGE SYSTEMS, INC., P.O. BOX 389, LUDLOW, MA 01056
Shipped on JANUARY 1, 2000 - JULY 1, 2000
Shipped Via OUR TRUCK

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS, IN ALL ASPECTS, PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL ARTICLES FURNISHED, AND ALL AMENDMENTS THERETO. SINCE WE ARE NOT THE MANUFACTURER OF THE PRODUCTS, THIS IS STATED TO THE BEST OF OUR KNOWLEDGE AND BASED UPON INFORMATION SUPPLIED BY THE MANUFACTURER.

All records and documents pertinent to this certificate and not submitted here with will be maintained available by the undersigned for a period of not less than three years from date of final payment to the State from Federal funds.

Date JUNE 7, 2000

Red Hed Supply Division of Ghelton, Inc.

Title VICE PRESIDENT

Signed Margaret Lawton

Elaine S. Friedman, Notary
My Commission Expires on 10/03/00



RED HED SUPPLY
RED HED MFG.

Divisions of Ghelton, Inc.

38 ALBION ROAD (RT. 123), LINCOLN, RHODE ISLAND 02865
TEL. (401) 333-1317 FAX: (401) 333-9035

We hereby certify that IPEX SEWER PIPE
Furnished to THE MIDDLESEX CORPORATION, ONE SPECTACLE POND ROAD, LITTLETON, MA 01460
For use on REGIONAL TRANSPORTATION CENTER
Amount of ANY & ALL
Contract Number 1.727 Federal Aid Number _____
Supplier & Location RED HED SUPPLY, MFG., 38 ALBION ROAD, LINCOLN, RI 02865
Manufacturer & Location IPEX, INC., 2441 ROYAL WINDSOR DR., MISSISSAUGA, ONTARIO L5J 4-C7
Identified by IPEX, INC., 2441 ROYAL WINDSOR DR., MISSISSAUGA, ONTARIO L5J 4-C7
Shipped on JANUARY 1, 2000 - JULY 1, 2000
Shipped Via OUR TRUCK

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS, IN ALL ASPECTS, PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL ARTICLES FURNISHED, AND ALL AMENDMENTS THERETO. SINCE WE ARE NOT THE MANUFACTURER OF THE PRODUCTS, THIS IS STATED TO THE BEST OF OUR KNOWLEDGE AND BASED UPON INFORMATION SUPPLIED BY THE MANUFACTURER.

All records and documents pertinent to this certificate and not submitted here with will be maintained available by the undersigned for a period of not less than three years from date of final payment to the State from Federal funds.

Date JUNE 7, 2000

Red Hed Supply Division of Ghelton, Inc.

Title VICE PRESIDENT

Signed Margaret Hewitt

Elaine S. Friedman, Notary
My Commission Expires on 10/03/00



RED HED SUPPLY
RED HED MFG.

Divisions of Ghelton, Inc.

38 ALBION ROAD (RT. 123), LINCOLN, RHODE ISLAND 02865
TEL. (401) 333-1317 FAX: (401) 333-9035

We hereby certify that FERNCO COUPLING
Furnished to THE MIDDLESEX CORPORATION, ONE SPECTACLE POND ROAD, LITTLETON, MA 01460
For use on REGIONAL TRANSPORTATION CENTER
Amount of ANY & ALL
Contract Number 1.727 Federal Aid Number _____
Supplier & Location RED HED SUPPLY, MFG., 38 ALBION ROAD, LINCOLN, RI 02865
Manufacturer & Location FERNCO, INC., 300 S. DAYTON ST., DAVISON, MI 48423
Identified by FERNCO, INC., 300 S. DAYTON ST., DAVISON, MI 48423
Shipped on JANUARY 1, 2000 - JULY 1, 2000
Shipped Via OUR TRUCK

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS, IN ALL ASPECTS, PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL ARTICLES FURNISHED, AND ALL AMENDMENTS THERETO. SINCE WE ARE NOT THE MANUFACTURER OF THE PRODUCTS, THIS IS STATED TO THE BEST OF OUR KNOWLEDGE AND BASED UPON INFORMATION SUPPLIED BY THE MANUFACTURER.

All records and documents pertinent to this certificate and not submitted here with will be maintained available by the undersigned for a period of not less than three years from date of final payment to the State from Federal funds.

Date JUNE 7, 2000

Red Hed Supply Division of Ghelton, Inc.

Title VICE PRESIDENT

Signed Margaret Newton

Elaine S. Friedman, Notary
My Commission Expires on 10/03/00



RED HED SUPPLY
RED HED MFG.

Divisions of Ghelton, Inc.

38 ALBION ROAD (RT. 123), LINCOLN, RHODE ISLAND 02865
TEL. (401) 333-1317 FAX: (401) 333-9035

We hereby certify that TYLER FITTINGS

Furnished to THE MIDDLESEX CORPORATION, ONE SPECTACLE POND ROAD, LITTLETON, MA 01460

For use on REGIONAL TRANSPORTATION CENTER

Amount of ANY & ALL

Contract Number 1.727 Federal Aid Number _____

Supplier & Location RED HED SUPPLY, MFG., 38 ALBION ROAD, LINCOLN, RI 02865

Manufacturer & Location TYLER PIPE COMPANY, P.O. BOX 2027, TYLER, TX 75710

Identified by TYLER PIPE COMPANY, P.O. BOX 2027, TYLER, TX 75710

Shipped on JANUARY 1, 2000 - JULY 1, 2000

Shipped Via OUR TRUCK

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS, IN ALL ASPECTS, PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL ARTICLES FURNISHED, AND ALL AMENDMENTS THERETO. SINCE WE ARE NOT THE MANUFACTURER OF THE PRODUCTS, THIS IS STATED TO THE BEST OF OUR KNOWLEDGE AND BASED UPON INFORMATION SUPPLIED BY THE MANUFACTURER.

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Date JUNE 7, 2000

Red Hed Supply Division of Ghelton, Inc.

Title VICE PRESIDENT

Signed Margaret Hewton

Elaine S. Friedman, Notary
My Commission Expires on 10/03/00



RED HED SUPPLY
RED HED MFG.

Divisions of Ghelton, Inc.

38 ALBION ROAD (RT. 123), LINCOLN, RHODE ISLAND 02865
TEL. (401) 333-1317 FAX: (401) 333-9035

We hereby certify that EBAA MEGALUG
Furnished to THE MIDDLESEX CORPORATION, ONE SPECTACLE POND ROAD, LITTLETON, MA 01460
For use on REGIONAL TRANSPORTATION CENTER
Amount of ANY & ALL
Contract Number 1.727 Federal Aid Number _____
Supplier & Location RED HED SUPPLY, MFG., 38 ALBION ROAD, LINCOLN, RI 02865
Manufacturer & Location EBAA IRON, INC., P.O. BOX 857, EASTLAND, TX 76448
Identified by EBAA IRON, INC., P.O. BOX 857, EASTLAND, TX 76448
Shipped on JANUARY 1, 2000 - JULY 1, 2000
Shipped Via OUR TRUCK

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS, IN ALL ASPECTS, PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL ARTICLES FURNISHED, AND ALL AMENDMENTS THERETO. SINCE WE ARE NOT THE MANUFACTURER OF THE PRODUCTS, THIS IS STATED TO THE BEST OF OUR KNOWLEDGE AND BASED UPON INFORMATION SUPPLIED BY THE MANUFACTURER.

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Date JUNE 7, 2000

Red Hed Supply Division of Ghelton, Inc.

Title Vice President

Signed Margaret Lawton

Elaine S. Friedman

Elaine S. Friedman, Notary
My Commission Expires on 10/03/00



RED HED SUPPLY
RED HED MFG.

Divisions of Ghelton, Inc.

38 ALBION ROAD (RT. 123), LINCOLN, RHODE ISLAND 02865
TEL. (401) 333-1317 FAX: (401) 333-9035

We hereby certify that MUELLER GATE VALVES
Furnished to THE MIDDLESEX CORPORATION, ONE SPECTACLE POND ROAD, LITTLETON, MA 01460
For use on REGIONAL TRANSPORTATION CENTER
Amount of ANY & ALL
Contract Number 1.727 Federal Aid Number _____
Supplier & Location RED HED SUPPLY, MFG., 38 ALBION ROAD, LINCOLN, RI 02865
Manufacturer & Location MUELLER COMPANY, 500 WEST ELDORADO ST., DECATUR, IL 62525
Identified by MUELLER COMPANY, 500 WEST ELDORADO ST., DECATUR, IL 62525
Shipped on JANUARY 1, 2000 - JULY 1, 2000
Shipped Via OUR TRUCK

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS, IN ALL ASPECTS, PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL ARTICLES FURNISHED, AND ALL AMENDMENTS THERETO. SINCE WE ARE NOT THE MANUFACTURER OF THE PRODUCTS, THIS IS STATED TO THE BEST OF OUR KNOWLEDGE AND BASED UPON INFORMATION SUPPLIED BY THE MANUFACTURER.

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Date JUNE 7, 2000

Red Hed Supply Division of Ghelton, Inc.

Title VICE PRESIDENT

Signed Margaret Lawton

Elaine S. Friedman, Notary
My Commission Expires on 10/03/00



RED HED SUPPLY
RED HED MFG.

Divisions of Ghelton, Inc

38 ALBION ROAD (RT. 123), LINCOLN, RHODE ISLAND 02865
TEL. (401) 333-1317 FAX: (401) 333-9035

We hereby certify that MUELLER HYDRANTS

Furnished to THE MIDDLESEX CORPORATION, ONE SPECTACLE POND ROAD, LITTLETON, MA 01460

For use on REGIONAL TRANSPORTATION CENTER

Amount of ANY & ALL

Contract Number 1727 Federal Aid Number _____

Supplier & Location RED HED SUPPLY, MFG., 38 ALBION ROAD, LINCOLN, RI 02865

Manufacturer & Location MUELLER COMPANY, 500 WEST ELDORADO ST., DECATUR, IL 62525

Identified by MUELLER COMPANY, 500 WEST ELDORADO ST., DECATUR, IL 62525

Shipped on JANUARY 1, 2000 - JULY 1, 2000

Shipped Via OUR TRUCK

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS, IN ALL ASPECTS, PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL ARTICLES FURNISHED, AND ALL AMENDMENTS THERETO. SINCE WE ARE NOT THE MANUFACTURER OF THE PRODUCTS, THIS IS STATED TO THE BEST OF OUR KNOWLEDGE AND BASED UPON INFORMATION SUPPLIED BY THE MANUFACTURER.

All records and documents pertinent to this certificate and not submitted here with will be maintained available by the undersigned for a period of not less than three years from date of final payment to the State from Federal funds.

Date JUNE 7, 2000

Red Hed Supply Division of Ghelton, Inc.

Elaine S. Friedman, Notary
My Commission Expires on 10/03/00

Title VICE PRESIDENT

Signed Margaret Hewton



RED HED SUPPLY
RED HED MFG.

Division of Ghelton, Inc

38 ALBION ROAD (RT. 123), LINCOLN, RHODE ISLAND 02865
TEL. (401) 333-1317 FAX: (401) 333-9035

We hereby certify that GENERAL VALVE BOXES
Furnished to THE MIDDLESEX CORPORATION, ONE SPECTACLE POND ROAD, LITTLETON, MA 01160
For use on REGIONAL TRANSPORTATION CENTER
Amount of ANY & ALL
Contract Number 1.727 Federal Aid Number _____
Supplier & Location RED HED SUPPLY, MFG., 38 ALBION ROAD, LINCOLN, RI 02865
Manufacturer & Location GENERAL FOUNDRIES, INC., 1160 STATE ST., PERTH AMBOY, NJ 08861
Identified by GENERAL FOUNDRIES, INC., 1160 STATE ST., PERTH AMBOY, NJ 08861
Shipped on JANUARY 1, 2000 - JULY 1, 2000
Shipped Via OUR TRUCK

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS, IN ALL ASPECTS, PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL ARTICLES FURNISHED, AND ALL AMENDMENTS THERETO. SINCE WE ARE NOT THE MANUFACTURER OF THE PRODUCTS, THIS IS STATED TO THE BEST OF OUR KNOWLEDGE AND BASED UPON INFORMATION SUPPLIED BY THE MANUFACTURER.

All records and documents pertinent to this certificate and not submitted here with will be maintained available by the undersigned for a period of not less than three years from date of final payment to the State from Federal funds.

Date JUNE 7, 2000

Red Hed Supply Division of Ghelton, Inc.

Title VICE PRESIDENT

Signed Margaret Linton

Elaine S. Friedman

Elaine S. Friedman, Notary
My Commission Expires on 10/03/00



**RED HED SUPPLY
RED HED MFG.**

Divisions of Ghelton, Inc.

38 ALBION ROAD (RT. 123), LINCOLN, RHODE ISLAND 02865
TEL. (401) 333-1317 FAX: (401) 333-9035

We hereby certify that MUELLER POST INDICATOR

Furnished to THE MIDDLESEX CORPORATION, ONE SPECTACLE POND ROAD, LITTLETON, MA 01460

For use on REGIONAL TRANSPORTATION CENTER

Amount of ANY & ALL

Contract Number 1.727 Federal Aid Number _____

Supplier & Location RED HED SUPPLY, MFG., 38 ALBION ROAD, LINCOLN, RI 02865

Manufacturer & Location MUELLER COMPANY, 500 WEST ELDORADO ST., DECATUR, IL 62525

Identified by MUELLER COMPANY, 500 WEST ELDORADO ST., DECATUR, IL 62525

Shipped on JANUARY 1, 2000 - JULY 1, 2000

Shipped Via OUR TRUCK

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, DIVISION OF PUBLIC WORKS, IN ALL ASPECTS, PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL ARTICLES FURNISHED, AND ALL AMENDMENTS THERETO. SINCE WE ARE NOT THE MANUFACTURER OF THE PRODUCTS, THIS IS STATED TO THE BEST OF OUR KNOWLEDGE AND BASED UPON INFORMATION SUPPLIED BY THE MANUFACTURER.

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Date JUNE 7, 2000

Red Hed Supply Division of Ghelton, Inc.

Title VICE PRESIDENT

Signed Margaret Lawton

Elaine S. Friedman

Elaine S. Friedman, Notary
My Commission Expires on 10/03/00

**CONTECH CONSTRUCTION PRODUCTS, INC.
MONTGOMERY, ALABAMA PLANT
PVC PIPE CERTIFICATIONS**

DATE: 03/15/2000

DISTRICT #: 17-6404-00

BUYER: THE MIDDLESEX CORP.

PLANT ORDER #: 26-9415-00

PROJECT: JOB 405 - REGIONAL TRANSPORT

BUYER: C-5032

*This is to certify that the material for the above order was
Manufactured and/or tested in accordance with the minimum
Requirements of Table 1 below. Table 2 lists the pipe lot numbers
certified.*

TABLE 1: SPECIFICATION AND MINIMUM TEST REQUIREMENTS

PRODUCT	SPECIFICATIONS	MINIMUM STIFFNESS F/Y PSI	MINIMUM FLATTENING %	MINIMUM IMPACT FT./LBS.
8-15" TRUSS	D2680	200	7 ½	
4" SDR 35	D3034	46	60	150
4" SDR 26	D3034	115	60	150
4" SDR 23.5	D3034	153	60	150
6" SDR 35	D3034	46	60	210
6" SDR 26	D3034	115	60	210
6" SDR 23.5	D3034	153	60	210

TABLE 2: LOT TEST RESULTS

PRODUCT	LOT NUMBER	STIFFNESS PSI PASS/FAIL	FLATTENING % PASS/FAIL	IMPACT PASS/FAIL
12" PVC TRUSS S.W. PERFORATED	4M99235	PASS	PASS	PASS
	4M99236	PASS	PASS	PASS
	4M99237	PASS	PASS	PASS
	4M99243	PASS	PASS	PASS
	4M99244	PASS	PASS	PASS
	4M99245	PASS	PASS	PASS
	4M99246	PASS	PASS	PASS



CONTECH CONSTRUCTION PRODUCTS

ROBERT FRANCIS CONST., INC.

Trailer and Truck Rental
Bulldozer, Backhoe & Loader Rental
Road Screen All Rental
Lowbed Service
Site Work / Demolition



We hereby certify that Gravel Borrow

Furnished to The Middlesex Corporation

For use on Woburn Regional Transportation Center
Woburn, MA

Contract Number 1.727

Supplier & Location Robert Francis Construction Inc.
Wilmington, MA 01887

Manufacturer & Location Cummings Properties
Gill Street
Woburn, MA

Shipped on April through October, 2000

Shipped Via Our Truck

Meets the requirements of the pertinent project plans, Special Provisions and the Massachusetts Highway Department Standard Specifications for Highways and Bridges (1988) and its Supplemental Specification dated December 23, 1998 - "Standard Specifications" in all aspects; that processing, product testing and inspection control of raw materials are in conformance with all applicable specifications, drawings and/or standards of all articles furnished, and all amendments thereto.

Date January 12, 2001

Signed *Robert Francis*
Robert Francis Construction Inc.

Title President

* NOTE: Sieve analysis and Proctor tests were performed by The Middlesex Corporation.

RECEIVED
JAN 23 2001

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr

856 Woburn Street, Wilmington, MA 01887 □ Office (508) 657-4145 □ Fax (508) 658-2341

GRAVEL □ LOAM □ FILL □ SAND

We hereby certify that A.R.E.A. 4 BALLAST #2504, 100
Furnished to The Middlesex Corporation
For use on Woburn Regional Transportation Center
Woburn, MA
Contract Number 1.727
Supplier & Location Aggregate Industries 30 Danvers Road Swampscott, MA 01907
Manufacturer & Location Same
Shipped on March - November, 2000
Shipped Via Truck

Meets the requirements of the pertinent project plans, Special Provisions and the Massachusetts Highway Department Standard Specifications for Highways and Bridges (1988) and its Supplemental Specification dated December 23, 1998 - "Standard Specifications" in all aspects; that processing, product testing and inspection control of raw materials are in conformance with all applicable specifications, drawings and/or standards of all articles furnished, and all amendments thereto.

Date: January 23, 2001
Signed: *Michael Nichols* Michael Nichols
Title: South Regional Manager, Materials & Research

RECEIVED
JAN 23 2001

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
COMMUTER RAIL MATERIAL SPECIFICATION NO. 9248

STONE BALLAST

SIZE

Ballast shall conform to AREA Size No. 4 per AREA Chapter 1, Part 2, Table No. 3 as modified by these specifications.

MATERIAL

Ballast shall be crushed, quarried, washed stone conforming to the current AREA Specification Chapter 1, Section 2 and the following:

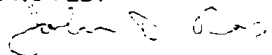
Ballast Quality Requirements:

1. Deleterious Substances. The amount of deleterious substances present in prepared ballast shall not exceed the following limits, when using test methods specified herein.

	<u>Percent By Weight</u>	<u>Method of Test</u>
Soft and Friable Pieces	3.0	ASTM C235
Material Finer Than No. 200 Sieve	0.5	ASTM C117
Clay Lumps	0.5	ASTM C142

2. Flat or elongated particles having a length equal to or greater than five times the average thickness of the particle shall not exceed five percent by weight of the total when visually inspected.
3. Water absorption shall not exceed 0.4 pounds per cubic foot when tested in accordance with ASTM C127.
4. Percentage of wear, when tested in the Los Angeles abrasion machine in accordance with ASTM C535, grading No. 2, shall not exceed 18 percent.

APPROVED:



ENGINEERING OFFICER

DATE: 10-28-92



CHIEF ENGINEERING OFFICER

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
COMMUTER RAIL MATERIAL SPECIFICATION NO. 9248

STONE BALLAST

2. Handling

- a. Handle prepared ballast at production plant, during shipment, and at work site so that it is kept clean and free from segregation.
- b. Do not make repeated passes of equipment over the same level in stock pile area.

DELIVERY

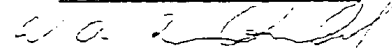
To be accepted, stone ballast offered shall conform to this specification in all respects. Stone ballast is subject to inspection at delivery and is at the supplier's risk until acceptance. Stone ballast rejected for non-compliance with this specification will be returned at the supplier's expense.

APPROVED:



ENGINEERING OFFICER

DATE: 10-28-92



CHIEF ENGINEERING OFFICER

We hereby certify that #2509.161 3/4" Crushed Stone and #2509.163 4" - 6" Surge Stone
Furnished to The Middlesex Corporation
For use on Woburn Regional Transportation Center
Woburn, MA
Contract Number 1.727
Supplier & Location Aggregate Industries 55 Russell St. Peabody, MA 01960
Manufacturer & Location Same
Shipped on March - November, 2000
Shipped Via Truck

Meets the requirements of the pertinent project plans, Special Provisions and the Massachusetts Highway Department Standard Specifications for Highways and Bridges (1988) and its Supplemental Specification dated December 23, 1998 - "Standard Specifications" in all aspects; that processing, product testing and inspection control of raw materials are in conformance with all applicable specifications, drawings and/or standards of all articles furnished, and all amendments thereto.

Date: January 23, 2001
Signed Michael Nichols Michael Nichols
Title: South Regional Manager, Materials & Research

RECEIVED
JAN 23 2001

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

We hereby certify that

ready-mixed concrete as delivered to:

Furnished to

The Middlesex Corporation

For use on

Woburn Regional Transportation Center
Woburn, MA

Contract Number

1.727

Supplier & Location

Wakefield Materials Corporation

Manufacturer & Location

Shipped on

during 2000

Shipped Via

Our Truck

Meets the requirements of the pertinent project plans, Special Provisions and the Massachusetts Highway Department Standard Specifications for Highways and Bridges (1988) and its Supplemental Specification dated December 23, 1998 - "Standard Specifications" in all aspects; that processing, product testing and inspection control of raw materials are in conformance with all applicable specifications, drawings and/or standards of all articles furnished, and all amendments thereto.

Date:

2.26.01

our manufacturing in house

Signed

W. J. Schelzi

Title:

Vice President

BARKER STEEL COMPANY, INC.

25 BIRCH STREET
 BUILDING B, SUITE 30 TEL 508 473-8484
 MILFORD, MA 01757 FAX 508 473-8512

CERTIFICATE OF COMPLIANCE

Barker Contract#: 10001091
 Project: Reg Transp. Ctr/MPA

Sold To: THE MIDDLESEX CORPORATIO
 ONE SPECTACLE POND ROAD
 LITTLETON, MA 01460

Ship To:
 Atlantic Ave.
 Woburn, MA

Shipped From: Medford		BOL: 012159-MED
Shipped Date: 06/14/2000		Ship Via: BARKER TRUCKING
Order	Description	Weight
00014	PLATFORM FNDS	35197 Lbs.
00015	PLATFORM LINE 30-36	7579 Lbs.
00016	LOGAN EXPRESS FND.	1918 Lbs.

Size	Weight	Grade	Supplier	Heat	#Yield	Tensile	Elong%	Bend	C	Mn	P	S	Coater	Batch	Cntrl#
3	807	60	Co Steel	N10256	67001	108650	11.0	OK	.47	.98	.012	.076			M4786
3	807	60	Co Steel	N10257	62474	100501	11.0	OK	.41	1.04	.013	.076			M4786
4	2790	60	Auburn	L7952	68850	101220	17.5	OK	.44	.97	.024	.054			M4763
4	2790	60	Auburn	L7968	69790	100400	17.5	OK	.41	.98	.015	.055			M4763
4	2790	60	Auburn	L7969	64460	95040	15.0	OK	.42	.93	.015	.060			M4763
4	2790	60	Auburn	L7970	69080	99970	16.3	OK	.41	.95	.013	.058			M4763
4	2790	60	Auburn	L7972	75250	107910	16.3	OK	.42	.98	.014	.052			M4763
4	2790	60	Auburn	L7989	72110	105380	15.0	OK	.42	.96	.014	.057			M4763
4	2790	60	Auburn	L7990	71640	103730	16.3	OK	.40	.98	.014	.050			M4763
4	2790	60	Auburn	L7991	72270	104650	16.3	OK	.40	.94	.012	.046			M4763
4	2790	60	Auburn	L7992	66840	98200	17.5	OK	.42	.96	.013	.043			M4763
4	2790	60	Auburn	L7994	73000	105550	16.3	OK	.42	.95	.009	.040			M4763
4	2790	60	AmeriSteel	CO-5660	72800	109500	9.0	OK	.40	1.19	.020	.030			M4783
4	2790	60	AmeriSteel	CO-5661	65280	100500	15.0	OK	.39	1.05	.010	.030			M4783
4	2790	60	AmeriSteel	CO-5664	66420	101800	12.0	OK	.40	1.11	.010	.030			M4783
4	2790	60	AmeriSteel	CO-5672	65380	99450	11.0	OK	.39	1.17	.010	.020			M4783
4	2790	60	Birmingham	550013562	70500	107000	12.0	OK	.39	1.11	.007	.047			M4749
5	39599	60	Birmingham	460014385	69100	106000	14.0	OK	.45	.99	.006	.046			M4693
5	39599	60	Birmingham	460014386	71000	109600	12.0	OK	.44	1.10	.006	.039			M4693
5	39599	60	Birmingham	460014387	65800	99100	14.0	OK	.39	.99	.009	.048			M4693
5	39599	60	Birmingham	460014388	67000	101200	13.0	OK	.42	.96	.010	.052			M4693
5	39599	60	Co Steel	N13849	64212	105119	13.0	OK	.44	1.08	.010	.050			M4771
6	1498	60	AmeriSteel	CO-7228	67920	106500	9.0	OK	.39	1.18	.010	.030			M4782
6	1498	60	AmeriSteel	CO-7229	63660	100000	11.0	OK	.35	1.21	.010	.040			M4782
6	1498	60	AmeriSteel	CO-7230	62510	98320	10.0	OK	.40	1.14	.010	.030			M4782
6	1498	60	AmeriSteel	CO-7308	67110	105100	13.0	OK	.38	1.20	.010	.020			M4782
6	1498	60	Co Steel	N14054	67453	109102	12.0	OK	.42	.95	.017	.050			M4768
6	1498	60	SMI Steel	24198	64108	105200	14.0	OK	.40	1.12	.014	.038			M4759
6	1498	60	SMI Steel	24199	62700	107500	15.0	OK	.39	1.12	.014	.035			M4759

RECEIVED
 JUL 11 2000
 THE MIDDLESEX CORPORATION

BARKER STEEL certifies that the material identified meets the requirements of the pertinent project plans, special provisions and specifications of the MASSACHUSETTS PORT AUTHORITY. Processing, product testing, and inspection of raw materials are in conformance with all applicable specifications, drawings and/or standard of all articles.

ALL RECORDS AND DOCUMENTS PERTINENT TO THIS CERTIFICATE AND NOT SUBMITTED HEREWITH, WILL BE MAINTAINED AVAILABLE BY BARKER STEEL FOR A PERIOD OF NOT LESS THAN THREE (3) YEARS.

***** WE CERTIFY THAT ALL MANUFACTURING PROCESSES FOR THIS STEEL HAVE OCCURRED IN THE UNITED STATES*****

BY:

Susan Adams

NOTARY PUBLIC

MY COMMISSION EXPIRES 5-20-05

BARKER STEEL COMPANY, INC.

25 BIRCH STREET
 BUILDING B, SUITE 30 TEL 508 473-8484
 MILFORD, MA 01757 FAX 508 473-8512

MAY 17 2000

CERTIFICATE OF COMPLIANCE

Barker Contract # 10001031
 Project: Reg Transp. Ctr/MPA

Sold To: THE MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 WOBURN, MA 01790

Ship To:
 Atlanta Ave.
 Woburn, MA

Shipped From: Medford BOL: 009916 MED
 Shipped Date: 04/25/2000 Ship Via: BARKER TRUCKING

Order	Description	Weight
00006	LIGHT POLE END REABANDON SLAB	1091116

Size	Weight	Grade	Supplier	Heat	#Yield	Tensile	Elong%	Bend	C	Mn	P	S	Coater	Batch	Ctrl#
6	1094	60	AmeriSteel	CO 7228	67920	106500	9.0	OK	.39	1.18	.010	.030			M11781
6	1094	60	AmeriSteel	CO 7229	63660	100000	11.0	OK	.35	1.21	.010	.010			M11782
6	1094	60	AmeriSteel	CO 7230	62510	98320	10.0	OK	.40	1.14	.010	.030			M11782
6	1094	60	AmeriSteel	CO 7308	67110	105100	13.0	OK	.38	1.20	.010	.020			M11782
6	1094	60	Co Steel	M11081	67453	109102	12.0	OK	.12	.95	.017	.070			M11763
6	1094	60	SMI Steel	24195	61100	105200	11.0	OK	.40	1.12	.014	.038			M11759
6	1094	60	SMI Steel	24199	62700	103500	15.0	OK	.39	1.12	.014	.035			M11759

MAY 16 2000

Middlesex Corp. J 1045
 Woburn Regional Trans. Ctr.

BARKER STEEL certifies that the material identified meets the requirements of the pertinent project plans, special provisions and specifications of the MASSACHUSETTS PORT AUTHORITY. Processing, product testing, and inspection of raw materials are in conformance with all applicable specifications, drawings and/or standard of all articles. ALL RECORDS AND DOCUMENTS PERTINENT TO THIS CERTIFICATE AND NOT SUBMITTED HEREWITH, WILL BE MAINTAINED AVAILABLE BY BARKER STEEL FOR A PERIOD OF NOT LESS THAN THREE (3) YEARS.

***** WE CERTIFY THAT ALL MANUFACTURING PROCESSES FOR THIS STEEL HAVE OCCURRED IN THE UNITED STATES *****

BY: *Suzanne F. [Signature]*

NOTARY PUBLIC
 MY COMMISSION EXPIRES 5-20-05

BARKER STEEL COMPANY, INC.

25 BIRCH STREET
 BUILDING B, SUITE 30 TEL 508 473-8484
 MILFORD, MA 01757 FAX 508 473-8512

CERTIFICATE OF COMPLIANCE

Barker Contract#: 10001091
 Project: Reg Transp. Ctr/MPA

Sold To: THE MIDDLESEX CORPORATIO
 ONE SPECTACLE POND ROAD
 LITTLETON, MA 01460

Ship To:
 Atlantic Ave.
 Woburn, MA

Shipped From: Medford		BOL: 010475-MED
Shipped Date: 05/09/2000		Ship Via: BARKER TRUCKING
Order	Description	Weight
00007	LOGAN EXPRESS FND.	2410 Lbs.
00008	PLATFORM #5 & #6	1456 Lbs.
00009	compressor & equip pad	295 Lbs.

Size	Weight	Grade	Supplier	Heat	#Yield	Tensile	Elong%	Bend	C	Mn	P	S	Coater	Batch	Cntrl#
3	234	60	Co Steel	N10256	67001	108650	11.0	OK	.47	.98	.012	.076			M4786
3	234	60	Co Steel	N10257	62474	100501	11.0	OK	.41	1.04	.013	.076			M4786
4	560	60	Auburn	L7952	68850	101220	17.5	OK	.44	.97	.024	.054			M4763
4	560	60	Auburn	L7968	69790	100400	17.5	OK	.41	.98	.015	.055			M4763
4	560	60	Auburn	L7969	64460	95040	15.0	OK	.42	.93	.015	.060			M4763
4	560	60	Auburn	L7970	69080	99970	16.3	OK	.41	.95	.013	.058			M4763
4	560	60	Auburn	L7972	75250	107910	16.3	OK	.42	.98	.014	.052			M4763
4	560	60	Auburn	L7989	72110	105380	15.0	OK	.42	.96	.014	.057			M4763
4	560	60	Auburn	L7990	71640	103730	16.3	OK	.40	.98	.014	.050			M4763
4	560	60	Auburn	L7991	72270	104650	16.3	OK	.40	.94	.012	.046			M4763
4	560	60	Auburn	L7992	66840	98200	17.5	OK	.42	.96	.013	.043			M4763
4	560	60	Auburn	L7994	73000	105550	16.3	OK	.42	.95	.009	.040			M4763
4	560	60	AmeriSteel	C0-5660	72800	109500	9.0	OK	.40	1.19	.020	.030			M4783
4	560	60	AmeriSteel	C0-5661	65280	100500	15.0	OK	.39	1.05	.010	.030			M4783
4	560	60	AmeriSteel	C0-5664	66420	101800	12.0	OK	.40	1.11	.010	.030			M4783
4	560	60	AmeriSteel	C0-5672	65380	99450	11.0	OK	.39	1.17	.010	.020			M4783
4	560	60	Birmingham	550013562	70500	107000	12.0	OK	.39	1.11	.007	.047			M4749
5	3193	60	Birmingham	460014385	69100	106000	14.0	OK	.45	.99	.006	.046			M4693
5	3193	60	Birmingham	460014386	71000	109600	12.0	OK	.44	1.10	.006	.039			M4693
5	3193	60	Birmingham	460014387	65800	99100	14.0	OK	.39	.99	.009	.048			M4693
5	3193	60	Birmingham	460014388	67000	101200	13.0	OK	.42	.96	.010	.052			M4693
5	3193	60	Co Steel	N13849	64212	105119	13.0	OK	.44	1.08	.010	.050			M4771
6	174	60	AmeriSteel	C0-7228	67920	106500	9.0	OK	.39	1.18	.010	.030			M4782
6	174	60	AmeriSteel	C0-7229	63660	100000	11.0	OK	.35	1.21	.010	.040			M4782
6	174	60	AmeriSteel	C0-7230	62510	98320	10.0	OK	.40	1.14	.010	.030			M4782
6	174	60	AmeriSteel	C0-7308	67110	105100	13.0	OK	.38	1.20	.010	.020			M4782
6	174	60	Co Steel	N14054	67453	109102	12.0	OK	.42	.95	.017	.050			M4768
6	174	60	SMI Steel	24198	64100	105200	14.0	OK	.40	1.12	.014	.038			M4759
6	174	60	SMI Steel	24199	62700	103500	15.0	OK	.39	1.12	.014	.035			M4759

BARKER STEEL certifies that the material identified meets the requirements of the pertinent project plans, special provisions and specifications of the MASSACHUSETTS PORT AUTHORITY. Processing, product testing, and inspection of raw materials are in conformance with all applicable specifications, drawings and/or standard of all articles.
 ALL RECORDS AND DOCUMENTS PERTINENT TO THIS CERTIFICATE AND NOT SUBMITTED HEREWITH, WILL BE MAINTAINED AVAILABLE BY BARKER STEEL FOR A PERIOD OF NOT LESS THAN THREE (3) YEARS.

***** WE CERTIFY THAT ALL MANUFACTURING PROCESSES FOR THIS STEEL HAVE OCCURRED IN THE UNITED STATES*****

BY: *Jessica Helman*

NOTARY PUBLIC
 MY COMMISSION EXPIRES *5-22-25*

BARKER STEEL COMPANY, INC.

25 BIRCH STREET
 BUILDING B, SUITE 30 TEL 508 473-8484
 MILFORD, MA 01757 FAX 508 473-8512

CERTIFICATE OF COMPLIANCE

Barker Contract#: **10001091**
 Project: Reg Transp. Ctr/MPA

Sold To: **THE MIDDLESEX CORPORATIO**
ONE SPECTACLE POND ROAD
LITTLETON, MA 01460

Ship To:
Allanlic Ave.
Woburn, MA

Shipped From: Medford		BOL: 009249-MED
Shipped Date: 04/10/2000		Ship Via: BARKER TRUCKING
Order	Description	Weight
00005	STATION ELVE. PIT & DETE-E	1759 Lbs.

Size	Weight	Grade	Supplier	Heat	#Yield	Tensile	Elong%	Bend	C	Mn	P	S	Coater	Batch	Cntrl#
3	119	60	Co Steel	N10264	66095	105934	11.0	OK	.46	.90	.015	.082			M4712
3	119	60	Co Steel	N10622	67906	104123	13.0	OK	.42	1.03	.015	.080			M4712
3	119	60	Co Steel	N10623	67001	103217	11.0	OK	.44	1.08	.027	.088			M4712
4	223	60	AmeriSteel	C0-5761	67110	103400	11.0	OK	.41	1.12	.010	.020			M4699
4	223	60	AmeriSteel	C0-5762	63350	96830	13.5	OK	.38	1.12	.010	.020			M4699
4	223	60	AmeriSteel	C0-5767	64400	100100	15.5	OK	.39	1.20	.010	.030			M4699
4	223	60	AmeriSteel	C0-5768	65510	98460	16.0	OK	.36	1.17	.010	.030			M4699
4	223	60	Birmingham	550013562	70500	107000	12.0	OK	.39	1.11	.007	.047			M4749
4	223	60	SMI Steel	23371	69200	109800	14.0	OK	.43	1.08	.013	.029			M4733
5	1417	60	Auburn	M1146	67200	99700	18.8	OK	.40	.95	.010	.037			M4732
5	1417	60	Auburn	M1147	67000	99600	18.0	OK	.42	.91	.008	.039			M4732
5	1417	60	Auburn	M1151	64830	98900	16.3	OK	.41	.92	.009	.051			M4732
5	1417	60	Auburn	M1152	64400	98500	13.8	OK	.40	.91	.011	.049			M4732
5	1417	60	Co Steel	N12824	69753	110823	11.0	OK	.47	1.06	.023	.043			M4717
5	1417	60	Co Steel	N12828*	67797	110171	10.0	OK	.46	1.02	.018	.043			M4717
5	1417	60	Co Steel	N12829	64864	105934	10.0	OK	.43	1.01	.017	.041			M4717
5	1417	60	SMI Steel	23965	66000	105000	13.0	OK	.41	1.09	.015	.048			M4729
5	1417	60	SMI Steel	23966	70000	111300	9.0	OK	.41	1.10	.016	.044			M4729
5	1417	60	SMI Steel	23967	67500	107700	11.0	OK	.44	1.09	.018	.045			M4729

THE MIDDLESEX CORPORATION
 M4717
 M4717
 M4717
 M4729
 M4729

BARKER STEEL certifies that the material identified meets the requirements of the pertinent project plans, special provisions and specifications of the MASSACHUSETTS PORT AUTHORITY. Processing, product testing, and inspection of raw materials are in conformance with all applicable specifications, drawings and/or standard of all articles. ALL RECORDS AND DOCUMENTS PERTINENT TO THIS CERTIFICATE AND NOT SUBMITTED HEREWITH, WILL BE MAINTAINED AVAILABLE BY BARKER STEEL FOR A PERIOD OF NOT LESS THAN THREE (3) YEARS.

***** WE CERTIFY THAT ALL MANUFACTURING PROCESSES FOR THIS STEEL HAVE OCCURRED IN THE UNITED STATES*****

BY: Jessica Fladman

[Signature]
 NOTARY PUBLIC
 MY COMMISSION EXPIRES 5-20-05

BARKER STEEL COMPANY, INC.

25 BIRCH STREET

BUILDING B, SUITE 30 TEL 508 473 8484

MILFORD, MA 01757 FAX 508 473-8512

CERTIFICATE OF COMPLIANCE

Barker Contract#: 10001091

Project: Reg Transp. Ctr/MPA

Sold To: THE FEDERAL EXPRESS CO
ONE SPECTACLE POND ROAD
LITTLETON, MA 01460

Ship To:
Woburn, MA

Shipped From: Medford	BO#: 008666 MFD
Shipped Date: 03/28/2000	Ship Via: BARKER TRUCK MFG
Order Description	Weight
00002 STATION BLDG	18562 Lbs

Size	Weight	Grade	Supplier	Heat	#Yield	Tensile	Elng%	Bend	C	Mn	P	S	Coater	Batch	Cont#
3	418	60	Co Steel	M10264	66995	103934	11.0	OK	.16	.90	.015	.082			M1712
3	418	60	Co Steel	M10622	67906	104123	13.0	OK	.12	1.03	.015	.080			M1712
3	418	60	Co Steel	M10623	67001	103217	11.0	OK	.11	1.08	.027	.088			M1712
4	311	60	AmeriSteel	CD 5761	67110	103100	11.0	OK	.11	1.12	.010	.020			M1699
4	311	60	AmeriSteel	CD 5762	63350	96330	13.5	OK	.18	1.12	.010	.030			M1699
4	311	60	AmeriSteel	CD 5767	64100	100100	15.5	OK	.19	1.20	.010	.030			M1699
4	311	60	AmeriSteel	CD 5768	65510	98160	16.0	OK	.16	1.17	.010	.030			M1699
4	311	60	Birmingham	550013562	70500	107600	12.0	OK	.19	1.11	.007	.017			M1749
4	311	60	SMI Steel	23321	69200	109800	14.0	OK	.13	1.08	.013	.029			M1733
5	17833	60	Auburn	M1116	67200	99700	18.8	OK	.10	.95	.010	.047			M1732
5	17833	60	Auburn	M1117	67000	99600	18.0	OK	.12	.91	.008	.049			M1732
5	17833	60	Auburn	M1151	64830	98900	16.3	OK	.11	.92	.009	.051			M1732
5	17833	60	Auburn	M1152	64100	98500	13.8	OK	.10	.91	.011	.049			M1732
5	17833	60	Co Steel	M12824	69753	110823	11.0	OK	.17	1.06	.023	.013			M1717
5	17833	60	Co Steel	M12828	67797	110171	10.0	OK	.16	1.02	.018	.013			M1717
5	17833	60	Co Steel	M12829	64864	105934	10.0	OK	.13	1.01	.017	.041			M1717
5	17833	60	SMI Steel	23965	66000	105000	13.0	OK	.11	1.09	.015	.048			M1729
5	17833	60	SMI Steel	23966	70000	111300	9.0	OK	.11	1.10	.016	.011			M1729
5	17833	60	SMI Steel	23967	67500	107700	11.0	OK	.11	1.09	.018	.015			M1729

BARKER STEEL certifies that the material identified meets the requirements of the pertinent project plans, special provisions and specifications of the MASSACHUSETTS PORT AUTHORITY. Processing, product testing, and inspection of raw materials are in conformance with all applicable specifications, drawings and/or standard of all articles. ALL RECORDS AND DOCUMENTS PERTINENT TO THIS CERTIFICATE AND NOT SUBMITTED HEREWITH WILL BE MAINTAINED AVAILABLE BY BARKER STEEL FOR A PERIOD OF NOT LESS THAN THREE (3) YEARS.

***** WE CERTIFY THAT ALL MANUFACTURING PROCESSES FOR THIS STEEL HAVE OCCURRED IN THE UNITED STATES *****

BY: *[Signature]*

NOTARY PUBLIC

MY COMMISSION EXPIRES: 5-20-01

APR 19 2000

BARKER STEEL COMPANY, INC.

25 BIRCH STREET
 BUILDING B, SUITE 30 TEL 508-473-8184
 MILFORD, MA 01757 FAX 508-473-8512

CERTIFICATE OF COMPLIANCE

Barker Contract# 10001091
 Project: Reg Transp. Ct/MPA

Sold To: THE MIDDLESEX CORPORATION
 ONE SPECTER ST FORD ROAD
 LITTLETON, MA 01460

Ship To:
 Woburn, MA

Shipped From: Watertown	BOL: 009002 WAT
Shipped Date: 01/06/2009	Ship Via: BARKER STEEL
Order Description	Weight
00001 SUPERIOR FOOTINGS	96118.

Size	Weight	Grade	Supplier	Heat	#Yield	Tensile	Elng%	Bend	C	Mn	P	S	Coater	Batch	Cont#
5	961	60	Co Steel	H1713	61861	105011	11.0	OK	.12	.99	.025	.010			111999
5	961	60	Co Steel	H1714	69319	109193	13.0	OK	.11	.99	.015	.017			111999

BARKER STEEL certifies that the material identified meets the requirements of the pertinent project plans, special provisions and specifications of the MASSACHUSETTS PORT AUTHORITY. Processing, product testing, and inspection of raw materials are in conformance with all applicable specifications, drawings and/or standard of all articles. ALL RECORDS AND DOCUMENTS PERTINENT TO THIS CERTIFICATE AND NOT SUBMITTED HEREWITH, WILL BE MAINTAINED AVAILABLE BY BARKER STEEL FOR A PERIOD OF NOT LESS THAN THREE (3) YEARS.

**** WE CERTIFY THAT ALL MANUFACTURING PROCESSES FOR THIS STEEL HAVE OCCURRED IN THE UNITED STATES ****

BY: *Susan Atkins*

NOTARY PUBLIC

MY COMMISSION EXPIRES 5-20-2010

Ref# 0049

CANTEX

CANTEX CERTIFICATION FOR EPC-40 (TC-40) RIGID NON-METALLIC CONDUIT

This certification covers CANTEX TC 40 conduit supplied to **Northeast Electrical Dist., Woburn, MA** on their PO #032100316325 for:

Contractor: City Lights Electric Co., Inc.
Contract Number: 1727
Job Name: Woburn Regional Transportation Center/Massport

CANTEX rigid schedule 40 (TC-40) Poly Vinyl Chloride (PVC) electrical plastic conduit (EPC-40), elbows and bends are produced, inspected, sampled and tested in accordance with National Electrical Manufacturers Association (NEMA) Standard TC-2 and Underwriters Laboratories (UL) Standard UL 651. The conduit, elbows and bends meet the requirements for the UL "Sunlight Resistance" rating, are listed by UL for use in direct sunlight, and are listed for use with 90 degree centigrade rated conductors.

CANTEX rigid schedule 40 electrical conduit, elbows and bends are listed by UL for burial without concrete encasement and are acceptable for use as "Rigid Non-metallic Conduit" as described in Article 347 of the National Electrical Code, including direct burial in underground installation as defined in section 300-5 and 710-2 (b).

The conduit and bends are approved for listing by Underwriters Laboratories, each piece bears the Underwriters Laboratories listing number, and representative samples are routinely examined and tested by Underwriters Laboratories for continuing compliance with UL specifications.

The PVC material used to manufacture CANTEX conduit meets or exceeds compound cell classification 12254B as defined by ASTM D 1784 Standard Specification, Rigid Poly (Vinyl Chloride) Compounds for Cell Classification 12454B (Formerly Type 1, Grade 1 and also designated PVC 1120).

All items manufactured by CANTEX are made in the United States of America.

RECEIVED

JUN 04 2001

Sincerely,
CANTEX INC.

Kim Gatlin
Administrative Assistant
Conduit Products

City Lights Electrical

State of Texas

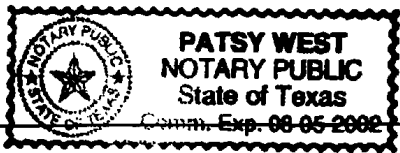
County of Palo Pinto

Before me, a notary public, on this day appeared Kim Gatlin known to be the person whose name is subscribed to the foregoing document, and, being by me first duly sworn, declared that the statements there in

contained are true and correct. Given under my hand and seal of office this 1st day of

June, 2001

Notary Public's Signature



Ref # 0050

CANTEX

CANTEX CERTIFICATION FOR UL SCHEDULE 80 ELECTRICAL CONDUIT

This certification covers CANTEX UL Schedule 80 conduit supplied to **Northeast Electrical Dist., Woburn, MA** on their PO #032100316325 for:

Contractor: City Lights Electric Co., Inc.
Contract Number: 1727
Job Name: Woburn Regional Transportation Center/Massport

CANTEX rigid schedule Schedule 80 Poly Vinyl Chloride (PVC) electrical plastic conduit elbows and bends are produced, inspected, sampled and tested in accordance with National Electrical Manufacturers Association (NEMA) Standard TC-2 and Underwriters Laboratories (UL) Standard UL 651. The conduit, elbows and bends meet the requirements for the UL "Sunlight Resistance" rating, are listed by UL for use in direct sunlight, and are listed for use with 90 degree centigrade rated conductors.

CANTEX rigid Schedule 80 electrical conduit, elbows and bends are acceptable for use as "Rigid Nonmetallic Conduit" as outlined in Article 347 of the National Electrical Code (NEC). In addition, CANTEX rigid schedule 80 electrical conduit, elbows and bends are acceptable for use where the raceway is subject to physical damage, as delineated in Articles 300-5(d) and 710-3(b) (1) of the NEC. The conduit is listed by UL for burial with or without concrete encasement including direct burial in underground installations as defined in Sections 300-5 and 710-3(b).

The conduit and bends are approved for listing by Underwriters Laboratories, each piece bears the Underwriters Laboratories listing number, and representative samples are routinely examined and tested by Underwriters Laboratories for continuing compliance with UL specifications.

All items manufactured by CANTEX are made in the United States of America.

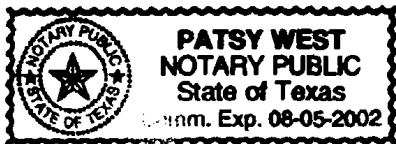
Sincerely,
CANTEX INC.

Kim Gatlin
Administrative Assistant
Conduit Products

RECEIVED

JUN 04 2001

City Lights Electrical



State of Texas

County of Palo Pinto

Before me, a notary public, on this day appeared Kim Gatlin known to be the person whose name is subscribed to the foregoing document, and, being by me first duly sworn, declared that the statements there in contained are true and correct. Given under my hand and seal of office this 1st day of June 2001.

Notary Public's Signature patsy west

Ref # 0060

SYNERTECH

CERTIFICATE OF COMPLIANCE

Date : June 1st, 2001

Project Location : Woburn Regional Transportation Center

Owner : Massport

Vendor : Synertech Moulded Products Inc.

Contract No. : 1.727

Material : Trough

Where Used : Woburn Regional Transportation Center

Manufacturer : Synertech Moulded Products Inc.

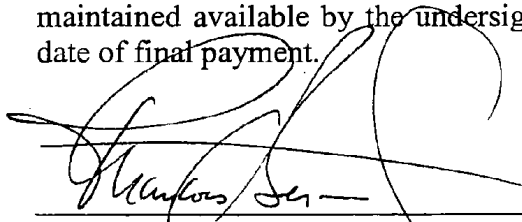
Location : 2 Inverness
Candiac, Quebec, Canada, J5R 4W5

Shipped by : Livingston


RECEIVED
JUN 11 2001
 City Lights Electrical

WE HEREBY CERTIFY THAT THE ABOVE MEETS THE SPECIFICATION REQUIREMENTS AS LISTED IN OUR MATERIAL SPECIFICATIONS IN ALL RESPECTS. PROCESSING PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS.

All records and documents pertinent to this certificate and not submitted herewith will be maintained available by the undersigned for a period of not less than three years from date of final payment.



 François Bérard, President



 Julie Gaudreault, Lawyer

SYNERTECH Moulded Products Inc.

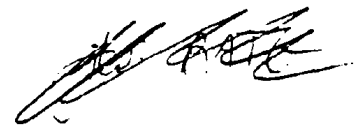
2 Inverness Street
 Candiac, Quebec
 Canada J5R 4W5
 Tel.: (450) 444-5181
 Fax: (450) 444-5568

332 South Michigan Avenue
 Suite 1143
 Chicago, Illinois 60604
 Tel.: (773) 622-1177
 1 (888) 868-5214
 Fax: 1 (888) 500-5568

P.O. Box 58
 Ajax, Ontario
 Canada L1S 3C2
 Tel.: (905) 728-4064
 Fax: (905) 728-2935

11130 Kingston Pike
 Suite 104
 Knoxville, Tennessee
 37922
 Tel.: 1 (888) 868-5214
 Fax: (865) 675-6826

F.7 – ASBESTOS WATER SAMPLES DOCUMENTATION



BATG - Environmental
150 Recreation Park Drive, Unit 5
Hingham, MA 02043

Phone: (781) 740-2078
Fax: (781) 740-2079

FAX TRANSMITTAL

To: Joe Phinney

Company: Middlesex

FAX No.: (781) 935-0383

From: Adam B. Westhaver

Subject: Woburn Regional Transportation Center

Total Number of Pages (including cover): 5

Joe:

Per your request, enclosed are the laboratory results for the Asbestos sample. Hard copy to follow.

Thanks Adam

04/24/00 MON 09:30 FAX 781 740 2079
 BATG ENVIRONMENTAL, INC
 Apr 21 J 16:49 P. 02/05
 0002



(413) 525-3392
 FAX (413) 525-6405

CHAIN OF CUSTODY RECORD

59 SPRUCE ST • 2ND FLOOR • EAST LONGMEADOW, MA 01025

Client Name: PAIG Middlesex Telephone: 781 940 2078
 Attn: Adam Westrauer Batch #: _____
 Address: 150 Kennel in Drive, #25
Hingham, MA 02043 Project #: 20-180
 Site Location: WATC Client P.O. #: 20-100
 Sampled By: AW
 Call Results: Yes No
 Fax Results: Yes No Fax #: 781 740 2079

Almet # 47219
 Analysis Required

Field Sample I.D.	Sample Description	Lab #	DATE SAMPLED		Composite	Grab	MATRIX							Preservative (Use Code)	Container (Use Code)	Asbestos in H ₂ O
			Start Date/Time	Stop Date/Time			WASTE WATER	GROUND WATER	DKG. WATER	Soil	Air	Other				
31	Water sample from existing box culvert	COB00220	4-19-00	4-19-00		X		X						I	A	X
* Call Brian Sullivan @ 617-460-4087 with results ASAP * 4/22/00 AW																

CONTAINER CODE: P = PLASTIC (____ Size) V = 40 ml vial G = Glass (____ size) B = 1000 ml Amber O = Other _____
 PRESERVATIVE CODE: 0 = ICED N = HNO₃ H = HCl S = NaOH T = Na₂S₂O₅ O = OTHER _____

Relinquished by: (Signature) <u>[Signature]</u>	Date Time <u>4-19-00</u> <u>8:25</u>	Received by: (Signature) <u>[Signature]</u>	Turnaround Requested: <u>24 Hour</u> 48-Hour _____ Normal _____ Other <u>Smallest delay if possible</u> Date Required _____
Relinquished by: (Signature) <u>[Signature]</u>	Date Time <u>4-19-00</u> <u>11:45</u>	Received by: (Signature) <u>[Signature]</u>	Remarks/Comments: <u>LAB Detection Limits below S-1 GW-2 method 1</u>
Relinquished by: (Signature)	Date Time	Received by: (Signature)	MATRIX OTHER _____

04-24-00 09:25 TO: MIDDLESEX CORP. - WOBURN FROM: 781 740 2079 P02

BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: ADAM WESTHAVER

REPORT DATE: 04/21/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-47919
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the COM-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WRTC

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST	SUBCONTRACTOR LABORATORY
01	00809220	GRND WATER	WATER SAMPLE EXISTING BOX CULVERT	special test	SUBCONTRACTED

The COM-TEST Environmental Laboratory operates under the following certifications and accreditations:

AHA 308
MASSACHUSETTS MA100
CONNECTICUT PH-0567
NEW YORK ELAP 10899

AHA ELLAP (LEAD) 6838
NEW HAMPSHIRE 2516
VERMONT DOH (LEAD) No. 15036
RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 4/21/00

SIGNATURE DATE *edm*

Ted Kopyseinski
Director of Operations

Edward Denson
Technical Director

ADAM WESTHAVER
BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043

04/21/00
page 1 of 2

Purchase Order Number: 20-100

Project Location: WRTC
Date Received: 04/19/00

LIMS-BAT #: LIMS-47919
Job Number: 20-100
Sample Matrix: GRND WATER

Sampled: 04/19/00
WATER SAMPLE EXISTING BOX CULVERT
01

Units	00B09220	Date	Analyzed	Analyst	RL	SPEC	LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	-----	---
SPECIAL TEST	- Note -	04/20/00		PAS				

Analytical Method(s):

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

The following notes were attached to the reported analysis:

Sample: 00B09220

Analysis: SPECIAL TEST
SUBCONTRACTED FOR ASBESTOS BY TEM:
CHATFIELD METHOD (EPA-600/4-83-043)

VOLUME = 1 LITER
ALIQUOT = 20 ML
ANALYTICAL SENSITIVITY (MFL) = 0.22
OF FIBERS = 0
TOTAL ASBESTOS (MFL) = 0
95 % CONFIDENCE INTERVAL = 3.69
DATE OF ANALYSIS = 4/20/2000

MFL = MILLION FIBERS PER LITER

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



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BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: ADAM WESTHAVER

REPORT DATE: 04/21/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-47919
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WRTC

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST	SUBCONTRACTOR LABORATORY
01	00809220	GRND WATER	WATER SAMPLE EXISTING BOX CULVERT	special test	SUBCONTRACTED

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

- AIHA 308
- MASSACHUSETTS MA100
- CONNECTICUT PH-0567
- NEW YORK ELAP 10899
- AIHA ELLAP (LEAD) 6838
- NEW HAMPSHIRE 2516
- VERMONT DOH (LEAD) No. 15036
- RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 4/21/00
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director



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ADAM WESTHAVER
BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043

04/21/00
page 1 of 2

Purchase Order Number: 20-100

Project Location: WRTC
Date Received: 04/19/00

LIMS-BAT #: LIMS-47919
Job Number: 20-100
Sample Matrix: GRND WATER

Sampled: 04/19/00
WATER SAMPLE EXISTING BOX CULVERT
01

	Units	00B09220	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
SPECIAL TEST		- Note -	04/20/00	PAS			

Analytical Method(s):

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



The following notes were attached to the reported analysis:

Sample: 00809220

Analysis: SPECIAL TEST
SUBCONTRACTED FOR ASBESTOS BY TEM:
CHATFIELD METHOD (EPA-600/4-83-043)

VOLUME = 1 LITER
ALIQUOT = 20 ML
ANALYTICAL SENSITIVITY (MFL) = 0.22
OF FIBERS = 0
TOTAL ASBESTOS (MFL) = 0
95 % CONFIDENCE INTERVAL = <3.69
DATE OF ANALYSIS = 4/20/2000

MFL = MILLION FIBERS PER LITER

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

F.8 – CONTAINMENT CELL LABORATORY ANALYTICAL DOCUMENTATION

SUMMARY OF CONTAINMENT CELL ANALYTICAL DOCUMENTATION
CELL 01 SAMPLE 01
CELL 01 SAMPLE 02
CELL 02 SAMPLE 01
CELL 03 SAMPLE 01
CELL 04 SAMPLE 01
CELL 05 SAMPLE 01
MATERIAL ABOVE GEOTEXTILE

TABLE 3
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-01 Sample-01	Cell-01 Sample-02	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
POLY-AROMATIC HYDROCARBONS					
1,2-Diphenylhydrazine	N/A	-	50	N/A	N/A
Fluoranthene	N/A	-	1000	N/A	N/A
Fluorene	N/A	-	400	N/A	N/A
Hexachlorobenzene	N/A	-	0.7	N/A	N/A
Hexachlorobutadiene	N/A	-	3	N/A	N/A
Hexachlorocyclopentadiene	N/A	-	50	N/A	N/A
Hexachloroethane	N/A	-	6	N/A	N/A
Indeno(1,2,3-cd)pyrene	N/A	-	0.7	N/A	N/A
Isophorone	N/A	-	100	N/A	N/A
o-cresol	N/A	-	NA	N/A	N/A
m&p-cresol(s)	N/A	-	NA	N/A	N/A
2-Methylnthalene	N/A	-	4	N/A	N/A
Naphthalene	N/A	-	4	N/A	N/A
2-Nitroaniline	N/A	-	NA	N/A	N/A
3-Nitroaniline	N/A	-	NA	N/A	N/A
4-Nitroaniline	N/A	-	NA	N/A	N/A
Nitrobenzene	N/A	-	500	N/A	N/A
2-Nitrophenol	N/A	-	100	N/A	N/A
4-Nitrophenol	N/A	-	100	N/A	N/A
N-Nitrosodimethylamine	N/A	-	50	N/A	N/A
N-Nitrosodiphenylamine	N/A	-	100	N/A	N/A
N-Nitroso-di-n-propylamine	N/A	-	50	N/A	N/A
Pentachlorophenol	N/A	-	5	N/A	N/A
Phenanthrene	N/A	-	100	N/A	N/A
Phenol	N/A	-	60	N/A	N/A
Pyrene	N/A	-	700	N/A	N/A
Pyridine	N/A	-	500	N/A	N/A
1,2,4-Trichlorobenzene	N/A	-	100	N/A	N/A
2,4,5-Trichlorophenol	N/A	-	2	N/A	N/A
2,4,6-Trichlorophenol	N/A	-	3	N/A	N/A

"-" = Non Detect

NA = Not Applicable

TABLE 3
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-01 Sample-01	Cell-01 Sample-02	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
AROMATIC HYDROCARBON					
Acenaphthalene	N/A	-	100	N/A	N/A
Acenaphthylene	N/A	-	100	N/A	N/A
Aniline	N/A	-	1000	N/A	N/A
Anthracene	N/A	-	1000	N/A	N/A
Benzidine	N/A	-	10	N/A	N/A
Benzoic Acid	N/A	-	1000	N/A	N/A
Benzo(a)anthracene	N/A	-	0.7	N/A	N/A
Benzo(a)pyrene	N/A	-	0.7	N/A	N/A
Benzo(b)fluoranthene	N/A	-	0.7	N/A	N/A
Benzo(g,h,i)perylene	N/A	-	1000	N/A	N/A
Benzo(k)fluoranthene	N/A	-	NA	N/A	N/A
Benzyl Alcohol	N/A	-	NA	N/A	N/A
Bis(2-chloroethoxy)methane	N/A	-	500	N/A	N/A
Bis(2-chloroethyl)ether	N/A	-	0.7	N/A	N/A
Bis(2-chloroisopropyl)ether	N/A	-	NA	N/A	N/A
Bis(2-ethylhexyl)phthalate	N/A	-	100	N/A	N/A
4-Bromophenyl phenyl ether	N/A	-	100	N/A	N/A
Butylbenzylphthalate	N/A	-	100	N/A	N/A
4-Chloroaniline	N/A	-	NA	N/A	N/A
1-Chloro-3-methylphenol	N/A	-	NA	N/A	N/A
2-Chloronaphthalene	N/A	-	1000	N/A	N/A
2-Chlorophenol	N/A	-	0.7	N/A	N/A
4-Chlorophenylphenyl ether	N/A	-	1000	N/A	N/A
Chrysene	N/A	-	7	N/A	N/A
Dibenzofuran	N/A	-	100	N/A	N/A
Dibenz(a,h)anthracene	N/A	-	0.7	N/A	N/A
1,2-Dichlorobenzene	N/A	-	100	N/A	N/A
1,3-Dichlorobenzene	N/A	-	100	N/A	N/A
1,4-Dichlorobenzene	N/A	-	2	N/A	N/A
3,3'-Dichlorobenzidine	N/A	-	1	N/A	N/A
2,4-Dichlorobenzene	N/A	-	NA	N/A	N/A
Diethylphthalate	N/A	-	0.7	N/A	N/A
2,4-Dimethylphenol	N/A	-	0.7	N/A	N/A
Dimethylphthalate	N/A	-	0.7	N/A	N/A
Di-n-butylphthalate	N/A	-	NA	N/A	N/A
Di-n-octylphthalate	N/A	-	NA	N/A	N/A
4,6-Dinitro-2-methylphenol	N/A	-	NA	N/A	N/A
2,4-Dinitrophenol	N/A	-	3	N/A	N/A
2,4-Dinitrotoluene	N/A	-	0.7	N/A	N/A
2,6-Dinitrotoluene	N/A	-	100	N/A	N/A

TABLE I
WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASD STANDARDS (mg/Kg)

	Cell-01 Sample-01	Cell-01 Sample-02	DEP Action Levels (RCS-1)	EPA Action Levels
C5 - C8 Aliphatic Hydrocarbons	N/A	N/A	100	N/A
C9 - C12 Aliphatic Hydrocarbons	N/A	N/A	1000	N/A
C9 - C10 Aromatic Hydrocarbons	N/A	N/A	100	N/A
Benzene	N/A	N/A	10	N/A
Ethylbenzene	N/A	N/A	80	N/A
Methyl tert butyl ether (MTBE)	N/A	N/A	0.3	N/A
Naphthalene	N/A	N/A	4	N/A
Toluene	N/A	N/A	90	N/A
m & p Xylenes	N/A	N/A	500	N/A
o-Xylene	N/A	N/A	500	N/A
C9 - C18 Aliphatic Hydrocarbons	N/A	N/A	1000	N/A
C19 - C36 Aliphatic Hydrocarbons	N/A	N/A	2500	N/A
C11 - C22 Aromatic Hydrocarbons	N/A	N/A	200	N/A
Acenaphthene	N/A	N/A	20	N/A
Acenaphthylene	N/A	N/A	100	N/A
Anthracene	N/A	N/A	1000	N/A
Benzo(a)anthracene	N/A	N/A	0.7	N/A
Benzo(a)pyrene	N/A	N/A	0.7	N/A
Benzo(b)fluoranthene	N/A	N/A	0.7	N/A
Benzo(g,h,i)perylene	N/A	N/A	1000	N/A
Benzo(k)fluoranthene	N/A	N/A	NA	N/A
Chrysene	N/A	N/A	7	N/A
Dibenzo(a,h)anthracene	N/A	N/A	0.7	N/A
Fluoranthene	N/A	N/A	1000	N/A
Fluorene	N/A	N/A	400	N/A
Indeno(1,2,3-cd)pyrene	N/A	N/A	0.7	N/A
2-Methylnaphthalene	N/A	N/A	4	N/A
Naphthalene	N/A	N/A	4	N/A
Phenanthrene	N/A	N/A	100	N/A
Pyrene	N/A	N/A	700	N/A
VOLATILE ORGANIC COMPOUNDS				
MTBE	N/A	N/A	NA	N/A

"-"= Non Detect

NA = Not Applicable

TABLE 1
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-01 Sample-01	Cell-01 Sample-02	DEP Action Levels (RCS-1)	EPA Action Levels
C5 - C8 Aliphatic Hydrocarbons	N/A	N/A	100	N/A
C9 - C12 Aliphatic Hydrocarbons	N/A	N/A	1000	N/A
C9 - C10 Aromatic Hydrocarbons	N/A	N/A	100	N/A
Benzene	N/A	N/A	10	N/A
Ethylbenzene	N/A	N/A	80	N/A
Methyl tert butyl ether (MTBE)	N/A	N/A	0.3	N/A
Naphthalene	N/A	N/A	4	N/A
Toluene	N/A	N/A	90	N/A
m & p Xylenes	N/A	N/A	500	N/A
o-Xylene	N/A	N/A	500	N/A
C9 - C18 Aliphatic Hydrocarbons	N/A	N/A	1000	N/A
C19 - C36 Aliphatic Hydrocarbons	N/A	N/A	2500	N/A
C11 - C22 Aromatic Hydrocarbons	N/A	N/A	200	N/A
Acenaphthene	N/A	N/A	20	N/A
Acenaphthylene	N/A	N/A	100	N/A
Anthracene	N/A	N/A	1000	N/A
Benzo(a)anthracene	N/A	N/A	0.7	N/A
Benzo(a)pyrene	N/A	N/A	0.7	N/A
Benzo(b)fluoranthene	N/A	N/A	0.7	N/A
Benzo(g,h,i)perylene	N/A	N/A	1000	N/A
Benzo(k)fluoranthene	N/A	N/A	NA	N/A
Chrysene	N/A	N/A	7	N/A
Dibenzo(a,h)anthracene	N/A	N/A	0.7	N/A
Fluoranthene	N/A	N/A	1000	N/A
Fluorene	N/A	N/A	400	N/A
Indeno(1,2,3-cd)pyrene	N/A	N/A	0.7	N/A
2-Methylnaphthalene	N/A	N/A	4	N/A
Naphthalene	N/A	N/A	4	N/A
Phenanthrene	N/A	N/A	100	N/A
Pyrene	N/A	N/A	700	N/A
MTBE	N/A	N/A	NA	N/A

"-" - Non Detect

NA - Not Applicable



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BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: BRIAN SULLIVAN

REPORT DATE: 04/04/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-47547
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WRTC

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
WRTC CELL 01-01	00807240	SOIL	NOT SPECIFIED	8260 sludge (a)
WRTC CELL 01-01	00807240	SOIL	NOT SPECIFIED	8260 sludge (b)
WRTC CELL 01-01	00807240	SOIL	NOT SPECIFIED	as (mg/kg)dw icp
WRTC CELL 01-01	00807240	SOIL	NOT SPECIFIED	cr (mg/kg)dw icp
WRTC CELL 01-01	00807240	SOIL	NOT SPECIFIED	pb (mg/kg)dw icp
WRTC CELL 01-01	00807240	SOIL	NOT SPECIFIED	solids (percent)

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308	AIHA ELLAP (LEAD) 6838
MASSACHUSETTS MA100	NEW HAMPSHIRE 2516
CONNECTICUT PH-0567	VERMONT DOH (LEAD) No. 15036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 4/4/00

SIGNATURE

DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director



39 Spruce Street • 2nd Floor • East Longmeadow, MA 01028 • FAX 413/525-6405 • TEL 413/525-2332
03/04/00

BRIAN SULLIVAN
BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043

page 1 of 8

Purchase Order Number: 20-100

Project Location: WRTC
Date Received: 03/29/00

LIMS-BAT #: LIMS-47547
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 03/27/00
NOT SPECIFIED
WRTC CELL 01-01

	Units	00807240	Date	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Acetone	mg/kg dry wt	BDL	03/31/00	WSD	0.240		
Acrolein	mg/kg dry wt	ND	03/31/00	WSD	0.096		
Acrylonitrile	mg/kg dry wt	ND	03/31/00	WSD	0.036		
Benzene	mg/kg dry wt	ND	03/31/00	WSD	0.003		
Bromobenzene	mg/kg dry wt.	ND	03/31/00	WSD	0.002		
Bromochloromethane	mg/kg dry wt.	ND	03/31/00	WSD	0.002		
Bromodichloromethane	mg/kg dry wt.	ND	03/31/00	WSD	0.002		
Bromomethane	mg/kg dry wt	ND	03/31/00	WSD	0.006		
Bromoform	mg/kg dry wt	ND	03/31/00	WSD	0.006		
2-Butanone (MEK)	mg/kg dry wt	ND	03/31/00	WSD	0.058		
n-Butylbenzene	mg/kg dry wt.	ND	03/31/00	WSD	0.003		
sec-Butylbenzene	mg/kg dry wt.	ND	03/31/00	WSD	0.003		
tert-Butylbenzene	mg/kg dry wt.	ND	03/31/00	WSD	0.004		
Carbon Disulfide	mg/kg dry wt	ND	03/31/00	WSD	0.014		
Carbon Tetrachloride	mg/kg dry wt	ND	03/31/00	WSD	0.002		
Chlorobenzene	mg/kg dry wt	ND	03/31/00	WSD	0.003		
Chlorodibromomethane	mg/kg dry wt	ND	03/31/00	WSD	0.002		
Chloroethane	mg/kg dry wt	ND	03/31/00	WSD	0.004		
2-Chloroethylvinylether	mg/kg dry wt	ND	03/31/00	WSD	0.046		
Chloroform	mg/kg dry wt	ND	03/31/00	WSD	0.004		
Chloromethane	mg/kg dry wt	ND	03/31/00	WSD	0.072		
2-Chlorotoluene	mg/kg dry wt.	ND	03/31/00	WSD	0.003		
4-Chlorotoluene	mg/kg dry wt.	ND	03/31/00	WSD	0.003		
1,2-Dibromo-3-Chloropropane	mg/kg dry wt.	ND	03/31/00	WSD	0.008		
1,2-Dibromoethane	mg/kg dry wt.	ND	03/31/00	WSD	0.003		
Dibromomethane	mg/kg dry wt	ND	03/31/00	WSD	0.005		
1,2-Dichlorobenzene	mg/kg dry wt	ND	03/31/00	WSD	0.004		
1,3-Dichlorobenzene	mg/kg dry wt	ND	03/31/00	WSD	0.003		
1,4-Dichlorobenzene	mg/kg dry wt	ND	03/31/00	WSD	0.004		
cis-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	03/31/00	WSD	0.012		
trans-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	03/31/00	WSD	0.010		
Dichlorodifluoromethane	mg/kg dry wt	ND	03/31/00	WSD	0.005		

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47547

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 03/27/00

NOT SPECIFIED

WRTC CELL 01-01

	Units	00B07240	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
1,1-Dichloroethane	mg/kg dry wt	ND	03/31/00	WSD	0.003		
1,2-Dichloroethane	mg/kg dry wt	ND	03/31/00	WSD	0.004		
1,1-Dichloroethylene	mg/kg dry wt	ND	03/31/00	WSD	0.003		
cis-1,2-Dichloroethylene	mg/kg dry wt.	ND	03/31/00	WSD	0.002		
trans-1,2-Dichloroethylene	mg/kg dry wt	ND	03/31/00	WSD	0.004		
1,2-Dichloropropane	mg/kg dry wt	ND	03/31/00	WSD	0.003		
1,3-Dichloropropane	mg/kg dry wt.	ND	03/31/00	WSD	0.002		
2,2-Dichloropropane	mg/kg dry wt.	ND	03/31/00	WSD	0.004		
1,1-Dichloropropene	mg/kg dry wt.	ND	03/31/00	WSD	0.007		
cis-1,3-Dichloropropene	mg/kg dry wt	ND	03/31/00	WSD	0.002		
trans-1,3-Dichloropropene	mg/kg dry wt	ND	03/31/00	WSD	0.002		
Ethyl Benzene	mg/kg dry wt	ND	03/31/00	WSD	0.003		
Ethyl Methacrylate	mg/kg dry wt	ND	03/31/00	WSD	0.004		
Hexachlorobutadiene	mg/kg dry wt.	ND	03/31/00	WSD	0.006		
2-Hexanone	mg/kg dry wt	ND	03/31/00	WSD	0.047		
Iodomethane	mg/kg dry wt	ND	03/31/00	WSD	0.004		
Isopropylbenzene	mg/kg dry wt.	ND	03/31/00	WSD	0.003		
p-Isopropyltoluene	mg/kg dry wt.	ND	03/31/00	WSD	0.003		
MTBE	mg/kg dry wt	0.015	03/31/00	WSD	0.004		
Methylene Chloride	mg/kg dry wt	ND	03/31/00	WSD	0.072		
MIBK	mg/kg dry wt	ND	03/31/00	WSD	0.042		
Naphthalene	mg/kg dry wt.	ND	03/31/00	WSD	0.005		
n-Propylbenzene	mg/kg dry wt.	ND	03/31/00	WSD	0.004		
Styrene	mg/kg dry wt	ND	03/31/00	WSD	0.003		
1,1,1,2-Tetrachloroethane	mg/kg dry wt	ND	03/31/00	WSD	0.002		
1,1,2,2-Tetrachloroethane	mg/kg dry wt	ND	03/31/00	WSD	0.007		
Tetrachloroethylene	mg/kg dry wt	ND	03/31/00	WSD	0.002		
Toluene	mg/kg dry wt	ND	03/31/00	WSD	0.003		
1,2,3-Trichlorobenzene	mg/kg dry wt.	ND	03/31/00	WSD	0.003		
1,2,4-Trichlorobenzene	mg/kg dry wt.	ND	03/31/00	WSD	0.003		
1,1,1-Trichloroethane	mg/kg dry wt	ND	03/31/00	WSD	0.004		
1,1,2-Trichloroethane	mg/kg dry wt	ND	03/31/00	WSD	0.003		

MDL = Method Detection Limit

ND = Not Detected

BDL = Below Detection Limit

NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to

determine PASS (P) or FAIL (F) condition of results.



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04/04/00
page 3 of 8

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47547
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 03/27/00
NOT SPECIFIED
WRTC CELL 01-01

	Units	00807240	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Trichloroethylene	mg/kg dry wt	ND	03/31/00	WSD	0.005		
Trichlorofluoromethane	mg/kg dry wt	ND	03/31/00	WSD	0.003		
1,2,3-Trichloropropane	mg/kg dry wt	ND	03/31/00	WSD	0.006		
1,2,4-Trimethylbenzene	mg/kg dry wt.	ND	03/31/00	WSD	0.003		
1,3,5-Trimethylbenzene	mg/kg dry wt.	ND	03/31/00	WSD	0.005		
Vinyl Acetate	mg/kg dry wt	ND	03/31/00	WSD	0.079		
Vinyl Chloride	mg/kg dry wt	ND	03/31/00	WSD	0.001		
m-Xylene	mg/kg dry wt	ND	03/31/00	WSD	0.006		
o + p Xylene	mg/kg dry wt	ND	03/31/00	WSD	0.002		

Analytical Method(s):

SW846 8260

SAMPLES ARE CONCENTRATED BY PURGE & TRAP, FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/04/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47547
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 03/27/00
NOT SPECIFIED
WRTC CELL 01-01

	Units	00807240	Date	Analyzed	Analyst	MDL	SPEC	LIMIT	P/F
-----	-----	-----	-----	-----	-----	---	----	-----	---
Chromium	mg/kg dry wt.	4.60	04/03/00		PM	0.40			

Analytical Method(s):

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



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04/04/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47547

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 03/27/00

NOT SPECIFIED

WRTC CELL 01-01

	Units	00807240	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Lead	mg/kg dry wt.	1710	04/03/00	PM	2.87		

Analytical Method(s):

sw846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47547
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 03/27/00
NOT SPECIFIED
WRTC CELL 01-01

	Units	00807240	Date	Analyst	MDL	SPEC	P/F
-----	-----	-----	-----	-----	---	-----	---
Solids, total	%	87.2	04/01/00	NJ			

Analytical Method(s):

SM 2540G

PERCENT OF SAMPLE REMAINING AFTER DRYING OVERNIGHT AT 103-105 DEGREES CENTIGRADE.

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



The following notes were attached to the reported analysis:

Sample: 00807240

Analysis: Lead

SAMPLE TO SPIKE RATIO GREATER THAN OR EQUAL TO 4:1, INCREASING VARIATION FROM ESTABLISHED CONTROL LIMIT IS ANTICIPATED. CONTROL LIMITS PROVIDED FOR REFERENCE ONLY AND ARE NOT APPLICABLE.

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/04/00

Lims Bat #: LIMS-47547

Page 1 of 4

QC Batch Number: GCMS/VOL-4891

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00B07240	1,2-Dichloroethane-d	Surrogate Recovery	116.800	%	56.000-128.000
	Toluene-d8	Surrogate Recovery	99.320	%	65.000-113.000
	Bromofluorobenzene	Surrogate Recovery	81.320	%	62.000-137.000
BLANK-24825	Acetone	Blank	<0.250	mg/kg dry wt	
	Benzene	Blank	<0.003	mg/kg dry wt	
	Carbon Tetrachloride	Blank	<0.002	mg/kg dry wt	
	Chloroform	Blank	<0.004	mg/kg dry wt	
	1,2-Dichloroethane	Blank	<0.004	mg/kg dry wt	
	1,4-Dichlorobenzene	Blank	<0.004	mg/kg dry wt	
	Ethyl Benzene	Blank	<0.003	mg/kg dry wt	
	2-Butanone (MEK)	Blank	<0.060	mg/kg dry wt	
	MIBK	Blank	<0.044	mg/kg dry wt	
	Naphthalene	Blank	<0.005	mg/kg dry wt.	
	Styrene	Blank	<0.004	mg/kg dry wt	
	Tetrachloroethylene	Blank	<0.002	mg/kg dry wt	
	Toluene	Blank	<0.004	mg/kg dry wt	
	1,1,1-Trichloroethan	Blank	<0.004	mg/kg dry wt	
	Trichloroethylene	Blank	<0.005	mg/kg dry wt	
	Trichlorofluorometha	Blank	<0.004	mg/kg dry wt	
	o + p Xylene	Blank	<0.002	mg/kg dry wt	
	m-Xylene	Blank	<0.006	mg/kg dry wt	
	1,2-Dichlorobenzene	Blank	<0.004	mg/kg dry wt	
	1,3-Dichlorobenzene	Blank	<0.003	mg/kg dry wt	
	1,1-Dichloroethane	Blank	<0.004	mg/kg dry wt	
	1,1-Dichloroethylene	Blank	<0.003	mg/kg dry wt	
	MTBE	Blank	<0.004	mg/kg dry wt	
	trans-1,2-Dichloroet	Blank	<0.004	mg/kg dry wt	
	Vinyl Chloride	Blank	<0.002	mg/kg dry wt	
	Methylene Chloride	Blank	<0.075	mg/kg dry wt	
	Chlorobenzene	Blank	<0.003	mg/kg dry wt	
	Chloromethane	Blank	<0.075	mg/kg dry wt	
	Bromomethane	Blank	<0.006	mg/kg dry wt	
	Chloroethane	Blank	<0.004	mg/kg dry wt	
	cis-1,3-Dichloroprop	Blank	<0.002	mg/kg dry wt	
	trans-1,3-Dichloropr	Blank	<0.002	mg/kg dry wt	
	Chlorodibromomethane	Blank	<0.002	mg/kg dry wt	
	1,1,2-Trichloroethan	Blank	<0.004	mg/kg dry wt	
	2-Chloroethylvinylet	Blank	<0.048	mg/kg dry wt	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/04/00

Lims Bat #: LIMS-47547

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QC Batch Number: GCMS/VOL-4891

Sample Id	Analysis	QC Analysis	Values	Units	Limits
	Bromoform	Blank	<0.006	mg/kg dry wt	
	1,1,2,2-Tetrachloroe	Blank	<0.007	mg/kg dry wt	
	2-Chlorotoluene	Blank	<0.003	mg/kg dry wt.	
	Hexachlorobutadiene	Blank	<0.006	mg/kg dry wt.	
	Isopropylbenzene	Blank	<0.003	mg/kg dry wt.	
	p-Isopropyltoluene	Blank	<0.004	mg/kg dry wt.	
	n-Propylbenzene	Blank	<0.004	mg/kg dry wt.	
	sec-Butylbenzene	Blank	<0.003	mg/kg dry wt.	
	tert-Butylbenzene	Blank	<0.004	mg/kg dry wt.	
	1,2,3-Trichlorobenze	Blank	<0.004	mg/kg dry wt.	
	1,2,4-Trichlorobenze	Blank	<0.004	mg/kg dry wt.	
	1,2,4-Trimethylbenze	Blank	<0.004	mg/kg dry wt.	
	1,3,5-Trimethylbenze	Blank	<0.005	mg/kg dry wt.	
	4-Chlorotoluene	Blank	<0.003	mg/kg dry wt.	
	Dibromomethane	Blank	<0.006	mg/kg dry wt	
	cis-1,2-Dichloroethy	Blank	<0.002	mg/kg dry wt.	
	1,1-Dichloropropene	Blank	<0.007	mg/kg dry wt.	
	1,2-Dichloropropane	Blank	<0.003	mg/kg dry wt	
	1,3-Dichloropropane	Blank	<0.002	mg/kg dry wt.	
	2,2-Dichloropropane	Blank	<0.004	mg/kg dry wt.	
	1,1,1,2-Tetrachloroe	Blank	<0.002	mg/kg dry wt	
	1,2,3-Trichloropropa	Blank	<0.006	mg/kg dry wt	
	n-Butylbenzene	Blank	<0.004	mg/kg dry wt.	
	Dichlorodifluorometh	Blank	<0.005	mg/kg dry wt	
	Bromochloromethane	Blank	<0.002	mg/kg dry wt.	
	Bromobenzene	Blank	<0.002	mg/kg dry wt.	
	Iodomethane	Blank	<0.004	mg/kg dry wt	
	Acrolein	Blank	<0.100	mg/kg dry wt	
	Acrylonitrile	Blank	<0.038	mg/kg dry wt	
	Carbon Disulfide	Blank	<0.015	mg/kg dry wt	
	Vinyl Acetate	Blank	<0.082	mg/kg dry wt	
	2-Hexanone	Blank	<0.048	mg/kg dry wt	
	trans-1,4-Dichloro-2	Blank	<0.010	mg/kg dry wt	
	Ethyl Methacrylate	Blank	<0.004	mg/kg dry wt	
	cis-1,4-Dichloro-2-B	Blank	<0.012	mg/kg dry wt	
	Bromodichloromethane	Blank	<0.002	mg/kg dry wt.	
	1,2-Dibromo-3-Chloro	Blank	<0.008	mg/kg dry wt.	
	1,2-Dibromoethane	Blank	<0.004	mg/kg dry wt.	



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 QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/04/00

Lims Bat #: LIMS-47547

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QC Batch Number: ICP-4290

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00807240	Arsenic	Sample Amount	178.17	mg/kg dry wt.	
		Duplicate Value	175.12	mg/kg dry wt.	
		Duplicate RPD	1.72	%	
		Sample Amount	178.17	mg/kg dry wt.	
		Matrix Spk Amt Added	114.73	mg/kg dry wt.	
		MS Amt Measured	273.85	mg/kg dry wt.	
	Chromium	Matrix Spike % Rec.	83.40	%	
		Sample Amount	4.60	mg/kg dry wt.	
		Duplicate Value	4.37	mg/kg dry wt.	
		Duplicate RPD	5.12	%	
		Sample Amount	4.60	mg/kg dry wt.	
		Matrix Spk Amt Added	114.73	mg/kg dry wt.	
	Lead	MS Amt Measured	105.72	mg/kg dry wt.	
		Matrix Spike % Rec.	88.14	%	
		Sample Amount	1711.14	mg/kg dry wt.	
Duplicate Value		1737.47	mg/kg dry wt.		
Duplicate RPD		1.53	%		
Sample Amount		1711.14	mg/kg dry wt.		
	Matrix Spk Amt Added	114.73	mg/kg dry wt.		
	MS Amt Measured	1758.17	mg/kg dry wt.		
	Matrix Spike % Rec.	41.00	%		



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/04/00

Lims Bat #: LIMS-47547

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NOTES:

QC Batch No.: ICP-4290

Sample ID: 00807240

Analysis: Lead (mg/kg dry wt)

QC Analysis: Matrix Spike % Rec.

SAMPLE TO SPIKE RATIO GREATER THAN OR EQUAL TO 4:1, INCREASING VARIATION
FROM ESTABLISHED CONTROL LIMIT IS ANTICIPATED. CONTROL LIMITS PROVIDED
FOR REFERENCE ONLY AND ARE NOT APPLICABLE.



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FAX (413) 525-6105

CHAIN OF CUSTODY RECORD

39 SPRUCE ST. • 2ND FLOOR • EAST LONGMEADOW, MA 01028

Client Name: BATG Environmental / Middlesex Telephone: 781-740-2078
 Attn: Brian Sullivan Batch #: _____
 Address: 150 Recreation Park Drive Unit 5
Hingham, MA 02043 Project #: 20-100
 Site Location: WRTC Client P.O. #: 20-100
 Sampled By: Brian Sullivan Fax #: 781-740-2079
 Call Results: Yes _____ No
 Fax Results: Yes No

Final 47547
Analysis Required

Field Sample I.D.	Sample Description	Lab #	DATE SAMPLED		Composite	Grab	MATRIX							Preservative (Use Code)	Container (Use Code)	Total Arsenic 7060	Total Lead 6010	Total Cadmium 6010	VOC 8260
			Start Date/Time	Stop Date/Time			WASTE WATER	GROUND WATER	DWG WATER	Soil	Air	*Other							
<u>WRTC Cell 01-01</u>	<u>WRTC Soil Cell 01-01</u>	<u>00807240</u>	<u>3/28/00</u>	<u>3/28/00</u>	<input checked="" type="checkbox"/>								<u>0</u>	<u>G</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

CONTAINER CODE: P: PLASTIC (___ Size) V = 40 ml via G = Glass (1000 size) A = 1000 ml Amber 0 = Other _____
 PRESERVATIVE CODE: I = ICED N = HNO₃ H = HCl S = NaOH T = Na₂S₂O₃ O = OTHER Methanol
 Relinquished by: (Signature) Brian Sullivan Date Time 3/28/00 1100 Received by: (Signature) [Signature]
 Turnaround Requested _____ 24-Hour _____ 48-Hour _____ Normal 5-7 days Other _____ Date Required _____
 Relinquished by: (Signature) [Signature] Date Time 3-28-00 1130 Received by: (Signature) [Signature]
 Remarks/Comments: Lab detection below 5-1 gal standards
 Relinquished by: (Signature) _____ Date Time _____ Received by: (Signature) _____
 *MATRIX OTHER _____



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BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: BRIAN SULLIVAN

REPORT DATE: 04/13/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-47625
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WOBURN REGIONAL TRANSPORTATION CENTER

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
WRTC CELL 01-02	00B07558	SOIL	FAR OFF SITE DISPOSAL	ag (mg/kg)dw icp
WRTC CELL 01-02	00B07558	SOIL	FAR OFF SITE DISPOSAL	ba (mg/kg)dw icp
WRTC CELL 01-02	00B07558	SOIL	FAR OFF SITE DISPOSAL	cd (mg/kg)dw icp
WRTC CELL 01-02	00B07558	SOIL	FAR OFF SITE DISPOSAL	hg (mg/kg) dw
WRTC CELL 01-02	00B07558	SOIL	FAR OFF SITE DISPOSAL	se (mg/kg)dw icp
WRTC CELL 01-02	00B07558	SOIL	FAR OFF SITE DISPOSAL	solids (percent)
WRTC CELL 01-02	00B07558	SOIL	FAR OFF SITE DISPOSAL	tph gc dry 8100m
WRTC CELL 01-02	00B07783	SOIL	FOR OFF SITE DISPOSAL	as (leachate)
WRTC CELL 01-02	00B07783	SOIL	FOR OFF SITE DISPOSAL	tc1p - lead icp
WRTC CELL 01-02	00B08220	SOIL	FOR OFF SITE DISPOSAL	8270-sludge bn-1
WRTC CELL 01-02	00B08220	SOIL	FOR OFF SITE DISPOSAL	8270-sludge bn-2
WRTC CELL 01-02	00B08220	SOIL	FOR OFF SITE DISPOSAL	8270-sludge-acid
WRTC CELL 01-02	00B08220	SOIL	FOR OFF SITE DISPOSAL	flashpoint
WRTC CELL 01-02	00B08220	SOIL	FOR OFF SITE DISPOSAL	pcb - sludge
WRTC CELL 01-02	00B08220	SOIL	FOR OFF SITE DISPOSAL	ph solids
WRTC CELL 01-02	00B08220	SOIL	FOR OFF SITE DISPOSAL	reactivity

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308	AIHA ELLAP (LEAD) 6838
MASSACHUSETTS MA100	NEW HAMPSHIRE 2516
CONNECTICUT PH-0567	VERMONT DOH (LEAD) No. 15036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 4/13/00
 SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director



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04/14/00

BRIAN SULLIVAN
BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043

Purchase Order Number: 20-100

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Project Location: WOBURN REGIONAL TRANSPORTATION CENTER
Date Received: 04/05/00

LIMS-BAT #: LIMS-47625
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/05/00
FOR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00B08220	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Acenaphthene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Acenaphthylene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Aniline	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Anthracene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Benzidine	mg/kg dry wt	ND	04/12/00	BGL	2.73		
Benzoic Acid	mg/kg dry wt	ND	04/12/00	BGL	1.17		
Benzo(a)anthracene	mg/kg dry wt	0.53	04/12/00	BGL	0.39		
Benzo(a)pyrene	mg/kg dry wt	BDL	04/12/00	BGL	0.78		
Benzo(b)fluoranthene	mg/kg dry wt	0.60	04/12/00	BGL	0.39		
Benzo(g,h,i)perylene	mg/kg dry wt	BDL	04/12/00	BGL	1.17		
Benzo(k)fluoranthene	mg/kg dry wt	BDL	04/12/00	BGL	0.78		
Benzyl Alcohol	mg/kg dry wt	ND	04/12/00	BGL	0.78		
Bis(2-chloroethoxy)methane	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Bis(2-chloroethyl)ether	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Bis(2-chloroisopropyl)ether	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Bis(2-ethylhexyl)phthalate	mg/kg dry wt	ND	04/12/00	BGL	0.39		
4-Bromophenyl phenyl ether	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Butylbenzylphthalate	mg/kg dry wt	ND	04/12/00	BGL	0.78		
4-Chloroaniline	mg/kg dry wt	ND	04/12/00	BGL	0.78		
4-Chloro-3-methylphenol	mg/kg dry wt	ND	04/12/00	BGL	0.78		
2-Chloronaphthalene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
2-Chlorophenol	mg/kg dry wt	ND	04/12/00	BGL	0.39		
4-Chlorophenylphenyl ether	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Chrysene	mg/kg dry wt	BDL	04/12/00	BGL	0.78		
Dibenzofuran	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Dibenz(a,h)anthracene	mg/kg dry wt	ND	04/12/00	BGL	0.78		
1,2-Dichlorobenzene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
1,3-Dichlorobenzene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
1,4-Dichlorobenzene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
3,3'-Dichlorobenzidine	mg/kg dry wt	ND	04/12/00	BGL	0.78		
2,4-Dichlorophenol	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Diethylphthalate	mg/kg dry wt	ND	04/12/00	BGL	0.39		

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/05/00
FOR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00808220	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
2,4-Dimethylphenol	mg/kg dry wt	ND	04/12/00	BGL	1.56		
Dimethylphthalate	mg/kg dry wt	ND	04/12/00	BGL	0.78		
Di-n-butylphthalate	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Di-n-octylphthalate	mg/kg dry wt	ND	04/12/00	BGL	0.78		
4,6-Dinitro-2-methylphenol	mg/kg dry wt	ND	04/12/00	BGL	0.39		
2,4-Dinitrophenol	mg/kg dry wt	ND	04/12/00	BGL	0.39		
2,4-Dinitrotoluene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
2,6-Dinitrotoluene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
1,2-Diphenylhydrazine	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Fluoranthene	mg/kg dry wt	0.98	04/12/00	BGL	0.39		
Fluorene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Hexachlorobenzene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Hexachlorobutadiene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Hexachlorocyclopentadiene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Hexachloroethane	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Indeno(1,2,3-cd)pyrene	mg/kg dry wt	0.40	04/12/00	BGL	0.39		
Isophorone	mg/kg dry wt	ND	04/12/00	BGL	0.39		
o-cresol	mg/kg dry wt	ND	04/12/00	BGL	0.39		
m & p-cresol(s)	mg/kg dry wt	ND	04/12/00	BGL	0.39		
2-Methylnaphthalene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Naphthalene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
2-Nitroaniline	mg/kg dry wt	ND	04/12/00	BGL	0.39		
3-Nitroaniline	mg/kg dry wt	ND	04/12/00	BGL	0.39		
4-Nitroaniline	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Nitrobenzene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
2-Nitrophenol	mg/kg dry wt	ND	04/12/00	BGL	0.39		
4-Nitrophenol	mg/kg dry wt	ND	04/12/00	BGL	0.39		
N-Nitrosodimethylamine	mg/kg dry wt	ND	04/12/00	BGL	0.39		
N-Nitrosodiphenylamine	mg/kg dry wt	ND	04/12/00	BGL	0.39		
N-Nitroso-di-n-propylamine	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Pentachlorophenol	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Phenanthrene	mg/kg dry wt	BDL	04/12/00	BGL	0.39		

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ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/05/00
FOR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00808220	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Phenol	mg/kg dry wt	ND	04/12/00	BGL	0.39		
Pyrene	mg/kg dry wt	BDL	04/12/00	BGL	1.17		
Pyridine	mg/kg dry wt	ND	04/12/00	BGL	0.39		
1,2,4-Trichlorobenzene	mg/kg dry wt	ND	04/12/00	BGL	0.39		
2,4,5-Trichlorophenol	mg/kg dry wt	ND	04/12/00	BGL	0.39		
2,4,6-Trichlorophenol	mg/kg dry wt	ND	04/12/00	BGL	0.39		

Analytical Method(s):

SW846 8270

SAMPLES ARE EXTRACTED IN METHYLENE CHLORIDE/ACETONE AND FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

RL = Reporting Limit
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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/10/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 03/27/00

FAR OFF SITE DISPOSAL

WRTC CELL 01-02

	Units	00807558	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
----- Silver	mg/kg dry wt.	12.5	04/10/00	PM	0.57	-----	---

Analytical Method(s):

sw846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



04/11/00

LIMS-BAT #: LIMS-47625
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/05/00
FOR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00807783	Date	Analyst	RL	SPEC	P/F
			Analyzed			LIMIT	
-----	-----	-----	-----	-----	---	-----	---
Arsenic	MG/L LEACHATE	BDL	04/11/00	KLF	0.10	5.00	P

Analytical Method(s):

Arsenic
SWB46 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



04/14/00

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 03/27/00

FAR OFF SITE DISPOSAL

WRTC CELL 01-02

	Units	00B07558	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Barium	mg/kg dry wt.	321	04/10/00	PM	0.11		

Analytical Method(s):

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/14/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 03/27/00
FAR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00807558	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Cadmium	mg/kg dry wt.	8.71	04/10/00	PM	0.06		

Analytical Method(s):

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/05/00
FOR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00808220	Date	Analyst	RL	SPEC	P/F
-----	-----	-----	-----	-----	---	-----	---
Flashpoint	deg. f	>212	04/06/00	SSK		140	P

Analytical Method(s):

SW846 1010

PENSKY-MARTENS CLOSED CUP PROCEDURE

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/14/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 03/27/00
FAR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00807558	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Mercury	mg/kg dry wt.	0.837	04/07/00	JER	0.010		

Analytical Method(s):

SW846 3050/7471

SAMPLES ARE DIGESTED WITH ACIDS AND THEN ANALYZED BY
COLD VAPOR (FLAMELESS) ATOMIC ABSORPTION SPECTROPHOTOMETRY

RL = Reporting Limit
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BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



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04/14/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/05/00
FOR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00808220	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
PCB-1221	mg/kg dry wt.	ND	04/13/00	JB			
PCB-1232	mg/kg dry wt.	ND	04/13/00	JB			
PCB-1242	mg/kg dry wt.	ND	04/13/00	JB			
PCB-1248	mg/kg dry wt.	ND	04/13/00	JB			
PCB-1254	mg/kg dry wt.	ND	04/13/00	JB			
PCB-1260	mg/kg dry wt.	ND	04/13/00	JB			
PCB's	mg/kg dry wt.	ND	04/13/00	JB	0.029		

Analytical Method(s):

SW846 8080

SAMPLES ARE EXTRACTED INTO HEXANE AND ANALYZED BY GAS CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTION.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/05/00
FOR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00808220	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
pH	units	5.64	04/06/00	SJ			

Analytical Method(s):

SW846 9045

ELECTRODE DETERMINATION.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/05/00
FOR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00808220	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Cyanide, reactive	mg/kg	ND	04/12/00	SBP	5.0	250	P
Reactive Sulfide	mg/kg	ND	04/12/00	SBP	20	500	P

Analytical Method(s):

SW846 CH.7.3.3.2/7.3.4.2

REACTIVE CYANIDE SW846 CHPT. 7.3.3.2

QUANTITATIVE ANALYSIS OF HYDROGEN CYANIDE GAS GENERATED WHEN THE SAMPLE IS TREATED WITH ACID.

REACTIVE SULFIDE SW846 CHPT. 7.3.4.2

QUANTITATIVE ANALYSIS OF HYDROGEN SULFIDE GAS GENERATED WHEN THE SAMPLE IS TREATED WITH ACID.

RL = Reporting Limit
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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/14/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 03/27/00
FAR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00807558	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Selenium	mg/kg dry wt.	18.0	04/10/00	PM	5.72		

Analytical Method(s):

Selenium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

RL = Reporting Limit
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BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



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04/18/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 03/27/00
FAR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00807558	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Solids, total	%	87.4	04/07/00	NJ			

Analytical Method(s):

SM 2540G

PERCENT OF SAMPLE REMAINING AFTER DRYING OVERNIGHT AT 103-105 DEGREES CENTIGRADE.

RL = Reporting Limit
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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/14/00

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LIMS-BAT #: LIMS-47625
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/05/00
FOR OFF SITE DISPOSAL
WRTC CELL 01-02

	Units	00807783	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Lead	MG/L LEACHATE	14.8	04/11/00	KLF	0.05	5.00	F

Analytical Method(s):

SW846 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

RL = Reporting Limit
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BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/14/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47625

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 03/27/00

FAR OFF SITE DISPOSAL

WRTC CELL 01-02

	Units	00807558	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Unknown Hydrocarbons	mg/kg dry wt.	74	04/11/00	MFF	9.5		

Analytical Method(s):

MODIFIED SW846 8100

SAMPLES ARE EXTRACTED INTO METHYLENE CHLORIDE AND ANALYZED BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION (FID). ALL PEAKS ELUTING IN THE PETROLEUM FUEL REGION ARE QUANTITATED AS #2 FUEL OIL.

RL = Reporting Limit
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BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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06/14/00

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The following notes were attached to the reported analysis:

Sample: 00B07783

Analysis: Lead

SAMPLE TO SPIKE RATIO GREATER THAN OR EQUAL TO 4:1, INCREASING VARIATION FROM ESTABLISHED CONTROL LIMIT IS ANTICIPATED. CONTROL LIMITS PROVIDED FOR REFERENCE ONLY AND ARE NOT APPLICABLE.

RL = Reporting Limit
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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47625

Page 1 of 10

QC Batch Number: FLASHPONT-0895

Sample Id	Analysis	QC Analysis	Values	Units	Limits
STDADD-14981	Flashpoint	Standard Measured	83.0	deg. F	
		Standard Amt Added	81.0	deg. F	
		Standard % Recovery	102.5	%	
STDADD-14982	Flashpoint	Standard Measured	84.0	deg. F	
		Standard Amt Added	81.0	deg. F	
		Standard % Recovery	103.7	%	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47625

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QC Batch Number: FLASHPONT-0898

Sample Id	Analysis	QC Analysis	Values	Units	Limits
STDADD-15034	Flashpoint	Standard Measured	83.0	deg. F	
		Standard Amt Added	81.0	deg. F	
		Standard % Recovery	102.5	%	
STDADD-15035	Flashpoint	Standard Measured	84.0	deg. F	
		Standard Amt Added	81.0	deg. F	
		Standard % Recovery	103.7	%	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47625

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QC Batch Number: GC/ECD-3099

Sample Id	Analysis	QC Analysis	Values	Units	Limits	
-----	-----	-----	-----	-----	-----	
00B08220	PCB-1260	Sample Amount	0.000	mg/kg dry wt.		
		Matrix Spk Amt Added	58.506	mg/kg dry wt.		
		MS Amt Measured	62.748	mg/kg dry wt.		
		Matrix Spike % Rec.	107.250	%		
	PCB's	Sample Amount	<0.029	mg/kg dry wt.		
		Matrix Spk Amt Added	58.506	mg/kg dry wt.		
		MS Amt Measured	62.748	mg/kg dry wt.		
		Matrix Spike % Rec.	107.250	%		
	BLANK-25072	Dibutyl Chlorendate	Surrogate Recovery	45.5	%	
		PCB-1232	Blank	0.000	mg/kg dry wt.	
PCB-1242		Blank	0.000	mg/kg dry wt.		
PCB-1254		Blank	0.000	mg/kg dry wt.		
PCB-1260		Blank	0.000	mg/kg dry wt.		
PCB-1248		Blank	0.000	mg/kg dry wt.		
PCB-1221		Blank	0.000	mg/kg dry wt.		
PCB's		Blank	<0.025	mg/kg dry wt.		



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47625

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QC Batch Number: GC/FID-3435

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00807558	Unknown Hydrocarbons	Sample Amount	73.8	mg/kg dry wt.	
		Duplicate Value	81.1	mg/kg dry wt.	
		Duplicate RPD	9.5	%	
BLANK-25017	Unknown Hydrocarbons	Blank	<8.3	mg/kg dry wt.	
LFBLANK-11376	Unknown Hydrocarbons	Lab Fort Blank Amt.	33.3	mg/kg dry wt.	
		Lab Fort Blk. Found	26.4	mg/kg dry wt.	
		Lab Fort Blk. % Rec.	79.2	%	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47625

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QC Batch Number: GCMS/SEMI-2367

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00808220	Phenol-d6	Surrogate Recovery	92.5	%	24.0-113.0
	Nitrobenzene-d5	Surrogate Recovery	78.0	%	23.0-120.0
	2-Fluorobiphenyl	Surrogate Recovery	78.0	%	25.0-121.0
	2,4,6-Tribromophenol	Surrogate Recovery	93.0	%	19.0-122.0
	Terphenyl-d14	Surrogate Recovery	114.0	%	18.0-137.0
	2-Fluorophenol	Surrogate Recovery	76.0	%	30.0-115.0
BLANK-25063	Naphthalene	Blank	<0.33	mg/kg dry wt	
	1,2-Dichlorobenzene	Blank	<0.33	mg/kg dry wt	
	Acenaphthene	Blank	<0.33	mg/kg dry wt	
	Acenaphthylene	Blank	<0.33	mg/kg dry wt	
	Aniline	Blank	<0.33	mg/kg dry wt	
	Anthracene	Blank	<0.33	mg/kg dry wt	
	Benzidine	Blank	<2.33	mg/kg dry wt	
	Benzo(a)anthracene	Blank	<0.33	mg/kg dry wt	
	Benzo(a)pyrene	Blank	<0.67	mg/kg dry wt	
	Benzo(b)fluoranthene	Blank	<0.33	mg/kg dry wt	
	Benzo(g,h,i)perylene	Blank	<1.00	mg/kg dry wt	
	Benzoic Acid	Blank	<1.00	mg/kg dry wt	
	Benzyl Alcohol	Blank	<0.67	mg/kg dry wt	
	Bis(2-chloroethyl)et	Blank	<0.33	mg/kg dry wt	
	Bis(2-chloroethoxy)m	Blank	<0.33	mg/kg dry wt	
	Bis(2-chloroisopropyl)	Blank	<0.33	mg/kg dry wt	
	Bis(2-ethylhexyl)phthalate	Blank	<0.33	mg/kg dry wt	
	4-Bromophenyl phenyl	Blank	<0.33	mg/kg dry wt	
	Butylbenzylphthalate	Blank	<0.67	mg/kg dry wt	
	4-Chloroaniline	Blank	<0.67	mg/kg dry wt	
	2-Chloronaphthalene	Blank	<0.33	mg/kg dry wt	
	4-Chlorophenylphenyl	Blank	<0.33	mg/kg dry wt	
	Chrysene	Blank	<0.67	mg/kg dry wt	
	Dibenz(a,h)anthracene	Blank	<0.67	mg/kg dry wt	
	Dibenzofuran	Blank	<0.33	mg/kg dry wt	
	3,3'-Dichlorobenzidine	Blank	<0.67	mg/kg dry wt	
	Diethylphthalate	Blank	<0.33	mg/kg dry wt	
	Dimethylphthalate	Blank	<0.67	mg/kg dry wt	
	Di-n-butylphthalate	Blank	<0.33	mg/kg dry wt	
	2,4-Dinitrotoluene	Blank	<0.33	mg/kg dry wt	
	2,6-Dinitrotoluene	Blank	<0.33	mg/kg dry wt	
	1,2-Diphenylhydrazine	Blank	<0.33	mg/kg dry wt	
	Di-n-octylphthalate	Blank	<0.67	mg/kg dry wt	



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 QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47625

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QC Batch Number: GCMS/SEM1-2367

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
	Fluoranthene	Blank	<0.33	mg/kg dry wt	
	Fluorene	Blank	<0.33	mg/kg dry wt	
	Hexachlorobenzene	Blank	<0.33	mg/kg dry wt	
	Hexachlorobutadiene	Blank	<0.33	mg/kg dry wt	
	Hexachlorocyclopenta	Blank	<0.33	mg/kg dry wt	
	Hexachloroethane	Blank	<0.33	mg/kg dry wt	
	Indeno(1,2,3-cd)pyre	Blank	<0.33	mg/kg dry wt	
	Isophorone	Blank	<0.33	mg/kg dry wt	
	2-Methylnaphthalene	Blank	<0.33	mg/kg dry wt	
	2-Nitroaniline	Blank	<0.33	mg/kg dry wt	
	3-Nitroaniline	Blank	<0.33	mg/kg dry wt	
	Nitrobenzene	Blank	<0.33	mg/kg dry wt	
	N-Nitrosodimethylami	Blank	<0.33	mg/kg dry wt	
	N-Nitroso-di-n-propy	Blank	<0.33	mg/kg dry wt	
	N-Nitrosodiphenylami	Blank	<0.33	mg/kg dry wt	
	Phenanthrene	Blank	<0.33	mg/kg dry wt	
	Pyrene	Blank	<1.00	mg/kg dry wt	
	1,2,4-Trichlorobenze	Blank	<0.33	mg/kg dry wt	
	4-Chloro-3-methylphe	Blank	<0.67	mg/kg dry wt	
	2-Chlorophenol	Blank	<0.33	mg/kg dry wt	
	2,4-Dichlorophenol	Blank	<0.33	mg/kg dry wt	
	2,4-Dimethylphenol	Blank	<1.33	mg/kg dry wt	
	4,6-Dinitro-2-methyl	Blank	<0.33	mg/kg dry wt	
	2,4-Dinitrophenol	Blank	<0.33	mg/kg dry wt	
	o-cresol	Blank	<0.33	mg/kg dry wt	
	m & p-cresol(s)	Blank	<0.33	mg/kg dry wt	
	2-Nitrophenol	Blank	<0.33	mg/kg dry wt	
	4-Nitrophenol	Blank	<0.33	mg/kg dry wt	
	Phenol	Blank	<0.33	mg/kg dry wt	
	2,4,5-Trichloropheno	Blank	<0.33	mg/kg dry wt	
	2,4,6-Trichloropheno	Blank	<0.33	mg/kg dry wt	
	Pentachlorophenol	Blank	<0.33	mg/kg dry wt	
	Pyridine	Blank	<0.33	mg/kg dry wt	
	Benzo(k)fluoranthene	Blank	<0.67	mg/kg dry wt	



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QC SUMMARY REPORT

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Method Blanks

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QC Batch Number: HG-1442

Sample Id	Analysis	QC Analysis	Values	Units	Limits
BLANK-24943	Mercury	Blank	<0.010	mg/kg dry wt.	



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Report Date: 04/13/00

Lims Bat #: LIMS-47625

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QC Batch Number: ICP/TCLP-0996

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00B07783	Arsenic	Sample Amount	<0.10	MG/L LEACHATE	
		Matrix Spk Amt Added	0.50	MG/L LEACHATE	
		MS Amt Measured	0.53	MG/L LEACHATE	
	Lead	Matrix Spike % Rec.	90.48	%	23.00-132.00
		Sample Amount	14.76	MG/L LEACHATE	
		Matrix Spk Amt Added	0.50	MG/L LEACHATE	
BLANK-24988	Silver	MS Amt Measured	15.00	MG/L LEACHATE	
		Matrix Spike % Rec.	48.00	%	21.00-143.00
	Arsenic	Blank	<0.01	MG/L LEACHATE	
		Blank	<0.02	MG/L LEACHATE	
		Blank	0.42	MG/L LEACHATE	
		Blank	<0.01	MG/L LEACHATE	
		Blank	<0.01	MG/L LEACHATE	
BLANK-24989	Blank	<0.02	MG/L LEACHATE		
	Blank	<0.10	MG/L LEACHATE		
STDADD-15006	Silver	Blank	<0.05	MG/L LEACHATE	
		Standard Measured	1.07	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
	Arsenic	Standard % Recovery	107.00	%	
		Standard Measured	1.07	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
	Barium	Standard % Recovery	106.70	%	
		Standard Measured	1.07	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
	Cadmium	Standard % Recovery	107.30	%	
		Standard Measured	1.14	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
	Chromium	Standard % Recovery	114.00	%	
		Standard Measured	1.14	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
	Lead	Standard % Recovery	114.50	%	
		Standard Measured	1.12	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
Selenium	Standard % Recovery	111.60	%		
	Standard Measured	0.97	MG/L LEACHATE		
	Standard Amt Added	1.00	MG/L LEACHATE		
		Standard % Recovery	97.20	%	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47625

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QC Batch Number: PH-1204

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00808220	pH	Sample Amount	5.64	units	
		Duplicate Value	5.64	units	
		Duplicate RPD	0.00	%	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/13/00

Lims Bat #: LIMS-47625

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NOTES:

QC Batch No.: ICP/TCLP-0996

Sample ID: 00807783

Analysis: Lead (Leachate)

QC Analysis: Matrix Spike % Rec.

SAMPLE TO SPIKE RATIO GREATER THAN OR EQUAL TO 4:1, INCREASING VARIATION
FROM ESTABLISHED CONTROL LIMIT IS ANTICIPATED. CONTROL LIMITS PROVIDED
FOR REFERENCE ONLY AND ARE NOT APPLICABLE.

TABLE I
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD I RISK BASED STANDARDS (mg/Kg)

Contaminant	Cell-02 Sample-01	Cell-03 Sample-01	DEP Action Levels (RCS-1)	BPA Action Levels	310 CM 30,000
VPII					
C5 - C8 Aliphatic Hydrocarbons	N/A	N/A	100	N/A	N/A
C9 - C12 Aliphatic Hydrocarbons	N/A	N/A	1000	N/A	N/A
C9 - C10 Aromatic Hydrocarbons	N/A	N/A	100	N/A	N/A
Benzene	N/A	N/A	10	N/A	N/A
Ethylbenzene	N/A	N/A	80	N/A	N/A
Methyl tert butyl ether (MTBE)	N/A	N/A	0.3	N/A	N/A
Naphthalene	N/A	N/A	4	N/A	N/A
Toluene	N/A	N/A	90	N/A	N/A
m & p Xylenes	N/A	N/A	500	N/A	N/A
o-Xylene	N/A	N/A	500	N/A	N/A
PAHs					
C9 - C18 Aliphatic Hydrocarbons	N/A	N/A	1000	N/A	N/A
C19 - C36 Aliphatic Hydrocarbons	N/A	N/A	2500	N/A	N/A
C11 - C22 Aromatic Hydrocarbons	N/A	N/A	200	N/A	N/A
Acenaphthene	N/A	N/A	20	N/A	N/A
Acenaphthylene	N/A	N/A	100	N/A	N/A
Anthracene	N/A	N/A	1000	N/A	N/A
Benzo(a)anthracene	N/A	N/A	0.7	N/A	N/A
Benzo(a)pyrene	N/A	N/A	0.7	N/A	N/A
Benzo(b)fluoranthene	N/A	N/A	0.7	N/A	N/A
Benzo(g,h,i)perylene	N/A	N/A	1000	N/A	N/A
Benzo(k)fluoranthene	N/A	N/A	NA	N/A	N/A
Chrysene	N/A	N/A	7	N/A	N/A
Dibenzo(a,h)anthracene	N/A	N/A	0.7	N/A	N/A
Fluoranthene	N/A	N/A	1000	N/A	N/A
Fluorene	N/A	N/A	400	N/A	N/A
Indeno(1,2,3-cd)pyrene	N/A	N/A	0.7	N/A	N/A
1-Methylnaphthalene	N/A	N/A	4	N/A	N/A
Naphthalene	N/A	N/A	4	N/A	N/A
Phenanthrene	N/A	N/A	100	N/A	N/A
Pyrene	N/A	N/A	700	N/A	N/A
VOLEATILE ORGANIC COMPOUNDS					
Acetone	0.122	-	3	N/A	N/A
2-Butanone (MEK)	0.018	-	0.3	N/A	N/A
MTBE	0.001	-	0.3	N/A	N/A
Naphthalene	0.001	-	4	N/A	N/A

* = Non Detect

NA = Not Applicable

TABLE 2
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-02 Sample-01	Cell-03 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	Cell-02 Sample-01	Cell-03 Sample-01	310 CM 30.0000
TPHC (SIU)							
Total Petroleum Hydrocarbons	270	39	200	N/A	N/A	N/A	N/A
Metals	Total (mg/kg)	Total (mg/kg)	Total (mg/kg)	Total (mg/kg)	DEP (mg/l)	DEP (mg/l)	
Arsenic	110	245	30	300	ND	ND	5
Barrium	109	93.3	1000	N/A	N/A	N/A	100
Cadmium	2.17	0.59	30	N/A	N/A	N/A	1
Chromium	253	59.6	30	1,000	0.11	ND	5
Lead	649	422	300	600	1.15	0.5	5
Mercury	0.598	1.03	20	N/A	N/A	N/A	0.2
Selenium	7.18	BDL	400	N/A	N/A	N/A	1
Silver	7.51	2.34	100	N/A	N/A	N/A	5
Cyanide	N/A	N/A	100	N/A	N/A	N/A	N/A
Other Solids							
Solids, Total	88.4	89	N/A	N/A	N/A	N/A	N/A
Temperature							
Degrees Fahrenheit	>212	>213	N/A	N/A	N/A	N/A	N/A
pH							
pH	6.90	6.96	N/A	N/A	N/A	N/A	N/A
Reactivity							
Cyanide/Sulfide	ND/ND	ND/ND	N/A	N/A	N/A	N/A	N/A
Organics							
Aldrin	-	-	0.03	N/A	N/A	N/A	N/A
alpha-BHC	-	-	50	N/A	N/A	N/A	N/A
beta-BHC	-	-	10	N/A	N/A	N/A	N/A
delta-BHC	-	-	10	N/A	N/A	N/A	N/A
gamma-BHC (lindane)	-	-	NA	N/A	N/A	N/A	N/A
Chlordane	-	-	1	N/A	N/A	N/A	N/A
1,1'-DDD	-	-	2	N/A	N/A	N/A	N/A
1,1'-DDB	-	-	2	N/A	N/A	N/A	N/A
1,1'-DDT	-	-	2	N/A	N/A	N/A	N/A
Dieldrin	-	-	0.03	N/A	N/A	N/A	N/A
Endosulfan I	-	-	NA	N/A	N/A	N/A	N/A
Endosulfan II	-	-	NA	N/A	N/A	N/A	N/A
Endosulfan Sulfate	-	-	NA	N/A	N/A	N/A	N/A
Endrin	-	-	0.6	N/A	N/A	N/A	N/A
Endrin Aldehyde	-	-	10	N/A	N/A	N/A	N/A
Heptachlor	-	-	0.1	N/A	N/A	N/A	N/A
Heptachlor Epoxide	-	-	0.06	N/A	N/A	N/A	N/A
Methoxychlor	-	-	30	N/A	N/A	N/A	N/A

TABLE 1
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-02 Sample-01	Cell-03 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	Cell-02 Sample-01	Cell-03 Sample-01	310 CM 30.0000
PCB-1221	-	-	NA	N/A	N/A	N/A	N/A
PCB-1232	-	-	NA	N/A	N/A	N/A	N/A
PCB-1242	-	-	NA	N/A	N/A	N/A	N/A
PCB-1248	-	-	NA	N/A	N/A	N/A	N/A
PCB-1254	-	-	NA	N/A	N/A	N/A	N/A
PCB-1260	-	-	NA	N/A	N/A	N/A	N/A
PCB's	-	-	2	N/A	N/A	N/A	N/A
Toxaphene	-	-	10	N/A	N/A	N/A	N/A

- = Non Detect

NA = Not Applicable

TABLE 3
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-02 Sample-01	Cell-03 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
POLY-AROMATIC-HYDROCARBONS					
Acenaphthalene	-	-	100	N/A	N/A
Acenaphthylene	-	-	100	N/A	N/A
Aniline	-	-	1000	N/A	N/A
Anthracene	-	-	1000	N/A	N/A
Benzidine	-	-	10	N/A	N/A
Benzoic Acid	-	-	1000	N/A	N/A
Benzo(a)anthracene	-	-	0.7	N/A	N/A
Benzo(a)pyrene	-	-	0.7	N/A	N/A
Benzo(b)fluoranthene	-	-	0.7	N/A	N/A
Benzo(g,h,i)perylene	-	-	1000	N/A	N/A
Benzo(k)fluoranthene	-	-	NA	N/A	N/A
Benzyl Alcohol	-	-	NA	N/A	N/A
Bis(2-chloroethoxy)methane	-	-	500	N/A	N/A
Bis(2-chloroethyl)ether	-	-	0.7	N/A	N/A
Bis(2-chloroisopropyl)ether	-	-	NA	N/A	N/A
Bis(2-ethylhexyl)phthalate	-	-	100	N/A	N/A
4-Bromophenyl phenyl ether	-	-	100	N/A	N/A
Butylbenzylphthalate	-	-	100	N/A	N/A
4-Chloroaniline	-	-	NA	N/A	N/A
4-Chloro-3-methylphenol	-	-	NA	N/A	N/A
2-Chloronaphthalene	-	-	1000	N/A	N/A
2-Chlorophenol	-	-	0.7	N/A	N/A
4-Chlorophenylphenyl ether	-	-	1000	N/A	N/A
Chrysene	-	-	7	N/A	N/A
Dibenzofuran	-	-	100	N/A	N/A
Dibenz(a,h)anthracene	-	-	0.7	N/A	N/A
1,2-Dichlorobenzene	-	-	100	N/A	N/A
1,3-Dichlorobenzene	-	-	100	N/A	N/A
1,4-Dichlorobenzene	-	-	2	N/A	N/A
3,3'-Dichlorobenzidine	-	-	1	N/A	N/A
2,4-Dichlorobenzene	-	-	NA	N/A	N/A
Diethylphthalate	-	-	0.7	N/A	N/A
2,4-Dimethylphenol	-	-	0.7	N/A	N/A
Dimethylphthalate	-	-	0.7	N/A	N/A
Di-n-butylphthalate	-	-	NA	N/A	N/A
Di-n-octylphthalate	-	-	NA	N/A	N/A

TABLE 3
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (ug/Kg)

POLYAROMATIC HYDROCARBONS	Cell-02 Sample-01	Cell-03 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
4,6-Dinitro-2-methylphenol	-	-	NA	N/A	N/A
2,4-Dinitrophenol	-	-	3	N/A	N/A
2,4-Dinitrotoluene	-	-	0.7	N/A	N/A
2,6-Dinitrotoluene	-	-	100	N/A	N/A
1,2-Diphenylhydrazine	-	-	50	N/A	N/A
Fluoranthene	-	-	1000	N/A	N/A
Fluorene	-	-	400	N/A	N/A
Hexachlorobenzene	-	-	0.7	N/A	N/A
Hexachlorobutadiene	-	-	3	N/A	N/A
Hexachlorocyclopentadiene	-	-	50	N/A	N/A
Hexachloroethane	-	-	6	N/A	N/A
Indeno(1,2,3-cd)pyrene	-	-	0.7	N/A	N/A
Isophorone	-	-	100	N/A	N/A
o-cresol	-	-	NA	N/A	N/A
m&p-cresol(s)	-	-	NA	N/A	N/A
2-Methylnthalene	-	-	4	N/A	N/A
Naphthalene	-	-	4	N/A	N/A
2-Nitroaniline	-	-	NA	N/A	N/A
3-Nitroaniline	-	-	NA	N/A	N/A
4-Nitroaniline	-	-	NA	N/A	N/A
Nitrobenzene	-	-	500	N/A	N/A
2-Nitrophenol	-	-	100	N/A	N/A
4-Nitrophenol	-	-	100	N/A	N/A
N-Nitrosodimethylamine	-	-	50	N/A	N/A
N-Nitrosodiphenylamine	-	-	100	N/A	N/A
N-Nitroso-di-n-propylamine	-	-	50	N/A	N/A
Pentachlorophenol	-	-	5	N/A	N/A
Phenanthrene	-	-	100	N/A	N/A
Phenol	-	-	60	N/A	N/A
Pyrene	-	-	700	N/A	N/A
Pyridine	-	-	500	N/A	N/A
1,2,4-Trichlorobenzene	-	-	100	N/A	N/A
2,4,5-Trichlorophenol	-	-	2	N/A	N/A
2,4,6-Trichlorophenol	-	-	3	N/A	N/A

"-" = Non Detect

NA = Not Applicable



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BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: BRIAN SULLIVAN

REPORT DATE: 04/25/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-47982
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WRTC

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
WRTC	00809449	SOIL	CELL 02-01	8260 sludge (a)
WRTC	00809449	SOIL	CELL 02-01	8260 sludge (b)
WRTC	00809450	SOIL	CELL 02-01	flashpoint
WRTC	00809450	SOIL	CELL 02-01	metals-8 slg icp
WRTC	00809450	SOIL	CELL 02-01	pcb - sludge
WRTC	00809450	SOIL	CELL 02-01	ph solids
WRTC	00809450	SOIL	CELL 02-01	reactivity
WRTC	00809450	SOIL	CELL 02-01	solids (percent)
WRTC	00809450	SOIL	CELL 02-01	tph gc dry 8100m

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CONNECTICUT PH-0567	VERMONT DOH (LEAD) No. 15036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 4/25/00
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director



BRIAN SULLIVAN
 BATG, ENVIRONMENTAL
 150 RECREATION PARK DRIVE
 HINGHAM, MA 02043

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04/25/00

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Purchase Order Number: 20-100

Project Location: WRTC
 Date Received: 04/20/00

LIMS-BAT #: LIMS-47982
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 04/20/00
 CELL 02-01
 WRTC

	Units	00809449	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Acetone	mg/kg dry wt	ND	04/22/00	WSD	0.171		
Acrolein	mg/kg dry wt	ND	04/22/00	WSD	0.068		
Acrylonitrile	mg/kg dry wt	ND	04/22/00	WSD	0.026		
Benzene	mg/kg dry wt	ND	04/22/00	WSD	0.002		
Bromobenzene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
Bromochloromethane	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
Bromodichloromethane	mg/kg dry wt.	ND	04/22/00	WSD	0.001		
Bromomethane	mg/kg dry wt	ND	04/22/00	WSD	0.004		
Bromoform	mg/kg dry wt	ND	04/22/00	WSD	0.004		
2-Butanone (MEK)	mg/kg dry wt	ND	04/22/00	WSD	0.041		
n-Butylbenzene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
sec-Butylbenzene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
tert-Butylbenzene	mg/kg dry wt.	ND	04/22/00	WSD	0.003		
Carbon Disulfide	mg/kg dry wt	ND	04/22/00	WSD	0.010		
Carbon Tetrachloride	mg/kg dry wt	ND	04/22/00	WSD	0.002		
Chlorobenzene	mg/kg dry wt	ND	04/22/00	WSD	0.002		
Chlorodibromomethane	mg/kg dry wt	ND	04/22/00	WSD	0.002		
Chloroethane	mg/kg dry wt	ND	04/22/00	WSD	0.003		
2-Chloroethylvinylether	mg/kg dry wt	ND	04/22/00	WSD	0.033		
Chloroform	mg/kg dry wt	ND	04/22/00	WSD	0.003		
Chloromethane	mg/kg dry wt	ND	04/22/00	WSD	0.051		
2-Chlorotoluene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
4-Chlorotoluene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
1,2-Dibromo-3-Chloropropane	mg/kg dry wt.	ND	04/22/00	WSD	0.005		
1,2-Dibromoethane	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
Dibromomethane	mg/kg dry wt	ND	04/22/00	WSD	0.004		
1,2-Dichlorobenzene	mg/kg dry wt	ND	04/22/00	WSD	0.003		
1,3-Dichlorobenzene	mg/kg dry wt	ND	04/22/00	WSD	0.002		
1,4-Dichlorobenzene	mg/kg dry wt	ND	04/22/00	WSD	0.003		
cis-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	04/22/00	WSD	0.008		
trans-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	04/22/00	WSD	0.007		
Dichlorodifluoromethane	mg/kg dry wt	ND	04/22/00	WSD	0.003		

RL = Reporting Limit
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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47982
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/20/00
CELL 02-01
WRTC

	Units	00809449	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
1,1-Dichloroethane	mg/kg dry wt	ND	04/22/00	WSD	0.002		
1,2-Dichloroethane	mg/kg dry wt	ND	04/22/00	WSD	0.003		
1,1-Dichloroethylene	mg/kg dry wt	ND	04/22/00	WSD	0.002		
cis-1,2-Dichloroethylene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
trans-1,2-Dichloroethylene	mg/kg dry wt	ND	04/22/00	WSD	0.003		
1,2-Dichloropropane	mg/kg dry wt	ND	04/22/00	WSD	0.002		
1,3-Dichloropropane	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
2,2-Dichloropropane	mg/kg dry wt.	ND	04/22/00	WSD	0.003		
1,1-Dichloropropene	mg/kg dry wt.	ND	04/22/00	WSD	0.005		
cis-1,3-Dichloropropene	mg/kg dry wt	ND	04/22/00	WSD	0.002		
trans-1,3-Dichloropropene	mg/kg dry wt	ND	04/22/00	WSD	0.001		
Ethyl Benzene	mg/kg dry wt	ND	04/22/00	WSD	0.002		
Ethyl Methacrylate	mg/kg dry wt	ND	04/22/00	WSD	0.003		
Hexachlorobutadiene	mg/kg dry wt.	ND	04/22/00	WSD	0.004		
2-Hexanone	mg/kg dry wt	ND	04/22/00	WSD	0.033		
Iodomethane	mg/kg dry wt	ND	04/22/00	WSD	0.003		
Isopropylbenzene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
p-Isopropyltoluene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
MTBE	mg/kg dry wt	ND	04/22/00	WSD	0.003		
Methylene Chloride	mg/kg dry wt	ND	04/22/00	WSD	0.051		
MIBK	mg/kg dry wt	ND	04/22/00	WSD	0.030		
Naphthalene	mg/kg dry wt.	ND	04/22/00	WSD	0.003		
n-Propylbenzene	mg/kg dry wt.	ND	04/22/00	WSD	0.003		
Styrene	mg/kg dry wt	ND	04/22/00	WSD	0.002		
1,1,1,2-Tetrachloroethane	mg/kg dry wt	ND	04/22/00	WSD	0.002		
1,1,2,2-Tetrachloroethane	mg/kg dry wt	ND	04/22/00	WSD	0.005		
Tetrachloroethylene	mg/kg dry wt	ND	04/22/00	WSD	0.001		
Toluene	mg/kg dry wt	ND	04/22/00	WSD	0.002		
1,2,3-Trichlorobenzene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
1,2,4-Trichlorobenzene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
1,1,1-Trichloroethane	mg/kg dry wt	ND	04/22/00	WSD	0.003		
1,1,2-Trichloroethane	mg/kg dry wt	ND	04/22/00	WSD	0.002		

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04/25/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47982

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/20/00

CELL 02-01

WRTC

	Units	00809449	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Trichloroethylene	mg/kg dry wt	ND	04/22/00	WSD	0.003		
Trichlorofluoromethane	mg/kg dry wt	ND	04/22/00	WSD	0.002		
1,2,3-Trichloropropane	mg/kg dry wt	ND	04/22/00	WSD	0.004		
1,2,4-Trimethylbenzene	mg/kg dry wt.	ND	04/22/00	WSD	0.002		
1,3,5-Trimethylbenzene	mg/kg dry wt.	ND	04/22/00	WSD	0.003		
Vinyl Acetate	mg/kg dry wt	ND	04/22/00	WSD	0.056		
Vinyl Chloride	mg/kg dry wt	ND	04/22/00	WSD	0.001		
m-Xylene	mg/kg dry wt	ND	04/22/00	WSD	0.004		
o + p Xylene	mg/kg dry wt	ND	04/22/00	WSD	0.002		

Analytical Method(s):

SW846 8260

SAMPLES ARE CONCENTRATED BY PURGE & TRAP, FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47982
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/20/00
CELL 02-01
WRTC

	Units	00809450	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Flashpoint	deg. f	>212	04/21/00	KFA	---	140	P

Analytical Method(s):

SWB46 1010

PENSKY-MARTENS CLOSED CUP PROCEDURE

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47982

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/20/00

CELL 02-01

WRTC

	Units	00B09450	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Arsenic	mg/kg dry wt.	110	04/21/00	PM	5.65		
Barium	mg/kg dry wt.	109	04/21/00	PM	0.11		
Cadmium	mg/kg dry wt.	2.17	04/21/00	PM	0.06		
Chromium	mg/kg dry wt.	253	04/21/00	PM	0.40		
Lead	mg/kg dry wt.	649	04/21/00	PM	2.83		
Mercury	mg/kg dry wt.	0.598	04/21/00	JER	0.009		
Selenium	mg/kg dry wt.	7.18	04/21/00	PM	5.65		
Silver	mg/kg dry wt.	7.51	04/21/00	PM	0.57		

Analytical Method(s):

Arsenic
SWB46 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Barium
SWB46 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Cadmium
SWB46 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Chromium
SWB46 3050/6010

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regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Lead

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Mercury

SW846 3050/7471

SAMPLES ARE DIGESTED WITH ACIDS AND THEN ANALYZED BY
COLD VAPOR (FLAMELESS) ATOMIC ABSORPTION SPECTROPHOTOMETRY

Selenium

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Silver

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

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04/25/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47982
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/20/00
CELL 02-01
WRTC

	Units	00809450	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Cyanide, reactive	mg/kg	ND	04/21/00	SDR	5.0	250	P
Reactive Sulfide	mg/kg	ND	04/21/00	SDR	20	500	P

Analytical Method(s):

SW846 CH.7.3.3.2/7.3.4.2

REACTIVE CYANIDE SW846 CHPT. 7.3.3.2 -

QUANTITATIVE ANALYSIS OF HYDROGEN CYANIDE GAS GENERATED WHEN THE SAMPLE IS TREATED WITH ACID.

REACTIVE SULFIDE SW846 CHPT. 7.3.4.2

QUANTITATIVE ANALYSIS OF HYDROGEN SULFIDE GAS GENERATED WHEN THE SAMPLE IS TREATED WITH ACID.

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04/25/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47982

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/20/00

CELL 02-01

WRTC

	Units	00809450	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Solids, total	%	88.4	04/22/00	NJ			

Analytical Method(s):

SM 2540G

PERCENT OF SAMPLE REMAINING AFTER DRYING OVERNIGHT AT 103-105 DEGREES CENTIGRADE.

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47982
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/20/00
CELL 02-01
WRTC

	Units	00809450	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Unknown Hydrocarbons	mg/kg dry wt.	270	04/24/00	MFF	94		

Analytical Method(s):

MODIFIED SW846 8100

SAMPLES ARE EXTRACTED INTO METHYLENE CHLORIDE AND ANALYZED BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION (FID). ALL PEAKS ELUTING IN THE PETROLEUM FUEL REGION ARE QUANTITATED AS #2 FUEL OIL.

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/25/00

Lims Bat #: LIMS-47982

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QC Batch Number: FLASHPOINT-0906

Sample Id	Analysis	QC Analysis	Values	Units	Limits
STDADD-15159	Flashpoint	Standard Measured	85.0	deg. F	
		Standard Amt Added	81.0	deg. F	
		Standard % Recovery	104.9	%	
STDADD-15160	Flashpoint	Standard Measured	84.0	deg. F	
		Standard Amt Added	81.0	deg. F	
		Standard % Recovery	103.7	%	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/25/00

Lims Bat #: LIMS-47982

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QC Batch Number: GC/ECD-3121

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00809450	Dibutyl Chloroendate	Surrogate Recovery	63.5	%	
BLANK-25301	PCB-1232	Blank	0.000	mg/kg dry wt.	
	PCB-1242	Blank	0.000	mg/kg dry wt.	
	PCB-1254	Blank	0.000	mg/kg dry wt.	
	PCB-1260	Blank	0.000	mg/kg dry wt.	
	PCB-1248	Blank	0.000	mg/kg dry wt.	
	PCB-1221	Blank	0.000	mg/kg dry wt.	
	PCB's	Blank	<0.025	mg/kg dry wt.	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/25/00

Lims Bat #: LIMS-47982

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QC Batch Number: GC/FID-3488

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00809450	Unknown Hydrocarbons	Sample Amount	266.8	mg/kg dry wt.	
		Duplicate Value	255.0	mg/kg dry wt.	
		Duplicate RPD	4.5	%	
BLANK-25310	Unknown Hydrocarbons	Blank	<8.3	mg/kg dry wt.	



SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/25/00

Lims Bat #: LIMS-47982

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QC Batch Number: GCMS/VOL-4980

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00809449	1,2-Dichloroethane-d	Surrogate Recovery	112.720	%	56.000-128.000
	Toluene-d8	Surrogate Recovery	85.560	%	65.000-113.000
	Bromofluorobenzene	Surrogate Recovery	106.000	%	62.000-137.000
BLANK-25289	Acetone	Blank	<0.250	mg/kg dry wt	
	Benzene	Blank	<0.003	mg/kg dry wt	
	Carbon Tetrachloride	Blank	<0.002	mg/kg dry wt	
	Chloroform	Blank	<0.004	mg/kg dry wt	
	1,2-Dichloroethane	Blank	<0.004	mg/kg dry wt	
	1,4-Dichlorobenzene	Blank	<0.004	mg/kg dry wt	
	Ethyl Benzene	Blank	<0.003	mg/kg dry wt	
	2-Butanone (MEK)	Blank	<0.060	mg/kg dry wt	
	MIBK	Blank	<0.044	mg/kg dry wt	
	Naphthalene	Blank	<0.005	mg/kg dry wt.	
	Styrene	Blank	<0.004	mg/kg dry wt	
	Tetrachloroethylene	Blank	<0.002	mg/kg dry wt	
	Toluene	Blank	<0.004	mg/kg dry wt	
	1,1,1-Trichloroethan	Blank	<0.004	mg/kg dry wt	
	Trichloroethylene	Blank	<0.005	mg/kg dry wt	
	Trichlorofluorometha	Blank	<0.004	mg/kg dry wt	
	o + p Xylene	Blank	<0.002	mg/kg dry wt	
	m-Xylene	Blank	<0.006	mg/kg dry wt	
	1,2-Dichlorobenzene	Blank	<0.004	mg/kg dry wt	
	1,3-Dichlorobenzene	Blank	<0.003	mg/kg dry wt	
	1,1-Dichloroethane	Blank	<0.004	mg/kg dry wt	
	1,1-Dichloroethylene	Blank	<0.003	mg/kg dry wt	
	MTBE	Blank	<0.004	mg/kg dry wt	
	trans-1,2-Dichloroet	Blank	<0.004	mg/kg dry wt	
	Vinyl Chloride	Blank	<0.002	mg/kg dry wt	
	Methylene Chloride	Blank	<0.075	mg/kg dry wt	
	Chlorobenzene	Blank	<0.003	mg/kg dry wt	
	Chloromethane	Blank	<0.075	mg/kg dry wt	
	Bromomethane	Blank	<0.006	mg/kg dry wt	
	Chloroethane	Blank	<0.004	mg/kg dry wt	
	cis-1,3-Dichloroprop	Blank	<0.002	mg/kg dry wt	
	trans-1,3-Dichloropr	Blank	<0.002	mg/kg dry wt	
	Chlorodibromomethane	Blank	<0.002	mg/kg dry wt	
	1,1,2-Trichloroethan	Blank	<0.004	mg/kg dry wt	
	2-Chloroethylvinylet	Blank	<0.048	mg/kg dry wt	
	Bromoform	Blank	<0.006	mg/kg dry wt	



SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/25/00

Lims Bat #: LIMS-47982

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QC Batch Number: GCMS/VOL-4980

Sample Id	Analysis	QC Analysis	Values	Units	Limits
	1,1,2,2-Tetrachloroe	Blank	<0.007	mg/kg dry wt	
	2-Chlorotoluene	Blank	<0.003	mg/kg dry wt.	
	Hexachlorobutadiene	Blank	<0.006	mg/kg dry wt.	
	Isopropylbenzene	Blank	<0.003	mg/kg dry wt.	
	p-Isopropyltoluene	Blank	<0.004	mg/kg dry wt.	
	n-Propylbenzene	Blank	<0.004	mg/kg dry wt.	
	sec-Butylbenzene	Blank	<0.003	mg/kg dry wt.	
	tert-Butylbenzene	Blank	<0.004	mg/kg dry wt.	
	1,2,3-Trichlorobenze	Blank	<0.004	mg/kg dry wt.	
	1,2,4-Trichlorobenze	Blank	<0.004	mg/kg dry wt.	
	1,2,4-Trimethylbenze	Blank	<0.004	mg/kg dry wt.	
	1,3,5-Trimethylbenze	Blank	<0.005	mg/kg dry wt.	
	4-Chlorotoluene	Blank	<0.003	mg/kg dry wt.	
	Dibromomethane	Blank	<0.006	mg/kg dry wt	
	cis-1,2-Dichloroethy	Blank	<0.002	mg/kg dry wt.	
	1,1-Dichloropropene	Blank	<0.007	mg/kg dry wt.	
	1,2-Dichloropropane	Blank	<0.003	mg/kg dry wt	
	1,3-Dichloropropane	Blank	<0.002	mg/kg dry wt.	
	2,2-Dichloropropane	Blank	<0.004	mg/kg dry wt.	
	1,1,1,2-Tetrachloroe	Blank	<0.002	mg/kg dry wt	
	1,2,3-Trichloropropan	Blank	<0.006	mg/kg dry wt	
	n-Butylbenzene	Blank	<0.004	mg/kg dry wt.	
	Dichlorodifluorometh	Blank	<0.005	mg/kg dry wt	
	Bromochloromethane	Blank	<0.002	mg/kg dry wt.	
	Bromobenzene	Blank	<0.002	mg/kg dry wt.	
	Iodomethane	Blank	<0.004	mg/kg dry wt	
	Acrolein	Blank	<0.100	mg/kg dry wt	
	Acrylonitrile	Blank	<0.038	mg/kg dry wt	
	Carbon Disulfide	Blank	<0.015	mg/kg dry wt	
	Vinyl Acetate	Blank	<0.082	mg/kg dry wt	
	2-Hexanone	Blank	<0.048	mg/kg dry wt	
	trans-1,4-Dichloro-2	Blank	<0.010	mg/kg dry wt	
	Ethyl Methacrylate	Blank	<0.004	mg/kg dry wt	
	cis-1,4-Dichloro-2-6	Blank	<0.012	mg/kg dry wt	
	Bromodichloromethane	Blank	<0.002	mg/kg dry wt.	
	1,2-Dibromo-3-Chloro	Blank	<0.008	mg/kg dry wt.	
	1,2-Dibromoethane	Blank	<0.004	mg/kg dry wt.	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/25/00

Lims Bat #: LIMS-47982

Page 6 of 8

QC Batch Number: HG-1463

Sample Id	Analysis	QC Analysis	Values	Units	Limits
BLANK-25308	Mercury	Blank	<0.010	mg/kg dry wt.	
LFBLANK-11520	Mercury	Lab Fort Blank Amt.	0.500	mg/kg dry wt.	
		Lab Fort Blk. Found	0.422	mg/kg dry wt.	
		Lab Fort Blk. % Rec.	84.500	%	
		Dup Lab Fort Bl Amt.	0.500	mg/kg dry wt.	
		Dup Lab Fort Bl. Fnd	0.422	mg/kg dry wt.	
		Dup Lab Fort Bl %Rec	84.500	%	
		Lab Fort Blank Range	0.000	units	
		Lab Fort Bl. Av. Rec	84.500	%	



SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/25/00

Lims Bat #: LIMS-47982

Page 7 of 8

QC Batch Number: ICP-4354

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00B09450	Silver	Sample Amount	7.51	mg/kg dry wt.	
		Duplicate Value	5.11	mg/kg dry wt.	
		Duplicate RPD	38.17	%	
	Arsenic	Sample Amount	7.51	mg/kg dry wt.	
		Matrix Spk Amt Added	113.07	mg/kg dry wt.	
		MS Amt Measured	104.87	mg/kg dry wt.	
		Matrix Spike % Rec.	86.10	%	
		Sample Amount	109.74	mg/kg dry wt.	
		Duplicate Value	101.25	mg/kg dry wt.	
	Barium	Duplicate RPD	8.04	%	
		Sample Amount	109.74	mg/kg dry wt.	
		Matrix Spk Amt Added	113.07	mg/kg dry wt.	
		MS Amt Measured	223.77	mg/kg dry wt.	
		Matrix Spike % Rec.	100.85	%	
		Sample Amount	109.11	mg/kg dry wt.	
Cadmium	Duplicate Value	90.46	mg/kg dry wt.		
	Duplicate RPD	18.70	%		
	Sample Amount	109.11	mg/kg dry wt.		
	Matrix Spk Amt Added	113.07	mg/kg dry wt.		
	MS Amt Measured	218.68	mg/kg dry wt.		
	Matrix Spike % Rec.	96.90	%		
Chromium	Sample Amount	2.17	mg/kg dry wt.		
	Duplicate Value	1.72	mg/kg dry wt.		
	Duplicate RPD	22.68	%		
	Sample Amount	2.17	mg/kg dry wt.		
	Matrix Spk Amt Added	113.07	mg/kg dry wt.		
	MS Amt Measured	104.65	mg/kg dry wt.		
Lead	Matrix Spike % Rec.	90.64	%		
	Sample Amount	252.88	mg/kg dry wt.		
	Duplicate Value	264.92	mg/kg dry wt.		
	Duplicate RPD	4.65	%		
	Sample Amount	252.88	mg/kg dry wt.		
	Matrix Spk Amt Added	113.07	mg/kg dry wt.		
	MS Amt Measured	381.84	mg/kg dry wt.		
	Matrix Spike % Rec.	114.05	%		
	Sample Amount	649.03	mg/kg dry wt.		
	Duplicate Value	581.18	mg/kg dry wt.		
	Duplicate RPD	11.03	%		
	Sample Amount	649.03	mg/kg dry wt.		

TABLE I
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD I RISK BASED STANDARDS (mg/Kg)

	Cell-02 Sample-01	Cell-03 Sample-01	DEP Action Levels (RCS-1)	BPA Action Levels	310 CM 30.0000
VIII					
C5 - C8 Aliphatic Hydrocarbons	N/A	N/A	100	N/A	N/A
C9 - C12 Aliphatic Hydrocarbons	N/A	N/A	1000	N/A	N/A
C9 - C10 Aromatic Hydrocarbons	N/A	N/A	100	N/A	N/A
Benzene	N/A	N/A	10	N/A	N/A
Ethylbenzene	N/A	N/A	80	N/A	N/A
Methyl tert butyl ether (MTBE)	N/A	N/A	0.3	N/A	N/A
Naphthalene	N/A	N/A	4	N/A	N/A
Toluene	N/A	N/A	90	N/A	N/A
m & p Xylenes	N/A	N/A	500	N/A	N/A
o-Xylene	N/A	N/A	500	N/A	N/A
IX					
C9 - C18 Aliphatic Hydrocarbons	N/A	N/A	1000	N/A	N/A
C19 - C36 Aliphatic Hydrocarbons	N/A	N/A	2500	N/A	N/A
C11 - C22 Aromatic Hydrocarbons	N/A	N/A	200	N/A	N/A
Acenaphthene	N/A	N/A	20	N/A	N/A
Acenaphthylene	N/A	N/A	100	N/A	N/A
Anthracene	N/A	N/A	1000	N/A	N/A
Benzo(a)anthracene	N/A	N/A	0.7	N/A	N/A
Benzo(a)pyrene	N/A	N/A	0.7	N/A	N/A
Benzo(b)fluoranthene	N/A	N/A	0.7	N/A	N/A
Benzo(g,h,i)perylene	N/A	N/A	1000	N/A	N/A
Benzo(k)fluoranthene	N/A	N/A	NA	N/A	N/A
Chrysene	N/A	N/A	7	N/A	N/A
Dibenzo(a,h)anthracene	N/A	N/A	0.7	N/A	N/A
Fluoranthene	N/A	N/A	1000	N/A	N/A
Fluorene	N/A	N/A	400	N/A	N/A
Indeno(1,2,3-cd)pyrene	N/A	N/A	0.7	N/A	N/A
2-Methylnaphthalene	N/A	N/A	4	N/A	N/A
Naphthalene	N/A	N/A	4	N/A	N/A
Phenanthrene	N/A	N/A	100	N/A	N/A
Pyrene	N/A	N/A	700	N/A	N/A
X					
VOLEATILE ORGANIC COMPOUNDS					
Acetone	0.122	-	3	N/A	N/A
2-Butanone (MEK)	0.018	-	0.3	N/A	N/A
MTBE	0.001	-	0.3	N/A	N/A
Naphthalene	0.001	-	4	N/A	N/A

"-" = Non Detect

NA = Not Applicable

TABLE 2
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-02 Sample-01	Cell-03 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	Cell-02 Sample-01	Cell-03 Sample-01	310 CM 30.0000
TPH (8100)							
Total Petroleum Hydrocarbons	270	39	200	N/A	N/A	N/A	N/A
Metals	Total (mg/kg)		Total (mg/kg)	Total (mg/kg)	CEP (mg/l)	TRCEP (mg/l)	
Arsenic	110	245	30	300	ND	ND	5
Barium	109	93.3	1000	N/A	N/A	N/A	100
Cadmium	2.17	0.59	30	N/A	N/A	N/A	1
Chromium	253	59.6	30	1,000	0.11	ND	5
Lead	649	422	300	600	1.15	0.5	5
Mercury	0.598	1.03	20	N/A	N/A	N/A	0.2
Selenium	7.38	BDL	400	N/A	N/A	N/A	1
Silver	7.51	2.34	100	N/A	N/A	N/A	5
Cyanide	N/A	N/A	100	N/A	N/A	N/A	N/A
Mercury Solids							
Solids, Total	88.4	89	N/A	N/A	N/A	N/A	N/A
Weathering							
Degrees Fahrenheit	>212	>213	N/A	N/A	N/A	N/A	N/A
Acidity							
pH	6.90	6.96	N/A	N/A	N/A	N/A	N/A
Reactivity							
Cyanide/Sulfide	ND/ND	ND/ND	N/A	N/A	N/A	N/A	N/A
Herbicides							
Aldrin	-	-	0.03	N/A	N/A	N/A	N/A
alpha-BHC	-	-	50	N/A	N/A	N/A	N/A
beta-BHC	-	-	10	N/A	N/A	N/A	N/A
delta-BHC	-	-	10	N/A	N/A	N/A	N/A
gamma-BHC (lindane)	-	-	NA	N/A	N/A	N/A	N/A
Chlordane	-	-	1	N/A	N/A	N/A	N/A
4,4'-DDD	-	-	2	N/A	N/A	N/A	N/A
4,4'-DDE	-	-	2	N/A	N/A	N/A	N/A
4,4'-DDT	-	-	2	N/A	N/A	N/A	N/A
Dieldrin	-	-	0.03	N/A	N/A	N/A	N/A
Endosulfan I	-	-	NA	N/A	N/A	N/A	N/A
Endosulfan II	-	-	NA	N/A	N/A	N/A	N/A
Endosulfan Sulfate	-	-	NA	N/A	N/A	N/A	N/A
Endrin	-	-	0.6	N/A	N/A	N/A	N/A
Endrin Aldelyde	-	-	10	N/A	N/A	N/A	N/A
Heptachlor	-	-	0.1	N/A	N/A	N/A	N/A
Heptachlor Epoxide	-	-	0.06	N/A	N/A	N/A	N/A
Methoxychlor	-	-	30	N/A	N/A	N/A	N/A

TABLE 2
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-02 Sample-01	Cell-03 Sample-01	DBP Action Levels (RCS-1)	EPA Action Levels	Cell-02 Sample-01	Cell-03 Sample-01	310 CM 30.0000
PCB-1221	-	-	NA	N/A	N/A	N/A	N/A
PCB-1232	-	-	NA	N/A	N/A	N/A	N/A
PCB-1242	-	-	NA	N/A	N/A	N/A	N/A
PCB-1248	-	-	NA	N/A	N/A	N/A	N/A
PCB-1254	-	-	NA	N/A	N/A	N/A	N/A
PCB-1260	-	-	NA	N/A	N/A	N/A	N/A
PCB's	-	-	2	N/A	N/A	N/A	N/A
Toxaphene	-	-	10	N/A	N/A	N/A	N/A

- = Non Detect

NA = Not Applicable

TABLE 3
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

POLYAROMATIC HYDROCARBONS	Cell-02 Sample-01	Cell-03 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
Acenaphthalene	-	-	100	N/A	N/A
Acenaphthylene	-	-	100	N/A	N/A
Aniline	-	-	1000	N/A	N/A
Anthracene	-	-	1000	N/A	N/A
Benzidine	-	-	10	N/A	N/A
Benzoic Acid	-	-	1000	N/A	N/A
Benzo(a)anthracene	-	-	0.7	N/A	N/A
Benzo(a)pyrene	-	-	0.7	N/A	N/A
Benzo(b)fluoranthene	-	-	0.7	N/A	N/A
Benzo(g,h,i)perylene	-	-	1000	N/A	N/A
Benzo(k)fluoranthene	-	-	NA	N/A	N/A
Benzyl Alcohol	-	-	NA	N/A	N/A
Bis(2-chloroethoxy)methane	-	-	500	N/A	N/A
Bis(2-chloroethyl)ether	-	-	0.7	N/A	N/A
Bis(2-chloroisopropyl)ether	-	-	NA	N/A	N/A
Bis(2-ethylhexyl)phthalate	-	-	100	N/A	N/A
4-Bromophenyl phenyl ether	-	-	100	N/A	N/A
Butylbenzylphthalate	-	-	100	N/A	N/A
4-Chloroaniline	-	-	NA	N/A	N/A
4-Chloro-3-methylphenol	-	-	NA	N/A	N/A
2-Chloronaphthalene	-	-	1000	N/A	N/A
2-Chlorophenol	-	-	0.7	N/A	N/A
4-Chlorophenylphenyl ether	-	-	1000	N/A	N/A
Chrysene	-	-	7	N/A	N/A
Dibenzofuran	-	-	100	N/A	N/A
Dibenz(a,h)anthracene	-	-	0.7	N/A	N/A
1,2-Dichlorobenzene	-	-	100	N/A	N/A
1,3-Dichlorobenzene	-	-	100	N/A	N/A
1,4-Dichlorobenzene	-	-	2	N/A	N/A
3,3'-Dichlorobenzidine	-	-	1	N/A	N/A
2,4-Dichlorobenzene	-	-	NA	N/A	N/A
Diethylphthalate	-	-	0.7	N/A	N/A
2,4-Dimethylphenol	-	-	0.7	N/A	N/A
Dimethylphthalate	-	-	0.7	N/A	N/A
Di-n-butylphthalate	-	-	NA	N/A	N/A
Di-n-octylphthalate	-	-	NA	N/A	N/A

TABLE 3
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (ug/Kg)

NONAROMATIC HYDROCARBONS	Cell-02 Sample-01	Cell-03 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
4,6-Dinitro-2-methylphenol	-	-	NA	N/A	N/A
2,4-Dinitrophenol	-	-	3	N/A	N/A
2,4-Dinitrotoluene	-	-	0.7	N/A	N/A
2,6-Dinitrotoluene	-	-	100	N/A	N/A
1,2-Diphenolhydrazine	-	-	50	N/A	N/A
Fluoranthene	-	-	1000	N/A	N/A
Fluorene	-	-	400	N/A	N/A
Hexachlorobenzene	-	-	0.7	N/A	N/A
Hexachlorobutadiene	-	-	3	N/A	N/A
Hexachlorocyclopentadiene	-	-	50	N/A	N/A
Hexachloroethane	-	-	6	N/A	N/A
Indeno(1,2,3-cd)pyrene	-	-	0.7	N/A	N/A
Isophorone	-	-	100	N/A	N/A
o-cresol	-	-	NA	N/A	N/A
m&p-cresol(s)	-	-	NA	N/A	N/A
2-Methylnthalene	-	-	4	N/A	N/A
Naphthalene	-	-	4	N/A	N/A
2-Nitroaniline	-	-	NA	N/A	N/A
3-Nitroaniline	-	-	NA	N/A	N/A
4-Nitroaniline	-	-	NA	N/A	N/A
Nitrobenzene	-	-	500	N/A	N/A
2-Nitrophenol	-	-	100	N/A	N/A
4-Nitrophenol	-	-	100	N/A	N/A
N-Nitrosodimethylamine	-	-	50	N/A	N/A
N-Nitrosodiphenylamine	-	-	100	N/A	N/A
N-Nitroso-di-n-propylamine	-	-	50	N/A	N/A
Pentachlorophenol	-	-	5	N/A	N/A
Phenanthrene	-	-	100	N/A	N/A
Phenol	-	-	60	N/A	N/A
Pyrene	-	-	700	N/A	N/A
Pyridine	-	-	500	N/A	N/A
1,2,4-Trichlorobenzene	-	-	100	N/A	N/A
2,4,5-Trichlorophenol	-	-	2	N/A	N/A
2,4,6-Trichlorophenol	-	-	3	N/A	N/A

"-" = Non Detect
 NA = Not Applicable



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BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: BRIAN SULLIVAN

REPORT DATE: 04/26/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-48009
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WOBURN REGIONAL TRANSPORTATION CENTER

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
WRTC CELL 03-01	00809589	SOIL	NOT SPECIFIED	flashpoint
WRTC CELL 03-01	00809589	SOIL	NOT SPECIFIED	metals-8 slg icp
WRTC CELL 03-01	00809589	SOIL	NOT SPECIFIED	pcb - sludge
WRTC CELL 03-01	00809589	SOIL	NOT SPECIFIED	ph solids
WRTC CELL 03-01	00809589	SOIL	NOT SPECIFIED	reactivity
WRTC CELL 03-01	00809589	SOIL	NOT SPECIFIED	solids (percent)
WRTC CELL 03-01	00809589	SOIL	NOT SPECIFIED	tph gc dry 8100m
WRTC CELL 03-01	00809590	SOIL	NOT SPECIFIED	8260 sludge (a)
WRTC CELL 03-01	00809590	SOIL	NOT SPECIFIED	8260 sludge (b)

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308	AIHA ELLAP (LEAD) 6838
MASSACHUSETTS MA100	NEW HAMPSHIRE 2516
CONNECTICUT PH-0567	VERMONT DOH (LEAD) No. 15036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 4/26/00

SIGNATURE

DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director



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04/26/00

BRIAN SULLIVAN
BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043

Purchase Order Number: 20-100

page 1 of 11

Project Location: WOBURN REGIONAL TRANSPORTATION CENTER
Date Received: 04/21/00

LIMS-BAT #: LIMS-48009
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/21/00
NOT SPECIFIED
WRTC CELL 03-01

	Units	00809590	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Acetone	mg/kg dry wt	0.122	04/25/00	WSD	0.057		
Acrolein	mg/kg dry wt	ND	04/25/00	WSD	0.023		
Acrylonitrile	mg/kg dry wt	ND	04/25/00	WSD	0.009		
Benzene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
Bromobenzene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
Bromochloromethane	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
Bromodichloromethane	mg/kg dry wt.	ND	04/25/00	WSD	0.000		
Bromomethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
Bromoform	mg/kg dry wt	ND	04/25/00	WSD	0.001		
2-Butanone (MEK)	mg/kg dry wt	0.018	04/25/00	WSD	0.014		
n-Butylbenzene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
sec-Butylbenzene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
tert-Butylbenzene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
Carbon Disulfide	mg/kg dry wt	ND	04/25/00	WSD	0.003		
Carbon Tetrachloride	mg/kg dry wt	ND	04/25/00	WSD	0.001		
Chlorobenzene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
Chlorodibromomethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
Chloroethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
2-Chloroethylvinylether	mg/kg dry wt	ND	04/25/00	WSD	0.011		
Chloroform	mg/kg dry wt	ND	04/25/00	WSD	0.001		
Chloromethane	mg/kg dry wt	ND	04/25/00	WSD	0.017		
2-Chlorotoluene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
4-Chlorotoluene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
1,2-Dibromo-3-Chloropropane	mg/kg dry wt.	ND	04/25/00	WSD	0.002		
1,2-Dibromoethane	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
Dibromomethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,2-Dichlorobenzene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,3-Dichlorobenzene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,4-Dichlorobenzene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
cis-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	04/25/00	WSD	0.003		
trans-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	04/25/00	WSD	0.002		
Dichlorodifluoromethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48009

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/21/00

NOT SPECIFIED

WRTC CELL 03-01

	Units	00809590	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
1,1-Dichloroethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,2-Dichloroethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,1-Dichloroethylene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
cis-1,2-Dichloroethylene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
trans-1,2-Dichloroethylene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,2-Dichloropropane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,3-Dichloropropane	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
2,2-Dichloropropane	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
1,1-Dichloropropene	mg/kg dry wt.	ND	04/25/00	WSD	0.002		
cis-1,3-Dichloropropene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
trans-1,3-Dichloropropene	mg/kg dry wt	ND	04/25/00	WSD	0.000		
Ethyl Benzene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
Ethyl Methacrylate	mg/kg dry wt	ND	04/25/00	WSD	0.001		
Hexachlorobutadiene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
2-Hexanone	mg/kg dry wt	ND	04/25/00	WSD	0.011		
Iodomethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
Isopropylbenzene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
p-Isopropyltoluene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
MTBE	mg/kg dry wt	0.001	04/25/00	WSD	0.001		
Methylene Chloride	mg/kg dry wt	BDL	04/25/00	WSD	0.017		
MIBK	mg/kg dry wt	ND	04/25/00	WSD	0.010		
Naphthalene	mg/kg dry wt.	0.001	04/25/00	WSD	0.001		
n-Propylbenzene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
Styrene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,1,1,2-Tetrachloroethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,1,2,2-Tetrachloroethane	mg/kg dry wt	ND	04/25/00	WSD	0.002		
Tetrachloroethylene	mg/kg dry wt	ND	04/25/00	WSD	0.000		
Toluene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,2,3-Trichlorobenzene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
1,2,4-Trichlorobenzene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
1,1,1-Trichloroethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,1,2-Trichloroethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		

RL = Reporting Limit

ND = Not Detected

BDL = Below Detection Limit

NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/26/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48009

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/21/00

NOT SPECIFIED

WRTC CELL 03-01

	Units	00809590	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Trichloroethylene	mg/kg dry wt	ND	04/25/00	WSD	0.001		
Trichlorofluoromethane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,2,3-Trichloropropane	mg/kg dry wt	ND	04/25/00	WSD	0.001		
1,2,4-Trimethylbenzene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
1,3,5-Trimethylbenzene	mg/kg dry wt.	ND	04/25/00	WSD	0.001		
Vinyl Acetate	mg/kg dry wt	ND	04/25/00	WSD	0.019		
Vinyl Chloride	mg/kg dry wt	ND	04/25/00	WSD	0.000		
m-Xylene	mg/kg dry wt	BDL	04/25/00	WSD	0.001		
o + p Xylene	mg/kg dry wt	ND	04/25/00	WSD	0.001		

Analytical Method(s):

SW846 8260

SAMPLES ARE CONCENTRATED BY PURGE & TRAP, FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

RL = Reporting Limit
ND = Not Detected
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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48009
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 04/21/00
 NOT SPECIFIED
 WRTC CELL 03-01

	Units	00B095B9	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Flashpoint	deg. F	>212	04/25/00	KFA		140	P

Analytical Method(s):

SWB46 1010

PENSKY-MARTENS CLOSED CUP PROCEDURE

RL = Reporting Limit
 ND = Not Detected
 BDL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48009
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/21/00
NOT SPECIFIED
WRTC CELL 03-01

	Units	00809589	Date	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Arsenic	mg/kg dry wt.	245	04/25/00	PM	5.62		
Barium	mg/kg dry wt.	93.3	04/25/00	PM	0.11		
Cadmium	mg/kg dry wt.	0.59	04/25/00	PM	0.06		
Chromium	mg/kg dry wt.	59.6	04/25/00	PM	0.39		
Lead	mg/kg dry wt.	422	04/25/00	PM	2.81		
Mercury	mg/kg dry wt.	1.03	04/25/00	JER	0.010		
Selenium	mg/kg dry wt.	BDL	04/25/00	PM	5.62		
Silver	mg/kg dry wt.	1.34	04/25/00	PM	0.56		

Analytical Method(s):

Arsenic
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Barium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Cadmium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Chromium
SW846 3050/6010

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Lead

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Mercury

SW846 3050/7471

SAMPLES ARE DIGESTED WITH ACIDS AND THEN ANALYZED BY
COLD VAPOR (FLAMELESS) ATOMIC ABSORPTION SPECTROPHOTOMETRY

Selenium

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Silver

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



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04/26/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48009
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/21/00
NOT SPECIFIED
WRTC CELL 03-01

	Units	00809589	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
PCB-1221	mg/kg dry wt.	ND	04/24/00	MFF			
PCB-1232	mg/kg dry wt.	ND	04/24/00	MFF			
PCB-1242	mg/kg dry wt.	ND	04/24/00	MFF			
PCB-1248	mg/kg dry wt.	ND	04/24/00	MFF			
PCB-1254	mg/kg dry wt.	ND	04/24/00	MFF			
PCB-1260	mg/kg dry wt.	ND	04/24/00	MFF			
PCB's	mg/kg dry wt.	ND	04/24/00	MFF	0.028		

Analytical Method(s):

SW846 8080

SAMPLES ARE EXTRACTED INTO HEXANE AND ANALYZED BY GAS CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTION.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/25/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48009

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/21/00

NOT SPECIFIED

WRTC CELL 03-01

	Units	00B09589	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
----- pH	units	6.96	04/22/00	NJ	---	----	---

Analytical Method(s):

SW846 9045

ELECTRODE DETERMINATION.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48009

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/21/00

NOT SPECIFIED

WRTC CELL 03-01

	Units	00809589	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Cyanide, reactive	mg/kg	ND	04/25/00	SBP	5.0	250	P
Reactive Sulfide	mg/kg	ND	04/25/00	SBP	20	500	P

Analytical Method(s):

SW846 CH.7.3.3.2/7.3.4.2

REACTIVE CYANIDE SW846 CHPT. 7.3.3.2

QUANTITATIVE ANALYSIS OF HYDROGEN CYANIDE GAS GENERATED WHEN THE SAMPLE IS TREATED WITH ACID.

REACTIVE SULFIDE SW846 CHPT. 7.3.4.2

QUANTITATIVE ANALYSIS OF HYDROGEN SULFIDE GAS GENERATED WHEN THE SAMPLE IS TREATED WITH ACID.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48009

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/21/00

NOT SPECIFIED

WRTC CELL 03-01

	Units	008095B9	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Solids, total	%	89.0	04/25/00	KFA			

Analytical Method(s):

SM 2540G

PERCENT OF SAMPLE REMAINING AFTER DRYING OVERNIGHT AT 103-105 DEGREES CENTIGRADE.

RL = Reporting Limit
ND = Not Detected
BOL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48009
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/21/00
NOT SPECIFIED
WRTC CELL 03-01

	Units	00809589	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
----- Unknown Hydrocarbons	mg/kg dry wt.	39	04/24/00	JB	9.4	-----	---

Analytical Method(s):

MODIFIED SW846 8100

SAMPLES ARE EXTRACTED INTO METHYLENE CHLORIDE AND ANALYZED BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION (FID). ALL PEAKS ELUTING IN THE PETROLEUM FUEL REGION ARE QUANTITATED AS #2 FUEL OIL.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/26/00

Lims Bat #: LIMS-48009

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QC Batch Number: FLASHPONT-0910

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
STDADD-15185	Flashpoint	Standard Measured	82.0	deg. F	
		Standard Amt Added	81.0	deg. F	
		Standard % Recovery	101.2	%	
STDADD-15186	Flashpoint	Standard Measured	82.0	deg. F	
		Standard Amt Added	81.0	deg. F	
		Standard % Recovery	101.2	%	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/26/00

Lims Bat #: LIMS-48009

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QC Batch Number: GC/ECD-3126

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00809589	Dibutyl Chloroendate	Surrogate Recovery	75.5	%	
BLANK-25341	PCB-1232	Blank	0.000	mg/kg dry wt.	
	PCB-1242	Blank	0.000	mg/kg dry wt.	
	PCB-1254	Blank	0.000	mg/kg dry wt.	
	PCB-1260	Blank	0.000	mg/kg dry wt.	
	PCB-1248	Blank	0.000	mg/kg dry wt.	
	PCB-1221	Blank	0.000	mg/kg dry wt.	
	PCB's	Blank	<0.025	mg/kg dry wt.	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/26/00

Lims Bat #: LIMS-48009

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QC Batch Number: GC/FID-3495

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00809589	Unknown Hydrocarbons	Sample Amount	39.1	mg/kg dry wt.	
		Duplicate Value	49.5	mg/kg dry wt.	
		Duplicate RPD	23.6	%	
		Sample Amount	39.1	mg/kg dry wt.	
		Matrix Spk Amt Added	37.4	mg/kg dry wt.	
		MS Amt Measured	76.6	mg/kg dry wt.	
		Matrix Spike % Rec.	100.3	%	
BLANK-25364	Unknown Hydrocarbons	Blank	<8.3	mg/kg dry wt.	



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/26/00

Lims Bat #: LIMS-48009

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QC Batch Number: HG-1468

Sample Id	Analysis	QC Analysis	Values	Units	Limits
BLANK-25353	Mercury	Blank	<0.010	mg/kg dry wt.	



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BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: BRIAN SULLIVAN

REPORT DATE: 04/27/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-48040
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WOBURN REGIONAL TRANSPORTATION CENTER

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
WRTC CELL 03-01	00809760	SOIL	NOT SPECIFIED	as (leachate)
WRTC CELL 03-01	00809760	SOIL	NOT SPECIFIED	cr (leach) icp
WRTC CELL 03-01	00809760	SOIL	NOT SPECIFIED	tcip - lead icp

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308	AIHA ELLAP (LEAD) 6838
MASSACHUSETTS MA100	NEW HAMPSHIRE 2516
CONNECTICUT PH-0567	VERMONT DOM (LEAD) No. 15036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 4/27/00
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director



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BRIAN SULLIVAN
BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043

04/27/00
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Purchase Order Number: 20-100

Project Location: WOBURN REGIONAL TRANSPORTATION CENTER
Date Received: 04/25/00

LIMS-BAT #: LIMS-48040
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/21/00
NOT SPECIFIED
WRTC CELL 03-01

	Units	00809760	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Arsenic	MG/L LEACHATE	ND	04/27/00	KLF	0.10	5.00	P

Analytical Method(s):

Arsenic
SW846 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

RL = Reporting Limit
ND = Not Detected
BOL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/27/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48040

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/21/00

NOT SPECIFIED

WRTC CELL 03-01

	Units	00809760	Date	Analyst	RL	SPEC	P/F
-----	-----	-----	Analyzed	-----	---	LIMIT	---
Chromium	MG/L LEACHATE	ND	04/27/00	KLF	0.05	5.00	P

Analytical Method(s):

Chromium
SW846 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/27/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48040

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/21/00

NOT SPECIFIED

WRTC CELL 03-01

	Units	00B09760	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Lead	MG/L LEACHATE	0.50	04/27/00	KLF	0.05	5.00	P

Analytical Method(s):

SW846 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION-SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/27/00

Lims Bat #: LIMS-48040

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QC Batch Number: ICP/TCLP-1015

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00809760	Arsenic	Sample Amount	<0.10	MG/L LEACHATE	
		Matrix Spk Amt Added	0.50	MG/L LEACHATE	
		MS Amt Measured	0.59	MG/L LEACHATE	
		Matrix Spike % Rec.	118.26	%	23.00-132.00
	Chromium	Sample Amount	<0.05	MG/L LEACHATE	
		Matrix Spk Amt Added	0.50	MG/L LEACHATE	
		MS Amt Measured	0.51	MG/L LEACHATE	
		Matrix Spike % Rec.	102.14	%	0.45-122.00
	Lead	Sample Amount	0.50	MG/L LEACHATE	
		Matrix Spk Amt Added	0.50	MG/L LEACHATE	
		MS Amt Measured	1.00	MG/L LEACHATE	
		Matrix Spike % Rec.	100.78	%	21.00-143.00
BLANK-25412	Silver	Blank	<0.01	MG/L LEACHATE	
	Arsenic	Blank	0.05	MG/L LEACHATE	
	Barium	Blank	0.18	MG/L LEACHATE	
	Cadmium	Blank	<0.01	MG/L LEACHATE	
	Chromium	Blank	<0.01	MG/L LEACHATE	
	Lead	Blank	<0.01	MG/L LEACHATE	
	Selenium	Blank	<0.02	MG/L LEACHATE	
BLANK-25413	Arsenic	Blank	<0.10	MG/L LEACHATE	
	Barium	Blank	<0.05	MG/L LEACHATE	
	Chromium	Blank	<0.05	MG/L LEACHATE	
	Lead	Blank	<0.05	MG/L LEACHATE	
STDADD-15217	Silver	Standard Measured	1.06	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	105.60	%	
	Arsenic	Standard Measured	1.04	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	103.80	%	
	Barium	Standard Measured	0.94	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	94.29	%	
	Cadmium	Standard Measured	1.10	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	110.00	%	
Chromium	Standard Measured	1.10	MG/L LEACHATE		
	Standard Amt Added	1.00	MG/L LEACHATE		
	Standard % Recovery	110.00	%		



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BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: BRIAN SULLIVAN

REPORT DATE: 04/27/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-48041
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WOBURN REGIONAL TRANSPORTATION CENTER

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
WRTC CELL 02-01	00B09761	SOIL	NOT SPECIFIED	as (leachate)
WRTC CELL 02-01	00B09761	SOIL	NOT SPECIFIED	cr (leach) icp
WRTC CELL 02-01	00B09761	SOIL	NOT SPECIFIED	tcip - lead icp

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308	AIHA ELLAP (LEAD) 6838
MASSACHUSETTS MA100	NEW HAMPSHIRE 2516
CONNECTICUT PH-0567	VERMONT DOH (LEAD) No. 15036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 4/27/00
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director



BRIAN SULLIVAN 39 Spruce Street • 2nd Floor • East Longmeadow, MA 01028 • FAX 413/525-6405 • TEL 413/525-2332
 BATG, ENVIRONMENTAL 04/27/00
 150 RECREATION PARK DRIVE page 1 of 3
 HINGHAM, MA 02043 Purchase Order Number: 20-100

Project Location: WOBURN REGIONAL TRANSPORTATION CENTER
 Date Received: 04/25/00

LIMS-BAT #: LIMS-48041
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 04/20/00
 NOT SPECIFIED
 WRTC CELL 02-01

	Units	00B09761	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Arsenic	MG/L LEACHATE	ND	04/27/00	KLF	0.10	5.00	P

Analytical Method(s):

Arsenic
 SW846 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

RL = Reporting Limit
 ND = Not Detected
 BDL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/27/00

page 2 of 3

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48041

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/20/00

NOT SPECIFIED

WRTC CELL 02-01

	Units	00809761	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Chromium	MG/L LEACHATE	0.11	04/27/00	KLF	0.05	5.00	P

Analytical Method(s):

Chromium
SV846 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

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SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/27/00

page 3 of 3

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48041

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/20/00

NOT SPECIFIED

WRTC CELL 02-01

	Units	00B09761	Date	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Lead	MG/L LEACHATE	1.15	04/27/00	KLF	0.05	5.00	P

Analytical Method(s):

SW846 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
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SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/27/00

Lims Bat #: LIMS-48041

Page 1 of 1

QC Batch Number: ICP/TCLP-1015

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
BLANK-25412	Silver	Blank	<0.01	MG/L LEACHATE	
	Arsenic	Blank	0.05	MG/L LEACHATE	
	Barium	Blank	0.18	MG/L LEACHATE	
	Cadmium	Blank	<0.01	MG/L LEACHATE	
	Chromium	Blank	<0.01	MG/L LEACHATE	
	Lead	Blank	<0.01	MG/L LEACHATE	
	Selenium	Blank	<0.02	MG/L LEACHATE	
BLANK-25413	Arsenic	Blank	<0.10	MG/L LEACHATE	
	Barium	Blank	<0.05	MG/L LEACHATE	
	Chromium	Blank	<0.05	MG/L LEACHATE	
	Lead	Blank	<0.05	MG/L LEACHATE	
STDADD-15217	Silver	Standard Measured	1.06	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	105.60	%	
	Arsenic	Standard Measured	1.04	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	103.80	%	
	Barium	Standard Measured	0.94	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	94.29	%	
	Cadmium	Standard Measured	1.10	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	110.00	%	
	Chromium	Standard Measured	1.10	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	110.00	%	
	Lead	Standard Measured	1.15	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	115.10	%	
	Selenium	Standard Measured	1.01	MG/L LEACHATE	
		Standard Amt Added	1.00	MG/L LEACHATE	
		Standard % Recovery	100.90	%	

BATG - Environmental
150 Recreation Park Drive, Unit 5
Hingham, MA 02043

Phone: (781) 740-2078
Fax: (781) 740-2079

FAX TRANSMITTAL

To: Joseph F. LeMay (EPA)
cc: Rick Noblet (TMC)

Company: EPA

FAX No.: ~~(617) 918-1294~~ 781-935-0383

From: Adam B. Westhaver

Subject: Analytical Cell-04 Sample-01

Total Number of Pages (including cover): 23

Joe:

Enclosed please find summary tables and analytical data for Cell-04 Sample-01. TCLP results are verbal I will fax you a copy of the data when I receive it. BATG anticipates utilizing the ARC facility to dispose of this material. You may reach me by cell phone at 617-827-6577 or at the office at 781-740-2078 if you have questions.

Thanks for your help Adam.

05-03-00 15:03 TO: MINDI KERRY CORP. - WOBURN FROM: 781 740 2879

05-03-00 WED 18:05 FAX 781 740 2078

BATG ENVIRONMENTAL, INC

002

TABLE 1
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 IL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/l)

	Cell-04 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
NON-HALOGENATED AROMATIC HYDROCARBONS (NPH)				
C5 - C8 Aliphatic Hydrocarbons	N/A	100	N/A	N/A
C9 - C12 Aliphatic Hydrocarbons	N/A	1000	N/A	N/A
C9 - C10 Aromatic Hydrocarbons	N/A	100	N/A	N/A
Benzene	N/A	10	N/A	N/A
Ethylbenzene	N/A	80	N/A	N/A
Methyl tert butyl ether (MTBE)	N/A	0.3	N/A	N/A
Naphthalene	N/A	4	N/A	N/A
Toluene	N/A	90	N/A	N/A
m & p Xylenes	N/A	500	N/A	N/A
o-Xylene	N/A	500	N/A	N/A
HALOGENATED AROMATIC HYDROCARBONS (HAPH)				
C9 - C18 Aliphatic Hydrocarbons	N/A	1000	N/A	N/A
C19 - C36 Aliphatic Hydrocarbons	N/A	2500	N/A	N/A
C11 - C22 Aromatic Hydrocarbons	N/A	200	N/A	N/A
Acenaphthene	N/A	20	N/A	N/A
Acenaphthylene	N/A	100	N/A	N/A
Anthracene	N/A	1000	N/A	N/A
Benzo(a)anthracene	N/A	0.7	N/A	N/A
Benzo(a)pyrene	N/A	0.7	N/A	N/A
Benzo(b)fluoranthene	N/A	0.7	N/A	N/A
Benzo(g,h,i)perylene	N/A	1000	N/A	N/A
Benzo(k)fluoranthene	N/A	NA	N/A	N/A
Chrysene	N/A	7	N/A	N/A
Dibenzo(a,h)anthracene	N/A	0.7	N/A	N/A
Fluoranthene	N/A	1000	N/A	N/A
Fluorene	N/A	400	N/A	N/A
Indeno(1,2,3-cd)pyrene	N/A	0.7	N/A	N/A
2-Methylnaphthalene	N/A	4	N/A	N/A
Naphthalene	N/A	4	N/A	N/A
Phenanthrene	N/A	100	N/A	N/A
Pyrene	N/A	700	N/A	N/A
VOIATILE ORGANIC COMPOUNDS				
None Detected	N/A	4	N/A	N/A

"-"= Non Detect
 NA = Not Applicable

TO: MINDI PERRY CORP - WOBURN

FROM: 781 748 9870

003

05/03/00 WED 16:05 FAX 781 740 2079

BATG ENVIRONMENTAL, INC

003

TABLE 2
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-04 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	Cell-04 Sample-01	310 CM 30.0000
Total Petroleum Hydrocarbons	16	200	N/A	N/A	N/A
Arsenic	218	30	300	ND (verbal result)	5
Barium	212	1000	N/A	N/A	100
Cadmium	3.51	30	N/A	N/A	1
Chromium	41.9	30	1,000	ND (verbal result)	5
Lead	310	300	600	0.20 (verbal result)	5
Mercury	0.304	20	N/A	N/A	0.2
Selenium	-	400	N/A	N/A	1
Silver	3.96	100	N/A	N/A	5
Cyanide	N/A	100	N/A	N/A	N/A
Solids, Total	83.3	N/A	N/A	N/A	N/A
Degrees Fahrenheit	>212	N/A	N/A	N/A	N/A
pH	6.63	N/A	N/A	N/A	N/A
Cyanide/Sulfide	ND/ND	N/A	N/A	N/A	N/A
Aldrin	-	0.03	N/A	N/A	N/A
alpha-BHC	-	50	N/A	N/A	N/A
beta-BHC	-	10	N/A	N/A	N/A
delta-BHC	-	10	N/A	N/A	N/A
gamma-BHC (lindane)	-	NA	N/A	N/A	N/A
Chlordane	-	1	N/A	N/A	N/A
4,4'-DDD	-	2	N/A	N/A	N/A
4,4'-DDE	-	2	N/A	N/A	N/A
4,4'-DDT	-	2	N/A	N/A	N/A
Dieldrin	-	0.03	N/A	N/A	N/A
Endosulfan I	-	NA	N/A	N/A	N/A
Endosulfan II	-	NA	N/A	N/A	N/A
Endosulfan Sulfate	-	NA	N/A	N/A	N/A
Endrin	-	0.6	N/A	N/A	N/A
Endrin Aldehyde	-	10	N/A	N/A	N/A
Heptachlor	-	0.1	N/A	N/A	N/A
Heptachlor Epoxide	-	0.06	N/A	N/A	N/A
Methoxychlor	-	30	N/A	N/A	N/A

TABLE 2
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-04 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	Cell-04 Sample-01	310 CM 30.0000
PCB-1221	-	NA	N/A	N/A	N/A
PCB-1232	-	NA	N/A	N/A	N/A
PCB-1242	-	NA	N/A	N/A	N/A
PCB-1248	-	NA	N/A	N/A	N/A
PCB-1254	-	NA	N/A	N/A	N/A
PCB-1260	-	NA	N/A	N/A	N/A
PCB's	-	2	N/A	N/A	N/A
Toxaphene	-	10	N/A	N/A	N/A

"-" = Non Detect
 NA = Not Applicable

05/03/00 18:06 FAX 781 740 2079

004

TABLE 3
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

POLY-AROMATIC HYDROCARBONS	Cell-04 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
4,6-Dinitro-2-methylphenol	-	NA	N/A	N/A
2,4-Dinitrophenol	-	3	N/A	N/A
2,4-Dinitrotoluene	-	0.7	N/A	N/A
2,6-Dinitrotoluene	-	100	N/A	N/A
1,2-Diphenylhydrazine	-	50	N/A	N/A
Fluoranthene	-	1000	N/A	N/A
Fluorene	-	400	N/A	N/A
Hexachlorobenzene	-	0.7	N/A	N/A
Hexachlorobutadiene	-	3	N/A	N/A
Hexachlorocyclopentadiene	-	50	N/A	N/A
Hexachloroethane	-	6	N/A	N/A
Indeno(1,2,3-cd)pyrene	-	0.7	N/A	N/A
Isophorone	-	100	N/A	N/A
o-cresol	-	NA	N/A	N/A
m&p-cresol(s)	-	NA	N/A	N/A
2-Methylnthalene	-	4	N/A	N/A
Napthalene	-	4	N/A	N/A
2-Nitroaniline	-	NA	N/A	N/A
3-Nitroaniline	-	NA	N/A	N/A
4-Nitroaniline	-	NA	N/A	N/A
Nitrobenzene	-	500	N/A	N/A
2-Nitrophenol	-	100	N/A	N/A
4-Nitrophenol	-	100	N/A	N/A
N-Nitrosodimethylamine	-	50	N/A	N/A
N-Nitrosodiphenylamine	-	100	N/A	N/A
N-Nitroso-di-n-propylamine	-	50	N/A	N/A
Pentachlorophenol	-	5	N/A	N/A
Phenanthrene	-	100	N/A	N/A
Phenol	-	60	N/A	N/A
Pyrene	-	700	N/A	N/A
Pyridine	-	500	N/A	N/A
1,2,4-Trichlorobenzene	-	100	N/A	N/A
2,4,5-Trichlorophenol	-	-	N/A	N/A
2,4,6-Trichlorophenol	-	3	N/A	N/A

"-" = Non Detect
 NA = Not Applicable

BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: BRIAN SULLIVAN/ADAM WESTHAVER

REPORT DATE: 05/03/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-48134
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WOBURN REGIONAL TRANSPORTATION CENTER, CELL 04

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	8260 sludge (a)
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	8260 sludge (b)
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	8270-sludge bn-1
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	8270-sludge bn-2
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	8270-sludge-acid
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	flashpoint
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	metals-8 slg lep
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	pcb - sludge
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	ph solids
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	reactivity
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	solids (percent)
WRTC CELL 04-01	00810125	SOIL	NOT SPECIFIED	tph gc dry 8100s

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

A1HA 308
MASSACHUSETTS MA100
CONNECTICUT PH-0567
NEW YORK ELAP 10899

A1HA ELLAP (LEAD) 6838
NEW HAMPSHIRE 2516
VERMONT DOH (LEAD) No. 15036
RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 5/3/00
SIGNATURE DATE

Tod Kopyacinski
Director of Operations

Edward Denson
Technical Director

BRIAN SULLIVAN/ADAM WESTHAVER
 BATG, ENVIRONMENTAL
 150 RECREATION PARK DRIVE
 WINGHAM, MA 02043

Purchase Order Number: 20-100

05/03/00

page 1 of 15

Project Location: WOBURN REGIONAL TRANSPORTATION CENTER, CELL 04
 Date Received: 04/28/00

LIMS-BAT #: LIMS-48134
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 04/28/00
 NOT SPECIFIED
 WRTC CELL 04-01

	Units	00810125	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Acetone	mg/kg dry wt	ND	05/03/00	CJW	0.078		
Acrolein	mg/kg dry wt	ND	05/03/00	CJW	0.031		
Acrylonitrile	mg/kg dry wt	ND	05/03/00	CJW	0.012		
Benzene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
Bromobenzene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
Bromo-chloromethane	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
Bromodichloromethane	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
Bromomethane	mg/kg dry wt	ND	05/03/00	CJW	0.002		
Bromoform	mg/kg dry wt	ND	05/03/00	CJW	0.002		
2-Butanone (MEK)	mg/kg dry wt	ND	05/03/00	CJW	0.019		
n-Butylbenzene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
sec-Butylbenzene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
tert-Butylbenzene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
Carbon Disulfide	mg/kg dry wt	ND	05/03/00	CJW	0.005		
Carbon Tetrachloride	mg/kg dry wt	ND	05/03/00	CJW	0.001		
Chlorobenzene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
Chlorodibromomethane	mg/kg dry wt	ND	05/03/00	CJW	0.001		
Chloroethane	mg/kg dry wt	ND	05/03/00	CJW	0.001		
2-Chloroethylvinylether	mg/kg dry wt	ND	05/03/00	CJW	0.015		
Chloroform	mg/kg dry wt	ND	05/03/00	CJW	0.007		
Chloromethane	mg/kg dry wt	ND	05/03/00	CJW	0.023		
2-Chlorotoluene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
4-Chlorotoluene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
1,2-Dibromo-3-Chloropropane	mg/kg dry wt.	ND	05/03/00	CJW	0.003		
1,2-Dibromoethane	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
Dibromomethane	mg/kg dry wt	ND	05/03/00	CJW	0.002		
1,2-Dichlorobenzene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,3-Dichlorobenzene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,4-Dichlorobenzene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
cis-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	05/03/00	CJW	0.004		
trans-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	05/03/00	CJW	0.003		
Dichlorodifluoromethane	mg/kg dry wt	ND	05/03/00	CJW	0.002		

RL = Reporting Limit
 ND = Not Detected
 BDL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/03/00

page 2 of 15

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-68134

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/28/00

NOT SPECIFIED

WRTC CELL 04-01

	Units	00810125	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
1,1-Dichloroethane	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,2-Dichloroethane	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,1-Dichloroethylene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
cis-1,2-Dichloroethylene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
trans-1,2-Dichloroethylene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,2-Dichloropropane	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,3-Dichloropropane	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
2,2-Dichloropropane	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
1,1-Dichloropropene	mg/kg dry wt.	ND	05/03/00	CJW	0.002		
cis-1,3-Dichloropropene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
trans-1,3-Dichloropropene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
Ethyl Benzene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
Ethyl Methacrylate	mg/kg dry wt	ND	05/03/00	CJW	0.001		
Hexachlorobutadiene	mg/kg dry wt.	ND	05/03/00	CJW	0.002		
2-Hexanone	mg/kg dry wt	ND	05/03/00	CJW	0.015		
Iodochthane	mg/kg dry wt	ND	05/03/00	CJW	0.001		
Isopropylbenzene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
p-Isopropyltoluene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
MTBE	mg/kg dry wt	ND	05/03/00	CJW	0.001		
Methylene Chloride	mg/kg dry wt	ND	05/03/00	CJW	0.023		
MTBK	mg/kg dry wt	ND	05/03/00	CJW	0.014		
Naphthalene	mg/kg dry wt.	ND	05/03/00	CJW	0.002		
n-Propylbenzene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
Styrene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,1,1,2-Tetrachloroethane	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,1,2,2-Tetrachloroethane	mg/kg dry wt	ND	05/03/00	CJW	0.002		
Tetrachloroethylene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
Toluene	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,2,3-Trichlorobenzene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
1,2,4-Trichlorobenzene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
1,1,1-Trichloroethane	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,1,2-Trichloroethane	mg/kg dry wt	ND	05/03/00	CJW	0.001		

RL = Reporting Limit
 ND = Not Detected
 BDL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48134

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 06/28/00

NOT SPECIFIED

WRTC CELL 04-01

	Units	00810125	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Trichloroethylene	mg/kg dry wt	ND	05/03/00	CJW	0.002		
Trichlorofluoromethane	mg/kg dry wt	ND	05/03/00	CJW	0.001		
1,2,3-Trichloropropane	mg/kg dry wt	ND	05/03/00	CJW	0.002		
1,2,4-Trimethylbenzene	mg/kg dry wt.	ND	05/03/00	CJW	0.001		
1,3,5-Trimethylbenzene	mg/kg dry wt.	ND	05/03/00	CJW	0.002		
Vinyl Acetate	mg/kg dry wt	ND	05/03/00	CJW	0.026		
Vinyl Chloride	mg/kg dry wt	ND	05/03/00	CJW	0.000		
m-Xylenc	mg/kg dry wt	ND	05/03/00	CJW	0.002		
o - p Xylene	mg/kg dry wt	ND	05/03/00	CJW	0.001		

Analytical Method(s):

SVB46 8260

SAMPLES ARE CONCENTRATED BY PURGE & TRAP, FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

RL = Reporting Limit
 ND = Not Detected
 BOL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48134
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/28/00
NOT SPECIFIED
WRTC CELL 06-01

	Units	00B10125	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Acenaphthene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Acenaphthylene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Aniline	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Anthracene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Benzidine	mg/kg dry wt	ND	05/01/00	WSD	2.80		
Benzoic Acid	mg/kg dry wt	ND	05/01/00	WSD	1.20		
Benzo(a)anthracene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Benzo(a)pyrene	mg/kg dry wt	ND	05/01/00	WSD	0.80		
Benzo(b)fluoranthene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Benzo(g,h,i)perylene	mg/kg dry wt	ND	05/01/00	WSD	1.20		
Benzo(k)fluoranthene	mg/kg dry wt	ND	05/01/00	WSD	0.80		
Benzyl Alcohol	mg/kg dry wt	ND	05/01/00	WSD	0.80		
Bis(2-chloroethoxy)methane	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Bis(2-chloroethyl)ether	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Bis(2-chloroisopropyl)ether	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Bis(2-ethylhexyl)phthalate	mg/kg dry wt	ND	05/01/00	WSD	0.40		
4-Bromophenyl phenyl ether	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Butylbenzylphthalate	mg/kg dry wt	ND	05/01/00	WSD	0.80		
4-Chloroaniline	mg/kg dry wt	ND	05/01/00	WSD	0.80		
4-Chloro-3-methylphenol	mg/kg dry wt	ND	05/01/00	WSD	0.80		
2-Chloronaphthalene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
2-Chlorophenol	mg/kg dry wt	ND	05/01/00	WSD	0.40		
4-Chlorophenylphenyl ether	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Chrysene	mg/kg dry wt	ND	05/01/00	WSD	0.80		
Dibenzofuran	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Dibenz(a,h)anthracene	mg/kg dry wt	ND	05/01/00	WSD	0.80		
1,2-Dichlorobenzene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
1,3-Dichlorobenzene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
1,4-Dichlorobenzene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
3,3'-Dichlorobenzidine	mg/kg dry wt	ND	05/01/00	WSD	0.80		
2,4-Dichlorophenol	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Diethylphthalate	mg/kg dry wt	ND	05/01/00	WSD	0.40		

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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48134
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/28/00
NOT SPECIFIED
URTC CELL 04-01

	Units	00810125	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
2,4-Dimethylphenol	ng/kg dry wt	ND	05/01/00	WSD	1.60		
Dimethylphthalate	mg/kg dry wt	ND	05/01/00	WSD	0.80		
Di-n-butylphthalate	ng/kg dry wt	ND	05/01/00	WSD	0.40		
Di-n-octylphthalate	ng/kg dry wt	ND	05/01/00	WSD	0.80		
4,6-Dinitro-2-methylphenol	ng/kg dry wt	ND	05/01/00	WSD	0.40		
2,4-Dinitrophenol	mg/kg dry wt	ND	05/01/00	WSD	0.40		
2,4-Dinitrotoluene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
2,6-Dinitrotoluene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
1,2-Diphenylhydrazine	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Fluoranthene	ng/kg dry wt	ND	05/01/00	WSD	0.40		
Fluorene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Hexachlorobenzene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Hexachlorobutadiene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Hexachlorocyclopentadiene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Hexachloroethane	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Indeno(1,2,3-cd)pyrene	ng/kg dry wt	ND	05/01/00	WSD	0.40		
Isophorone	mg/kg dry wt	ND	05/01/00	WSD	0.40		
o-cresol	mg/kg dry wt	ND	05/01/00	WSD	0.40		
m & p-cresol(s)	mg/kg dry wt	ND	05/01/00	WSD	0.40		
2-Methylnaphthalene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Naphthalene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
2-Nitroaniline	mg/kg dry wt	ND	05/01/00	WSD	0.40		
3-Nitroaniline	mg/kg dry wt	ND	05/01/00	WSD	0.40		
4-Nitroaniline	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Nitrobenzene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
2-Nitrophenol	mg/kg dry wt	ND	05/01/00	WSD	0.40		
4-Nitrophenol	mg/kg dry wt	ND	05/01/00	WSD	0.40		
N-Nitrosodimethylamine	mg/kg dry wt	ND	05/01/00	WSD	0.40		
N-Nitrosodiphenylamine	mg/kg dry wt	ND	05/01/00	WSD	0.40		
N-Nitroso-di-n-propylamine	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Pentachlorophenol	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Phenanthrene	mg/kg dry wt	ND	05/01/00	WSD	0.40		

RL = Reporting Limit
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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48134

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/28/00

NOT SPECIFIED

WRTC CELL 04-01

	Units	00810125	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Phenol	mg/kg dry wt	ND	05/01/00	WSD	0.40		
Pyrene	mg/kg dry wt	ND	05/01/00	WSD	1.20		
Pyridine	mg/kg dry wt	ND	05/01/00	WSD	0.40		
1,2,4-Trichlorobenzene	mg/kg dry wt	ND	05/01/00	WSD	0.40		
2,4,5-Trichlorophenol	mg/kg dry wt	ND	05/01/00	WSD	0.40		
2,4,6-Trichlorophenol	mg/kg dry wt	ND	05/01/00	WSD	0.40		

Analytical Method(s):

SW846 8270

SAMPLES ARE EXTRACTED IN METHYLENE CHLORIDE/ACETONE AND FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

BDL = Below Detection Limit

determine PASS (P) or FAIL (F) condition of results

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48134
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/28/00
NOT SPECIFIED
WRTC CELL 04-01

	Units	DOB10125	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Arsenic	mg/kg dry wt.	218	05/01/00	PM	30.0		
Barium	mg/kg dry wt.	212	05/01/00	PM	0.60		
Cadmium	mg/kg dry wt.	3.51	05/01/00	PM	0.30		
Chromium	mg/kg dry wt.	41.9	05/01/00	PM	2.10		
Lead	mg/kg dry wt.	310	05/01/00	PM	15.0		
Mercury	mg/kg dry wt.	0.304	05/03/00	APP	0.012		
Selenium	mg/kg dry wt.	ND	05/01/00	PM	30.0		
Silver	mg/kg dry wt.	3.96	05/01/00	PM	3.00		

Analytical Method(s):

Arsenic
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Barium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Cadmium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Chromium
SW846 3050/6010

RL = Reporting Limit
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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Lead

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Mercury

SW846 3050/7471

SAMPLES ARE DIGESTED WITH ACIDS AND THEN ANALYZED BY
COLD VAPOR (FLAMELESS) ATOMIC ABSORPTION SPECTROPHOTOMETRY

Selenium

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Silver

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48134

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/28/00

NOT SPECIFIED

WRTC CELL 04-01

	Units	00B10125	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
PCB-1221	mg/kg dry wt.	ND	04/27/00	JB			
PCB-1232	mg/kg dry wt.	ND	04/27/00	JB			
PCB-1242	mg/kg dry wt.	ND	04/27/00	JB			
PCB-1248	mg/kg dry wt.	ND	04/27/00	JB			
PCB-1254	mg/kg dry wt.	ND	04/27/00	JB			
PCB-1260	mg/kg dry wt.	ND	04/27/00	JB			
PCB's	mg/kg dry wt.	ND	04/27/00	JB	0.030		

Analytical Method(s):

SW846 8080

SAMPLES ARE EXTRACTED INTO HEXANE AND ANALYZED BY GAS CHROMATOGRAPHY
WITH ELECTRON CAPTURE DETECTION.

RL = Reporting Limit

ND = Not Detected

BDL = Below Detection Limit

NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48134

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/28/00

NOT SPECIFIED

WRTC CELL 04-01

	Units	00810125	Date	Analyzed	Analyst	RL	SPEC	P/F
							LIMIT	
-----	-----	-----	-----	-----	-----	---	-----	---
pH	units	6.63	04/29/00		NJ			

Analytical Method(s):

SW846 9045

ELECTRODE DETERMINATION.

RL = Reporting Limit
 ND = Not Detected
 BDL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
 regulatory level for comparison with data to
 determine PASS (P) or FAIL (F) condition of results.

05/03/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48134

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/28/00

NOT SPECIFIED

WRTC CELL 04-01

	Units	00810125	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Cyanide, reactive	mg/kg	ND	05/02/00	SBP	5.0	250	P
Reactive Sulfide	mg/kg	ND	05/02/00	SBP	20	500	P

Analytical Method(s):

SW846 CH.7.3.3.2/7.3.4.2

REACTIVE CYANIDE SW846 CHPT. 7.3.3.2

QUANTITATIVE ANALYSIS OF HYDROGEN CYANIDE GAS GENERATED WHEN THE SAMPLE IS TREATED WITH ACID.

REACTIVE SULFIDE SW846 CHPT. 7.3.4.2

QUANTITATIVE ANALYSIS OF HYDROGEN SULFIDE GAS GENERATED WHEN THE SAMPLE IS TREATED WITH ACID.

RL = Reporting Limit

ND = Not Detected

BDL = Below Detection Limit

NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/03/00

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Purchase Order Number: 20-100

LIMS-BAY #: LIMS-48134

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/28/00

NOT SPECIFIED

WRTC CELL 04-01

	Units	00810125	Date	Analyst	RL	SPEC	P/F
-----	-----	-----	-----	-----	---	-----	---
Solids, total	%	83.3	05/01/00	XFA			

Analytical Method(s):

SM 2540G

PERCENT OF SAMPLE REMAINING AFTER DRYING OVERNIGHT AT 103-105 DEGREES CENTIGRADE.

RL = Reporting Limit

ND = Not Detected

BDL = Below Detection Limit

MM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48134

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/28/00

NOT SPECIFIED

WRTC CELL 04-01

	Units	DOB10125	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
----- Unknown Hydrocarbons	mg/kg dry wt.	16	05/01/00	JR	10	-----	---

Analytical Method(s):

MODIFIED SW846 B100

SAMPLES ARE EXTRACTED INTO METHYLENE CHLORIDE AND ANALYZED BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION (FID). ALL PEAKS ELUTING IN THE PETROLEUM FUEL REGION ARE QUANTITATED AS #2 FUEL OIL.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

The following notes were attached to the reported analysis:

Sample: 00B10125

ELEVATED METHOD DETECTION LIMIT DUE TO MATRIX INTERFERENCES.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

TABLE I
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 II. CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD I RISK BASED STANDARDS (mg/l)

	Cell-05 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
VOLATILE ORGANIC COMPOUNDS				
C5 - C8 Aliphatic Hydrocarbons	N/A	100	N/A	N/A
C9 - C12 Aliphatic Hydrocarbons	N/A	1000	N/A	N/A
C9 - C10 Aromatic Hydrocarbons	N/A	100	N/A	N/A
Benzene	N/A	10	N/A	N/A
Ethylbenzene	N/A	80	N/A	N/A
Methyl tert butyl ether (MTBE)	N/A	0.3	N/A	N/A
Naphthalene	N/A	4	N/A	N/A
Toluene	N/A	90	N/A	N/A
m & p Xylenes	N/A	500	N/A	N/A
o-Xylene	N/A	500	N/A	N/A
NONVOLATILE ORGANIC COMPOUNDS				
C9 - C18 Aliphatic Hydrocarbons	N/A	1000	N/A	N/A
C19 - C36 Aliphatic Hydrocarbons	N/A	2500	N/A	N/A
C11 - C22 Aromatic Hydrocarbons	N/A	200	N/A	N/A
Acenaphthene	N/A	20	N/A	N/A
Acenaphthylene	N/A	100	N/A	N/A
Anthracene	N/A	1000	N/A	N/A
Benzo(a)anthracene	N/A	0.7	N/A	N/A
Benzo(a)pyrene	N/A	0.7	N/A	N/A
Benzo(b)fluoranthene	N/A	0.7	N/A	N/A
Benzo(g,h,i)perylene	N/A	1000	N/A	N/A
Benzo(k)fluoranthene	N/A	NA	N/A	N/A
Chrysene	N/A	7	N/A	N/A
Dibenzo(a,h)anthracene	N/A	0.7	N/A	N/A
Fluoranthene	N/A	1000	N/A	N/A
Fluorene	N/A	400	N/A	N/A
Indeno(1,2,3-cd)pyrene	N/A	0.7	N/A	N/A
2-Methylnaphthalene	N/A	4	N/A	N/A
Naphthalene	N/A	4	N/A	N/A
Phenanthrene	N/A	100	N/A	N/A
Pyrene	N/A	700	N/A	N/A
VOLATILE ORGANIC COMPOUNDS				
None Detected	N/A	4	N/A	N/A

"-" = Non Detect
 NA = Not Applicable

TABLE 2
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/kg)

	Cell-05 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	Cell-05 Sample-01	310 CM 30.0000
TPH (8100)					
Total Petroleum Hydrocarbons	32	200	N/A	N/A	N/A
Metals	Total (mg/kg)	Total (mg/kg)	Total (mg/kg)	TCLP (mg/L)	
Arsenic	175	30	300	0.17	5
Barrium	113	1000	N/A	N/A	100
Cadmium	0.49	30	N/A	N/A	1
Chromium	12.8	30	1,000	ND	5
Lead	619	300	600	41.6	5
Mercury	0.914	20	N/A	N/A	0.2
Selenium	8.56	400	N/A	N/A	1
Silver	1.91	100	N/A	N/A	5
Cyanide	N/A	100	N/A	N/A	N/A
Percent Solids					
Solids, Total	89.1	N/A	N/A	N/A	N/A
Temperature					
Degrees Fahrenheit	>212	N/A	N/A	N/A	N/A
pH					
pH	6.18	N/A	N/A	N/A	N/A
Cyanide/Sulfide					
Cyanide/Sulfide	ND/ND	N/A	N/A	N/A	N/A
Organic Pesticides					
Aldrin	-	0.03	N/A	N/A	N/A
alpha-BHC	-	50	N/A	N/A	N/A
beta-BHC	-	10	N/A	N/A	N/A
delta-BHC	-	10	N/A	N/A	N/A
gamma-BHC (lindane)	-	NA	N/A	N/A	N/A
Chlordane	-	1	N/A	N/A	N/A
4,4'-DDD	-	2	N/A	N/A	N/A
4,4'-DDE	-	2	N/A	N/A	N/A
4,4'-DDT	-	2	N/A	N/A	N/A
Dieldrin	-	0.03	N/A	N/A	N/A
Endosulfan I	-	NA	N/A	N/A	N/A
Endosulfan II	-	NA	N/A	N/A	N/A
Endosulfan Sulfate	-	NA	N/A	N/A	N/A
Endrin	-	0.6	N/A	N/A	N/A
Endrin Aldehyde	-	10	N/A	N/A	N/A
Heptachlor	-	0.1	N/A	N/A	N/A
Heptachlor Epoxide	-	0.06	N/A	N/A	N/A
Methoxychlor	-	30	N/A	N/A	N/A
PCB-1221	-	NA	N/A	N/A	N/A

TABLE 2
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD I RISK BASED STANDARDS (mg/Kg)

	Cell-05 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	Cell-05 Sample-01	310 CM 30.0000
PCB-1232	-	NA	N/A	N/A	N/A
PCB-1242	-	NA	N/A	N/A	N/A
PCB-1248	-	NA	N/A	N/A	N/A
PCB-1254	0.037	NA	N/A	N/A	N/A
PCB-1260	-	NA	N/A	N/A	N/A
PCB's	0.037	2	N/A	N/A	N/A
Toxaphene	-	10	N/A	N/A	N/A

"-" = Non Detect
 NA = Not Applicable

TABLE 3
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Cell-05 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
POLYAROMATIC HYDROCARBONS				
Acenaphthalene	-	100	N/A	N/A
Acenaphthylene	-	100	N/A	N/A
Aniline	-	1000	N/A	N/A
Anthracene	-	1000	N/A	N/A
Benzidine	-	10	N/A	N/A
Benzoic Acid	-	1000	N/A	N/A
Benzo(a)anthracene	-	0.7	N/A	N/A
Benzo(a)pyrene	-	0.7	N/A	N/A
Benzo(b)fluoranthene	-	0.7	N/A	N/A
Benzo(g,h,i)perylene	-	1000	N/A	N/A
Benzo(k)fluoranthene	-	NA	N/A	N/A
Benzyl Alcohol	-	NA	N/A	N/A
Bis(2-chloroethoxy)methane	-	500	N/A	N/A
Bis(2-chloroethyl)ether	-	0.7	N/A	N/A
Bis(2-chloroisopropyl)ether	-	NA	N/A	N/A
Bis(2-ethylhexyl)phthalate	-	100	N/A	N/A
4-Bromophenyl phenyl ether	-	100	N/A	N/A
Butylbenzyl phthalate	-	100	N/A	N/A
4-Chloroaniline	-	NA	N/A	N/A
4-Chloro-3-methylphenol	-	NA	N/A	N/A
2-Chloronaphthalene	-	1000	N/A	N/A
2-Chlorophenol	-	0.7	N/A	N/A
4-Chlorophenyl phenyl ether	-	1000	N/A	N/A
Chrysene	-	7	N/A	N/A
Dibenzofuran	-	100	N/A	N/A
Dibenz(a,h)anthracene	-	0.7	N/A	N/A
1,2-Dichlorobenzene	-	100	N/A	N/A
1,3-Dichlorobenzene	-	100	N/A	N/A
1,4-Dichlorobenzene	-	2	N/A	N/A
1,3'-Dichlorobenzidine	-	1	N/A	N/A
2,4-Dichlorobenzene	-	NA	N/A	N/A
Diethylphthalate	-	0.7	N/A	N/A
2,4-Dimethylphenol	-	0.7	N/A	N/A
Dimethylphthalate	-	0.7	N/A	N/A
Di-n-butylphthalate	-	NA	N/A	N/A
Di-n-octylphthalate	-	NA	N/A	N/A

TABLE 3
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

POLYAROMATIC HYDROCARBONS	Cell-05 Sample-01	DEP Action Levels (RCS-1)	EPA Action Levels	310 CM 30.0000
4,6-Dinitro-2-methylphenol	-	NA	N/A	N/A
2,4-Dinitrophenol	-	3	N/A	N/A
2,4-Dinitrotoluene	-	0.7	N/A	N/A
2,6-Dinitrotoluene	-	100	N/A	N/A
1,2-Diphenylhydrazine	-	50	N/A	N/A
Fluoranthene	0.6	1000	N/A	N/A
Fluorene	-	400	N/A	N/A
Hexachlorobenzene	-	0.7	N/A	N/A
Hexachlorobutadiene	-	3	N/A	N/A
Hexachlorocyclopentadiene	-	50	N/A	N/A
Hexachloroethane	-	6	N/A	N/A
Indeno(1,2,3-cd)pyrene	-	0.7	N/A	N/A
Isochlorone	-	100	N/A	N/A
o-cresol	-	NA	N/A	N/A
m&p-cresol(s)	-	NA	N/A	N/A
2-Methylnthalene	-	4	N/A	N/A
Naphthalene	-	4	N/A	N/A
2-Nitroaniline	-	NA	N/A	N/A
3-Nitroaniline	-	NA	N/A	N/A
4-Nitroaniline	-	NA	N/A	N/A
Nitrobenzene	-	500	N/A	N/A
2-Nitrophenol	-	100	N/A	N/A
4-Nitrophenol	-	100	N/A	N/A
N-Nitrosodimethylamine	-	50	N/A	N/A
N-Nitrosodiphenylamine	-	100	N/A	N/A
N-Nitroso-di-n-propylamine	-	50	N/A	N/A
Pentachlorophenol	-	5	N/A	N/A
Phenanthrene	-	100	N/A	N/A
Phenol	-	60	N/A	N/A
Pyrene	-	700	N/A	N/A
Pyridine	-	500	N/A	N/A
1,2,4-Trichlorobenzene	-	100	N/A	N/A
2,4,5-Trichlorophenol	-	2	N/A	N/A
2,4,6-Trichlorophenol	-	3	N/A	N/A

"-" = Non Detect
 NA = Not Applicable

May 5 ' 00

15:29

P.03

BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: BRIAN SULLIVAN/ADAM WESTHAVER

REPORT DATE: 05/05/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-48169
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report:

PROJECT LOCATION: WOBURN REGIONAL TRANSPORTATION CENTER

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	8260 sludge (a)
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	8260 sludge (b)
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	8270-sludge bn-1
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	8270-sludge bn-2
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	8270-sludge-acid
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	flashpoint
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	metals-8 sig icp
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	pcb - sludge
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	ph solids
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	reactivity
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	solids (percent)
WRTC CELL 05-01	00810263	SOIL	NOT SPECIFIED	tph gc dry 8100m
WRTC CELL05-01	00810316	SOIL	NOT SPECIFIED	as (leachate)
WRTC CELL05-01	00810316	SOIL	NOT SPECIFIED	cr (leach) fep
WRTC CELL05-01	00810316	SOIL	NOT SPECIFIED	tcp - lead icp

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308	AIHA ELLAP (LEAD) 6838
MASSACHUSETTS MA100	NEW HAMPSHIRE Z516
CONNECTICUT PH-0567	VERMONT DDH (LEAD) No. 15036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 5/5/00
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director

BRIAN SULLIVAN/ADAM WESTRAVER
 BATG, ENVIRONMENTAL
 150 RECREATION PARK DRIVE
 KINGHAM, MA 02043

05/05/00
 page 1 of 18

Purchase Order Number: 20-100

Project Location: WOBURN REGIONAL TRANSPORTATION CENTER
 Date Received: 05/02/00

LIMS-BAT #: LIMS-48169
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 05/02/00
 NOT SPECIFIED
 WRTC CELL 05-01

	Units	DOB10263	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Acetone	mg/kg dry wt	BDL	05/03/00	WSD	0.054		
Acrolein	mg/kg dry wt	ND	05/03/00	WSD	0.022		
Acrylonitrile	mg/kg dry wt	ND	05/03/00	WSD	0.008		
Benzene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Bromobenzene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
Bromochloromethane	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
Bromodichloromethane	mg/kg dry wt.	ND	05/03/00	WSD	0.000		
Bromomethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Bromoform	mg/kg dry wt	ND	05/03/00	WSD	0.001		
2-Butanone (MEK)	mg/kg dry wt	ND	05/03/00	WSD	0.013		
n-Butylbenzene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
sec-Butylbenzene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
tert-Butylbenzene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
Carbon Disulfide	mg/kg dry wt	ND	05/03/00	WSD	0.003		
Carbon Tetrachloride	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Chlorobenzene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Chlorodibromomethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Chloroethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
2-Chloroethylvinylether	mg/kg dry wt	ND	05/03/00	WSD	0.010		
Chloroform	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Chloromethane	mg/kg dry wt	ND	05/03/00	WSD	0.016		
2-Chlorotoluene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
4-Chlorotoluene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
1,2-Dibromo-3-Chloropropane	mg/kg dry wt.	ND	05/03/00	WSD	0.002		
1,2-Dibromoethane	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
Dibromomethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,2-Dichlorobenzene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,3-Dichlorobenzene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,4-Dichlorobenzene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
cis-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	05/03/00	WSD	0.003		
trans-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	05/03/00	WSD	0.002		
Dichlorodifluoromethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		

RL = Reporting Limit
 ND = Not Detected
 BDL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00
page 2 of 18

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 05/02/00
NOT SPECIFIED
WRTC CELL 05-01

	Units	00B10263	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
1,1-Dichloroethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,2-Dichloroethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,1-Dichloroethylene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
cis-1,2-Dichloroethylene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
trans-1,2-Dichloroethylene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,2-Dichloropropane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,3-Dichloropropane	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
2,2-Dichloropropane	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
1,1-Dichloropropene	mg/kg dry wt.	ND	05/03/00	WSD	0.002		
cis-1,3-Dichloropropene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
trans-1,3-Dichloropropene	mg/kg dry wt	ND	05/03/00	WSD	0.000		
Ethyl Benzene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Ethyl Methacrylate	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Hexachlorobutadiene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
2-Hexanone	mg/kg dry wt	ND	05/03/00	WSD	0.011		
Iodamethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Isopropylbenzene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
p-Isopropyltoluene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
MTBE	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Methylene Chloride	mg/kg dry wt	ND	05/03/00	WSD	0.016		
MIBK	mg/kg dry wt	ND	05/03/00	WSD	0.010		
Naphthalene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
n-Propylbenzene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
Styrene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,1,1,2-Tetrachloroethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,1,2,2-Tetrachloroethane	mg/kg dry wt	ND	05/03/00	WSD	0.002		
Tetrachloroethylene	mg/kg dry wt	ND	05/03/00	WSD	0.000		
Toluene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,2,3-Trichlorobenzene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
1,2,4-Trichlorobenzene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
1,1,1-Trichloroethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,1,2-Trichloroethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		

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05/05/00
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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 05/02/00
NOT SPECIFIED
WRTC CELL 05-01

	Units	00810263	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Trichloroethylene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
Trichlorofluoromethane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,2,3-Trichloropropane	mg/kg dry wt	ND	05/03/00	WSD	0.001		
1,2,4-Trimethylbenzene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
1,3,5-Trimethylbenzene	mg/kg dry wt.	ND	05/03/00	WSD	0.001		
Vinyl Acetate	mg/kg dry wt	ND	05/03/00	WSD	0.018		
Vinyl Chloride	mg/kg dry wt	ND	05/03/00	WSD	0.000		
m-Xylene	mg/kg dry wt	ND	05/03/00	WSD	0.001		
o + p Xylene	mg/kg dry wt	ND	05/03/00	WSD	0.001		

Analytical Method(s):

SW846 8260

SAMPLES ARE CONCENTRATED BY PURGE & TRAP, FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

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SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00
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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 05/02/00
NOT SPECIFIED
URTC CELL 05-01

	Units	00810263	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Acenaphthene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Acenaphthylene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Aniline	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Anthracene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Benzidine	mg/kg dry wt	ND	05/04/00	WSD	2.62		
Benzoic Acid	mg/kg dry wt	ND	05/04/00	WSD	1.12		
Benzo(a)anthracene	mg/kg dry wt	BDL	05/04/00	WSD	0.37		
Benzo(a)pyrene	mg/kg dry wt	BDL	05/04/00	WSD	0.75		
Benzo(b)fluoranthene	mg/kg dry wt	BDL	05/04/00	WSD	0.37		
Benzo(g,h,i)perylene	mg/kg dry wt	ND	05/04/00	WSD	1.12		
Benzo(k)fluoranthene	mg/kg dry wt	ND	05/04/00	WSD	0.75		
Benzyl Alcohol	mg/kg dry wt	ND	05/04/00	WSD	0.75		
Bis(2-chloroethoxy)methane	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Bis(2-chloroethyl)ether	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Bis(2-chloroisopropyl)ether	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Bis(2-ethylhexyl)phthalate	mg/kg dry wt	ND	05/04/00	WSD	0.37		
4-Bromophenyl phenyl ether	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Butylbenzylphthalate	mg/kg dry wt	ND	05/04/00	WSD	0.75		
4-Chloroaniline	mg/kg dry wt	ND	05/04/00	WSD	0.75		
4-Chloro-3-methylphenol	mg/kg dry wt	ND	05/04/00	WSD	0.75		
2-Chloronaphthalene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
2-Chlorophenol	mg/kg dry wt	ND	05/04/00	WSD	0.37		
4-Chlorophenylphenyl ether	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Chrysene	mg/kg dry wt	BDL	05/04/00	WSD	0.75		
Dibenzofuran	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Dibenz(a,h)anthracene	mg/kg dry wt	ND	05/04/00	WSD	0.75		
1,2-Dichlorobenzene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
1,3-Dichlorobenzene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
1,4-Dichlorobenzene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
3,3'-Dichlorobenzidine	mg/kg dry wt	ND	05/04/00	WSD	0.75		
2,4-Dichlorophenol	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Diethylphthalate	mg/kg dry wt	ND	05/04/00	WSD	0.37		

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SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00
page 5 of 18

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 05/02/00
NOT SPECIFIED
WRTC CELL 05-01

	Units	00810263	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
2,4-Dimethylphenol	mg/kg dry wt	ND	05/04/00	WSD	1.50		
Dimethylphthalate	mg/kg dry wt	ND	05/04/00	WSD	0.75		
Di-n-butylphthalate	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Di-n-octylphthalate	mg/kg dry wt	ND	05/04/00	WSD	0.75		
4,6-Dinitro-2-methylphenol	mg/kg dry wt	ND	05/04/00	WSD	0.37		
2,4-Dinitrophenol	mg/kg dry wt	ND	05/04/00	WSD	0.37		
2,4-Dinitrotoluene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
2,6-Dinitrotoluene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
1,2-Diphenylhydrazine	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Fluoranthene	mg/kg dry wt	0.60	05/04/00	WSD	0.37		
Fluorene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Hexachlorobenzene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Hexachlorobutadiene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Hexachlorocyclopentadiene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Hexachloroethane	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Indeno(1,2,3-cd)pyrene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Ioporphone	mg/kg dry wt	ND	05/04/00	WSD	0.37		
o-cresol	mg/kg dry wt	ND	05/04/00	WSD	0.37		
m & p-cresol(s)	mg/kg dry wt	ND	05/04/00	WSD	0.37		
2-Methylnaphthalene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Naphthalene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
2-Nitroaniline	mg/kg dry wt	ND	05/04/00	WSD	0.37		
3-Nitroaniline	mg/kg dry wt	ND	05/04/00	WSD	0.37		
4-Nitroaniline	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Nitrobenzene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
2-Nitrophenol	mg/kg dry wt	ND	05/04/00	WSD	0.37		
4-Nitrophenol	mg/kg dry wt	ND	05/04/00	WSD	0.37		
N-Nitrosodimethylamine	mg/kg dry wt	ND	05/04/00	WSD	0.37		
N-Nitrosodiphenylamine	mg/kg dry wt	ND	05/04/00	WSD	0.37		
N-Nitroso-di-n-propylamine	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Pentachlorophenol	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Phenanthrene	mg/kg dry wt	BDL	05/04/00	WSD	0.37		

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00

page 6 of 18

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 05/02/00

NOT SPECIFIED

WRTC CELL 05-01

	Units	00B10263	Date	Analyst	RL	SPEC	P/F
			Analyzed			LIMIT	
Phenol	mg/kg dry wt	ND	05/04/00	WSD	0.37		
Pyrene	mg/kg dry wt	BDL	05/04/00	WSD	1.12		
Pyridine	mg/kg dry wt	ND	05/04/00	WSD	0.37		
1,2,4-Trichlorobenzene	mg/kg dry wt	ND	05/04/00	WSD	0.37		
2,4,5-Trichlorophenol	mg/kg dry wt	ND	05/04/00	WSD	0.37		
2,4,6-Trichlorophenol	mg/kg dry wt	ND	05/04/00	WSD	0.37		

Analytical Method(s):

SW846 B270

SAMPLES ARE EXTRACTED IN METHYLENE CHLORIDE/ACETONE AND FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

RL = Reporting Limit
 ND = Not Detected
 BDL = Below Detection Limit
 NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00
page 7 of 18

LIMS-BAT #: LIMS-48169
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 05/02/00
NOT SPECIFIED
WRTC CELLOS-01

	Units	00B10316	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
----- Arsenic	MG/L LEACHATE	0.17	05/04/00	PH	0.10	5.00	P

Analytical Method(s):

Arsenic
SW846 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00
page 8 of 18

LIMS-BAT #: LIMS-48169
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 05/02/00
NOT SPECIFIED
WRTE CELLOS-01

	Units	00810316	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Chromium	MG/L LEACHATE	ND	05/04/00	PM	0.05	5.00	P

Analytical Method(s):

Chromium
SUB66 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00
page 9 of 18

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 05/02/00
NOT SPECIFIED
WRTC CELL 05-01

	Units	00810263	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Flashpoint	deg. F	>212	05/03/00	KFA		140	P

Analytical Method(s):

SW846 1010

PENSKY-MARTENS CLOSED CUP PROCEDURE

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00

page 10 of 18

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 05/02/00

NOT SPECIFIED

VRTC CELL 05-01

	Units	00810263	Date	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Arsenic	mg/kg dry wt.	175	05/03/00	PM	5.61		
Barium	mg/kg dry wt.	113	05/03/00	PM	0.11		
Cadmium	mg/kg dry wt.	0.49	05/03/00	PM	0.06		
Chromium	mg/kg dry wt.	12.8	05/03/00	PM	0.39		
Lead	mg/kg dry wt.	619	05/03/00	PM	2.81		
Mercury	mg/kg dry wt.	0.914	05/04/00	JER	0.010		
Selenium	mg/kg dry wt.	8.56	05/03/00	PM	5.61		
Silver	mg/kg dry wt.	1.91	05/03/00	PM	0.56		

Analytical Method(s):

Arsenic
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Barium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Cadmium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Chromium
SW846 3050/6010

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

05/05/00

page 11 of 18

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Lead

SWB46 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Mercury

SWB46 3050/7471

SAMPLES ARE DIGESTED WITH ACIDS AND THEN ANALYZED BY
COLD VAPOR (FLAMELESS) ATOMIC ABSORPTION SPECTROPHOTOMETRY

Selenium

SWB46 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Silver

SWB46 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

RL = Reporting Limit

ND = Not Detected

BOL = Below Detection Limit

NH = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

05/05/00
page 12 of 18

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 05/02/00
NOT SPECIFIED
URTC CELL 05-01

	Units	00810263	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
PCB-1221	mg/kg dry wt.	ND	05/03/00	JB			
PCB-1232	mg/kg dry wt.	ND	05/03/00	JB			
PCB-1242	mg/kg dry wt.	ND	05/03/00	JB			
PCB-1248	mg/kg dry wt.	ND	05/03/00	JB			
PCB-1254	mg/kg dry wt.	0.037	05/03/00	JB			
PCB-1260	mg/kg dry wt.	ND	05/03/00	JB			
PCB's	mg/kg dry wt.	0.037	05/03/00	JB	0.028		

Analytical Method(s):

SW846 8080

SAMPLES ARE EXTRACTED INTO HEXANE AND ANALYZED BY GAS CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTION.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00
page 13 of 18

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 05/02/00
NOT SPECIFIED
WRTE CELL 05-01

	Units	DOB10263	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
pH	units	6.18	05/03/00	SKJ			

Analytical Method(s):

SW846 9045

ELECTRODE DETERMINATION.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00

page 14 of 18

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 05/02/00

NOT SPECIFIED

WRTC CELL 05-01

	Units	00810263	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
Cyanide, reactive	mg/kg	ND	05/03/00	SBP	5.0	250	P
Reactive Sulfide	mg/kg	ND	05/03/00	SBP	20	500	P

Analytical Method(s):

SW846 CH.7.3.3.2/7.3.4.2

REACTIVE CYANIDE SW846 CHPT. 7.3.3.2

QUANTITATIVE ANALYSIS OF HYDROGEN CYANIDE GAS GENERATED WHEN THE SAMPLE IS TREATED WITH ACID.

REACTIVE SULFIDE SW846 CHPT. 7.3.4.2

QUANTITATIVE ANALYSIS OF HYDROGEN SULFIDE GAS GENERATED WHEN THE SAMPLE IS TREATED WITH ACID.

RL = Reporting Limit

ND = Not Detected

BDL = Below Detection Limit

NM = Not Measured

SPEC LIMIT = a client specified, recommended, or

regulatory level for comparison with data to

determine PASS (P) or FAIL (F) condition of results.

05/05/00
page 15 of 18

Purchase Order Number: 20-100

LIMS-BAY #: LIMS-48169
Job Number: 20-100
Sample Matrix: SQIL

Sampled: 05/02/00
NOT SPECIFIED
WRTE CELL 05-01

	Units	00810263	Date Analyzed	Analyst	RL	SPEC LIMIT	P/F
----- Solids, total	X	89.1	05/04/00	KFA	---	---	---

Analytical Method(s):

SM 2540G

PERCENT OF SAMPLE REMAINING AFTER DRYING OVERNIGHT AT 103-105 DEGREES
CENTIGRADE.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

05/05/00

page 17 of 18

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-48169

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 05/02/00

NOT SPECIFIED

URTC CELL 05-01

	Units	00810263	Date	Analyzed	Analyst	RL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	-----	---	-----	---
Unknown Hydrocarbons	mg/kg dry wt.	32	05/02/00		JB	9.4		

Analytical Method(s):

MODIFIED SW846 8100

SAMPLES ARE EXTRACTED INTO METHYLENE CHLORIDE AND ANALYZED BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION (FID). ALL PEAKS ELUTING IN THE PETROLEUM FUEL REGION ARE QUANTITATED AS #2 FUEL OIL.

RL = Reporting Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

The following notes were attached to the reported analysis:

Sample: 00810316

Analysis: Lead

SAMPLE TO SPIKE RATIO GREATER THAN OR EQUAL TO 4:1, INCREASING VARIATION FROM ESTABLISHED CONTROL LIMIT IS ANTICIPATED. CONTROL LIMITS PROVIDED FOR REFERENCE ONLY AND ARE NOT APPLICABLE.

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SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

05/05/00
page 16 of 18

LIMS-BAT #: LIMS-48169
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 05/02/00
NOT SPECIFIED
WRTE CELLOS-01

	Units	00810316	Date	Analyst	RL	SPEC LIMIT	P/F
Lead	MG/L LEACHATE	41.6	05/04/00	PM	0.05	5.00	F

Analytical Method(s):

SW846 1311/6010

SAMPLES ARE EXTRACTED INTO pH 5.0 BUFFER FOR 18-24 HOURS AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROMETRY. WATER SAMPLES ARE FILTERED, NOT EXTRACTED.

RL = Reporting Limit
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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



(617) 525-2012
FAX (617) 525-6105

CHAIN OF CUSTODY RECORD

39 SPRUCE ST • 2ND FLOOR • EAST LONGMEADOW, MA 01128

Client Name: BATG Telephone: 781 740 2078 Lims # 481689

Attn: Brian Sullivan / Admin Westhaver Batch #: _____ Analysis Required

Address: 150 Recreation Park Drive Suite 5 Project #: 20-100

Hingham, MA 02155 Client P.O. #: 20-100

Site Location: Woburn Regional Transportation Center Fax #: 781 740 2079

Sampled By: Brian Sullivan

Call Results: Yes ___ No

Fax Results: Yes No ___

Field Sample I.D.	Sample Description	Lab #	DATE SAMPLED		Composite	Grab	MATRIX							Preservative (Use Code)	Container (Use Code)									
			Start Date/Time	Stop Date/Time			WASTE WATER	GROUND WATER	DKG WATER	Soil	Air	*Other												
<u>WRITE call 05-01</u>		<u>008BT 10263</u>	<u>5/2/00</u>	<u>1010 1020</u>	<input checked="" type="checkbox"/>								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>8260 VOC</u>	<u>8270 a/b/m</u>	<u>8100 TPH</u>	<u>8030 PCB</u>	<u>PCPB & Metals</u>	<u>2570 B % Solids</u>	<u>9040 pH</u>	<u>1010 Fluorperm. +</u>	<u>Reactivity</u>	<u>Conductivity</u>
		<u>10310</u>																						
<u>* add TLF job, as per Brian Sullivan 5/8/00 9:00 AM TLF</u>																								

CONTAINER CODE: P: PLASTIC (___ Size) V = 40 ml vial G = Glass (8oz size) A = 1000 ml Amber O = Other

PRESERVATIVE CODE: I = ICED N = HNO₃ H = HCl S = NaOH T = Na₂S₂O₃ O = OTHER Method 1631

Relinquished by: (Signature) Brian Sullivan Date Time 5/2/00 1010 Received by: (Signature) [Signature] 5/2 1221

Turnaround Requested: ___ 24-Hour ___ 48-Hour ___ Normal
3 days Other 5-5-00 Date Required

Relinquished by: (Signature) [Signature] Date Time 5/2/00 1650 Received by: (Signature) [Signature]

Remarks/Comments: Lab detection limits below S-1 Soil Standards

Relinquished by: (Signature) _____ Date Time _____ Received by: (Signature) _____

*MATRIX OTHER _____



BATG Environmental, Inc.

April 11, 2000

Mr. Phil Jodoin
New England Waste Service of Massachusetts
P.O. BOX 696
Hampton, NH 03843

Re: Characterization of Soil Material above geotextile fabric at
Station Location 860-880
Woburn Regional Transportation Center, Woburn, Massachusetts

Dear Mr. Jodoin:

Per your request, BATG Environmental, Inc., (BATG) is providing the attached information concerning the non-regulated soil that exists at the above referenced property.

The attached analytical data details constituent concentrations from the material generated during excavation activities at the Woburn Regional Transportation Center (WRTC). The analytical data is representative of the approximately 1,000 cubic yards of material that will be received at the landfill. Please reference the attached historical summary included in this submittal package.

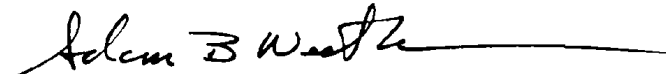
BATG and it's Licensed Site Professional (LSP), have completed a review of the attached analytical data from the existing stockpiled materials and have found that the material is suitable for reuse as structural fill, daily cover, contour or precapping at an unlined landfill, such as the Woburn Municipal Landfill in Woburn, MA., per Massachusetts Department of Environmental Protection (MADEP) Policy COMM 97-001.

BATG and it's LSP feel confident that after you complete your review of the attached analytical characterization data and associated site information you will be able to approve this material for reuse at your facility.

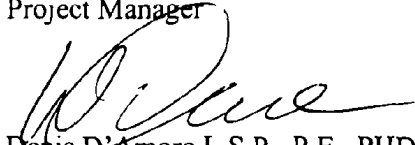
If you have any questions or require further clarification please feel free to contact the undersigned at (781) 740-2078.

Sincerely,

BATG Environmental, Inc.



Adam B. Westhaver
Project Manager



Denis D'Amore L.S.P., P.E., PHD
Project Engineer

cc: Rick Noblet (TMC)
Project Files

Table I
Woburn Landfill Permit Acceptance Criteria and Constituent Concentration from Soil Stockpile

CONSTITUENTS	APPROVED LIMITS FOR WOBURN LANDFILL	LABORATORY RESULTS
Total Arsenic	40	17.3
Total Cadmium	30	ND
Total Chromium	1,000	19.8
Total Lead	1,000	8.98
Total Mercury	10	0.012
EPH/VPH	2,500	2.4 (C ₁₉ -C ₃₆ Aliphatics)
Total PCB's	Less than 2	ND
Total PAH	100	ND
Total VOC's	4	ND
TCLP Lead	Pass	NM ¹
Other Constituents	MCP Method 1, S-1	NM
Conductivity	4,000 umhos/cm	NM ²

- 1.) TCLP results were not analyzed because lead concentrations did not exceed the level at which 100 % Leachability may cause failure of the TCLP test or the twenty times (20 x) rule.
- 2.) In accordance with Note (g) on Page 11 of the MADEP's Interim Remediation Management Policy for petroleum-contaminated soils (#WSC-94-400), since the material is not from a marine environment or from road salt stockpile affected soil, conductivity testing was not performed.

Table II
Summary of Information on Characterized Soils for use as Structural fill, Precapping or Contour Material at the Woburn City Landfill, Woburn, MA

Source of Soil	The soil was generated during excavation activities to reach specified elevation for the installation of rail lines for MBTA and Amtrak.
Current and Historical Use of the Site	Please reference the Historical Summary presented in the following Section. Soils are located at station location 860-880. The soils were placed above the geotextile liner to act as a barrier. Under the current contract the elevation needs to be lowered in order to install the new track and rail line.
Sampling Company/Laboratory	BATG-Environmental, Inc /Con-Test Laboratories
Sampling Protocol	Discrete grab samples were obtained from the soil stockpile. The field geologist utilized a stainless steel trowel, stainless steel bowl and clean laboratory glassware. The grab samples were mixed in the bowl to create a representative composite soil sample. One grab sample for VOC's was obtained representative of the soil stockpile. The sample was analyzed for the constituents referenced in Table I.
Chemical Data Demonstrating Compliance	Please refer to attached laboratory data.
Physical Description of Material/Class Method	Gravel Fill/Clayey sands in compliance with COMM 97-001
Estimated Quantity of Material to be Shipped to Woburn Landfill	A total of 1,000 cubic yards of stockpiled material
Company, LSP and Certification Number	D'Amore Associates Denis D'Amore P.E. L.S.P. PHD # 6039
Additional Information	The attached laboratory analyses are representative of the material that will be shipped to the landfill.

SITE HISTORY AND PROJECT SYNOPSIS

The Massachusetts Port Authority (MPA) along with the Massachusetts Bay Transportation Authority (MBTA) and The Massachusetts Highway Department (MHD), have awarded the Woburn Regional Transportation Center Project to The Middlesex Corporation of Littleton, Massachusetts. The project is identified as MPA Project Number 1.727 and is a continuation of the development of the Industrial-Plex Superfund Site. The Industrial-Plex Superfund Site is a 245-acre area in Woburn, Massachusetts, located approximately 12 miles northwest of Boston. The site is bounded to the east by Interstate 93, to the south by Interstate 93/State Route 95/128, the Boston Edison Power Company right of way Number 9 is located to the southwest and the western third of the site is transected by the MBTA railway. Previous remedial design and activities at this site included the capping of impacted soil utilizing both permeable (soil and geotextile) and impermeable (soil and geomembrane) covers, and the installation of bituminous

concrete along the railway section of the property. In addition, under the railway section of the MBTA Right of Way (ROW), the permeable remedy consists of a combination of geotextile fabric and soil, and geotextile fabric and bituminous concrete. The permeable cover system caps approximately sixty-acres of upland soil and hide piles impacted with high concentrations of heavy metals and decomposing organic wastes. An impermeable cover was designed and utilized for a four-acre hide pile, which included a high permeability gas collection layer, an active gas collection system, and a thermal oxidation unit for treatment. Additionally, remedial design/actions required the capping of approximately five-acres of contaminated streams and wetland sediment and seven-acres of wetlands restoration.

The proposed Regional Transportation Center will service multi-modal transportation needs for intercity/commuter rail service, Logan Express and local bus service, and park-and-ride for carpool/vanpool users. The facility will include a Station Building for ticketing, baggage and passenger services ("Station Building"), surface-parking capacity for patrons and employees, loading platforms for Logan Express and local buses, and a new egress roadway. It will also include a new high-level platform commuter rail station, which will require relocation of the existing northbound track, construction of a by-pass track with freight spur, and two new interlockings.

Project specifications have identified the potential for arsenic, lead, and chromium contamination as well as animal hide residues in soil located within the project area. The specifications also identify the potential for benzene and toluene volatile organic compounds and inorganics to be present in the groundwater. Previous reports and the project specifications identify four classes of property associated with the Industrial-Plex site. These are:

- Class A Class A property has uncontaminated soil and potentially contaminated ground water requiring appropriate management.
- Class B Class B property contains potentially contaminated soil and ground water requiring any land owner to establish health and safety plans, soil and ground water sampling plans, and disposal plans before disturbing underlying soil or ground water.
- Class C Class C property contains contaminated soil and groundwater and a permeable or impermeable protective cover. The permeable cover consists of various engineered/designed covers containing a geotextile fabric and clean fill, or an equivalent cover consisting of an existing protective barrier/structure, such as a building foundation, bituminous concrete parking lot, bituminous road, etc. The impermeable cover consists of an engineered/designed cover containing a geomembrane and clean fill. The permeable and impermeable cover designs are documented in the ISRT 100% Design Report, by Golder Associates, Inc., April 1992. The permeable and impermeable cover as-built records are documented in the ISRT RTC Alternative Cover Certification Report, by Golder Associates, April 1998. In addition to the requirement of Class B Property, Class C Property also requires that any intrusive work include the reinstatement of permeable or impermeable cover and as-built records.
- Class D Class D property contains odorous animal hide residue, contaminated soil and contaminated groundwater. No disturbance may occur to this classification of property without the approval of the USEPA and the Massachusetts DEP.

This project includes construction activities potentially on two of the four classes of property, specifically, Class B and Class C properties.



RECEIVED APR 12 2000

39 Spruce Street • 2nd Floor • East longmeadow, MA 01028 • FAX 413/525-6405 • TEL 413/525-2332

BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: A WESTHAVER

REPORT DATE: 04/10/00

PURCHASE ORDER NUMBER: 20-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-47601
JOB NUMBER: 20-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WRTC

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
01	00B07443	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	eph - solid
01	00B07443	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	solids eph/vph
01	00B07443	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	vph - solid
01	00B07444	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	8240 sludge (1)
01	00B07444	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	8240 sludge (2)
01	00B07444	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	8270-sludge bn-1
01	00B07444	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	8270-sludge bn-2
01	00B07444	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	8270-sludge-acid
01	00B07444	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	cyanide-tot sldg
01	00B07444	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	metals-8 slg icp
01	00B07444	SOIL	GEO TEXTILE FABRIC STA.LOC.860-880	pest/pcbs-sludge

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308
MASSACHUSETTS MA100
CONNECTICUT PH-0567
NEW YORK ELAP 10899

AIHA ELLAP (LEAD) 6838
NEW HAMPSHIRE 2516
VERMONT DOH (LEAD) No. 15036
RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 4/10/00
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director



39 Spruce Street • 2nd Floor • East Longmeadow, MA 01028 • FAX 413/525-6405 • TEL 413/525-2332

A WESTHAVER
 BATG, ENVIRONMENTAL
 150 RECREATION PARK DRIVE
 HINGHAM, MA 02043

page 1 of 16

Purchase Order Number: 20-100

Project Location: WRTC
 Date Received: 04/04/00

LIMS-BAT #: LIMS-47601
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 04/03/00
 GEO TEXTILE FABRIC STA.LOC.860-880
 01

	Units	00807444	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Acetone	mg/kg dry wt	ND	04/07/00	WSD	0.256		
Acrolein	mg/kg dry wt	ND	04/07/00	WSD	0.102		
Acrylonitrile	mg/kg dry wt	ND	04/07/00	WSD	0.039		
Benzene	mg/kg dry wt	ND	04/07/00	WSD	0.003		
Bromodichloromethane	mg/kg dry wt.	ND	04/07/00	WSD	0.002		
Bromomethane	mg/kg dry wt	ND	04/07/00	WSD	0.006		
Bromoform	mg/kg dry wt	ND	04/07/00	WSD	0.006		
2-Butanone (MEK)	mg/kg dry wt	ND	04/07/00	WSD	0.061		
Carbon Disulfide	mg/kg dry wt	ND	04/07/00	WSD	0.015		
Carbon Tetrachloride	mg/kg dry wt	ND	04/07/00	WSD	0.003		
Chlorobenzene	mg/kg dry wt	ND	04/07/00	WSD	0.003		
Chlorodibromomethane	mg/kg dry wt	ND	04/07/00	WSD	0.003		
Chloroethane	mg/kg dry wt	ND	04/07/00	WSD	0.004		
2-Chloroethylvinylether	mg/kg dry wt	ND	04/07/00	WSD	0.049		
Chloroform	mg/kg dry wt	ND	04/07/00	WSD	0.004		
Chloromethane	mg/kg dry wt	ND	04/07/00	WSD	0.077		
Dibromomethane	mg/kg dry wt	ND	04/07/00	WSD	0.006		
1,2-Dichlorobenzene	mg/kg dry wt	ND	04/07/00	WSD	0.004		
1,3-Dichlorobenzene	mg/kg dry wt	ND	04/07/00	WSD	0.003		
1,4-Dichlorobenzene	mg/kg dry wt	ND	04/07/00	WSD	0.004		
cis-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	04/07/00	WSD	0.012		
trans-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	04/07/00	WSD	0.011		
Dichlorodifluoromethane	mg/kg dry wt	ND	04/07/00	WSD	0.005		
1,1-Dichloroethane	mg/kg dry wt	ND	04/07/00	WSD	0.004		
1,2-Dichloroethane	mg/kg dry wt	ND	04/07/00	WSD	0.005		
1,1-Dichloroethylene	mg/kg dry wt	ND	04/07/00	WSD	0.003		
trans-1,2-Dichloroethylene	mg/kg dry wt	ND	04/07/00	WSD	0.004		
1,2-Dichloropropane	mg/kg dry wt	ND	04/07/00	WSD	0.003		
cis-1,3-Dichloropropene	mg/kg dry wt	ND	04/07/00	WSD	0.003		
trans-1,3-Dichloropropene	mg/kg dry wt	ND	04/07/00	WSD	0.002		
Ethyl Benzene	mg/kg dry wt	ND	04/07/00	WSD	0.003		
Ethyl Methacrylate	mg/kg dry wt	ND	04/07/00	WSD	0.004		

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SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47601
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/03/00
GEO TEXTILE FABRIC STA.LOC.860-880
01

	Units	00807444	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
2-Hexanone	mg/kg dry wt	ND	04/07/00	WSD	0.050		
Iodomethane	mg/kg dry wt	ND	04/07/00	WSD	0.004		
MTBE	mg/kg dry wt	ND	04/07/00	WSD	0.004		
Methylene Chloride	mg/kg dry wt	ND	04/07/00	WSD	0.077		
MIBK	mg/kg dry wt	ND	04/07/00	WSD	0.045		
Styrene	mg/kg dry wt	ND	04/07/00	WSD	0.004		
1,1,2,2-Tetrachloroethane	mg/kg dry wt	ND	04/07/00	WSD	0.007		
Tetrachloroethylene	mg/kg dry wt	ND	04/07/00	WSD	0.002		
Toluene	mg/kg dry wt	ND	04/07/00	WSD	0.004		
1,1,1-Trichloroethane	mg/kg dry wt	ND	04/07/00	WSD	0.005		
1,1,2-Trichloroethane	mg/kg dry wt	ND	04/07/00	WSD	0.004		
Trichloroethylene	mg/kg dry wt	ND	04/07/00	WSD	0.005		
Trichlorofluoromethane	mg/kg dry wt	ND	04/07/00	WSD	0.004		
1,2,3-Trichloropropane	mg/kg dry wt	ND	04/07/00	WSD	0.007		
Vinyl Acetate	mg/kg dry wt	ND	04/07/00	WSD	0.084		
Vinyl Chloride	mg/kg dry wt	ND	04/07/00	WSD	0.002		
m-Xylene	mg/kg dry wt	ND	04/07/00	WSD	0.007		
o + p Xylene	mg/kg dry wt	ND	04/07/00	WSD	0.003		

Analytical Method(s):

SW846 8260

SAMPLES ARE CONCENTRATED BY PURGE AND TRAP, FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

MDL = Method Detection Limit
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BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47601

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/03/00

GEO TEXTILE FABRIC STA.LOC.860-880

01

	Units	00807444	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Acenaphthene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Acenaphthylene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Aniline	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Anthracene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Benzidine	mg/kg dry wt	ND	04/10/00	WSD	2.39		
Benzoic Acid	mg/kg dry wt	ND	04/10/00	WSD	1.02		
Benzo(a)anthracene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Benzo(a)pyrene	mg/kg dry wt	ND	04/10/00	WSD	0.68		
Benzo(b)fluoranthene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Benzo(g,h,i)perylene	mg/kg dry wt	ND	04/10/00	WSD	1.02		
Benzo(k)fluoranthene	mg/kg dry wt	ND	04/10/00	WSD	0.68		
Benzyl Alcohol	mg/kg dry wt	ND	04/10/00	WSD	0.68		
Bis(2-chloroethoxy)methane	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Bis(2-chloroethyl)ether	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Bis(2-chloroisopropyl)ether	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Bis(2-ethylhexyl)phthalate	mg/kg dry wt	ND	04/10/00	WSD	0.34		
4-Bromophenyl phenyl ether	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Butylbenzylphthalate	mg/kg dry wt	ND	04/10/00	WSD	0.68		
4-Chloroaniline	mg/kg dry wt	ND	04/10/00	WSD	0.68		
4-Chloro-3-methylphenol	mg/kg dry wt	ND	04/10/00	WSD	0.68		
2-Chloronaphthalene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
2-Chlorophenol	mg/kg dry wt	ND	04/10/00	WSD	0.34		
4-Chlorophenylphenyl ether	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Chrysene	mg/kg dry wt	ND	04/10/00	WSD	0.68		
Dibenzofuran	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Dibenz(a,h)anthracene	mg/kg dry wt	ND	04/10/00	WSD	0.68		
1,2-Dichlorobenzene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
1,3-Dichlorobenzene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
1,4-Dichlorobenzene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
3,3'-Dichlorobenzidine	mg/kg dry wt	ND	04/10/00	WSD	0.68		
2,4-Dichlorophenol	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Diethylphthalate	mg/kg dry wt	ND	04/10/00	WSD	0.34		

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04/10/00

Purchase Order Number: 20-100

LIHS-BAT #: LIHS-47601
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 04/03/00
 GEO TEXTILE FABRIC STA.LOC.860-880
 01

	Units	00807444	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
2,4-Dimethylphenol	mg/kg dry wt	ND	04/10/00	WSD	1.37		
Dimethylphthalate	mg/kg dry wt	ND	04/10/00	WSD	0.68		
Di-n-butylphthalate	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Di-n-octylphthalate	mg/kg dry wt	ND	04/10/00	WSD	0.68		
4,6-Dinitro-2-methylphenol	mg/kg dry wt	ND	04/10/00	WSD	0.34		
2,4-Dinitrophenol	mg/kg dry wt	ND	04/10/00	WSD	0.34		
2,4-Dinitrotoluene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
2,6-Dinitrotoluene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
1,2-Diphenylhydrazine	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Fluoranthene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Fluorene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Hexachlorobenzene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Hexachlorobutadiene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Hexachlorocyclopentadiene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Hexachloroethane	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Indeno(1,2,3-cd)pyrene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Isophorone	mg/kg dry wt	ND	04/10/00	WSD	0.34		
o-cresol	mg/kg dry wt	ND	04/10/00	WSD	0.34		
m & p-cresol(s)	mg/kg dry wt	ND	04/10/00	WSD	0.34		
2-Methylnaphthalene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Naphthalene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
2-Nitroaniline	mg/kg dry wt	ND	04/10/00	WSD	0.34		
3-Nitroaniline	mg/kg dry wt	ND	04/10/00	WSD	0.34		
4-Nitroaniline	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Nitrobenzene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
2-Nitrophenol	mg/kg dry wt	ND	04/10/00	WSD	0.34		
4-Nitrophenol	mg/kg dry wt	ND	04/10/00	WSD	0.34		
N-Nitrosodimethylamine	mg/kg dry wt	ND	04/10/00	WSD	0.34		
N-Nitrosodiphenylamine	mg/kg dry wt	ND	04/10/00	WSD	0.34		
N-Nitroso-di-n-propylamine	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Pentachlorophenol	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Phenanthrene	mg/kg dry wt	ND	04/10/00	WSD	0.34		

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47601
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/03/00
GEO TEXTILE FABRIC STA.LOC.860-880
01

	Units	00807444	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Phenol	mg/kg dry wt	ND	04/10/00	WSD	0.34		
Pyrene	mg/kg dry wt	ND	04/10/00	WSD	1.02		
Pyridine	mg/kg dry wt	ND	04/10/00	WSD	0.34		
1,2,4-Trichlorobenzene	mg/kg dry wt	ND	04/10/00	WSD	0.34		
2,4,5-Trichlorophenol	mg/kg dry wt	ND	04/10/00	WSD	0.34		
2,4,6-Trichlorophenol	mg/kg dry wt	ND	04/10/00	WSD	0.34		

Analytical Method(s):

SW846 B270

SAMPLES ARE EXTRACTED IN METHYLENE CHLORIDE/ACETONE AND FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

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SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/10/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47601

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/03/00

GEO TEXTILE FABRIC STA.LOC.860-880

01

	Units	00807444	Date	Analyst	MDL	SPEC	P/F
-----	-----	-----	-----	-----	---	-----	---
Cyanide	mg/kg dry wt.	ND	04/06/00	SSK	0.95		

Analytical Method(s):

MODIFIED SW846 9012

DISTILLATION FOLLOWED BY REACTION WITH CHLORAMINE-T/PYRIDINE-BARBITURIC ACID AND PHOSPHATE BUFFER. ANALYSIS BY AUTOMATED FLOW INJECTION SPECTROPHOTOMETRY.

MDL = Method Detection Limit
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SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



04/10/00

Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47601
 Job Number: 20-100
 Sample Matrix: SOIL

Sampled: 04/03/00
 GEO TEXTILE FABRIC STA.LOC.860-880
 01

	Units	00807443	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
C9-C18 Aliphatics	mg/kg dry wt.	ND	04/03/00	BGL	18.5		
C19-C36 Aliphatics	mg/kg dry wt.	2.4	04/03/00	BGL	2.0		
C11-C22 Aromatics	mg/kg dry wt.	BDL	04/03/00	BGL	10.5		
Acenaphthene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Acenaphthylene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Anthracene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Benzo(a)anthracene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Benzo(a)pyrene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Benzo(b)fluoranthene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Benzo(g,h,i)perylene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Benzo(k)fluoranthene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Chrysene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Dibenzo(a,h)anthracene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Fluoranthene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Fluorene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Indeno(1,2,3-cd)pyrene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
2-Methylnaphthalene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Naphthalene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Phenanthrene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Pyrene	mg/kg dry wt.	ND	04/03/00	BGL	0.5		
Date Extracted EPH Solid		04/04/00	04/03/00	BGL			

Analytical Method(s):

MADEP-EPH-98-1 REVISION 0

SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES

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ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK CONTRIBUTION FROM THE SUMMED RANGES AND EXTRACTION BY PRESSURIZED FLUID EXTRACTION (SW846 3545) (ASE).

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

YES NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

YES NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47601
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/03/00
GEO TEXTILE FABRIC STA.LOC.860-B80
01

	Units	00B07444	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Arsenic	mg/kg dry wt.	17.3	04/06/00	PM	5.12		
Barium	mg/kg dry wt.	31.2	04/06/00	PM	0.10		
Cadmium	mg/kg dry wt.	ND	04/06/00	PM	0.05		
Chromium	mg/kg dry wt.	19.8	04/06/00	PM	0.36		
Lead	mg/kg dry wt.	8.98	04/06/00	PM	2.56		
Mercury	mg/kg dry wt.	0.012	04/05/00	JER	0.009		
Selenium	mg/kg dry wt.	7.25	04/06/00	PM	5.12		
Silver	mg/kg dry wt.	ND	04/06/00	PM	0.51		

Analytical Method(s):

Arsenic
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Barium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Cadmium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Chromium
SW846 3050/6010

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SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Lead

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Mercury

SW846 3050/7471

SAMPLES ARE DIGESTED WITH ACIDS AND THEN ANALYZED BY
COLD VAPOR (FLAMELESS) ATOMIC ABSORPTION SPECTROPHOTOMETRY

Selenium

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Silver

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

MDL = Method Detection Limit

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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or

regulatory level for comparison with data to

determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47601

Job Number: 20-100

Sample Matrix: SOIL

Sampled: 04/03/00

GEO TEXTILE FABRIC STA.LOC.860-880

01

	Units	00807444	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Aldrin	mg/kg dry wt	ND	04/04/00	JB	0.03		
alpha-BHC	mg/kg dry wt	ND	04/04/00	JB	0.03		
beta-BHC	mg/kg dry wt	ND	04/04/00	JB	0.03		
delta-BHC	mg/kg dry wt	ND	04/04/00	JB	0.03		
gamma-BHC (Lindane)	mg/kg dry wt	ND	04/04/00	JB	0.03		
Chlordane	mg/kg dry wt	ND	04/04/00	JB	0.10		
4,4'-DDD	mg/kg dry wt	ND	04/04/00	JB	0.03		
4,4'-DDE	mg/kg dry wt	ND	04/04/00	JB	0.03		
4,4'-DDT	mg/kg dry wt	ND	04/04/00	JB	0.03		
Dieldrin	mg/kg dry wt	ND	04/04/00	JB	0.03		
Endosulfan I	mg/kg dry wt	ND	04/04/00	JB	0.03		
Endosulfan II	mg/kg dry wt	ND	04/04/00	JB	0.03		
Endosulfan Sulfate	mg/kg dry wt	ND	04/04/00	JB	0.03		
Endrin	mg/kg dry wt	ND	04/04/00	JB	0.03		
Endrin Aldehyde	mg/kg dry wt	ND	04/04/00	JB	0.03		
Heptachlor	mg/kg dry wt	ND	04/04/00	JB	0.03		
Heptachlor Epoxide	mg/kg dry wt	ND	04/04/00	JB	0.03		
Methoxychlor	mg/kg dry wt	ND	04/04/00	JB	0.26		
PCB-1221	mg/kg dry wt.	ND	04/04/00	JB			
PCB-1232	mg/kg dry wt.	ND	04/04/00	JB			
PCB-1242	mg/kg dry wt.	ND	04/04/00	JB			
PCB-1248	mg/kg dry wt.	ND	04/04/00	JB			
PCB-1254	mg/kg dry wt.	ND	04/04/00	JB			
PCB-1260	mg/kg dry wt.	ND	04/04/00	JB			
PCB's	mg/kg dry wt.	ND	04/04/00	JB		0.026	
Toxaphene	mg/kg dry wt	ND	04/04/00	JB		0.10	

Analytical Method(s):

SW846 3550/8082

SAMPLES ARE EXTRACTED WITH SONICATION, CONCENTRATED, AND ANALYZED BY GAS

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04/10/00

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CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTION.

MOL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



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04/10/00

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47601
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/03/00
GEO TEXTILE FABRIC STA.LOC.860-880
01

	Units	00807443	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Solids, total	%	97.6	04/05/00	LL			

Analytical Method(s):

SM 2540G

PERCENT OF SAMPLE REMAINING AFTER DRYING OVERNIGHT AT 103-105 DEGREES CENTIGRADE.

MDL = Method Detection Limit
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NM = Not Measured

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Purchase Order Number: 20-100

LIMS-BAT #: LIMS-47601
Job Number: 20-100
Sample Matrix: SOIL

Sampled: 04/03/00
GEO TEXTILE FABRIC STA.LOC.860-880
01

	Units	00807443	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
C5-C8 Aliphatics	ug/kg dry wt.	BDL	04/05/00	BGL	6180		
C9-C12 Aliphatics	ug/kg dry wt.	ND	04/05/00	BGL	2210		
C9-C10 Aromatics	ug/kg dry wt.	ND	04/05/00	BGL	1890		
BENZENE	UG/KG DRY WT.	ND	04/05/00	BGL	11		
ETHYLBENZENE	UG/KG DRY WT.	ND	04/05/00	BGL	11		
MTBE	UG/KG DRY WT.	ND	04/05/00	BGL	27		
Naphthalene	ug/kg dry wt.	ND	04/05/00	BGL	10.9		
TOLUENE	UG/KG DRY WT.	ND	04/05/00	BGL	33		
M/P-XYLENE	UG/KG DRY WT.	ND	04/05/00	BGL	38		
O-XYLENE	UG/KG DRY WT.	ND	04/05/00	BGL	22		

Analytical Method(s):

MADEP-VPH-98-1 REVISION 0

SAMPLES ARE PRESERVED WITH METHANOL AND CONCENTRATED BY PURGE AND TRAP, FOLLOWED BY GAS CHROMATOGRAPHY ANALYSIS WITH PID/FID DETECTION. SUMMED RANGES ARE REPORTED WITH TARGET COMPOUND CONTRIBUTIONS SUBTRACTED AND CORRECTED FOR LABORATORY METHOD BLANK. C9-C12 ALIPHATIC HYDROCARBONS EXCLUDE THE CONCENTRATION OF C9-C10 AROMATIC HYDROCARBONS.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE METHOD.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

YES NO

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

YES NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE LISTED IN THE NOTES SECTION OF THIS REPORT.

MDL = Method Detection Limit
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BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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04/16/08

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The following notes were attached to the reported analysis:

Sample: 00B07443

Analysis: C11-C22 Aromatics

EPH DUPRPD LIMITS DON'T APPLY TO RESULTS BELOW THE DETECTION LIMIT.

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SAMPLE QC: Sample Results with Duplicates
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QC Batch Number: GC/ECD-3094

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00B07444	Dibutyl Chlorendate	Surrogate Recovery	83.0	%	
BLANK-24958	Chlordane	Blank	<0.10	mg/kg dry wt	
	PCB-1232	Blank	0.000	mg/kg dry wt.	
	PCB-1242	Blank	0.000	mg/kg dry wt.	
	PCB-1254	Blank	0.000	mg/kg dry wt.	
	PCB-1260	Blank	0.000	mg/kg dry wt.	
	PCB-1248	Blank	0.000	mg/kg dry wt.	
	PCB-1221	Blank	0.000	mg/kg dry wt.	
	alpha-BHC	Blank	<0.02	mg/kg dry wt	
	delta-BHC	Blank	<0.02	mg/kg dry wt	
	beta-BHC	Blank	<0.02	mg/kg dry wt	
	gamma-BHC (Lindane)	Blank	<0.02	mg/kg dry wt	
	Heptachlor	Blank	<0.02	mg/kg dry wt	
	Aldrin	Blank	<0.02	mg/kg dry wt	
	Heptachlor Epoxide	Blank	<0.02	mg/kg dry wt	
	Endosulfan I	Blank	<0.02	mg/kg dry wt	
	4,4'-DDE	Blank	<0.02	mg/kg dry wt	
	Dieldrin	Blank	<0.02	mg/kg dry wt	
	Endrin	Blank	<0.02	mg/kg dry wt	
	4,4'-DDD	Blank	<0.02	mg/kg dry wt	
	Endosulfan II	Blank	<0.02	mg/kg dry wt	
	4,4'-DDT	Blank	<0.02	mg/kg dry wt	
	Endrin Aldehyde	Blank	<0.02	mg/kg dry wt	
	Endosulfan Sulfate	Blank	<0.02	mg/kg dry wt	
	Methoxychlor	Blank	<0.25	mg/kg dry wt	
	Toxaphene	Blank	<0.10	mg/kg dry wt	
	PCB's	Blank	<0.025	mg/kg dry wt.	
LFBLANK-11348	alpha-BHC	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.09	mg/kg dry wt	
		Lab Fort Blk. % Rec.	90.00	%	
	delta-BHC	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.08	mg/kg dry wt	
		Lab Fort Blk. % Rec.	79.50	%	
	beta-BHC	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.10	mg/kg dry wt	
		Lab Fort Blk. % Rec.	95.00	%	
	gamma-BHC (Lindane)	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.09	mg/kg dry wt	



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QC Batch Number: GC/ECD-3094

Sample Id	Analysis	QC Analysis	Values	Units	Limits
		Lab Fort Blk. % Rec.	90.00	%	
	Heptachlor	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.10	mg/kg dry wt	
		Lab Fort Blk. % Rec.	95.00	%	
	Aldrin	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.08	mg/kg dry wt	
		Lab Fort Blk. % Rec.	85.00	%	
	Heptachlor Epoxide	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.09	mg/kg dry wt	
		Lab Fort Blk. % Rec.	90.00	%	
	Endosulfan I	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.06	mg/kg dry wt	
		Lab Fort Blk. % Rec.	65.00	%	
	4,4'-DDE	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.08	mg/kg dry wt	
		Lab Fort Blk. % Rec.	84.50	%	
	Dieldrin	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.08	mg/kg dry wt	
		Lab Fort Blk. % Rec.	80.00	%	
	Endrin	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.11	mg/kg dry wt	
		Lab Fort Blk. % Rec.	110.00	%	
	4,4'-DDD	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.10	mg/kg dry wt	
		Lab Fort Blk. % Rec.	98.50	%	
	Endosulfan II	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.07	mg/kg dry wt	
		Lab Fort Blk. % Rec.	70.00	%	
	4,4'-DDT	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.09	mg/kg dry wt	
		Lab Fort Blk. % Rec.	90.00	%	
	Endrin Aldehyde	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.10	mg/kg dry wt	
		Lab Fort Blk. % Rec.	105.00	%	
	Endosulfan Sulfate	Lab Fort Blank Amt.	0.10	mg/kg dry wt	
		Lab Fort Blk. Found	0.10	mg/kg dry wt	
		Lab Fort Blk. % Rec.	105.00	%	
	Methoxychlor	Lab Fort Blank Amt.	0.50	mg/kg dry wt	
		Lab Fort Blk. Found	0.53	mg/kg dry wt	



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QC Batch Number: GC/ECD-3094

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		Lab Fort Blk. % Rec.	106.00	%	



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QC Batch Number: GC/FID-3413

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00807443	Naphthalene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Acenaphthene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Acenaphthylene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Anthracene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Benzo(a)anthracene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Benzo(a)pyrene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Benzo(b)fluoranthene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Benzo(g,h,i)perylene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Chrysene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Dibenzo(a,h)anthracene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Fluoranthene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Fluorene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Indeno(1,2,3-cd)pyrene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	2-Methylnaphthalene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Phenanthrene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Pyrene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	Benzo(k)fluoranthene	Sample Amount	<0.5	mg/kg dry wt.	
		Duplicate Value	<0.5	mg/kg dry wt.	
	2-Fluorobiphenyl	Surrogate Recovery	87.5	%	40.0-140.0
	2-Bromonaphthalene	Surrogate Recovery	110.0	%	40.0-140.0
	Chlorooctadecane	Sur. Recovery	48.5	%	40.0-140.0
	C9-C18 Aliphatics	Sample Amount	<18.5	mg/kg dry wt.	
		Duplicate Value	<18.5	mg/kg dry wt.	



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QC Batch Number: GC/FID-3413

Sample Id	Analysis	QC Analysis	Values	Units	Limits	
BLANK-24913	C19-C36 Aliphatics	Sample Amount	2.4	mg/kg dry wt.		
		Duplicate Value	2.4	mg/kg dry wt.		
		Duplicate RPD	3.5	%	0.0-50.0	
		C11-C22 Aromatics	Sample Amount	<10.5	mg/kg dry wt.	
			Duplicate Value	<10.5	mg/kg dry wt.	
		Terphenyl	Sur. Recovery	75.0	%	40.0-140.0
		Naphthalene	Blank	<0.5	mg/kg dry wt.	
		Acenaphthene	Blank	<0.5	mg/kg dry wt.	
		Acenaphthylene	Blank	<0.5	mg/kg dry wt.	
		Anthracene	Blank	<0.5	mg/kg dry wt.	
		Benzo(a)anthracene	Blank	<0.5	mg/kg dry wt.	
		Benzo(a)pyrene	Blank	<0.5	mg/kg dry wt.	
		Benzo(b)fluoranthene	Blank	<0.5	mg/kg dry wt.	
		Benzo(g,h,i)perylene	Blank	<0.5	mg/kg dry wt.	
		Chrysene	Blank	<0.5	mg/kg dry wt.	
		Dibenzo(a,h)anthracene	Blank	<0.5	mg/kg dry wt.	
		Fluoranthene	Blank	<0.5	mg/kg dry wt.	
		Fluorene	Blank	<0.5	mg/kg dry wt.	
		Indeno(1,2,3-cd)pyrene	Blank	<0.5	mg/kg dry wt.	
		2-Methylnaphthalene	Blank	<0.5	mg/kg dry wt.	
		Phenanthrene	Blank	<0.5	mg/kg dry wt.	
		Pyrene	Blank	<0.5	mg/kg dry wt.	
		Benzo(k)fluoranthene	Blank	<0.5	mg/kg dry wt.	
LFBLANK-11329	C9-C18 Aliphatics	Blank	<18.1	mg/kg dry wt.		
	C19-C36 Aliphatics	Blank	5.4	mg/kg dry wt.		
	C11-C22 Aromatics	Blank	<10.2	mg/kg dry wt.		
	Naphthalene	Lab Fort Blank Amt.	2.5	mg/kg dry wt.		
		Lab Fort Blk. Found	1.3	mg/kg dry wt.		
		Lab Fort Blk. % Rec.	53.6	%	40.0-140.0	
	Acenaphthene	Lab Fort Blank Amt.	2.5	mg/kg dry wt.		
		Lab Fort Blk. Found	1.5	mg/kg dry wt.		
		Lab Fort Blk. % Rec.	60.0	%	40.0-140.0	
	Anthracene	Lab Fort Blank Amt.	2.5	mg/kg dry wt.		
		Lab Fort Blk. Found	2.2	mg/kg dry wt.		
		Lab Fort Blk. % Rec.	88.0	%	40.0-140.0	
	Chrysene	Lab Fort Blank Amt.	2.5	mg/kg dry wt.		
		Lab Fort Blk. Found	1.6	mg/kg dry wt.		
		Lab Fort Blk. % Rec.	65.6	%	40.0-140.0	
Pyrene	Lab Fort Blank Amt.	2.5	mg/kg dry wt.			



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QC Batch Number: GC/FID-3413

Sample Id	Analysis	QC Analysis	Values	Units	Limits
.....
.....	Lab Fort Blk. Found.	2.1	mg/kg dry wt.
.....	Lab Fort Blk. % Rec.	85.2	%	40.0-140.0



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QC Batch Number: GC/FID-3418

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00807443	C5-C8 Aliphatics	Sample Amount	<6176.0	ug/kg dry wt.	
		Duplicate Value	<6176.0	ug/kg dry wt.	
		Duplicate RPD	0.0	%	0.0-50.0
	C9-C12 Aliphatics	Sample Amount	<2213.5	ug/kg dry wt.	
		Duplicate Value	<2213.5	ug/kg dry wt.	
		Duplicate RPD	0.0	%	0.0-50.0
BLANK-24947	2,5-Dibromotoluene (	Sur. Recovery (FID)	92.2	%	70.0-130.0
	C5-C8 Aliphatics	Blank	<6026.7	ug/kg dry wt.	
	C9-C12 Aliphatics	Blank	<2160.0	ug/kg dry wt.	



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QC Batch Number: GC/PID-3587

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00B07443	BENZENE	Sample Amount	<10.9	UG/KG DRY WT.	
		Duplicate Value	<10.9	UG/KG DRY WT.	
		Duplicate RPD	0.0	%	0.0-50.0
		Sample Amount	<10.9	UG/KG DRY WT.	
		Matrix Spk Amt Added	1708.0	UG/KG DRY WT.	
		MS Amt Measured	1662.9	UG/KG DRY WT.	
		Matrix Spike % Rec.	97.4	%	
		Duplicate Sample Amt	<10.9	UG/KG DRY WT.	
		MSD Amount Added	1708.0	UG/KG DRY WT.	
		MSD Amt Measured	1696.7	UG/KG DRY WT.	
		MSD % Recovery	99.3	%	
		MSD Range	2.0	units	
	ETHYLBENZENE	Sample Amount	<10.9	UG/KG DRY WT.	
		Duplicate Value	<10.9	UG/KG DRY WT.	
		Duplicate RPD	0.0	%	0.0-50.0
		Sample Amount	<10.9	UG/KG DRY WT.	
		Matrix Spk Amt Added	1708.0	UG/KG DRY WT.	
		MS Amt Measured	1809.4	UG/KG DRY WT.	
		Matrix Spike % Rec.	105.9	%	
		Duplicate Sample Amt	<10.9	UG/KG DRY WT.	
		MSD Amount Added	1708.0	UG/KG DRY WT.	
		MSD Amt Measured	1832.0	UG/KG DRY WT.	
		MSD % Recovery	107.3	%	
		MSD Range	1.3	units	
	Naphthalene	Sample Amount	<10.9	ug/kg dry wt.	
		Duplicate Value	<10.9	ug/kg dry wt.	
		Duplicate RPD	0.0	%	0.0-50.0
		Sample Amount	<10.9	ug/kg dry wt.	
		Matrix Spk Amt Added	1708.0	ug/kg dry wt.	
		MS Amt Measured	1352.8	ug/kg dry wt.	
		Matrix Spike % Rec.	79.2	%	
		Duplicate Sample Amt	<10.9	ug/kg dry wt.	
		MSD Amount Added	1708.0	ug/kg dry wt.	
		MSD Amt Measured	1392.3	ug/kg dry wt.	
		MSD % Recovery	81.5	%	
		MSD Range	2.3	units	
	TOLUENE	Sample Amount	<32.8	UG/KG DRY WT.	
		Duplicate Value	<32.8	UG/KG DRY WT.	
		Duplicate RPD	0.0	%	0.0-50.0



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QC Batch Number: GC/PID-3587

Sample Id	Analysis	QC Analysis	Values	Units	Limits
		Sample Amount	<32.8	UG/KG DRY WT.	
		Matrix Spk Amt Added	1708.0	UG/KG DRY WT.	
		MS Amt Measured	1775.6	UG/KG DRY WT.	
		Matrix Spike % Rec.	104.0	%	
		Duplicate Sample Amt	<32.8	UG/KG DRY WT.	
		MSD Amount Added	1708.0	UG/KG DRY WT.	
		MSD Amt Measured	1803.8	UG/KG DRY WT.	
		MSD % Recovery	105.6	%	
		MSD Range	1.7	units	
	O-XYLENE	Sample Amount	<21.9	UG/KG DRY WT.	
		Duplicate Value	<21.9	UG/KG DRY WT.	
		Duplicate RPD	0.0	%	0.0-50.0
		Sample Amount	<21.9	UG/KG DRY WT.	
		Matrix Spk Amt Added	1708.0	UG/KG DRY WT.	
		MS Amt Measured	1826.3	UG/KG DRY WT.	
		Matrix Spike % Rec.	106.9	%	
		Duplicate Sample Amt	<21.9	UG/KG DRY WT.	
		MSD Amount Added	1708.0	UG/KG DRY WT.	
		MSD Amt Measured	1860.2	UG/KG DRY WT.	
		MSD % Recovery	108.9	%	
		MSD Range	2.0	units	
	M/P-XYLENE	Sample Amount	<38.3	UG/KG DRY WT.	
		Duplicate Value	<38.3	UG/KG DRY WT.	
		Duplicate RPD	0.0	%	0.0-50.0
		Sample Amount	<38.3	UG/KG DRY WT.	
		Matrix Spk Amt Added	3415.9	UG/KG DRY WT.	
		MS Amt Measured	3810.5	UG/KG DRY WT.	
		Matrix Spike % Rec.	111.6	%	
		Duplicate Sample Amt	<38.3	UG/KG DRY WT.	
		MSD Amount Added	3415.9	UG/KG DRY WT.	
		MSD Amt Measured	3833.1	UG/KG DRY WT.	
		MSD % Recovery	112.2	%	
		MSD Range	0.7	units	
	C9-C10 Aromatics	Sample Amount	<1885.6	ug/kg dry wt.	
		Duplicate Value	<1885.6	ug/kg dry wt.	
		Duplicate RPD	0.0	%	0.0-50.0
	MTBE	Sample Amount	<27.3	UG/KG DRY WT.	
		Duplicate Value	<27.3	UG/KG DRY WT.	
		Duplicate RPD	0.0	%	0.0-50.0



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/10/00

Lims Bat #: LIMS-47601

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QC Batch Number: GC/PID-3587

Sample Id	Analysis	QC Analysis	Values	Units	Limits
		Sample Amount	<27.3	UG/KG DRY WT.	
		Matrix Spk Amt Added	1708.0	UG/KG DRY WT.	
		MS Amt Measured	2130.7	UG/KG DRY WT.	
		Matrix Spike % Rec.	124.8	%	
		Duplicate Sample Amt	<27.3	UG/KG DRY WT.	
		MSD Amount Added	1708.0	UG/KG DRY WT.	
		MSD Amt Measured	2108.2	UG/KG DRY WT.	
		MSD % Recovery	123.4	%	
		MSD Range	1.3	units	
	2,5-Dibromotoluene (	Sur. Recovery (PID)	82.6	%	70.0-130.0



SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/10/00

Lims Bat #: LIMS-47601

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QC Batch Number: GCMS/SEMI-2359

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00B07444	Phenol-d6	Surrogate Recovery	26.1	%	24.0-113.0
	Nitrobenzene-d5	Surrogate Recovery	43.9	%	23.0-120.0
	2-Fluorobiphenyl	Surrogate Recovery	40.8	%	25.0-121.0
	2,4,6-Tribromophenol	Surrogate Recovery	49.0	%	19.0-122.0
	Terphenyl-d14	Surrogate Recovery	42.4	%	18.0-137.0
	2-Fluorophenol	Surrogate Recovery	38.6	%	30.0-115.0
BLANK-24962	Naphthalene	Blank	<0.33	mg/kg dry wt	
	1,2-Dichlorobenzene	Blank	<0.33	mg/kg dry wt	
	Acenaphthene	Blank	<0.33	mg/kg dry wt	
	Acenaphthylene	Blank	<0.33	mg/kg dry wt	
	Aniline	Blank	<0.33	mg/kg dry wt	
	Anthracene	Blank	<0.33	mg/kg dry wt	
	Benzidine	Blank	<2.33	mg/kg dry wt	
	Benzo(a)anthracene	Blank	<0.33	mg/kg dry wt	
	Benzo(a)pyrene	Blank	<0.67	mg/kg dry wt	
	Benzo(b)fluoranthene	Blank	<0.33	mg/kg dry wt	
	Benzo(g,h,i)perylene	Blank	<1.00	mg/kg dry wt	
	Benzoic Acid	Blank	<1.00	mg/kg dry wt	
	Benzyl Alcohol	Blank	<0.67	mg/kg dry wt	
	Bis(2-chloroethyl)et	Blank	<0.33	mg/kg dry wt	
	Bis(2-chloroethoxy)m	Blank	<0.33	mg/kg dry wt	
	Bis(2-chloroisopropyl)	Blank	<0.33	mg/kg dry wt	
	Bis(2-ethylhexyl)pht	Blank	<0.33	mg/kg dry wt	
	4-Bromophenyl phenyl	Blank	<0.33	mg/kg dry wt	
	Butylbenzylphthalate	Blank	<0.67	mg/kg dry wt	
	4-Chloroaniline	Blank	<0.67	mg/kg dry wt	
	2-Chloronaphthalene	Blank	<0.33	mg/kg dry wt	
	4-Chlorophenylphenyl	Blank	<0.33	mg/kg dry wt	
	Chrysene	Blank	<0.67	mg/kg dry wt	
	Dibenz(a,h)anthracene	Blank	<0.67	mg/kg dry wt	
	Dibenzofuran	Blank	<0.33	mg/kg dry wt	
	3,3'-Dichlorobenzidi	Blank	<0.67	mg/kg dry wt	
	Diethylphthalate	Blank	<0.33	mg/kg dry wt	
	Dimethylphthalate	Blank	<0.67	mg/kg dry wt	
	Di-n-butylphthalate	Blank	<0.33	mg/kg dry wt	
	2,4-Dinitrotoluene	Blank	<0.33	mg/kg dry wt	
	2,6-Dinitrotoluene	Blank	<0.33	mg/kg dry wt	
	1,2-Diphenylhydrazin	Blank	<0.33	mg/kg dry wt	
	Di-n-octylphthalate	Blank	<0.67	mg/kg dry wt	



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 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 04/10/00

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QC Batch Number: GCMS/SEMI-2359

Sample Id	Analysis	QC Analysis	Values	Units	Limits
	Fluoranthene	Blank	<0.33	mg/kg dry wt	
	Fluorene	Blank	<0.33	mg/kg dry wt	
	Hexachlorobenzene	Blank	<0.33	mg/kg dry wt	
	Hexachlorobutadiene	Blank	<0.33	mg/kg dry wt	
	Hexachlorocyclopenta	Blank	<0.33	mg/kg dry wt	
	Hexachloroethane	Blank	<0.33	mg/kg dry wt	
	Indeno(1,2,3-cd)pyre	Blank	<0.33	mg/kg dry wt	
	Isophorone	Blank	<0.33	mg/kg dry wt	
	2-Methylnaphthalene	Blank	<0.33	mg/kg dry wt	
	2-Nitroaniline	Blank	<0.33	mg/kg dry wt	
	3-Nitroaniline	Blank	<0.33	mg/kg dry wt	
	Nitrobenzene	Blank	<0.33	mg/kg dry wt	
	N-Nitrosodimethylami	Blank	<0.33	mg/kg dry wt	
	N-Nitroso-di-n-propy	Blank	<0.33	mg/kg dry wt	
	N-Nitrosodiphenylami	Blank	<0.33	mg/kg dry wt	
	Phenanthrene	Blank	<0.33	mg/kg dry wt	
	Pyrene	Blank	<1.00	mg/kg dry wt	
	1,2,4-Trichlorobenze	Blank	<0.33	mg/kg dry wt	
	4-Chloro-3-methylphe	Blank	<0.67	mg/kg dry wt	
	2-Chlorophenol	Blank	<0.33	mg/kg dry wt	
	2,4-Dichlorophenol	Blank	<0.33	mg/kg dry wt	
	2,4-Dimethylphenol	Blank	<1.33	mg/kg dry wt	
	4,6-Dinitro-2-methyl	Blank	<0.33	mg/kg dry wt	
	2,4-Dinitrophenol	Blank	<0.33	mg/kg dry wt	
	o-cresol	Blank	<0.33	mg/kg dry wt	
	m & p-cresol(s)	Blank	<0.33	mg/kg dry wt	
	2-Nitrophenol	Blank	<0.33	mg/kg dry wt	
	4-Nitrophenol	Blank	<0.33	mg/kg dry wt	
	Phenol	Blank	<0.33	mg/kg dry wt	
	2,4,5-Trichloropheno	Blank	<0.33	mg/kg dry wt	
	2,4,6-Trichloropheno	Blank	<0.33	mg/kg dry wt	
	Pentachlorophenol	Blank	<0.33	mg/kg dry wt	
	Pyridine	Blank	<0.33	mg/kg dry wt	
	Benzo(k)fluoranthene	Blank	<0.67	mg/kg dry wt	



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 Method Blanks

Report Date: 04/10/00

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QC Batch Number: GCMS/VOL-4919

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00807444	1,2-Dichloroethane-d	Surrogate Recovery	85.080	%	56.000-128.000
	Toluene-d8	Surrogate Recovery	89.560	%	65.000-113.000
	Bromofluorobenzene	Surrogate Recovery	89.520	%	62.000-137.000
BLANK-24954	Acetone	Blank	<0.250	mg/kg dry wt	
	Benzene	Blank	<0.003	mg/kg dry wt	
	Carbon Tetrachloride	Blank	<0.002	mg/kg dry wt	
	Chloroform	Blank	<0.004	mg/kg dry wt	
	1,2-Dichloroethane	Blank	<0.004	mg/kg dry wt	
	1,4-Dichlorobenzene	Blank	<0.004	mg/kg dry wt	
	Ethyl Benzene	Blank	<0.003	mg/kg dry wt	
	2-Butanone (MEK)	Blank	<0.060	mg/kg dry wt	
	MIBK	Blank	<0.044	mg/kg dry wt	
	Styrene	Blank	<0.004	mg/kg dry wt	
	Tetrachloroethylene	Blank	<0.002	mg/kg dry wt	
	Toluene	Blank	<0.004	mg/kg dry wt	
	1,1,1-Trichloroethan	Blank	<0.004	mg/kg dry wt	
	Trichloroethylene	Blank	<0.005	mg/kg dry wt	
	Trichlorofluorometha	Blank	<0.004	mg/kg dry wt	
	o + p Xylene	Blank	<0.002	mg/kg dry wt	
	m-Xylene	Blank	<0.006	mg/kg dry wt	
	1,2-Dichlorobenzene	Blank	<0.004	mg/kg dry wt	
	1,3-Dichlorobenzene	Blank	<0.003	mg/kg dry wt	
	1,1-Dichloroethane	Blank	<0.004	mg/kg dry wt	
	1,1-Dichloroethylene	Blank	<0.003	mg/kg dry wt	
	MTBE	Blank	<0.004	mg/kg dry wt	
	trans-1,2-Dichloroet	Blank	<0.004	mg/kg dry wt	
	Vinyl Chloride	Blank	<0.002	mg/kg dry wt	
	Methylene Chloride	Blank	<0.075	mg/kg dry wt	
	Chlorobenzene	Blank	<0.003	mg/kg dry wt	
	Chloromethane	Blank	<0.075	mg/kg dry wt	
	Bromomethane	Blank	<0.006	mg/kg dry wt	
	Chloroethane	Blank	<0.004	mg/kg dry wt	
	cis-1,3-Dichloroprop	Blank	<0.002	mg/kg dry wt	
	trans-1,3-Dichloropr	Blank	<0.002	mg/kg dry wt	
	Chlorodibromomethane	Blank	<0.002	mg/kg dry wt	
	1,1,2-Trichloroethan	Blank	<0.004	mg/kg dry wt	
	2-Chloroethylvinylet	Blank	<0.048	mg/kg dry wt	
	Bromoform	Blank	<0.006	mg/kg dry wt	
	1,1,2,2-Tetrachloroe	Blank	<0.007	mg/kg dry wt	



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Standard Reference Materials and Duplicates
Method Blanks

Report Date: 04/10/00

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QC Batch Number: GCMS/VOL-4919

Sample Id	Analysis	QC Analysis	Values	Units	Limits
	Dibromomethane	Blank	<0.006	mg/kg dry wt	
	1,2-Dichloropropane	Blank	<0.003	mg/kg dry wt	
	1,2,3-Trichloropropane	Blank	<0.006	mg/kg dry wt	
	Dichlorodifluoromethane	Blank	<0.005	mg/kg dry wt	
	Iodomethane	Blank	<0.004	mg/kg dry wt	
	Acrolein	Blank	<0.100	mg/kg dry wt	
	Acrylonitrile	Blank	<0.038	mg/kg dry wt	
	Carbon Disulfide	Blank	<0.015	mg/kg dry wt	
	Vinyl Acetate	Blank	<0.082	mg/kg dry wt	
	2-Hexanone	Blank	<0.048	mg/kg dry wt	
	trans-1,4-Dichloro-2	Blank	<0.010	mg/kg dry wt	
	Ethyl Methacrylate	Blank	<0.004	mg/kg dry wt	
	cis-1,4-Dichloro-2-B	Blank	<0.012	mg/kg dry wt	
	Bromodichloromethane	Blank	<0.002	mg/kg dry wt	



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Method Blanks

Report Date: 04/10/00

Lims Bat #: LIMS-47601

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QC Batch Number: HG-1439

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00807444	Mercury	Sample Amount	0.012	mg/kg dry wt.	
		Duplicate Value	0.017	mg/kg dry wt.	
		Duplicate RPD	32.101	%	
		Sample Amount	0.012	mg/kg dry wt.	
		Matrix Spk Amt Added	0.497	mg/kg dry wt.	
		MS Amt Measured	0.458	mg/kg dry wt.	
		Matrix Spike % Rec.	89.531	%	
BLANK-24894	Mercury	Blank	<0.010	mg/kg dry wt.	



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QC SUMMARY REPORT

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Method Blanks

Report Date: 04/10/00

Lims Bat #: LIMS-47601

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NOTES:

QC Batch No.: GC/FID-3413

Sample ID: 00807443

Analysis: C11-C22 Aromatics so

QC Analysis: Duplicate Value

EPH DUPRPD LIMITS DON'T APPLY TO RESULTS BELOW THE DETECTION LIMIT.



(413) 525-2342
FAX (413) 525-6105

CHAIN OF CUSTODY RECORD

79 SPRUCE ST • 2ND FLOOR • EAST LONGMEADOW, MA 01028

Client Name: BATB / Middlesex Telephone: 781 740 2078
 Attn: A. Westman Batch #: _____
 Address: 150 Recreation Pk Drive # 5
Hingham, MA 02043 Project #: 20-100
 Site Location: WRTC Client P.O. #: 20-100
 Sampled By: AW
 Call Results: Yes _____ No
 Fax Results: Yes No _____ * Fax #: 781 740 2079

Amount 47601
Analysis Required

Field Sample I.D.	Sample Description	Lab #	DATE SAMPLED		Composite	Grab	MATRIX							Preservative (Use Code)	Container (Use Code)	EPA/UPA	PCL/PEST	REACT & metals	B230	B230	Total Cyanide
			Start Date/Time	Stop Date/Time			WASTE WATER	GROUND WATER	DKG WATER	Soil	Air	Other									
21	EXCAVATED MATERIAL ABOVE GEOTEXTILE FABRIC STA. LOC. 960-080	0062443 027444	3-27-00	3-27-00	<input checked="" type="checkbox"/>								10	GS	X	X	X	X	X	X	

CONTAINER CODE: P = PLASTIC (___ Size) B = 40 ml vial B = Glass (___ size) B = 1000 ml Amber O = Other _____

PRESERVATIVE CODE: Ø = ICED N = HNO₃ H = HCl S = NaOH T = Na₂S₂O₃ O = OTHER MS

Relinquished by: (Signature) [Signature] * Date Time 3-4-00 8:50 AM Received by: (Signature) [Signature] 1130 - 4/17

Turnaround Requested _____ 24-Hour _____ 48-Hour _____ Normal _____ Other 3-6 Date Required _____

Relinquished by: (Signature) [Signature] Date Time 4:41 on 1575 Received by: (Signature) [Signature] 4.5

Remarks/Comments: LAB DETECT below 5-1

Relinquished by: (Signature) _____ Date Time _____ Received by: (Signature) _____

* liquid in parallel on 4-3-00 mark 3-3-00.
 *MATRIX OTHER [Signature]



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012A
Release Tracking Number

BILL OF LADING (pursuant to 310 CMR 40.0030)

FOR TRACKING CLEAN SOIL TO Woburn Landfill

A. LOCATION OF SITE OR DISPOSAL SITE WHERE REMEDIATION WASTE WAS GENERATED:

Release Name (optional):

Street: Atlantic Ave Location Aid: Industrial-plex WRTC
City/Town: Woburn, MA Zip Code: 01801
Date/Period of Generation: 4/13/00 to 4/20/00
Additional Release Tracking Numbers Associated with this Bill of Lading:

*Note: If this Bill of Lading is the result of a Limited Removal Action (LRA) taken prior to Notification, a Release Tracking Number is not needed.

B. PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH BILL OF LADING:

Name of Organization: Middlesex Corporation
Name of Contact: Joe Phinney Title: Superintendent
Street: Atlantic Ave
City/Town: Woburn State: MA Zip Code: 01801
Telephone: 781-935-0729 Ext.

C. RELATIONSHIP TO RELEASE OR THREAT OR RELEASE OF PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH BILL OF LADING:

(check one/specify)

- RP Specify (circle one): Owner Operator Generator Transporter Other RP: _____
 PRP Specify (circle one): Owner Operator Generator Transporter Other RP: _____
 Fiduciary/Secured Lender
 Agency/Public Utility on a Right of Way
 Other Person: _____

If an owner and/or operator is not conducting the response action associated with the Bill of Lading, provide on an attachment the name, contact person, address and telephone number, including any area code and extension, for each, if known.

D. TRANSPORTER/Common CARRIER INFORMATION:

Transporter/Common Carrier Name: The Middlesex Corporation
Contact Person: Joe Phinney Title: Superintendent
Street: One Spectacle Pond Road
City/Town: Littleton State: MA Zip Code: 01460
Telephone: 978-272-4400 Ext.

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION:

Operator/Facility Name: Woburn Municipal Landfill
Contact Person: Craig Sailer Title: Site Superintendent
Street: 202 Merrimack Street
City/Town: Woburn State: MA Zip Code: 01801
Telephone: _____ Ext. _____
Type of Facility: (check one)
 Asphalt Batch/Cold Mix Landfill/Disposal Incinerator
 Asphalt Batch/Hot Mix Landfill/Daily Cover Temporary
 Thermal Processing Landfill/Structural Fill Storage
Other: _____

Division of Hazardous Waste/Class A Permit #: _____ Division of Solid Waste Management Permit #: _____ EPA Identification #: ACO-NE-95-4009
Actual/Anticipated Period of Temporary Storage (specify dates if applicable): _____ to _____
Reason for Temporary Storage (if applicable): _____



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

BWSC-012A
Release Tracking Number

Empty rectangular boxes for tracking information.

E. RECEIVING FACILITY/TEMPORARY STORAGE LOCATION (Continued):

Temporary Storage Address:

Street: N/A
City/Town: _____ State: _____ Zip Code: _____

F. DESCRIPTION OF REMEDIATION WASTE:
(check all that apply)

- Contaminated Media (circle all that apply): Soil Groundwater Surface Water Other: _____
- Contaminated Media (circle all that apply): Demolition/Construction Waste Vegetation/Organic Materials
Inorganic Absorbant Materials Other: _____
- Non-hazardous Uncontainerized Waste (circle all that apply): Non-aqueous Phase Liquid Other: _____
- Non-hazardous Containerized Waste (circle all that apply): Tank Bottom/Sludges Containers Drums
Engineered Impoundments Other: _____
- Type of Contamination (circle all that apply): Gasoline Diesel Fuel #2 Oil #4 Oil #5 Oil Waste Oil
Kerosene Jet Fuel Other: _____
- Estimated Volume of Materials: Cubic Yards: 1000 Tons: _____ Other: _____
- Contaminant Source (check one/specify): Transportation Accident Underground Storage Tank Other: _____
- Response Action Associated with Bill of Lading (circle one): Immediate Response Action Release Abatement Measure
Utility-Related Abatement Measure Limited Removal Action (LRA) Comprehensive Response Action
- Other: MATERIAL NOT SUITABLE FOR REUSE, MATERIAL FROM ABOVE

Remediation Waste Characterization Support Documentation attached: Geotextile Liner at STATION LOCATION 860-880

- Site History Information
- Sampling and Analytical Methods and Procedures
- Laboratory Data
- Field Screening Data

If supporting documentation is not appended, provide an attachment stating the date and in connection with what document such information was previously submitted to DEP.

G. LICENSED SITE PROFESSIONAL (LSP) OPINION:

Name of Organization: D'Amore Associates, Inc.
LSP Name: Denis D'Amore Title: LSP
Telephone: 978-368-1802 Ext: _____

I attest that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this submittal, and in my professional opinion and judgment based upon application of

- (i) the standards of care in 309 CMR 4.02(1),
- (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and
- (iii) the provisions of 309 CMR 4.03(5),

to the best of my knowledge, information and belief, the assessment actions undertaken to characterize the Remediation Waste which is (are) the subject of this submittal for acceptance at the facility identified in this submittal comply with the applicable provisions of 310 CMR 40.0000, and such facility is permitted to accept Remediation Waste having the characteristics described in this submittal. I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

Signature: [Handwritten Signature]
Date: 4/12/00
License Number: 6039





**Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup**

BWSC-012A
Release Tracking Number

BILL OF LADING (pursuant to 310 CMR 40.0030)

	-	
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H. CERTIFICATION OF PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH THIS BILL OF LADING:

I certify under penalties of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for wilfully submitting false, inaccurate, or incomplete information.

Signature:

[Handwritten Signature]

Date

4.12.00

Name of Person (print):

Joe Phinney



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BILL OF LADING (pursuant to 310 CMR 40.0030)

LOG SHEET

BWSC-012B
Release Tracking Number

I. LOAD INFORMATION:

LOAD 1: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____/_____/_____ : _____ (circle one) am/pm
Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____/_____/_____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 2: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____/_____/_____ : _____ (circle one) am/pm
Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____/_____/_____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 3: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____/_____/_____ : _____ (circle one) am/pm
Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____/_____/_____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 4: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____/_____/_____ : _____ (circle one) am/pm
Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____/_____/_____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 5: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____/_____/_____ : _____ (circle one) am/pm
Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____/_____/_____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 6: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____/_____/_____ : _____ (circle one) am/pm
Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____/_____/_____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

LOAD 7: Signature of Transporter Representative: _____

Date of Shipment: _____ Time of Shipment: _____
_____/_____/_____ : _____ (circle one) am/pm
Truck/Tractor Registration: _____ Trailer Registration (if any): _____

Receiving Facility/Temporary Storage Representative: _____

Date of Receipt: _____ Time of Receipt: _____
_____/_____/_____ : _____
(circle one) am/pm

Load Size (cu. yds./tons): _____

J. LOG SHEET VOLUME INFORMATION:

Total Volume This Page (cu. yds./tons): _____
Total Carried Forward (cu. yds./tons): _____
Total Carried Forward and This Page (cu. yds./tons): _____



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-012C
Release Tracking Number

BILL OF LADING (pursuant to 310 CMR 40.0030)

SUMMARY SHEET _____ OF _____

L. ACKNOWLEDGEMENT OF RECEIPT OF REMEDIATION WASTE AT RECEIVING FACILITY OR TEMPORARY STORAGE LOCATION:

Receiving Facility/Temporary

Location Representative (print): _____ Title: _____

Signature: _____ Date: ____ / ____ / ____

M. ACKNOWLEDGEMENT OF SHIPMENT AND RECEIPT OF REMEDIATION WASTE BY PERSON CONDUCTING RESPONSE ACTION ASSOCIATED WITH THIS BILL OF LADING:

I certify under penalties of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

Signature: _____ Date: ____ / ____ / ____

Name of Person (print): _____

G - GEOTEXTILE ENGINEERED BARRIER

*file: American Engineering
(405 2010)*



AMERICAN ENGINEERING FABRICS, Inc.

MANUFACTURERS of GEOTEXTILES

American Engineering Fabrics

Quality Assurance/Quality Control Manual

March 1, 1999

AEF manufactures polyester and polypropylene needle punched geotextiles, 4 - 18 oz. per syd.

Quality Control Program:

We test as follows:

- Weight oz/syd - ASTM D - 5261
- Thickness (mils) - ASTM D - 1777
- Grab Strength (lbs.) - ASTM D - 4632-86
- Elongation (%) - ASTM D - 4632-86
- Puncture Strength - ASTM D - 4833
- Mullen Burst Strength (PSI) - ASTM D - 3786-87
- Trapezoid Tear Strength (lbs.) - ASTM D - 4533-85
- AOS - ASTM D - 4751
- Water Flow Rate (GPM/ft²) - ASTM D - 4491
- Permittivity - ASTM D - 4491 (Sec -1)
- UV Resistance - ASTM D - 4355-84

Procedure:

Each new production run from 10-40,000 pounds of fiber is blended and assigned a lot number. Rolls are produced and assigned a non-repeating number with the following information:

- Roll #
- Lot #
- Style
- Size
- Operator
- Production Line #

From every roll, a full-width sample is taken. From this, two 18" x 36" samples are cut, weighed and labeled with assigned roll number. Record is kept by operator of every roll produced during that shift.

Samples are taken to our on-site laboratory and tested for above ASTM tests per ASTM D-35 Committee on Geosynthetics. Procedures are followed per scope for each test. Grab Strength, Elongation, Mullen Burst, Trapezoid, Tear and Puncture are performed on every roll. Frequency of other tests are performed per requirements of specific run.

Tests are recorded in hard bound, permanent book. MARVS are calculated. Computer analysis of standard deviation can be done per requirements of job.

Shipping:

Every roll maintains ticket of original assigned number (as described previously). In process of shipping, duplicate ticket (yellow) is pulled and maintained by with factory packing list. White ticket accompanies roll in secure shipping envelope placed on each roll. Identification is therefore assured in the field.

D4491-89 STANDARD TEST METHODS FOR WATER PERMEABILITY OF GEOTEXTILES BY PERMITTIVITY

1.SCOPE

1.1 These test methods provide procedures for determining the hydraulic conductivity (water permeability) of geotextiles in terms of permittivity under standard testing conditions, in the uncompressed state. Included are two procedures: the constant head method and the falling head method.

1.2 The values stated in SI units are to be regarded as the standard. The inch-pound (United States) are provided for information only.

D4632-86 STANDARD TEST METHOD FOR BREAKING LOAD AND ELONGATION OF GEOTEXTILES (GRAB METHOD)

1.SCOPE

1.1 This test method covers a procedure for determining the breaking load (grab tensile) and elongation (grab elongation) of geotextile fabrics using the grab method.

1.2 Procedures for measuring the breaking load and elongation by the grab method in both the dry and wet state are included; however, testing is normally done in the dry condition unless specified otherwise in an agreement or specification.

1.3 The values stated in SI units are to be regarded as standard. The values stated in inch-pound units are provided for information only.

D4751-87 STANDARD TEST METHOD FOR DETERMINING APPARENT OPENING SIZE OF A GEOTEXTILE

1. SCOPE

1.1 This test method is used to determine the apparent opening size (AOS) of a geotextile by sieving glass beads through a geotextile.

1.2 This test method shows the values in both SI units and inch-pound units. "SI" units is the technically correct name for the system of metric units known as the International System of Units. "Inch-pound" units is the technically correct name for the customary units used in the United States. The values in inch-pound units are provided for information only.

D4833-88 STANDARD TEST METHOD FOR INDEX PUNCTURE RESISTANCE OF GEOTEXTILES, GEOMEMBRANES, AND RELATED PRODUCTS

1. SCOPE

1.1 This test method is used to measure the index puncture resistance of geotextiles, geomembranes, and related products.

1.3 The values stated in SI units are to be regarded as the standard. The values provided in inch-pound units are for information only.

D4533-85 STANDARD TEST METHOD FOR TRAPEZOID TEARING STRENGTH OF GEOTEXTILES

1. SCOPE

1.1 This test method is used to measure the tearing strength of woven or nonwoven geotextiles by the trapezoid method.

1.2 This test method is applicable to most geotextiles that include woven fabrics, nonwoven fabrics, layered fabrics, knit fabrics, and felts that are used for geotextile applications.

1.3 The values stated in SI units are to be regarded as the standard.

D4355-84 STANDARD TEST METHOD FOR DETERIORATION OF GEOTEXTILES FROM EXPOSURE TO ULTRAVIOLET LIGHT AND WATER (XENON-ARC TYPE APPARATUS)

1. SCOPE

1.1 This test method covers the determination of the deterioration in tensile strength of geotextiles by exposure to ultraviolet light and water.

1.2 The light and water exposure apparatus employs a xenon-arc light source.

D5261-92 STANDARD TEST METHOD FOR MEASURING MASS PER UNIT AREA OF GEOTEXTILES

1. SCOPE

1.1 This test method can be used as an index to the determination of mass per unit area of all geotextiles

1.2 The values stated in SI units or other units shall be regarded separately as standard. The values stated in parentheses are provided for information only.

1.3 This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

D5199-95 STANDARD TEST METHOD FOR MEASURING NOMINAL THICKNESS OF GEOTEXTILES AND GEOMEMBRANES

1. SCOPE

1.1 This test method is used to measure the nominal thickness of geotextiles and geomembranes.

1.2 The values stated in SI units are to be regarded as the standard. The values are provided in inch-pound units for information only.

1.3 This test method does not provide thickness values for geomembranes under variable normal compressive stresses. This test method determines nominal thickness, not necessarily minimum thickness.

1.4 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

D3786-87 STANDARD METHOD TEST FOR MULLEN BURST

1. SCOPE

1.1 A sample of the material to be tested is clamped between two horizontal, flat circular plates in the appropriate unit. Fluid displaced from a chamber by a piston moving at a constant rate forces a heavy rubber diaphragm to expand through the lower plate opening and exert a constantly increasing pressure against the unsupported area of the sample.

1.2 The fabric burst test tells instantly the fiber bond in nonwoven fabrics.

AMERICAN ENGINEERING FABRIC
 ONE CORPINE AVENUE
 NEW BEDFORD, MA. 02745

PACKING LIST!!

CONSIGNEE TO:

Middlesex Construction
 307 Atlantic Avenue
 Woburn, Ma. 01801

DATE: 5-25-00

VIA:

P.O.#: C5173

#	TKT#	LYD	FEET	STYLE	#	TKT#	LYD	FEET	STYLE	#	TKT#	LYD	FEET	STYLE
1	102704	60	15	1680	31					61				
2	92438	67	15	1680	32					62				
3	92435				33					63				
4	92426				34					64				
5	92427				35					65				
6	102705				36					66				
7	102706				37					67				
8	102702				38					68				
9	102703				39					69				
10	92448	↓	↓	↓	40					70				
11	101768	33	15	1680	41					71				
12	101769				42					72				
13	101766				43					73				
14	101764				44					74				
15	101765				45					75				
16	101763				46					76				
17	101754				47					77				
18	101762				48					78				
19	101761				49					79				
20	101736				50					80				
21	101735				51					81				
22	101770	↓	↓	↓	52					82				
23					53					83				
24					54					84				
25					55					85				
26					56					86				
27					57					87				
28					58					88				
29					59					89				
30					60					90				

WETTER- 4993 #

AMERICAN ENGINEERING FABR
 ONE COFFIN AVENUE
 NEW BEDFORD, MA. 02746

PACKING LIST !!

CONSIGNEE TO: *Hiddlesux Construction*
301A Atlantic Avenue
Woburn, Ma. 01801

DATE: *3-6-2000*
 VIA: *Cohenno*
 P.O.#: *05173*

#	TRK#	LYD	FEET	STYLE	#	TRK#	LYD	FEET	STYLE	#	TRK#	LYD	FEET	STYLE
1	101513	67	15'	1680	31	101593	67	15'	1680	61				
2	101512				32					62				
3	101506				33					63				
4	101507				34					64				
5	101596				35					65				
6	101500				36					66				
7	101501				37					67				
8	101505				38					68				
9	101508				39					69				
10	101509				40					70				
11	101523				41					71				
12	101522				42					72				
13	101525				43					73				
14	101529				44					74				
15	101590				45					75				
16	101594				46					76				
17	101597				47					77				
18	101598				48					78				
19	101599				49					79				
20	101504				50					80				
21	101570				51					81				
22	101577				52					82				
23	101578				53					83				
24	101579				54					84				
25	101580				55					85				
26	101581				56					86				
27	101584				57					87				
28	101586				58					88				
29	101591				59					89				
30	101592	↓	↓	↓	60					90				

WEIGHT: *9960#*

Sample tickets from rolls of AEF geotextile fabric

American Engineering Fabrics, Inc.
1 Coffin Avenue • New Bedford, MA 02746

PIECE NO.: **101598**

Lot # 254A

Style	L Yards
<input type="checkbox"/> 480	133.33
<input type="checkbox"/> 480HS	133.33
<input type="checkbox"/> 680	133.33
<input type="checkbox"/> 880	100
<input type="checkbox"/> 1080	100

Style	L Yards
<input type="checkbox"/> 1280	66.67
<input type="checkbox"/> 1480	66.67
<input checked="" type="checkbox"/> 1680 HS	66.67
<input type="checkbox"/> 1880	66.67

Roll Width

12½ ft.

15 ft.

_____ ft.

Operator _____

JZFF

3344

American Engineering Fabrics, Inc.
1 Coffin Avenue • New Bedford, MA 02746

PIECE NO.: **101594**

Lot # 254A

Style	L Yards
<input type="checkbox"/> 480	133.33
<input type="checkbox"/> 480HS	133.33
<input type="checkbox"/> 680	133.33
<input type="checkbox"/> 880	100
<input type="checkbox"/> 1080	100

Style	L Yards
<input type="checkbox"/> 1280	66.67
<input type="checkbox"/> 1480	66.67
<input checked="" type="checkbox"/> 1680 HS	66.67
<input type="checkbox"/> 1880	66.67

Roll Width

12½ ft.

15 ft.

_____ ft.

Operator _____

JZFF

3310

American Engineering Fabrics, Inc.
1 Coffin Avenue • New Bedford, MA 02746

PIECE NO.: **101587**

Lot # 254A

Style	L Yards
<input type="checkbox"/> 480	133.33
<input type="checkbox"/> 480HS	133.33
<input type="checkbox"/> 680	133.33
<input type="checkbox"/> 880	100
<input type="checkbox"/> 1080	100

Style	L Yards
<input type="checkbox"/> 1280	66.67
<input type="checkbox"/> 1480	66.67
<input checked="" type="checkbox"/> 1680 HS	66.67
<input type="checkbox"/> 1880	66.67

Roll Width

12½ ft.

15 ft.

_____ ft.

Operator _____

JZFF

3345



AMERICAN ENGINEERING FABRICS, Inc.

MANUFACTURERS of GEOTEXTILES

1 Coffin Avenue • New Bedford, Massachusetts 02746 • Tel. (508) 993-9622

FAX (508) 994-7156

February 11, 2000

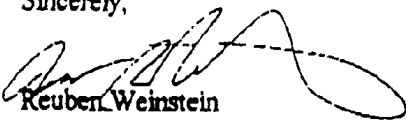
Middlesex Corp.
Attn: Laura Robinson
Re: Woburn Regional Trans. Center, Woburn, MA

This is to certify that AEF 1680 nonwoven geotextile to be shipped to the above job meets the following minimum average roll values:

AEF 1680 MINIMUM AVERAGE ROLL VALUES Fiber Content - 100% polypropylene.

FABRIC PROPERTY	ENGLISH UNIT	TEST METHOD	MINIMUM VALUE
Fabric Weight	oz/yd ²	ASTM D-5261	16
Thickness	mils	ASTM D-5199	180
Grab Tensile Strength	lbs	ASTM D-4632-86	350
Elongation	percentage	ASTM D-4632-86	70
Puncture Strength	lbs	ASTM D-4833-88	200
Mullen Burst Strength	psi	ASTM D-3786-87	700
Trapezoid Tear Strength	lbs	ASTM D-4533-85	110
AOS	sieve size	ASTM D-4751-87	100
Permittivity	Sec - 1	ASTM D-4491-85	1.08
Permeability	cm/sec	ASTM D-4491	0.57
UV Resistance	% strength retained	ASTM D-4355-84	85 (500 hrs.)

Sincerely,


Reuben Weinstein
President

THE MIDDLESEX CORPORATION
Regional Transportation Center - Woburn, MA
MPA Project No. 1.727
This shop drawing has been thoroughly checked and complies with the Contract Documents and field measurements and the item fits with adjoining work except as noted.
SUBMITTAL # 02558-001-001 Rev 2-02
BY: DP DATE: 2/11/00

**MASSPORT PROJECT NO. 1.727
WOBURN REGIONAL TRANSPORTATION CENTER**

MIDDLESEX SUBMITTAL NO. 02858-01-01 (0005
2-14-00)

<input checked="" type="checkbox"/>	APPROVED	Reviewed only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor shall be responsible for all dimensions, quantities and performance requirements to be confirmed and correlated at the job site; for all information that pertains solely to the fabrication process or to techniques of construction; for all coordination of the work of all trades; and for assuring consistency with the Contract Documents.
<input type="checkbox"/>	APPROVED AS NOTED Resubmission Not Required	
<input type="checkbox"/>	APPROVED AS NOTED Resubmission Required	
<input type="checkbox"/>	REJECTED	
<input type="checkbox"/>	NOTED - No Action Required	

STONE & WEBSTER Job No: 07473 File No: 02858-2.02B
Reviewed by: WJ Palmer Date: 2-16-00

APPENDIX H - SEWING MACHINE

PBC-07

CATALOG NO.
KATALOG NR.
283

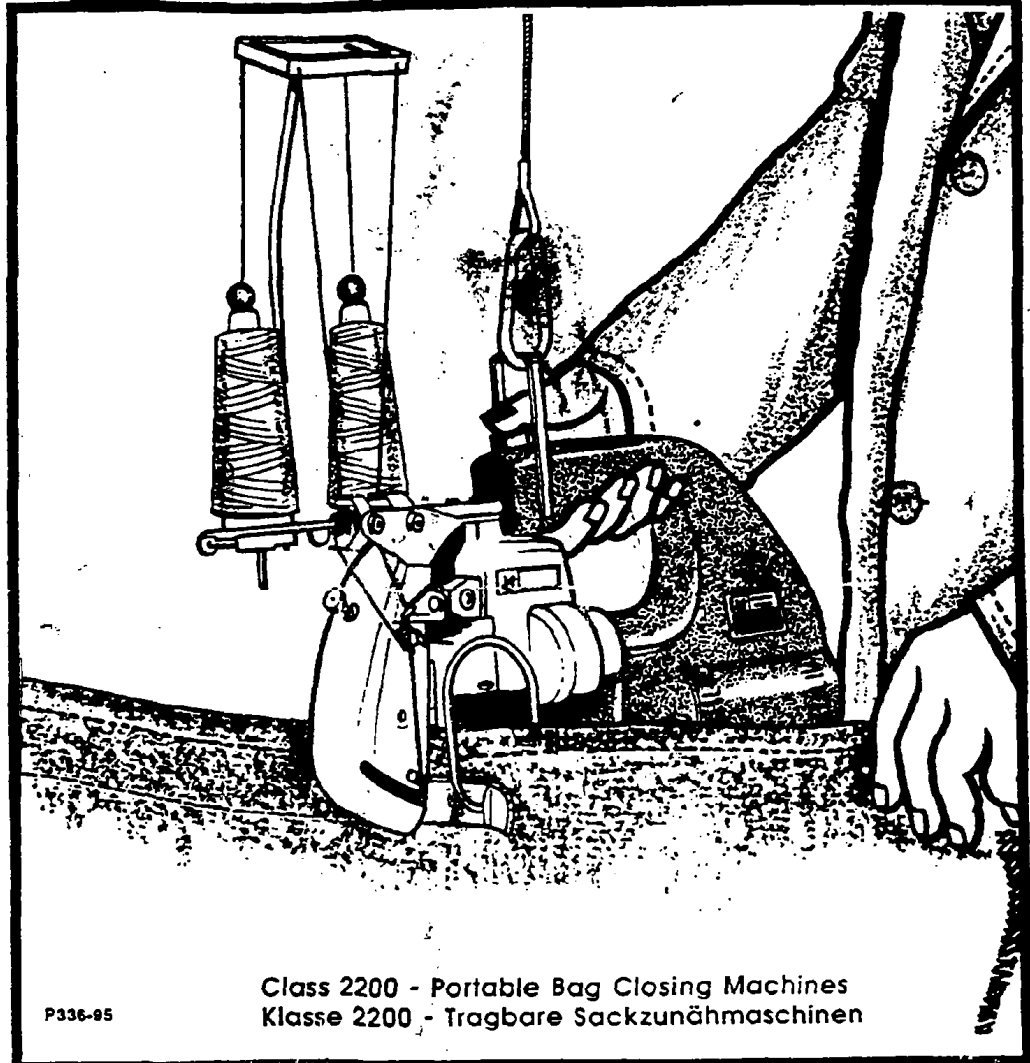
Fourth Edition
Vierte Auflage

Instructions and
illustrated parts list

Betriebsanleitung und
illustriertes Teileverzeichnis

STYLES
TYPEN

- 2200A
- 2200B
- 2200F
- 2200AS
- 2200AA
- 2200BA
- 2200FA
- 2200AAS



P336-95

Class 2200 - Portable Bag Closing Machines
Klasse 2200 - Tragbare Sackzunähmaschinen



Union Special
INDUSTRIAL SEWING EQUIPMENT

FOREWORD

This technical manual has been prepared to guide you in the maintenance of your new UNION SPECIAL machine. Careful attention to the instructions for operating and adjusting these machines will enable you to maintain the superior performance and reliability designed and built into every UNION SPECIAL machine.

The Adjusting Instruction portion of this manual explains in detail the proper setting for each of the components related to forming the stitch and completing the functions of the machine. Figures are used to illustrate the adjustments using reference letters to point out specific items discussed.

Adjustments are presented in sequence so that a logical progression is accomplished. Some adjustments performed out of sequence may have an adverse effect on the function of other related parts.

Implementation of preventative maintenance procedures can bring about significant improvements in operator productivity by avoiding costly equipment breakdowns. Whenever it becomes necessary to make repairs or replace parts on your machine, be sure to insist on genuine UNION SPECIAL Repair Parts. These parts are designed specifically for your machine and manufactured with utmost precision to assure long lasting service.

To simplify identification of repair parts, the mechanisms are illustrated by exploded views.

VORWORT

Dieses technische Handbuch soll Sie bei der Wartung Ihrer neuen UNION SPECIAL Maschine leiten. Sorgfältige Beachtung der Bedienungs- und Einstellanleitungen gewährleistet die, in der Konstruktion jeder UNION SPECIAL Maschine enthaltene und eingebaute höchste Leistung und Zuverlässigkeit.

Im Abschnitt Einstellanleitungen dieses Handbuchs wird im Einzelnen die richtige Einstellung der Teile zur Stichtbildung und Gesamtfunktion der Maschine erklärt. Die Einstellungen sind in Abbildungen dargestellt, mit Referenzbuchstaben wird auf die speziell erörterten Punkte hingewiesen.

Die Einstellungen sind folgerichtig, im logischen Verlauf aufgeführt. Einige Einstellungen, die außer der Reihe ausgeführt werden, können die Funktion anderer zugehöriger Teile ungünstig beeinflussen.

Die Durchführung vorbeugender Wartungsarbeiten kann eine bemerkenswerte Leistungssteigerung der Bedienungsperson bringen, da kostenträchtige Maschinenausfälle vermieden werden. Verwenden Sie bei notwendigen Reparaturen oder beim Austausch von Teilen an Ihrer Maschine grundsätzlich nur Original UNION SPECIAL Ersatzteile. Diese Teile sind speziell für Ihre Maschine konstruiert und mit der höchsten Präzision für eine lange Lebensdauer gefertigt.

Zum einfacheren Auffinden der Ersatzteile sind die Mechanismen in Explosionszeichnungen dargestellt.

CATALOG NO. 283
KATALOG NR.

For styles
Für die Typen

- | | |
|---------|----------|
| 2200 A | 2200 AA |
| 2200 B | 2200 BA |
| 2200 F | 2200 FA |
| 2200 AS | 2200 AAS |

Fourth Edition



Vierte Auflage

Subject to change without notice
Änderungen vorbehalten

283 CATALOG EG 2.93

Printed in the Federal Republic of Germany © Union Special GmbH 1979, 1993

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* Extra order and charge items

* Gegen zusätzliche Bestellung und Berechnung

Each UNION SPECIAL machine is identified by a style number, which is stamped into the style plate affixed to the machine. The Serial Number is fixed into the casting of the machine housing.

MACHINE DESCRIPTION

Portable bag closing machines with integral electric motor and built-in thread chain cutter.

For closing filled bags and sacks as well as for stitching webs, made of jute, burlap, cotton, linen, paper, plastic, woven polypropylene, non-wovens or combinations of these fabrics with single thread chain stitch (stitch type 101*) or two-thread double locked stitch (stitch type 401*).

Combined upper and lower feed.
Direct drive with a electric motor.
Motor ball bearings dust proof and permanently lubricated. Heavy-duty, automatic shut-off commutator brushes prevent damages of the armature. Motor housing and handle made of fiberglass-reinforced break-resistant polyamide. The design of the motor housing allows to securely put down the machine in a handy position, when not in use.

The machines are designed for switch actuated operation (S3 : 40%)! A normal sewing cycle lasts approx. 5 to 8 seconds.

SPECIFICATIONS

Seam specification: 101 SSe-1 or 401 SSe-1.

Sewing capacity: up to 9 mm (3/8 in.) or up to 24 plies of paper.

Stitch range: 3 to 9 mm (3 to 8 1/2 SPI)

Standard setting: 8 mm (3 SPI)

Feed: Upper and lower feed.

Teeth cut: 2-11 mm (12 teeth per inch)

Standard recommended needle type: 9854 G-200/080 (also refer to paragraph "NEEDLES")

Speed: 1200 to 1700 stitches per minute (depending on bag fabric). At a stitch length of 8 mm (3 SPI) this results in a linear travel of 9,6 to 13,6 m (approx. 31 to 44 feet) per minute.

Sound pressure level at recommended operating speed (1500 rpm): 79 dB (A), measurement acc. to DIN 45635-48.

Weighted root mean square acceleration value at recommended operating speed (1500 rpm): < 2,5 m/s², measurement acc. to ISO 8662-1/EN 28662 and ISO 5349.

Power cable: 5 meters long (approx. 16 ft.)
Weight: 5 kg (11 lbs.) (approx.)

SPECIFICATIONS (electric drive)

single-phase commutator motor

Frequency range: 50 to 60 cycles per second

Power: 0.12 kW (input)

Duty cycle: S3:40 % according to ISO 34-1.
The relative duty cycle should not exceed a period of 40 %, relating to a cycle of 10 minutes.

Speed of motor (no-load operation): approx. 9000 rpm

Insulation class B.

Voltages and protection classes:

220 to 240 V protection class I*, with ground wire

220 to 240 V protection class II*, reinforced insulation without ground wire

110 to 125 V protection class I*, with ground wire

110 to 125 V protection class II*, reinforced insulation without ground wire

The motors are equipped with commutator brushes which automatically cut off the circuit in case of wear (approx. 500 working hours). This prevents damage of the armature and can only be assured when using genuine Union Special commutator brushes and repair parts.

..* see page 3.

Jede UNION SPECIAL Maschine hat eine Typennummer, die in das an der Maschine befestigte Typenschild eingepreßt ist. Die Seriennummer ist in den Guß des Maschinengehäuses eingelassen.

MASCHINENBESCHREIBUNG

Tragbare Sackzunähmaschinen mit angebautem Elektromotor und eingebautem Fadenkettenabschneider.

Zum Zunähen von gefüllten Säcken und Beuteln, sowie zum Zusammennähen von Warenbahnen, aus Jute, Baumwolle, Leinen, Papier, Kunststoff, Polypropylengewebe, Faservlies oder aus Kombinationen dieser Materialien mit Einfaden-Einfachkettenstich (Nähstichtyp 101*) oder Zweifaden-Doppelkettenstich (Nähstichtyp 401*).

Kombinierter oberer und unterer Transport.
Direktantrieb durch Elektromotor.
Motorkugellager staubgeschützt und auf Lebensdauer geschmiert. Abschaltkohlen mit hoher Standzeit verhindern Ankerbeschädigungen.
Motorgehäuse und Handgriff aus glasfaserverstärktem, bruchsicherem Polyamid. Die Konstruktion des Motorgehäuses erlaubt es, die Maschine nach Gebrauch sicher und griffbereit hinzustellen.

Die Maschinen sind für Schaltbetrieb (S3 : 40%) ausgelegt! Ein normaler Nähvorgang dauert ca. 5 bis 8 Sekunden.

DATEN

Nahtbild: 101 SSe-1 oder 401 SSe-1.

Nähkapazität: bis 9 mm oder bis zu 24-Lagen Papier.

Stichlänge: 3 bis 9 mm

Standardeinstellung: 8 mm.

Transport: Ober- und Untertransport.

Zahnteilung: 2,1 mm

Empfohlene Standard-Nadeltype: 9854 G-200/080 (siehe auch Absatz "NADELN")

Drehzahl: 1200 bis 1700 Stiche/Min. (je nach Sackmaterial). Dies ergibt bei einer Stichlänge von 8 mm = 9,6 bis 13,6 m in der Minute.

Arbeitsplatzbezogener Emissionswert bei empfohlener Betriebsdrehzahl (1500 min⁻¹): 79 dB (A), Messung nach DIN 45635-48.

Gewichteter Effektivwert der Beschleunigung bei empfohlener Betriebsdrehzahl (1500 min⁻¹): < 2,5 m/s², Messung nach ISO 8662-1/EN 28662 und ISO 5349.

Anschlußkabel: 5 m lang.

Gewicht: 5 kg (ca.)

DATEN (Elektroantrieb)

Einphasen-Wechselstrom-Kommutatormotor

Frequenzbereich: 50 bis 60 Hz

Leistung: 0.12 kW (Aufnahme)

Betriebsart: S3:40 % nach ISO 34-1/DIN VDE 0530.
Die relative Einschaltdauer darf einen Zeitraum von 40 %, bezogen auf einen Zyklus von 10 Minuten, nicht überschreiten.

Drehzahl des Motors (Leerlauf) : etwa 9000 min⁻¹.

Isolierstoffklasse B.

Spannungsbereiche und Schutzklassen:

220 bis 240 V-Schutzklasse I*, mit Schutzleiter

220 bis 240 V-Schutzklasse II*, schutzisoliert ohne Schutzleiter

110 bis 125 V-Schutzklasse I*, mit Schutzleiter

110 bis 125 V-Schutzklasse II*, schutzisoliert ohne Schutzleiter

Die Motoren sind mit Kohlebürsten ausgerüstet, die sich nach Abnutzung (ca. 500 Betriebsstunden) selbsttätig abschalten. Dies verhindert Beschädigungen des Ankers und ist nur gewährleistet, wenn Union Special Ersatz-Kohlebürsten und Teile verwendet werden.

..* siehe Seite 3.

STYLES OF MACHINES

- 2200 A Double locked stitch, stitch type 401. Motor for 220 to 240 volts/50 to 60 cycles. Protection class I*, with ground wire. Radioshielded**.
- 2200 B Double locked stitch, stitch type 401. Motor for 110 to 125 volts, 50 to 60 cycles. Protection class I*, with ground wire. Radioshielded**.
- 2200 F Double locked stitch, stitch type 401. Motor for 42 volts/ 50 to 60 cycles. Protection class III*, safety extra low voltage. Radioshielded**.
- 2200 AS Double locked stitch, stitch type 401. Motor for 220 to 240 volts/ 50 to 60 cycles. Protection class II*, without ground wire. Radioshielded**.
- 2200 AA Single thread chain stitch, stitch type 101. Motor for 220 to 240 volts/ 50 to 60 cycles. Protection class I*, with ground wire. Radioshielded**.
- 2200 BA Single thread chain stitch, stitch type 101. Motor for 110 to 125 volts/50 to 60 cycles. Protection class I*, with ground wire. Radioshielded**.
- 2200 FA Single thread chain stitch, stitch type 101. Motor for 42 volts/50 to 60 cycles. Protection class III*, safety extra low voltage. Radioshielded**.
- 2200 AAS Single thread chain stitch, stitch type 101. Motor for 220 to 240 volts/50 to 60 cycles. Protection class II*, without ground wire. Radioshielded**.

HINT: Each two-thread double locked stitch machine of class 2200 can be converted into a single thread chain stitch machine and vice versa. The conversion works have to be done only by skilled personnel under observation of the safety rules and under consideration of the instructions.

Each two-thread double locked stitch machine of class 2200 can be converted into a single thread chain stitch machine and vice versa. The conversion works have to be done only by skilled personnel under observation of the safety rules and under consideration of the instructions.

- According to ISO 4915
- According to the regulations for electrical tools IEC 745-1, CEE 20 part 1, CEI EN 60040-1.
- NOTE: Protection class II is subject of authorization in some countries.
- According to EN 55014

MASCHINENTYPEN

- 2200 A Doppelkettenstich, Nähstichtyp 401. Motor für 220 bis 240 Volt, 50 bis 60 Hz. Schutzklasse I*, mit Schutzleiter. Funkentstört**.
- 2200 B Doppelkettenstich, Nähstichtyp 401. Motor für 110 bis 125 Volt/50 bis 60 Hz. Schutzklasse I* mit Schutzleiter. Funkentstört**.
- 2200 F Doppelkettenstich, Nähstichtyp 401. Motor für 42 Volt/50 bis 60 Hz. Schutzklasse III*, Schutzleiterspannung. Funkentstört**.
- 2200 AS Doppelkettenstich, Nähstichtyp 401. Motor für 220 bis 240 Volt/ 50 bis 60 Hz. Schutzklasse II*, ohne Schutzleiter. Funkentstört**.
- 2200 AA Einfachkettensstich, Nähstichtyp 101. Motor für 220 bis 240 Volt/ 50 bis 60 Hz. Schutzklasse I* mit Schutzleiter. Funkentstört**.
- 2200 BA Einfachkettensstich, Nähstichtyp 101. Motor für 110 bis 125 Volt/50 bis 60 Hz. Schutzklasse I*, mit Schutzleiter. Funkentstört**.
- 2200 FA Einfachkettensstich, Nähstichtyp 101. Motor für 42 Volt/50 bis 60 Hz. Schutzklasse III*, Schutzleiterspannung. Funkentstört**.
- 2200 AAS Einfachkettensstich, Nähstichtyp 101. Motor für 220 bis 240 Volt/50 bis 60 Hz. Schutzklasse II*, ohne Schutzleiter. Funkentstört**.

HINWEIS: Jede Doppelkettenstichmaschine der Klasse 2200 kann in eine Einfachkettensstichmaschine umgebaut werden und umgekehrt. Die Umbauarbeiten dürfen nur von Fachpersonal unter Einhaltung der Sicherheits-Hinweise und unter Beachtung der Betriebsanleitung durchgeführt werden.

Jede Doppelkettenstichmaschine der Klasse 2200 kann in eine Einfachkettensstichmaschine umgebaut werden und umgekehrt. Die Umbauarbeiten dürfen nur von Fachpersonal unter Einhaltung der Sicherheits-Hinweise und unter Beachtung der Betriebsanleitung durchgeführt werden.

- Nach ISO 4915
- Entsprechend den Bestimmungen für elektrische Werkzeuge IEC 745-1, CEE 20 Teil 1, CEI EN 60040-1, VDE 740.
- BEACHTEN: Schutzklasse II ist in einigen Ländern genehmigungspflichtig.
- Nach DIN VDE 0875 Teil 1

NEEDLES:

Each needle has both a type and a size number. The type number denotes the kind of shank, point, length, groove, finish and other details. The metric size number, stamped on the needle shank, denotes largest diameter of blade, measured in hundreds of a mm across the eye. Collectively, type and size number (metric/inch) represent the complete symbol, which is given on the label of all needles packaged and sold by UNION SPECIAL CORPORATION.

The standard needle for the machines described in this manual is type 9854 G-200/080.

Depending on the sewing operation each machine style can be equipped with one of the needle types and sizes described in the following:

Type-No.	Description and sizes
9854 G	Roundshank, square point, double groove, spotted, chromium plated. Sizes: 125/049, 170/067, 200/080, 230/090
9857 T	Round shank, round point, double groove, spotted, Lo-temp finish. Size: 200/080

Selection of proper needle size should be determined by the size of the thread used. Thread should pass freely through the needle eye in order to produce a good stitch formation.

To have needle orders promptly and accurately filled, an empty package, a sample needle, or the type and size number should be forwarded.

Use description on label. A complete order would read: "100 Needles, Type 9854 G 200/080."

NOTE:

In case the bag fabric is extremely thin, it is recommended to use needle size 125/049 or 170/067 in combination with throat plate needle hole section part No. 2130* and screw part No. 77 K* (see Fig. 1). Recommended sewing thread size for these needle sizes is Ne 34/4.

When exclusively closing plastic bags it is recommended to use needle type 9857 T-200/080 with round point and Lo-temp finish.

Depending on the thickness of the plastic foil, it is recommended to use additionally the throat plate needle hole section No. 2130* and screw No. 77 K*.

NADELN:

Jede Nadel hat eine Typ-Nummer und eine Dickenbezeichnung. Die Typnummer bezeichnet die Art des Nadelkolbens, der Spitze, Länge, Rinne, Oberfläche und andere Einzelheiten. Die metrische Dickenbezeichnung im Nadelkolben eingeprägt, gibt den grössten Durchmesser des Nadelschaftes in hundertstel Millimeter an, gemessen am 0mm. Typ-Nr. und Dickenbezeichnung (metrisch/inch) zusammen ergeben die vollständige Nadelbezeichnung, die auf jedem Etikett aller von der UNION SPECIAL CORPORATION gepackten und verkauften Nadeln steht.

Die Standardnadel für die in diesem Handbuch beschriebenen Maschinen ist die Type 9854 G-200/080.

Je nach Nähoperation kann jedoch jede Maschine mit einer der nachfolgend beschriebenen Nadeltypen und -dicken ausgerüstet werden:

Typen-Nr.	Beschreibung und Dicken
9854 G	Rundkolben, Vierkantspitze, Doppelrinne, Hohlkehle, verchromt. Dicken: 125/049, 170/067, 200/080, 230/090.
9857 T	Rundkolben, Rundspitze, Doppelrinne, Hohlkehle, Lo-temp Belag. Dicke: 200/080.

Die Wahl der Nadeldicke richtet sich nach dem verwendeten Nähfaden. Der Faden muß frei durch das Nadelöhr gleiten um eine gute Stichbildung zu gewährleisten.

Um Nadelbestellungen richtig und prompt ausführen zu können senden Sie bitte eine leere Nadelpackung oder eine Musternadel ein, oder geben Sie Typ-Nummer und Dicke an. Benützen Sie dazu die Beschreibung auf dem Etikett der Nadelpackung. Eine vollständige Bestellung würde z.B. lauten: "100 Nadeln Typ 9854 G 200/080".

BEACHTEN SIE:

Bei besonders dünnen Sackstoffen wird empfohlen, die Nadeldicke 125/049 oder 170/067 zusammen mit der Stichlochauflage Teil Nr. 2130* und Schraube Teil Nr. 77K* zu verwenden (siehe Fig. 1). Die empfohlene Nähgarnstärke für diese Nadeldicken ist Ne 34/4.

Werden ausschließlich Kunststoffsäcke verschlossen, wird empfohlen, den Nadeltyp 9857 T-200/080 mit Runds Spitze und Lo-temp Belag zu verwenden.

Abhängig von der Dicke der Kunststoffolie wird empfohlen, zusätzlich die Stichlochauflage Nr. 2130* und die Schraube Nr. 77 K* zu verwenden.

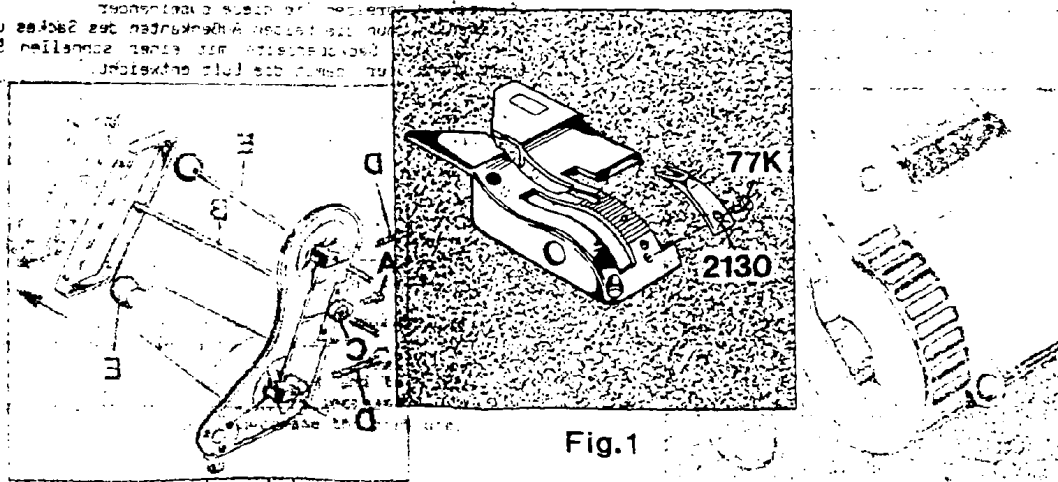


Fig. 1

*Extra order and charge item
Fig. 1

*Gegen zusätzliche Bestellung und Berechnung

OPERATING INSTRUCTIONS

PUTTING INTO SERVICE

Before leaving our factory, each machine is carefully inspected, adjusted and given a sewing test. However, upon receipt, the machine should be inspected, and any damage or complaints should be reported to Union Special or their distributor without delay. Unpack the machine. Make sure that no pieces of packing are trapped in the mechanism.

Check by turning the motor handwheel in operating direction (see Fig. 2) if the machine works. A slight resistance will be felt as the feed dog rises.

Loosen screw (A, Fig. 3) and set thread rod (B) so that its lower end is flush with the underside of thread cone support (C). Retighten screw (A).

Check the threading of the machine. Observe the threading diagram Fig. 4 and paragraph "THREADING".

Lubricate the machine again as per oiling diagram Fig. 5. Depending upon the operating conditions, oiling should be completed out at least once a day.

Check if the voltage of the sewing motor corresponds with the voltage of the wall socket. Wall sockets for machines with ground wire must be properly grounded. Insert the plug of the power cable into the wall socket.

Start stitching on a piece of the bag material (jute, paper, polypropylene etc) by pressing the thumb switch. Continue stitching as the bag material leaves the machine. This will produce a thread chain, which when guided into the V-cut out of the throat place, is automatically cut by the thread chain cutting knives. Release the switch, the machine stops.

NOTE: The knives function only when the machine is operating; otherwise the thread chain will break when pulled and could cause damage to the needle and looper.

OPERATING

For a neat, presentable closure the filled bag has to be prepared as follows:

Paper, heavy gauge plastic, coated polypropylene bags:

Insert both hands into the opening of the filled bag and spread apart. Then grip both outer edges of the bag and fold with a sharp movement the bag top forward and outward to expel the air.

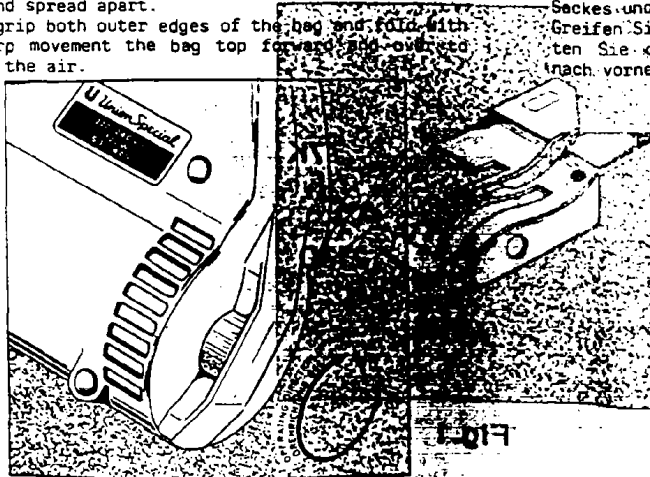


Fig. 2

BEDIENUNGSANLEITUNG

INBETRIEBNAHME

Vor Verlassen unseres Werkes wurde jede Maschine sorgfältig geprüft, eingestellt und einnähtest durchgeführt. Jedoch soll bei Erhalt die Maschine überprüft werden und jede Beschädigung oder Abweichung umgehend an Union Special oder deren Vertreter gemeldet werden.

Packen Sie die Maschine aus. Überzeugen Sie sich, daß sich kein Verpackungsmaterial in Mechanismus verfangen hat.

Prüfen Sie durch Drehen des Motor-Handrades in Drehrichtung (siehe Fig. 2), ob die Maschine arbeitet. Beim Hochgehen des Transporteurs wird ein leichter Widerstand spürbar.

Lösen Sie die Schraube (A, Fig. 3), und stellen Sie die Fadenstange (B) so, daß ihr unteres Ende mit der Unterseite des Garnrollenträgers (C) bündig ist. Ziehen Sie die Schraube (A) wieder an.

Prüfen Sie die Einfädelung der Maschine. Beachten Sie die Einfädelanleitung Fig. 4 und den Abschnitt "EINFÄDELN".

Olen Sie die Maschine nochmals entsprechend der Dianleitung Fig. 5. Abhängig von den Betriebsbedingungen muß täglich mindestens einmal gedlt werden.

Prüfen Sie, ob die Spannung des Nähmotors mit der Spannung an der Steckdose übereinstimmt. Steckdosen für Maschinen mit Schutzleiter müssen korrekt geerdet sein. Stecken Sie den Stecker des Anschlusskabels in der Steckdose ein.

Beginnen Sie auf einem Stück Sackmaterial (Jute, Papier, Polypropylen usw.) zu nähen. Drücken Sie den Druckknopfschalter betätigen. Nähen Sie weiter, nachdem die Maschine das Sackmaterial verlässt, wird eine Fadenkette gebildet, die, wenn sie in den V-förmigen Ausschnitt der Stichplatte geführt wird, automatisch von den Fadenkettenabschneidmessern abgeschnitten wird. Lassen Sie den Schalter los, die Maschine stoppt.

BEACHTEN SIE: Die Messer arbeiten nur, wenn die Maschine läuft; sonst wird die Fadenkette, wenn gezogen wird, dabei können die Nadel und der Freifer beschädigt werden.

BEDIENEN

Für einen sauberen, vorzeigbaren Verschluss muß der gefüllte Sack wie folgt vorbereitet werden:

Papier-, schwere Kunststoff-, beschichtete Polypropylensäcke:

Stecken Sie beide Hände in die Öffnung des gefüllten Sackes und spreizen Sie diese auseinander. Greifen Sie nun die beiden Außenseiten des Sackes und falten Sie die Sackoberseite mit einer schnellen Bewegung nach vorne über, damit die Luft entweicht.

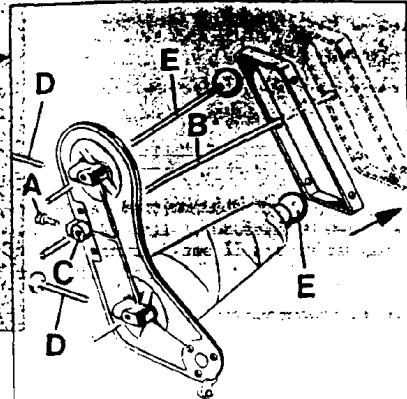


Fig. 3

Bring back the bag top to the upright position so that it is flat and vertical. Bring the machine to the right hand side of the bag, approx. 25 to 40 mm (1-1/2 in.) from the top. Enter the leading edge of the bag between presser foot and throat plate.

Richten Sie die Sackoberseite wieder auf, so daß sie flach und senkrecht ist. Bringen Sie die Maschine an die rechte Seite des Sackes etwa 25 bis 40 mm von der Oberkante. Führen Sie die Sackvorderkante zwischen Drückerfuß und Stichplatte.

⚠️ ⚠️ Keep a security distance of approx. 100 mm (4 in.) between main and sewing needle!

⚠️ ⚠️ Halten Sie einen Sicherheitsabstand von ca. 100 mm zwischen Hand und Nähnadel ein!

Press the thumb switch. The machine sews across the bag, requiring the operator only to keep pace by moving the hand in conjunction with the sewing speed of the machine. As the machine comes off the bag, guide the thread chain with a slight twist of the wrist into the knives simultaneously release the switch. The machine stops. This results in a short, neat thread chain at the beginning and end of the bag.

Betätigen Sie den Druckknopfschalter. Die Maschine näht quer über den Sack. Dabei braucht die Bedienungsperson ihre Handbewegung nur an die Nähgeschwindigkeit der Maschine anzupassen. Wenn die Maschine den Sack verläßt, führen Sie mit einer leichten Drehung des Handgelenks die Fadenkette in die Messer und lassen gleichzeitig den Schalter los. Die Maschine stoppt. Dies ergibt eine kurze, saubere Fadenkette am Anfang und Ende des Sackes.

Hessian, jute, woven polypropylene, cotton and net bags:

Säcke aus Sackleinwand, Jute, Polypropylengewebe, Baumwolle und Netzgewebe:

These bag materials are not stiff enough, therefore the right leading edge of the bag has to be entered with the left hand into the machine.

Diese Sackmaterialien sind nicht steif genug, deshalb muß die rechte Sackvorderkante mit der linken Hand in die Maschine geführt werden.

⚠️ ⚠️ Keep a security distance of approx. 100 mm (4 in.) between main and sewing needle!

⚠️ ⚠️ Beachten Sie einen Sicherheitsabstand von ca. 100 mm zwischen Hand und Nähnadel!

While sewing the operator should move the left hand to the left side of the bag, maintaining a slight tension across the top of the bag.

Während des Nähens soll die Bedienungsperson ihre linke Hand zur linken Seite des Sackes bewegen und eine leichte Spannung auf die Sackoberkante ausüben.

THREADING

EINFÄDELN

Pull out mains plug before threading!

⚠️ Ziehen Sie vor dem Einfädeln den Netzstecker!

Loosen thumb screw(s) (D, Fig. 3) in the thread cone support, pull out the spool pin(s) (E) and remove the empty thread cone(s).

Lösen Sie die Rändelschraube(n) (D, Fig. 3) im Garnrollenträger, ziehen Sie den (die) Spulenstifte(n) heraus und entfernen Sie die leere(n) Garnrolle(n).

Insert the new thread cone(s) with spool pin(s) (E) and retighten thumb screw(s) (D).

Setzen Sie die neue(n) Garnrolle(n) mit dem (den) Spulenstift(en) (E) ein und ziehen Sie die Rändelschraube(n) (D) wieder an.

Thread the machine as shown in Fig. 4.

Fädeln Sie die Maschinen wie in Fig. 4 gezeigt ein.

For threading the needle, turn motor handwheel in operating direction until the needle is in its upmost position above the throat plate.

Zum Einfädeln der Nadel drehen Sie am Motor-Handrad in Drehrichtung bis die Nadel in der höchsten Stellung über der Stichplatte ist.

For threading the looper (double locked stitch machines only) open the hinged cover (A, Fig. 4) and turn motor handwheel in operating direction until the needle is in its lowest position below the throat plate. Reclose hinged cover (A) after threading.

Zum Einfädeln des Greifers (nur bei Doppelkettenstich-Maschinen) öffnen Sie die Verschlussklappe (A, Fig. 4) und drehen am Motor-Handrad in Drehrichtung bis die Nadel in der tiefsten Stellung unter der Stichplatte ist. Schließen Sie nach dem Einfädeln die Verschlussklappe(n) wieder.

THREAD TENSION

FADENSpannung

The tension (L, Figs. 4 and 13) controls the looper thread and the tension (N) controls the needle thread.

Die Spannung (L, Fig. 4 und 13) reguliert den Greiferfaden und die Spannung (N) den Nadelfaden.

Only a slight tension should be applied on the looper thread. The tension applied on the needle thread depends upon the size of the thread and the thickness of the fabric to be sewn and has to be regulated till the machine sews and chains off perfectly.

Der Greiferfaden soll nur leicht gespannt sein. Die Nadelfadenspannung wird je nach Stärke des Fadens und der Dicke des Nähgutes einreguliert, so daß die Maschine einwandfrei näht und kettelt.

PRESSER FOOT PRESSURE

DRÜCKERFUßDRUCK

The pressure on the presser foot should be just so strong that the machine feeds uniformly on the fabric to be sewn. When leaving the fabric to be sewn, a uniform thread chain must be formed.

Der Druck auf den Drückerfuß soll gerade so stark sein, daß die Maschine gleichmäßig auf dem Nähgut transportiert. Nach dem Verlassen des Nähgutes muß sich eine gleichmäßige Fadenkette bilden.

The presser foot pressure is regulated with the knurled regulating screw (B, Fig. 4).

Der Drückerfußdruck wird mit der gerändelten Stellschraube (B, Fig. 4) reguliert.

For adjustment loosen nut (C) and turn the regulating screw (B) clockwise to increase the pressure or counterclockwise to decrease the pressure.

Lösen Sie zum Einstellen die Mutter (C) und drehen Sie die Stellschraube (B) im Uhrzeigersinn um den Druck zu verstärken, oder im Gegenuhrzeigersinn um ihn zu verringern.

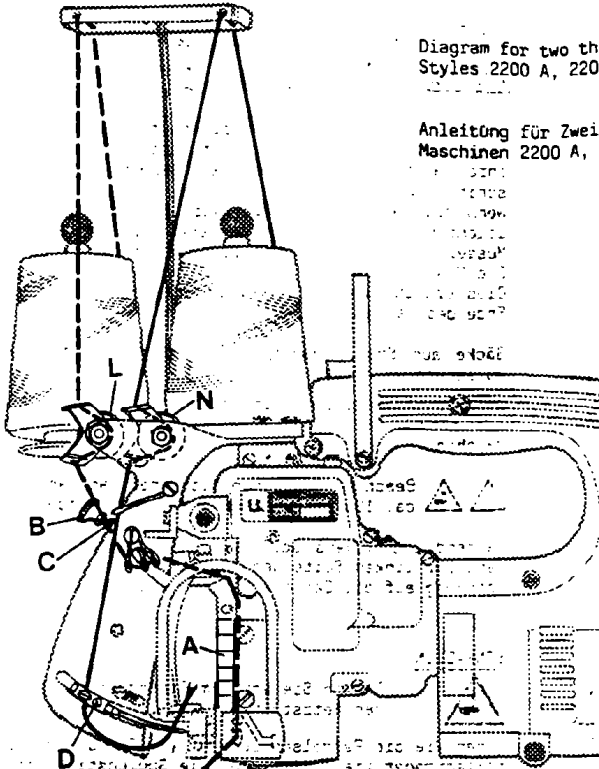
Retighten nut (C).

Ziehen Sie die Mutter (C) wieder an.

THREADING DIAGRAM CLASS 2200
EINFÄDELANLEITUNG KLASSE 2200

Diagram for two thread double locked stitch, type 401.
Styles 2200 A, 2200 B, 2200 F, and 2200 AS.

Anleitung für Zweifaden-Doppelkettenstich, Typ 401.
Maschinen 2200 A, 2200 B, 2200 F und 2200 AS.



CAUTION!

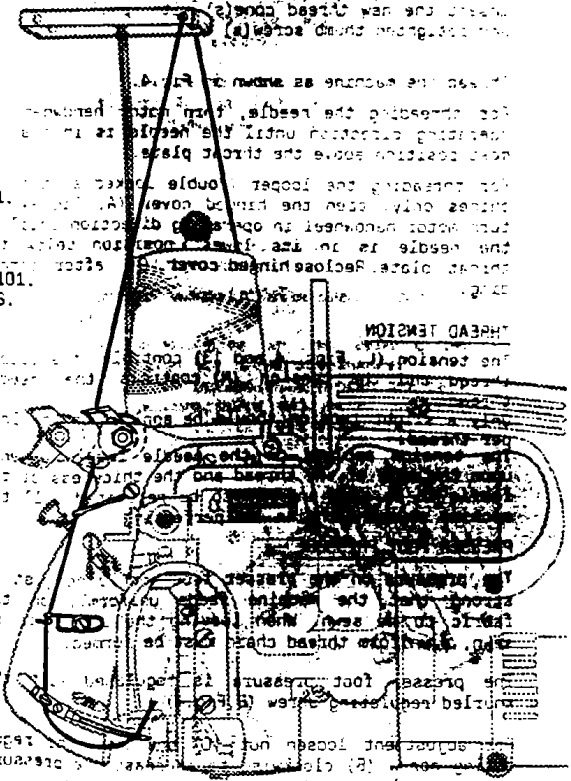
Pull out mains plug before threading.

ACHTUNG!

Ziehen Sie vor dem Einfädeln den Netzstecker!

Diagram for single-thread chain stitch, type 101.
Styles 2200 AA, 2200 BA, 2200 FA, and 2200 AAS.

Anleitung für Einfaden-Einfachkettenstich, Typ 101.
Maschinen 2200 AA, 2200 BA, 2200 FA und 2200 AAS.



Pull out mains plug before threading.

ACHTUNG!

Fig.4

CHANGING THE NEEDLE

Pull out mains plug before changing the needle!



Turn motor handwheel in operating direction until the needle is in its upmost position above the throat plate. Unthread the eye of the needle.

Loosen the screw (D, Fig.4) for the needle and draw out the needle. Insert the shank of the new needle as far as it will go into the needle seat and with the flat on the shank facing to the front. Retighten screw (D) for the needle on the flat of the needle shank and thread the needle eye.

MAINTENANCE

Pull out the mains plug before doing maintenance works or before oiling!



OILING

The machine has to be oiled at least once a day on the oil spots 1 to 11 shown in the oiling diagram Fig. 5. Oil spots 1,2 and 3 are especially important!

Recommended oil: Mobil D.T.E. Oil Medium. This oil can be purchased from UNION SPECIAL CORPORATION in 0.5 liter containers under part No. G 28604 L, or in 5 liter containers under the part No. G 28604 L-5.

CLEANING

Clean the machine periodically from lint. For this also open hinged cover (A, Fig.5) and the punched cover (B, Fig.5). Reclose covers.

AUSWECHSELN DER NADEL



Ziehen Sie vor dem Auswechseln der Nadel den Netzstecker!

Drehen Sie am Motor-Handrad in Drehrichtung bis die Nadel in der höchsten Stellung über der Stichplatte ist. Fädeln Sie das Nadelöhr aus.

Lösen Sie die Schraube (D, Fig.4) für die Nadel und ziehen Sie die Nadel heraus. Stecken Sie den Kolben der neuen Nadel bis zum Anschlag in den Nadelsitz und so, daß die Fläche am Kolben nach vorne zeigt. Ziehen Sie die Schraube (D) für die Nadel auf der Fläche des Nadelkolbens wieder an und fädeln Sie das Nadelöhr ein.

WARTUNG

Ziehen Sie vor Wartungsarbeiten oder zum Ölen den Netzstecker!

ÖLEN

Die Maschine muß täglich mindestens einmal an den in der Ölanleitung Fig. 5 angegebenen Ölstellen 1 bis 11 geschmiert werden. Die Ölstellen 1,2 und 3 sind besonders wichtig!

Geeignetes Öl: Mobil D.T.E. Oil Medium. Dieses Öl ist in 0,5 l Behältern unter der Teil-Nr. G 28604 L, oder in 5 l Behältern unter der Teil-Nr. G 28604 L-5 von der UNION SPECIAL CORPORATION erhältlich.

REINIGEN

Reinigen Sie die Maschine periodisch von Flusen. Öffnen Sie dazu auch die Verschlussklappe (A, Fig.5) und das ge- lochte Abschußblech (B, Fig.5). Schließen Sie die Abdeckungen wieder.

ВНИМАНИЕ
Перед тем как изменить иглу, выключите из розетки штепсельный вил. Поверните рукоятку двигателя в направлении вращения иглы до тех пор, пока игла не окажется в высшем положении над иглодержателем. Выньте иглу из иглодержателя. Вставьте иглу до упора в иглодержатель так, чтобы плоская часть иглы была обращена вперед. Затяните винт (D) на игле на плоской части иглы и вставьте иглу в иглодержатель.

УХОД
Машина должна смазываться ежедневно в 11 местах, указанных на схеме смазки (рис. 5). Места смазки 1, 2 и 3 особенно важны!

Рекомендуемое масло: Mobil D.T.E. Oil Medium. Это масло можно приобрести у UNION SPECIAL CORPORATION в 0,5 л емкостях под номером G 28604 L, или в 5 л емкостях под номером G 28604 L-5.

ОЧИЩЕНИЕ
Периодически очищайте машину от пыли. Для этого также снимайте крышку (A, рис. 5) и выемную крышку (B, рис. 5). Закрывайте крышки.

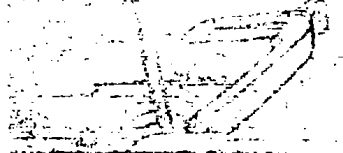
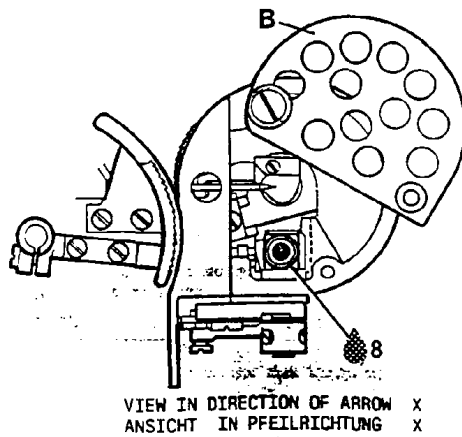
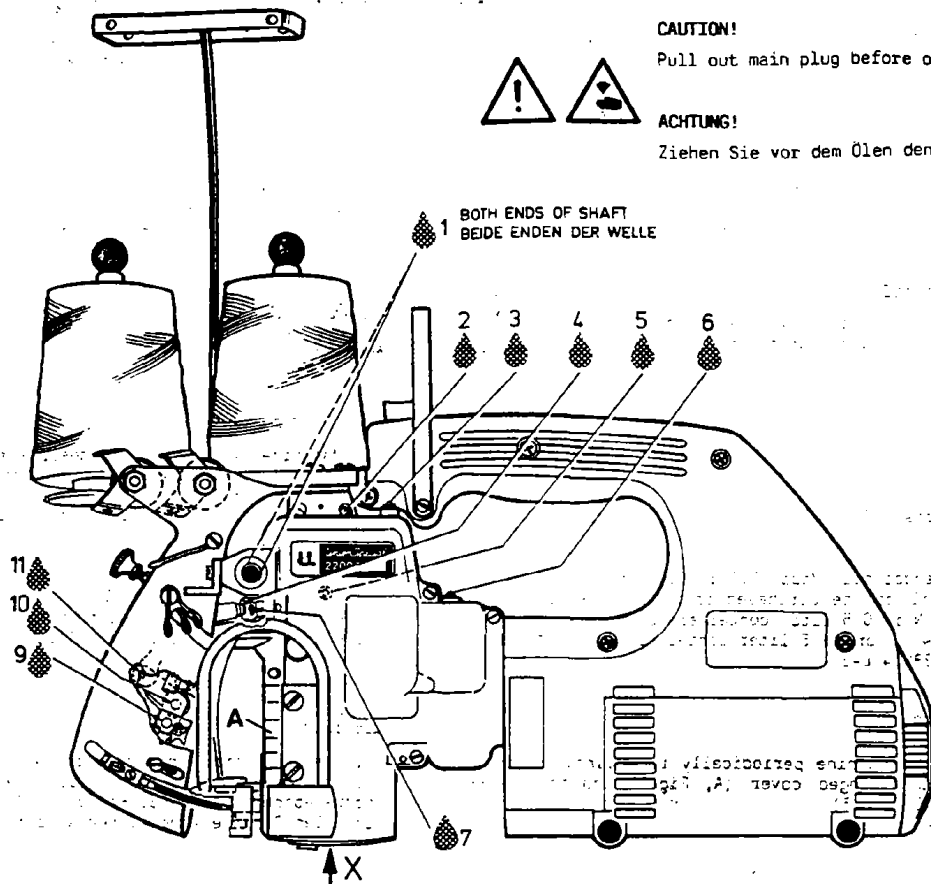


Fig. 5



IMPORTANT!

Lubricate oil spots 1 to 11 at least once a day!
 Spots 1,2 and 3 are especially important!

WICHTIG!

Ölen Sie die Ölstellen 1 bis 11 mindestens einmal täglich!
 Die Ölstellen 1,2 und 3 sind besonders wichtig!

Fig.5

INSTRUCTIONS FOR MECHANICS

MECHANIKERANLEITUNG

Observe the SAFETY RULES!



Beachten Sie die SICHERHEITS-HINWEISE

SETTING THE LOOPER

EINSTELLUNG DES GREIFERS

1. Looper for two-thread double locked stitch:

1. Greifer für Zweifaden-Doppelkettenstich:

Set the looper (A, Fig.6) so that the distance from the center of the needle (B) to the point of the looper is not less than 4 mm (5/32 inch), when the looper is at its farthest end position from the needle. Looper gauge No. 21225-4/4,4 can be used advantageously in making this setting.

Stellen Sie den Greifer (A, Fig.6) so, daß der Abstand von Nadelmitte (B) bis zur Greiferspitze nicht weniger als 4 mm beträgt, wenn der Greifer in der von der Nadel entferntesten Endstellung ist. Die Greifereinstell-Lehre Nr. 21225-4/4,4 erleichtert diese Einstellung.

2. Looper for single thread chain stitch:

2. Greifer für Einfaden-Einfachkettenstich:

Set the looper (A, Fig. 6A) so that the distance from the center of the needle (B) to the point of the looper is not less than 3,6 mm (9/64 in.) when the looper is at its farthest end position from the needle. Looper gauge No. 21225-9/64 can be used advantageously in making this setting.

Stellen Sie den Greifer (A, Fig. 6A) so, daß der Abstand von Nadelmitte (B) bis zur Greiferspitze nicht weniger als 3,6 mm beträgt, wenn der Greifer in der von der Nadel entferntesten Endstellung ist. Die Greifereinstell-Lehre Nr. 21225-9/64 erleichtert diese Einstellung.

If adjustment is required remove plug (C, Fig.7). Set screw for looper shaft is accessible through this hole. Loosen the screw and move the looper shaft to the right or to the left to obtain the 4 mm (5/32 in.) respectively the 3,6 mm (9/64 in.) dimension. Retighten screw and remount the plug.

Ist eine Einstellung notwendig, entfernen Sie den Verschlußstopfen (C, Fig.7). Durch diese Bohrung ist die Befestigungsschraube für die Greiferwelle zugänglich. Lösen Sie die Schraube und schieben Sie die Greiferwelle nach rechts oder links, bis der Abstand von 4 bzw. 3,6 mm erreicht ist. Ziehen Sie die Schraube wieder an und montieren Sie den Verschlußstopfen.

SETTING HEIGHT OF NEEDLE

EINSTELLUNG DER NADELHÖHE

The height of the needle is correct when the top of its eye is flush with the lower edge of the looper, when the looper moves to the left and its point is flush with the left side of the needle (see Fig.8).

Die Nadelhöhe ist richtig eingestellt, wenn sich Oberkante Nadelöhr und Unterkante Greifer decken, wenn der Greifer sich nach links bewegt und die Greiferspitze mit der linken Seite der Nadel bündig ist (siehe Fig. 8).

If adjustment is necessary, loosen set screw (D, Fig.7) and remove needle, then loosen lock nut (E) and regulate the height adjustment screw (F) to set the needle to the required height. Retighten lock nut (E) to maintain this setting.

Ist eine Einstellung notwendig, lösen Sie die Befestigungsschraube (D, Fig.7) und entfernen die Nadel, dann lösen Sie die Mutter (E) und regulieren die Höhen-Einstellschraube (F) entsprechend auf die richtige Nadelhöhe. Ziehen Sie die Mutter (E) wieder an, damit diese Einstellung erhalten bleibt.

SETTING THE LOWER FEED DOG

EINSTELLUNG DES UNTEREN TRANSPORTEURS

The lower feed dog is set correctly when its teeth rise slightly more than the depth of a full tooth (approx. 1,6 mm/1/16 inch) above the throat plate (see Fig.9). To raise or lower the feed dog loosen screw (A, Fig.10) and set the feed dog to the specified height. Retighten screw (A). Now reset stop screw (B) in feed dog to maintain the adjusted feed dog height.

Der untere Transporteur ist richtig eingestellt, wenn die Transporteurzähne die Stichplatte etwas mehr als eine volle Zahnhöhe (ca. 1,6 mm) überragen (siehe Fig.9). Zum Höher- oder Tieferstellen des Transporteurs lösen Sie die Schraube (A, Fig.10) und stellen den Transporteur auf die vorgeschriebene Höhe. Ziehen Sie die Schraube (A) wieder an. Nun stellen Sie die Anschlagsschraube (B) im Transporteur so, daß die eingestellte Transporteurhöhe erhalten bleibt.

NEEDLE GUARD

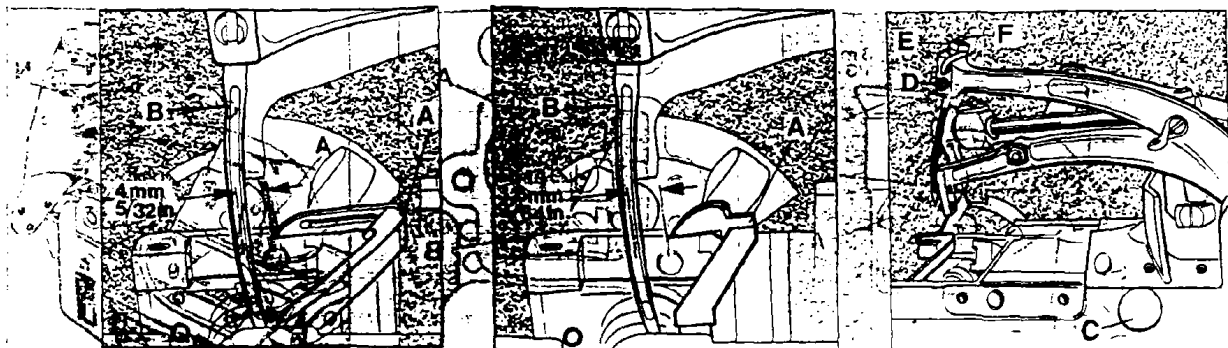
NADELANSCHLAG

Set the needle guard (C, Fig.10) so that it just touches the needle when it is at its most forward point of travel. To move guard forward or backward loosen screw (A) and move needle guard as required. Retighten screw.

Stellen Sie den Nadelanschlag (C, Fig.10) so, daß er die Nadel gerade leicht berührt, wenn er am vordersten Punkt seiner Bewegung steht. Zum Verstellen des Anschlags nach vorne oder hinten lösen Sie die Schraube (A) und stellen den Anschlag entsprechend ein. Ziehen Sie die Schraube wieder an.

NOTE: Screw (A) serves also to fasten the lower feed dog. Therefore make sure not to disturb the feed dog height when setting the needle guard.

BEACHTEN SIE: Mit der Schraube (A) wird gleichzeitig der untere Transporteur befestigt. Beachten Sie deshalb beim Einstellen des Nadelanschlags, daß die Transporteurhöhe nicht verändert wird.



St. p. Fig. 6

St. p. Fig. 6A

St. p. Fig. 7

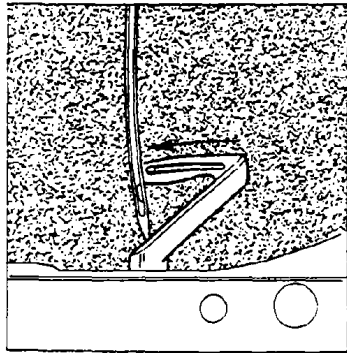


Fig. 8

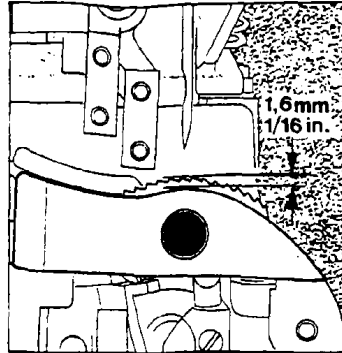


Fig. 9

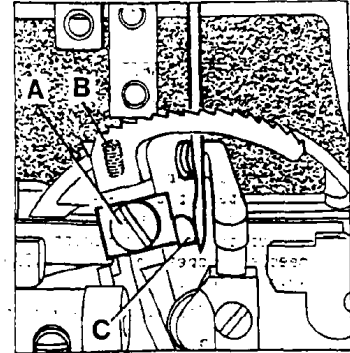


Fig. 10

SETTING OF THE KNIVES

1. **FIXED KNIFE**
Set the fixed knife (A, Fig. 11) so that its tip sits close to the underside of the throat plate (B). For adjustment loosen screw (C) and move knife up or down in its holder as required. Retighten screw.
2. **MOVING KNIFE**
Set the moving knife (D, Fig. 11) so that it just clears below the throat plate underside on its entire arc of travel. In the most open position of the knives the pilot (E) should overlap the fixed knife by 3 mm (1/8 inch). In cutting position of the knives the cutting edge of the moving knife should overlap the cutting edge of the fixed knife at least 1 mm (3/64 inch). For adjusting moving knife loosen screw (F) and set knife as required. Retighten screw.

STITCH LENGTH

To change the stitch length, remove the cover plate located below the serial number of the machine. Loosen lock nut (A, Fig. 12) and turn stitch length adjusting screw (B) clockwise to shorten the stitch or counterclockwise to lengthen it. After adjustment, retighten lock nut (A) and replace the cover plate.

VERY IMPORTANT
ANY CHANGE IN THE STITCH LENGTH WILL NECESSITATE A CHANGE IN THE NEEDLE GUARD SETTING.

THREAD GUIDES

Set the needle thread take-up (A, Fig. 13) so that the needle thread contacts the hook (A) just when the needle thread loop leaves the looper point.

The needle thread eyelet (B) is set correctly when the eyelet dips about 30° to the left.

The looper thread eyelet (C) controls the looper thread. It is set correctly when it takes up slack of the looper thread when the looper moves to the right.

EINSTELLUNG DER MESSER

1. **FESTSTEHENDES MESSER**
Stellen Sie das feststehende Messer (A, Fig. 11) so, daß seine Spitze an der Stichplattenunterseite (B) anliegt. Zum Einstellen lösen Sie die Schraube (C) und schieben das Messer im Halter nach Bedarf nach oben oder unten. Ziehen Sie die Schraube wieder an.
2. **BEWEGLICHES MESSER**
Stellen Sie das bewegliche Messer (D, Fig. 11) so, daß es innerhalb seiner Schwing-Bewegung unter der Stichplattenunterseite gerade freigeht. Der Führungzapfen (E) soll, in der am weitesten geöffneten Stellung der Messer, das feststehende Messer 3 mm überlappen. In Schneidstellung der Messer muß die Schneide des beweglichen Messers die Schneide des feststehenden Messers mindestens 1 mm überlappen. Zum Einstellen des beweglichen Messers lösen Sie die Schraube (F) und stellen das Messer entsprechend ein. Ziehen Sie die Schraube wieder an.

STICHLÄNGE

Zum Verändern der SticHLänge entfernen Sie den Deckel unter der Seriennummer der Maschine. Lösen Sie die Mutter (A, Fig. 12) und drehen die SticHLängenstellschraube (B) im Uhrzeigersinn um den Stich zu verkürzen oder im Gegenuhzeigersinn um ihn zu verlängern. Ziehen Sie die Mutter (A) nach dieser Einstellung wieder an und schrauben den Deckel wieder auf.

SEHR WICHTIG
BEI JEDER ÄNDERUNG DER STICHLÄNGE MUSS DER NADELANSCHLAG NEU EINGESTELLT WERDEN.

FADENFÜHRUNGEN

Stellen Sie den Nadelfadenzug (A, Fig. 13) so ein daß der Nadelfaden den Haken (A) berührt, wenn die Nadelfadenschlinge die Greiferspitze verläßt.

Die Nadelfadenführung (B) ist richtig eingestellt, wenn sie etwa 30° nach links geneigt steht.

Die Greiferfadenführung (C) kontrolliert den Greiferfaden. Sie ist richtig eingestellt, wenn der lose Greiferfaden bei der Bewegung des Greifers nicht nach rechts genommen wird.

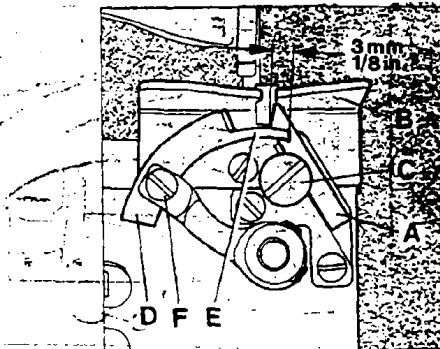


Fig. 11

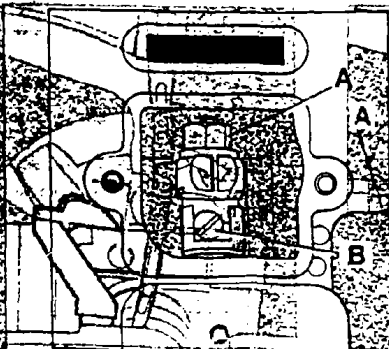


Fig. 12

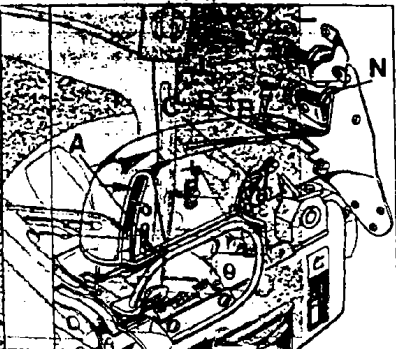
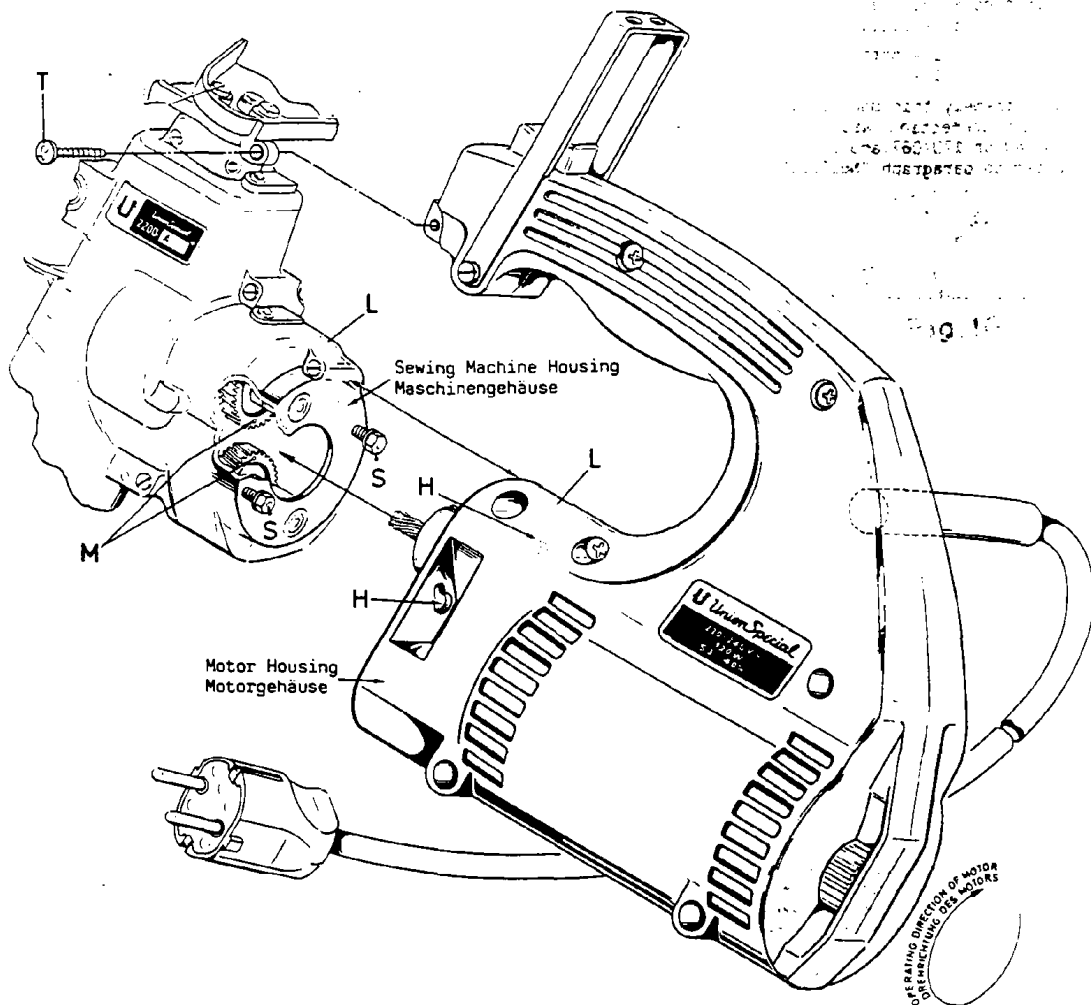


Fig. 13

DISASSEMBLING AND ASSEMBLING THE MOTOR
 ABBAU UND ANBAU DES MOTORS



CAUTION!

Pull out the mains plug before disassembling or assembling the motor!



VORSICHT!

Ziehen Sie den Netzstecker bevor Sie den Motor ab- oder anbauen!



DISASSEMBLING THE MOTOR FROM THE SEWING MACHINE

1. Remove screw (T).
2. Loosen screw (S).
3. Hold the sewing machine, turn the motor clockwise (↻) until it stops and pull it out of the sewing machine.

ABBAU DES MOTORS VON DER NÄHMASCHINE

1. Entfernen Sie die Schraube (T).
2. Lösen Sie die Schrauben (S).
3. Halten Sie die Nähmaschine fest, drehen Sie am Motor im Uhrzeigersinn (↻) bis zum Anschlag und ziehen Sie ihn aus der Nähmaschine.

ASSEMBLING THE MOTOR TO THE SEWING MACHINE

1. Turn the gears until the marks (M) on both gears are opposite to each other, as shown, before inserting the pinion of the motor.
2. Align the two holes (H) in the motor housing with the hex. head cap screws (S) in the sewing machine and push motor and sewing machine together.
3. Hold the sewing machine and turn the motor counterclockwise (↺) until the parting lines (L) of the housing halves on motor and sewing machine are aligned. Tighten screws (S).
4. Fasten the thread cone support with screw (T) on the handle of the motor housing.

ANBAU DES MOTORS AN DIE NÄHMASCHINE

1. Drehen Sie die Zahnräder bis sich die Markierungen (M) auf beiden Zahnrädern, wie gezeigt, gegenüberstehen, bevor das Ritzel des Motors eingeschoben wird.
2. Richten Sie die beiden Bohrungen (H) im Motorgehäuse zu den beiden Sechskantschrauben (S) in der Nähmaschine aus und schieben Sie Motor und Nähmaschine zusammen.
3. Halten Sie die Nähmaschine fest und drehen Sie den Motor soweit im Gegenuhrzeigersinn (↺) bis die Trennlinien (L) der Gehäusehälften von Motor und Nähmaschine in einer Linie sind. Ziehen Sie die Schrauben (S) an.
4. Befestigen Sie den Garnrollenträger mit der Schraube (T) am Handgriff des Motorgehäuses.

ORDERING REPAIR PARTS

ILLUSTRATIONS

The following section of this manual simplifies ordering spare and repair parts. Exploded views of various sections of the mechanism are shown so that the parts may be seen in their actual position in the sewing machine. On the page opposite the illustration will be found a listing of the parts with their part numbers, descriptions and the number of pieces required in the particular view being shown.

Numbers in the first column are reference numbers only, and merely indicate the position of that part in the illustration. Reference numbers should never be used in ordering parts. Always use the part number listed in the second column.

Component parts of sub-assemblies which can be furnished for repairs are indicated by indenting their descriptions under the description of the main sub-assembly.

At the back of the manual will be found a numerical index of all parts shown in this manual. This will facilitate locating the illustration and description when only the part number is known.

IMPORTANT! ON ALL ORDERS, PLEASE INCLUDE PART NUMBER, PART NAME, QUANTITY REQUIRED AND STYLE OF MACHINE FOR WHICH PART IS ORDERED.

BESTELLUNG VON ERSATZTEILEN

ABBILDUNGEN

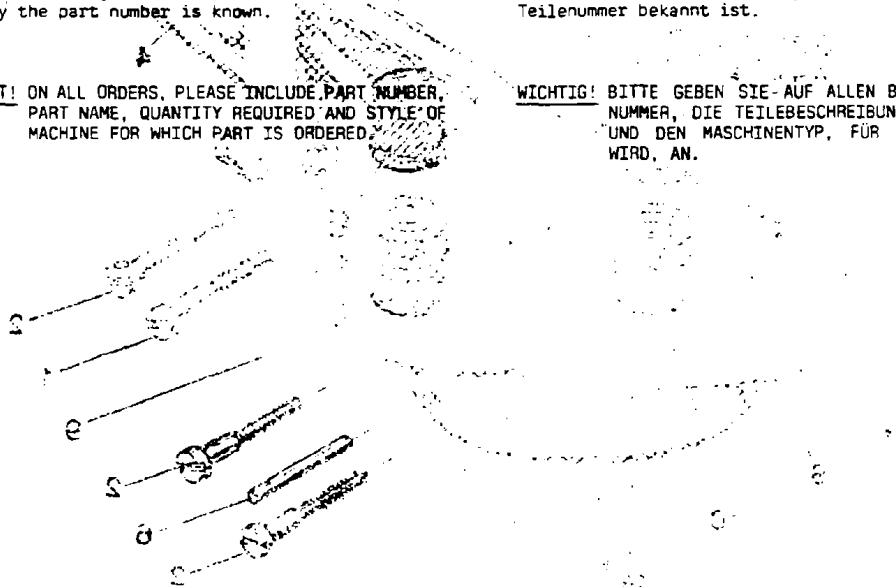
Der folgende Teil dieses Handbuches vereinfacht die Bestellung von Verschleiß- und Ersatzteilen. Explosionszeichnungen der einzelnen Gruppen des Mechanismus zeigen die Lage der Einzelteile in der Nähmaschine. Auf der der Bildseite gegenüberliegenden Seite befindet sich ein Verzeichnis der Teile mit Teilnummern, Beschreibungen und der für den gezeigten Bildausschnitt benötigten Anzahl.

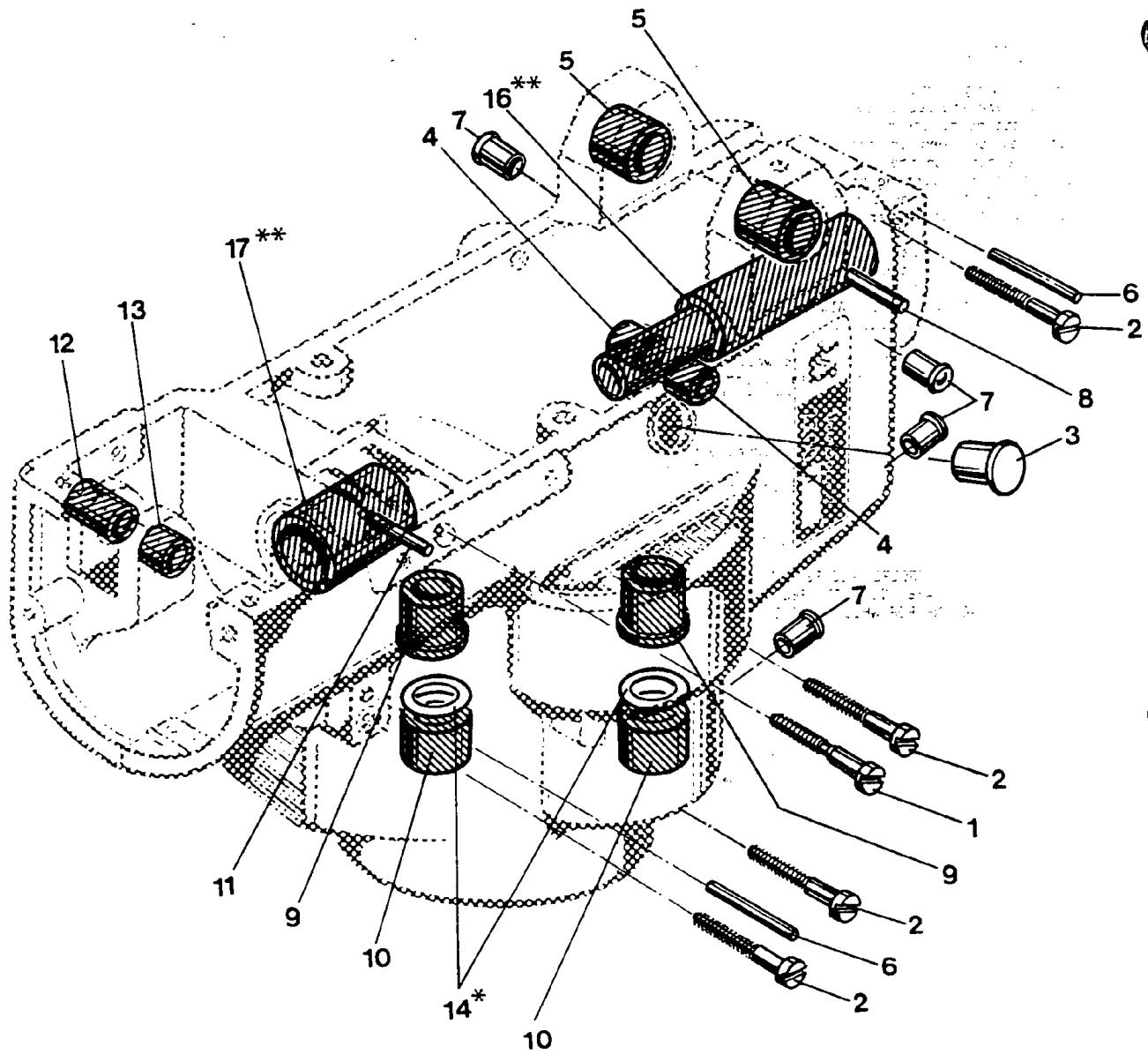
Die Nummern in der ersten Spalte sind Positionsnummern und zeigen lediglich, wo das Teil in der Abbildung zu finden ist. Positionsnummern dürfen bei Teilebestellungen nie verwendet werden. Verwenden Sie immer die Teilnummer in der zweiten Spalte.

Einzelteile von Kompletteilen, die als Ersatzteile geliefert werden können, sind durch Einrücken ihrer Beschreibung unterhalb der Beschreibung des Kompletteiles gekennzeichnet.

Am Ende des Handbuches befindet sich ein Nummernverzeichnis sämtlicher im Handbuch dargestellter Teile. Dies erleichtert das Auffinden der Abbildung und Beschreibung, wenn nur die Teilnummer bekannt ist.

WICHTIG! BITTE GEBEN SIE AUF ALLEN BESTELLUNGEN DIE TEILNUMMER, DIE TEILEBESCHREIBUNG, DIE BENÖTIGTE MENGE UND DEN MASCHINENTYP, FÜR DEN DAS TEIL BESTELLT WIRD, AN.





HOUSING ASSEMBLY, BUSHINGS FOR LOOPER SHAFT
 GEHÄUSE KOMPLETT, BUCHSEN FÜR GREIFERWELLE

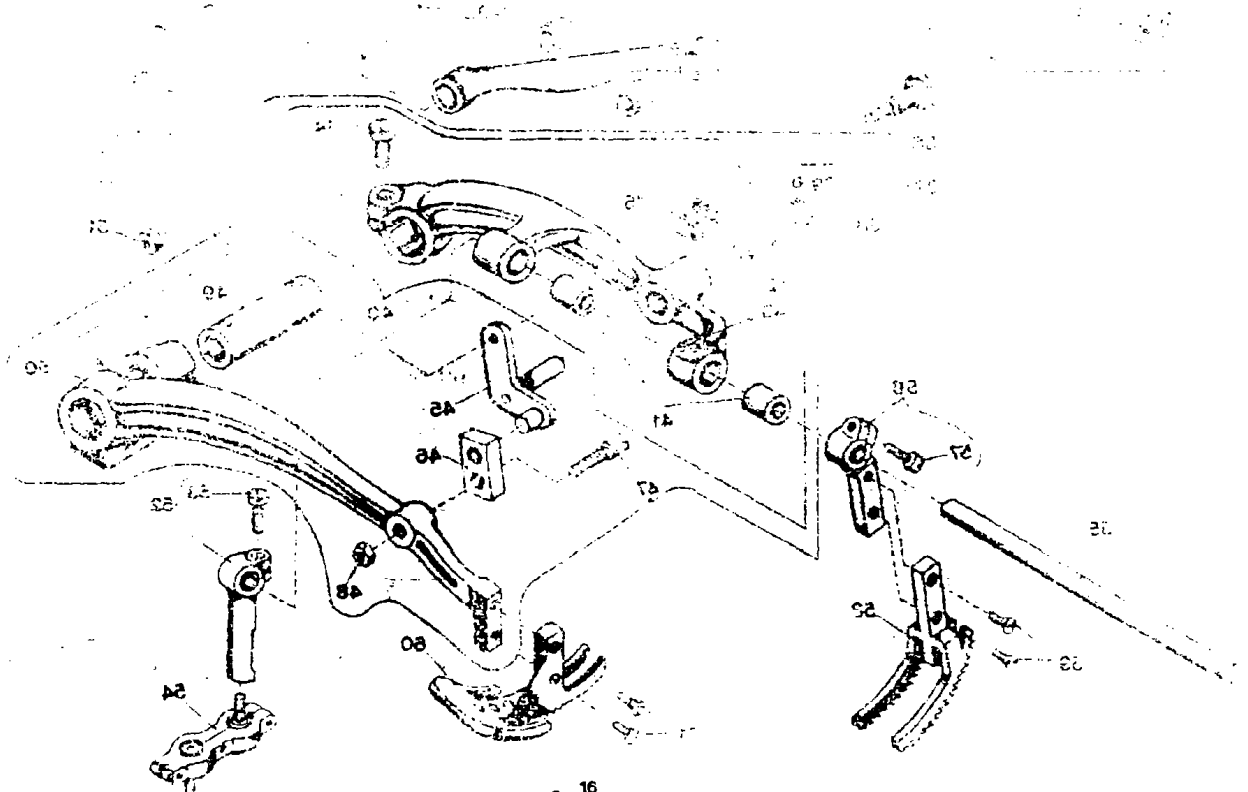
Ref. No.	Part No.	Description	Beschreibung	Amt. Req.
Pos. Nr.	Teil-Nr.			Anzahl
1 - 15	2129 B	Housing Assembly	Gehäuse komplett	1
1	99266 A	Shoulder Screw	Ansatzschraube	1
2	99266	Shoulder Screw (for screwing together the housing halves)	Ansatzschraube (zum Zusammenschrauben der Gehäusehälften)	4
3	999-104 A	Plug	Verschlußstopfen	1
4	2192	Bushing	Buchse	2
5	2190	Bushing	Buchse	2
6	96511	Parallel Pin	Zylinderstift	2
7	G 41046 G	Spring Valve Oiler	Kugelöler	4
8	76099 D	Parallel Pin	Zylinderstift	1
9	2195 N	Bushing	Buchse	2
10	2194	Bushing	Buchse	2
11	96523	Parallel Pin	Zylinderstift	1
12	2193	Bushing	Buchse	1
13	2193 A	Bushing	Buchse	1
14 *	2165 D-0.1	Shim Ring, 0.1 mm (.004 in.) thick	Paßscheibe, 0.1 mm dick	2
	2165 D-0.2	Shim Ring, 0.2 mm (.008 in.) thick	Paßscheibe, 0.2 mm dick	2
	2165 D-0.3	Shim Ring, 0.3 mm (.012 in.) thick	Paßscheibe, 0.3 mm dick	2
	2165 D-0.5	Shim Ring, 0.5 mm (.020 in.) thick	Paßscheibe, 0.5 mm dick	2
	2165 D-1.0	Shim Ring, 1.0 mm (.040 in.) thick	Paßscheibe, 1.0 mm dick	2
15 *	DA 2198	Assembling Instructions for shim rings	Montage-Anleitung für Paß- scheiben	1
16 **	2140 N	Bushing for looper shaft	Buchse für Greiferwelle	1
17 **	2191	Bushing for looper shaft	Buchse für Greiferwelle	1

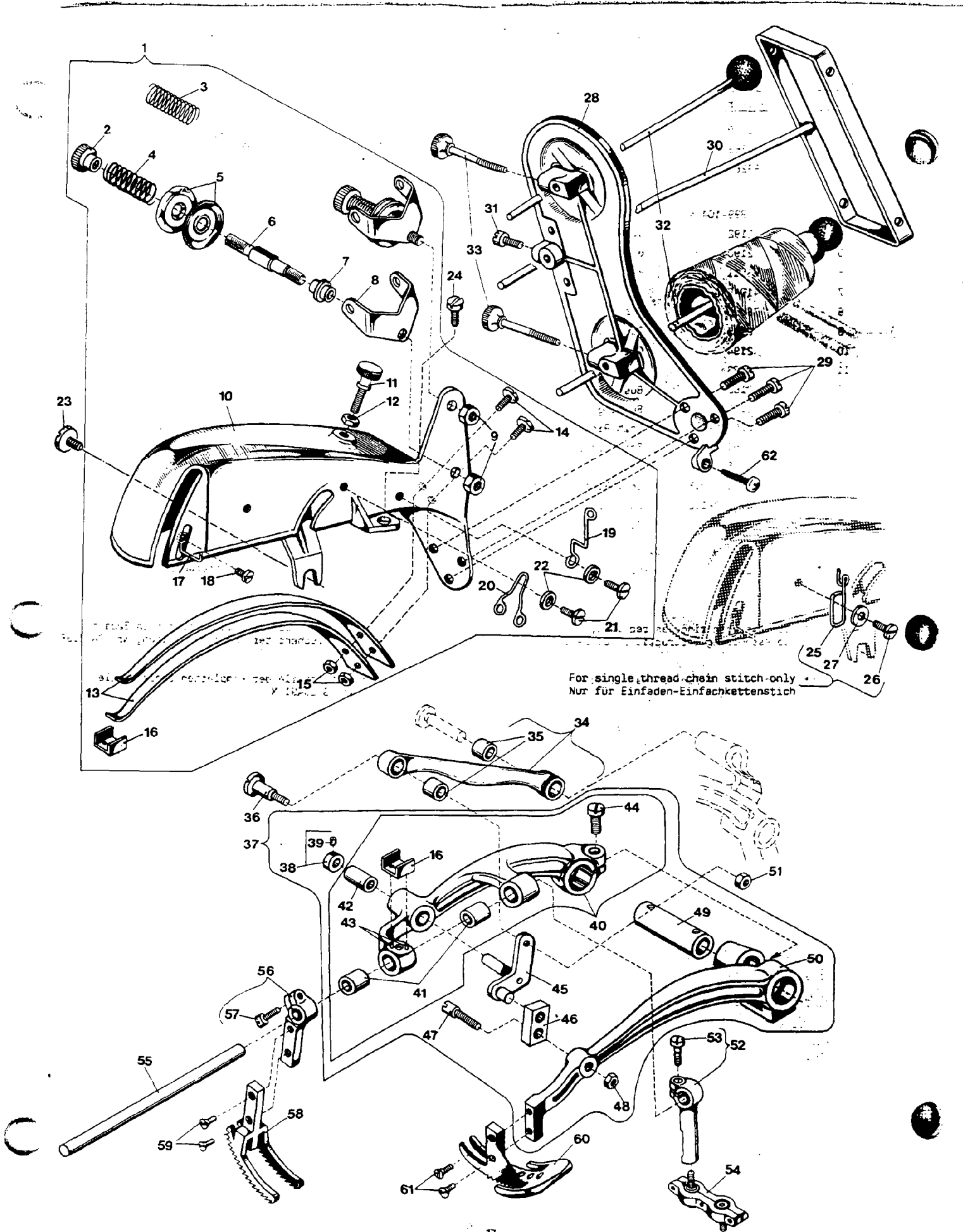
* Use the shim rings as required, according to Assembling Instructions No. DA 2198

* Verwenden Sie die Paßscheiben nach Bedarf entsprechend der Montage-Anleitung Nr. DA 2198

** Components of looper shaft assembly
 No. G 29491 N

** Bestandteile der kompletten Greiferwelle
 Nr. G 29491 N

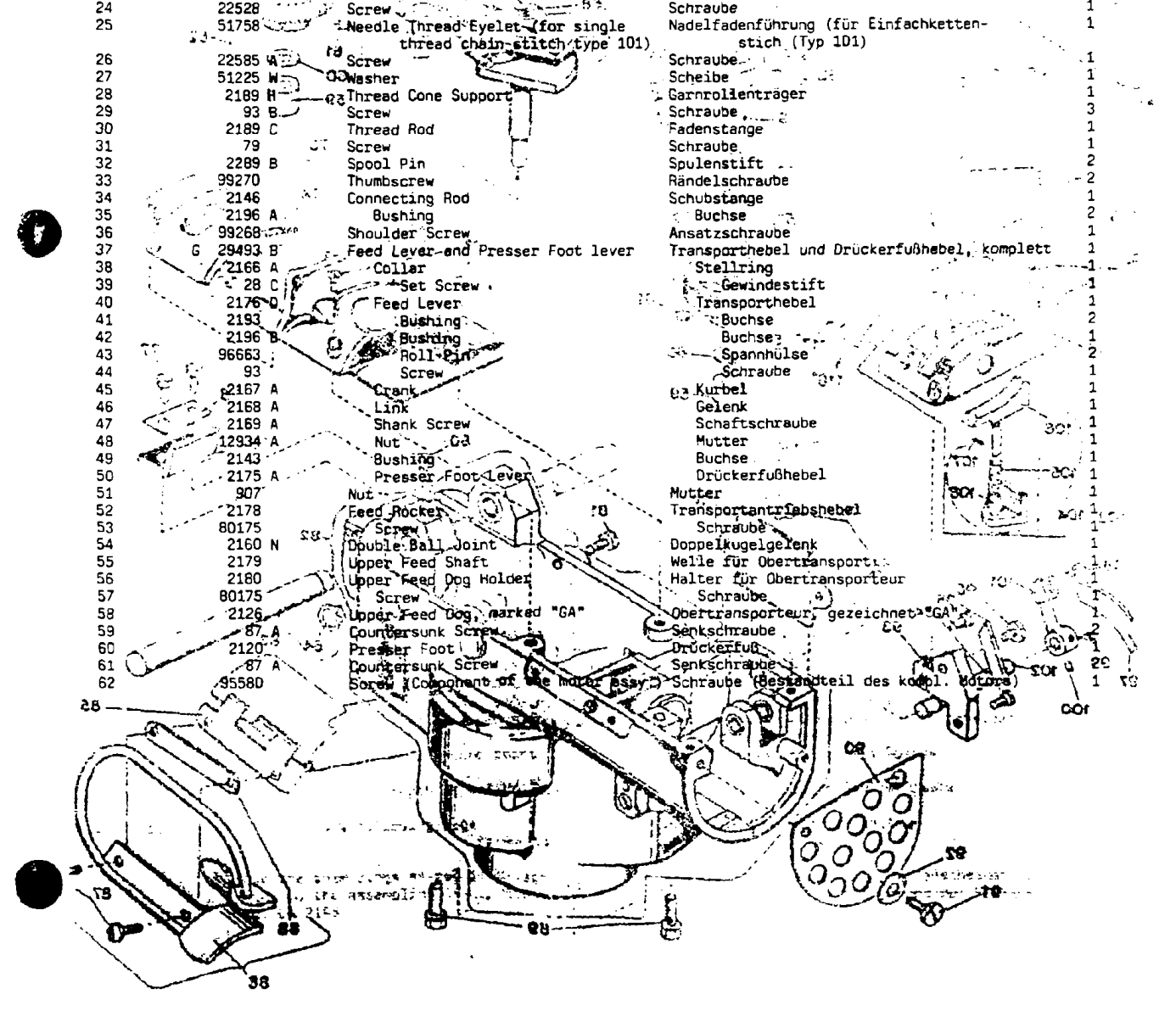




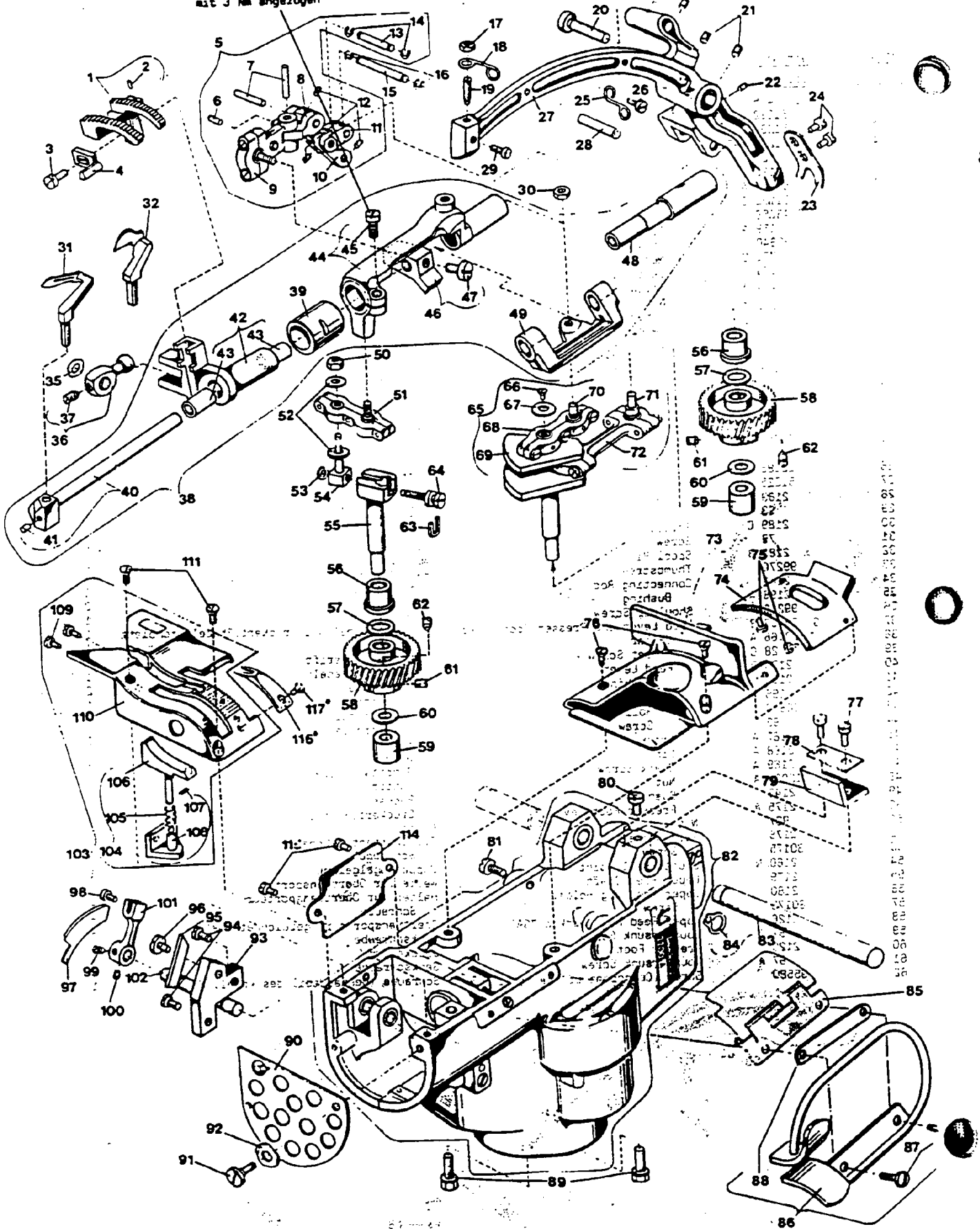
COVER ASSEMBLY, THREAD CONE SUPPORT, UPPER FEED DRIVE MECHANISM, PRESSER FOOT LEVER, UPPER FEED DOG, PRESSER FOOT, THREAD GUIDES

ABDECKUNG KOMPLETT, GARNROLLENTRÄGER, OBERTRANSPORTANTRIEB, DRÜCKERFUSSHEBEL, OBERTRANSPORTEUR, DRÜCKERFUSS, FADENFÜHRUNGEN

Ref.No.	Part No.	Description	Beschreibung	Amt. Req.
Pos.Nr.	Teil Nr.			Anzahl
1	G 29496	Cover Assembly	Abdeckung komplett	1
2	51292 C	Tension Nut	Fadenspannungsmutter	2
3	51292 F-1	Tension Spring for Looper Thread	Spannungsfeder für Greiferfaden	1
4	51292 F-8	Tension Spring for Needle Thread	Spannungsfeder für Nadelfaden	1
5	109	Tension Disc	Fadenspannungsscheibe	4
6	2186	Tension Post	Fadenspannungsbolzen	2
7	51292 A	Tension Post Ferrule	Fadenspannungshülse	2
8	51192 G	Tension Eyelet	Fadenführung	2
9	G 43266	Nut	Mutter	2
10	2159 A	Cover	Abdeckung	1
11	93640	Thumbscrew	Rändelschraube	1
12	41071 G	Nut	Mutter	1
13	2163	Leaf Spring	Blattfeder	2
14	G 22585 A	Screw	Schraube	2
15	41071 G	Nut	Mutter	2
16	2176 B	Spring Rest	Federauflage	1
17	2158 A	Needle Thread Take-up	Nadelfadenabzug	1
18	87 U	Screw	Schraube	1
19	2158 D	Needle Thread Eyelet	Nadelfadenführung	1
20	2158 C	Looper Thread Eyelet	Greiferfadenführung	1
21	22585 A	Screw	Schraube	2
22	95954	Washer	Scheibe	2
23	22585 B	Screw	Schraube	1
24	22528	Screw	Schraube	1
25	51758	Needle Thread Eyelet for single thread chain-stitch type 101	Nadelfadenführung (für Einfachkettenstich (Typ 101))	1
26	22585 A	Screw	Schraube	1
27	51225 W	Washer	Scheibe	1
28	2189 H	Thread Cone Support	Garnrollenträger	1
29	93 B	Screw	Schraube	3
30	2189 C	Thread Rod	Fadenstange	1
31	79	Screw	Schraube	1
32	2289 B	Spool Pin	Spulenstift	2
33	99270	Thumbscrew	Rändelschraube	2
34	2146	Connecting Rod	Schubstange	1
35	2196 A	Bushing	Buchse	2
36	99268	Shoulder Screw	Ansatzschraube	1
37	G 29493 B	Feed Lever and Presser Foot lever	Transporthebel und Druckerfußhebel, komplett	1
38	2166 A	Collar	Stelling	1
39	28 C	Set Screw	Gewindestift	1
40	2176 Q	Feed Lever	Transporthebel	1
41	2193	Bushing	Buchse	2
42	2196 B	Bushing	Buchse	1
43	96663	Roll Pin	Spannhülse	2
44	93	Screw	Schraube	1
45	2187 A	Crank	Kurbel	1
46	2168 A	Link	Gelenk	1
47	2169 A	Shank Screw	Schaftschraube	1
48	12934 A	Nut	Mutter	1
49	2143	Bushing	Buchse	1
50	2175 A	Presser Foot Lever	Druckerfußhebel	1
51	907	Nut	Mutter	1
52	2178	Feed Rocker	Transportantriebshebel	1
53	80175	Screw	Schraube	1
54	2160 N	Double Ball Joint	Doppelkugelgelenk	1
55	2179	Upper Feed Shaft	Welle für Obertransporteur	1
56	2180	Upper Feed Dog Holder	Halter für Obertransporteur	1
57	80175	Screw	Schraube	1
58	2126	Upper Feed Dog, marked "GA"	Obertransporteur, gezeichnet "GA"	1
59	87 A	Countersunk Screw	Senkschraube	1
60	2120	Presser Foot	Druckerfuß	1
61	87 A	Countersunk Screw	Senkschraube	1
62	95580	Screw (Component of the motor assy)	Schraube (Bestandteil des kompl. Motors)	1



Torque to 3 Nm (26,5 in.lbs.)
mit 3 Nm angezogen



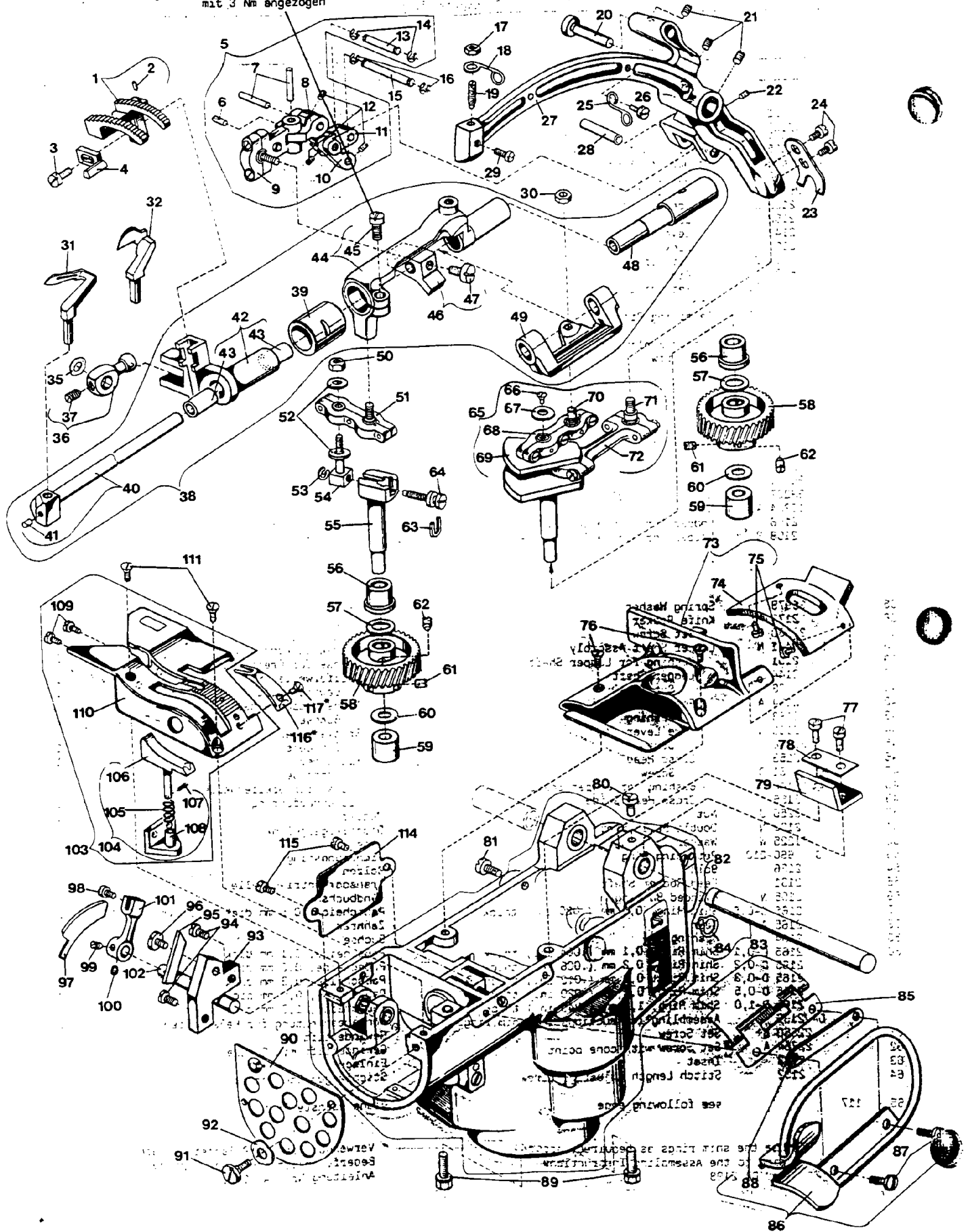
HOUSING, CRANKSHAFT, NEEDLE-, LOOPER-, FEED- AND CHAINCUTTER DRIVE MECHANISM, FEED DOG, LOOPER, THROAT PLATE, COVERS
 GEHÄUSE, KURBELWELLE, NADEL-, GREIFER-, TRANSPORT- UND KETTENABSCHNEIDERANTRIEB, TRANSPORTEUR, GREIFER, STICHPLATTE, ABDECKUNGEN

Ref.No. Pos.Nr.	Part No. Teil Nr.	Description	Beschreibung	Amt.Req. Anzahl
1	2105	Feed Dog	Transporteur	1
2	99277	Set Screw	Gewindestift	1
3	80175	Screw	Schraube	1
4	2125	Needle Guard, marked "TS"	Nadelanschlag, gezeichnet "TS"	1
5	G 29492	Looper Drive Assembly	Greiferantrieb komplett	1
6	73 C	Set Screw	Gewindestift	1
7	96502	Parallel Pin	Zylinderstift	1
8	2152 B	Connection	Gelenkstück	1
9	2152	Ball Joint	Kugelgelenk	1
10	2142	Lever for Looper Drive	Hebel für Greiferantrieb	1
11	2151	Link	Gelenk	1
12	28 C	Set Screw	Gewindestift	3
13	96602	Pin	Stift	1
14	G 660-210	Retaining Ring	Sicherungsring	2
15	96803	Pin	Stift	2
16	G 660-210	Retaining Ring	Sicherungsring	2
17	41071 G	Nut	Mutter	1
18	2158 E	Thread Eyelet	Fadenöse	1
19	22575	Set Screw	Gewindestift	1
20	2177	Bolt	Bolzen	1
21	88 B	Set Screw	Gewindestift	3
22	28 C	Set Screw	Gewindestift	1
23	2145 A	Guide	Führung	1
24	28	Screw	Schraube	2
25	2158 B	Thread Eyelet	Fadenöse	1
26	22768	Screw	Schraube	1
27	2115	Needle Lever	Nadelhebel	1
28	96501	Parallel Pin	Zylinderstift	1
29	99267	Screw for Needle	Schraube für Nadel	1
30	12934 A	Nut	Mutter	1
31	2108	Looper for Double Locked Stitch (type 401)	Greifer für Doppelkettenstich (Typ 401)	1
32	2108 B	Looper for Single Thread Chainstitch (type 101)	Greifer für Einfachkettenstich (Typ 101)	1

35	95979	Spring Washer	Federscheibe	1
36	2173 A	Knife Rocker	Messerantriebshebel	1
37	22560 B	Set Screw	Gewindestift	1
38	G 29491 N	Looper Shaft Assembly	Greiferwelle komplett	1
39	2191	Bushing for Looper Shaft	Buchse für Greiferwelle	1
40	2144	Looper Shaft	Greiferwelle	1
41	88 B	Set Screw	Gewindestift	1
42	2134 A	Feed Dog Holder	Transporteurhalter	1
43	2193	Bushing	Buchse	2
44	2135 N	Yoke Lever	Brückenhebel	1
45	22596	Screw	Schraube	1
46	2153	Cross Head	Mitnehmer	1
47	61 D	Screw	Schraube	1
48	2140 N	Bushing for Looper Shaft	Buchse für Greiferwelle	1
49	2156	Cross Head Guide	Mitnehmerführung	1
50	39250 J	Nut	Mutter	1
51	2139 N	Double Ball Joint	Doppelkugelgelenk	1
52	31225 W	Washer	Scheibe	2
53	G 660-210	Retaining Ring	Sicherungsring	1
54	2136	Bolt	Bolzen	1
55	2131	Feed Rocker Shaft	Transportantriebswelle	1
56	2195 N	Flanged Bushing	Bundbuchse	2
57	2165 C-0.5	Shim Ring, 0.5 mm (.020 in.) thick	Paßscheibe, 0,5 mm dick	2
58	2165 A	Gear	Zahnrad	2
59	2194	Bushing	Buchse	2
60	2165 D-0.1	Shim Ring, 0.1 mm (.004 in.) thick	Paßscheibe, 0,1 mm dick	2
	2165 D-0.2	Shim Ring, 0.2 mm (.008 in.) thick	Paßscheibe, 0,2 mm dick	2
	2165 D-0.3	Shim Ring, 0.3 mm (.012 in.) thick	Paßscheibe, 0,3 mm dick	2
	2165 D-0.5	Shim Ring, 0.5 mm (.020 in.) thick	Paßscheibe, 0,5 mm dick	2
	2165 D-1.0	Shim Ring, 1.0 mm (.040 in.) thick	Paßscheibe, 1,0 mm dick	2
	2198	Assembling Shim Rings	Montageanleitung für Paßscheiben	1
61	22560 B	Set Screw	Gewindestift	2
62	22764 A	Set Screw with cone point	Gewindestift mit Spitze	2
63	2193	Inset	Einlage	1
64	2132	Stitch Length Adjusting Screw	Stichlängen-Steilschraube	1

81 117 see following page
 82 Use the shim rings as required, according to the Assembling Instructions DA 2198
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Torque to 3 Nm (26,5 in.lbs.)
mit 3 Nm angezogen

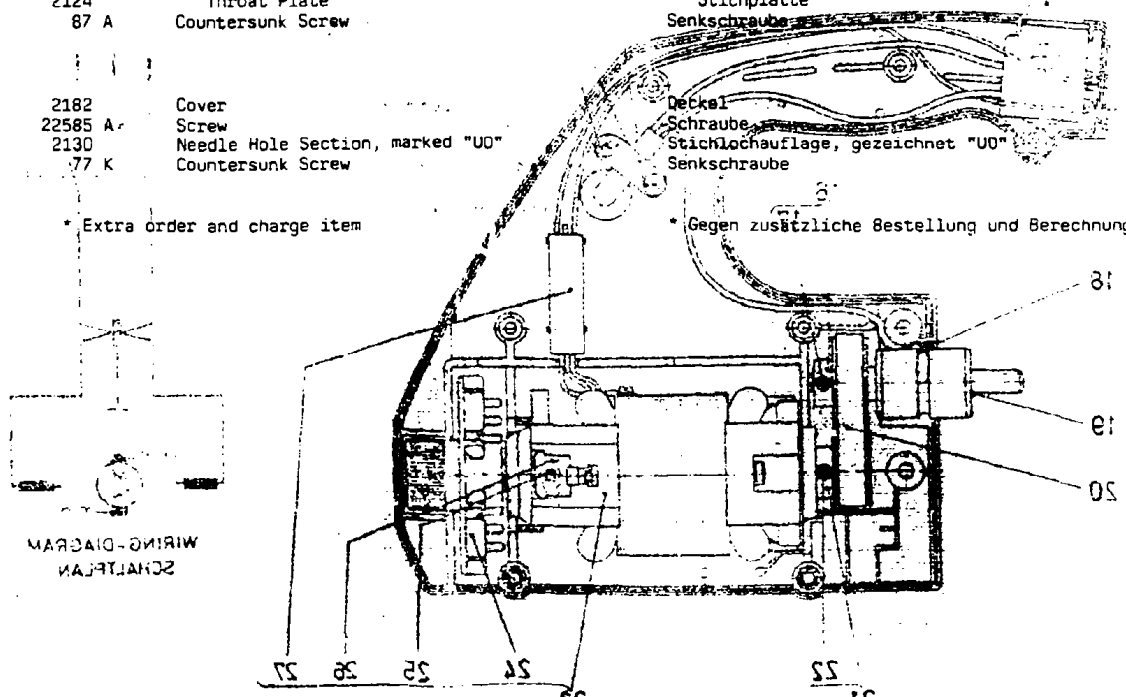


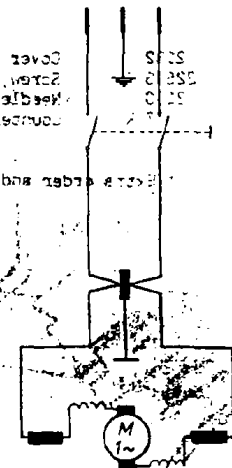
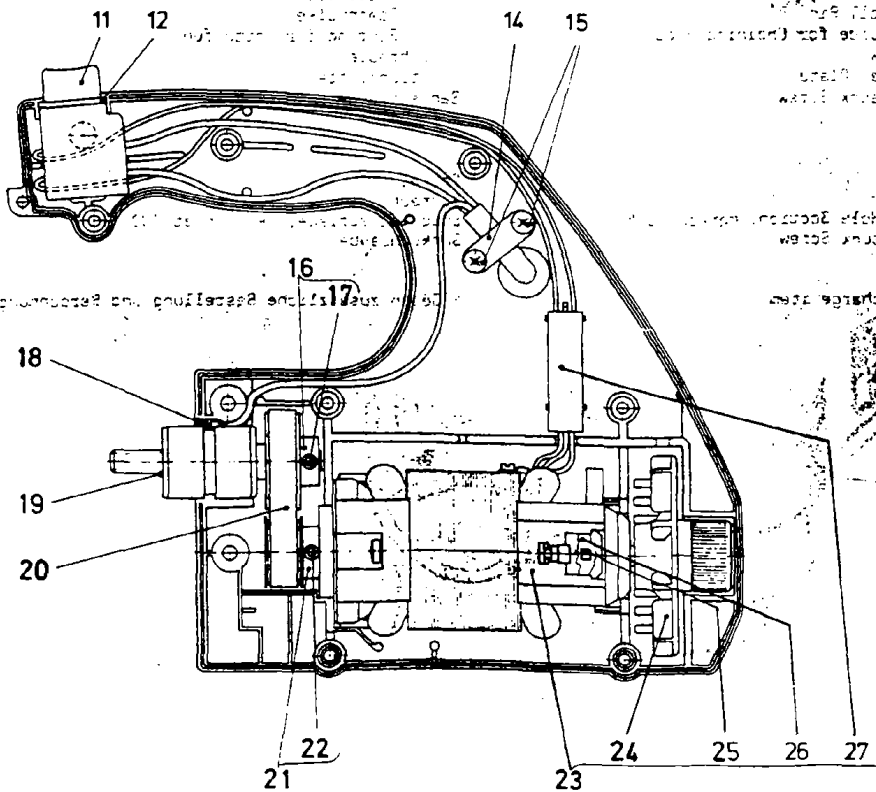
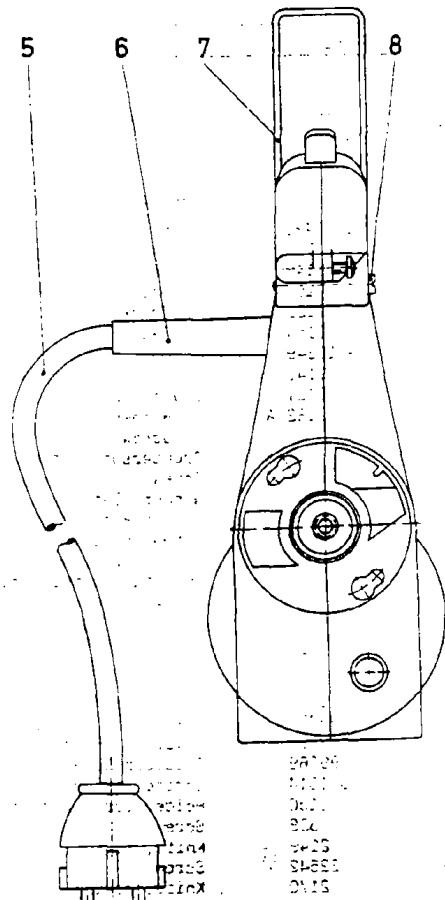
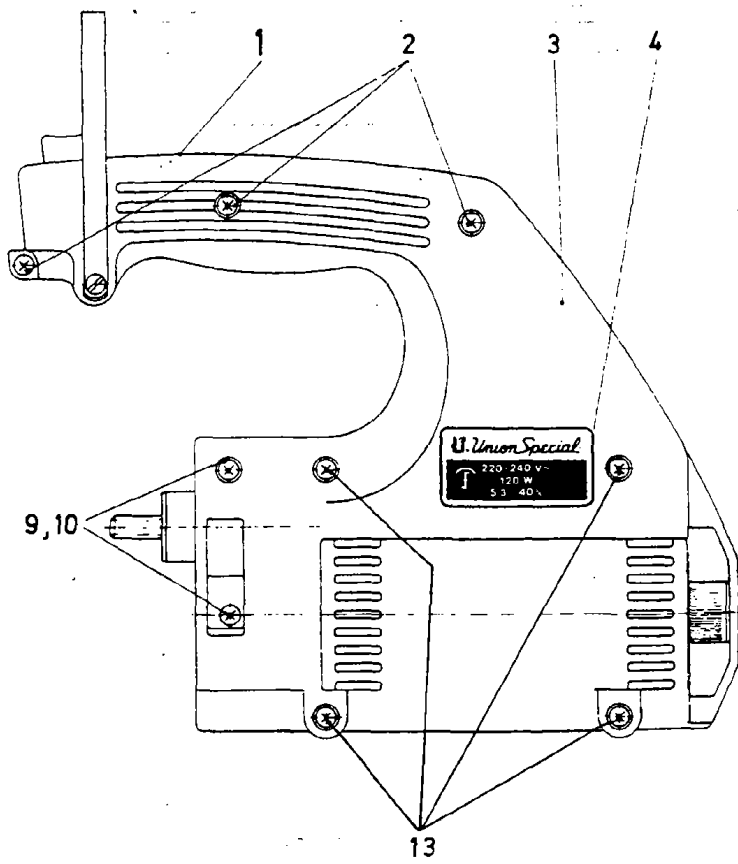
HOUSING, CRANKSHAFT, NEEDLE-, LOOPER-, FEED- AND CHAINCUTTER DRIVE MECHANISM, FEED DOG, LOOPER, THROAT PLATE, COVERS
 GEHÄUSE, KURBELWELLE, NADEL-, GREIFER-, TRANSPORT-KETTENABSCHNEIDERANTRIEB, TRANSPORTEUR, GREIFER, STICHPLATTE, ABDECKUNGEN

Ref.No. Pos.Nr.	Part No. Teil Nr.	Description	Beschreibung	Amt. Req. Anzahl
1-64		see preceding page	siehe vorhergehende Seite	
65	G 29490	Crank Shaft Assembly	Kurbelwelle komplett	1
66	22561	Screw	Schraube	1
67	2148	Washer	Scheibe	1
68	2155	Double Ball Joint	Doppelkugelgelenk	1
69	2122	Crank Shaft	Kurbelwelle	1
70	2154	Ball Stud	Kugelschraube	1
71	G 10349	Ball Stud	Kugelschraube	1
72	2145	Double Link Bearing	Doppellager	1
73	2101	Cover Assembly	Abdeckung komplett	1
74	2182 A	Rubber Plate	Abdeckgummi	1
75	28	Screw	Schraube	2
76	87 A	Countersunk Screw	Senkschraube	2
77	22585	Screw	Schraube	2
78	2182 C	Washer Plate	Unterlegplatte	1
79	2182 B	Rubber Plate	Abdeckgummi	1
80	22528	Screw for Cover	Schraube für Abdeckung	1
81	22585 B	Screw for Cover	Schraube für Abdeckung	1
82	2129 B	Housing Assembly, components see page	Gehäuse komplett, Einzelteile siehe Seite	1
83	2141	Needle Lever Shaft	Nadelhebelwelle	1
84	96256	Retaining Ring	Sicherungsring	1
85	2157	Hinged Cover	Verschlußklappe	1
86	2203 E	Bag Feed-in-Guide and Finger Guard	Sackeinführung und Fingerabweiser	1
87	22585 B	Screw	Schraube	2
88	2103 AC	Washer Plate	Unterlegplatte	1
89	99373	Hex. Head Cap Screw	Sechskantschraube	2
90	2183	Cover, punched	Abschlußblech, gelocht	1
91	99269	Shoulder Screw	Ansatzschraube	1
92	J 1614	Spring Washer	Federscheibe	1
93	2150	Holder for fixed knife	halter für feststehendes Messer	1
94	538	Screw	Schraube	2
95	2149	Knife, fixed	Messer, feststehend	1
96	22542	Screw	Schraube	1
97	2170	Knife, moving	Messer, beweglich	1
98	73	Screw	Schraube	1
99	22764	Set Screw with cone point	Gewindestift mit Spitze	1
100	88	Set Screw	Gewindestift	1
101	2171	Knife Lever	Messerhebel	1
102	2172 D	Shaft for Knife Lever	Welle für Messerhebel	1
103	G 29497	Throat Plate and Chaining Block Assembly	Stichplatte mit Kettelfuß komplett	1
104	2127	Chaining Block Assembly	Kettelfuß komplett	1
105	2127 C	Spring	Feder	1
106	2127 A	Chaining Block	Kettelfuß	1
107	96650	Roll Pin	Spannhülse	1
108	2127 B	Guide for Chaining Block	Führung für Kettelfuß	1
109	87 U	Screw	Schraube	2
110	2124	Throat Plate	Stichplatte	1
111	87 A	Countersunk Screw	Senkschraube	2
114	2182	Cover	Deckel	1
115	22585 A	Screw	Schraube	2
116*	2130	Needle Hole Section, marked "U0"	Stichlochauflage, gezeichnet "U0"	1
117*	77 K	Countersunk Screw	Senkschraube	1

* Extra order and charge item

* Gegen zusätzliche Bestellung und Berechnung





WIRING-DIAGRAM
SCHALTPLAN

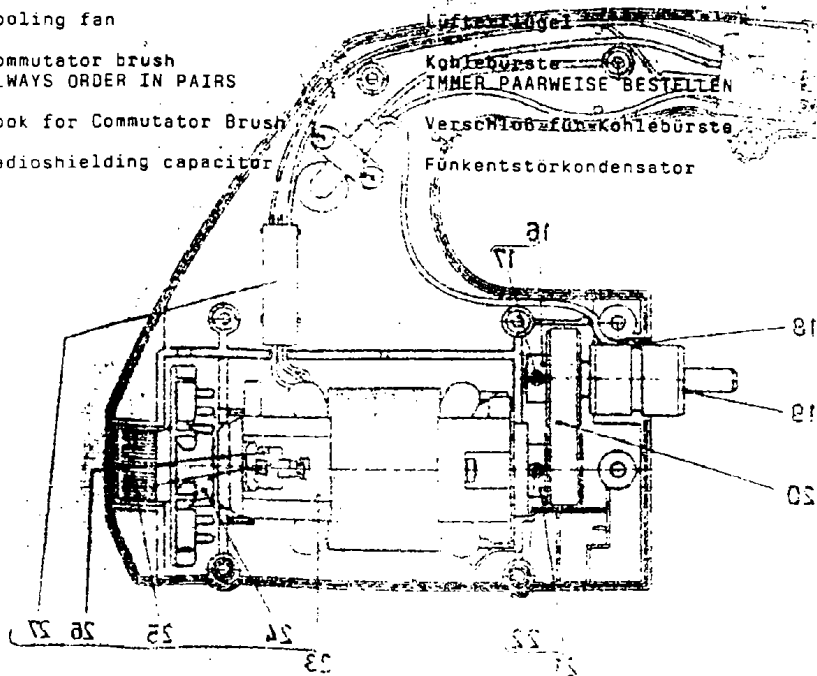
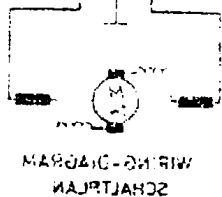
MOTOR ASSEMBLY PART NO. 29929 A (220-240 V/50-60 Cycles) STYLES 2200 A, AA

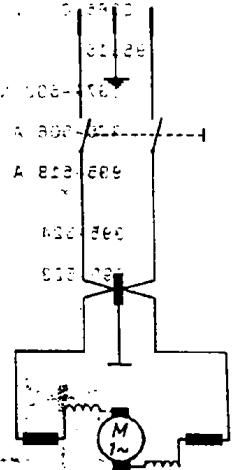
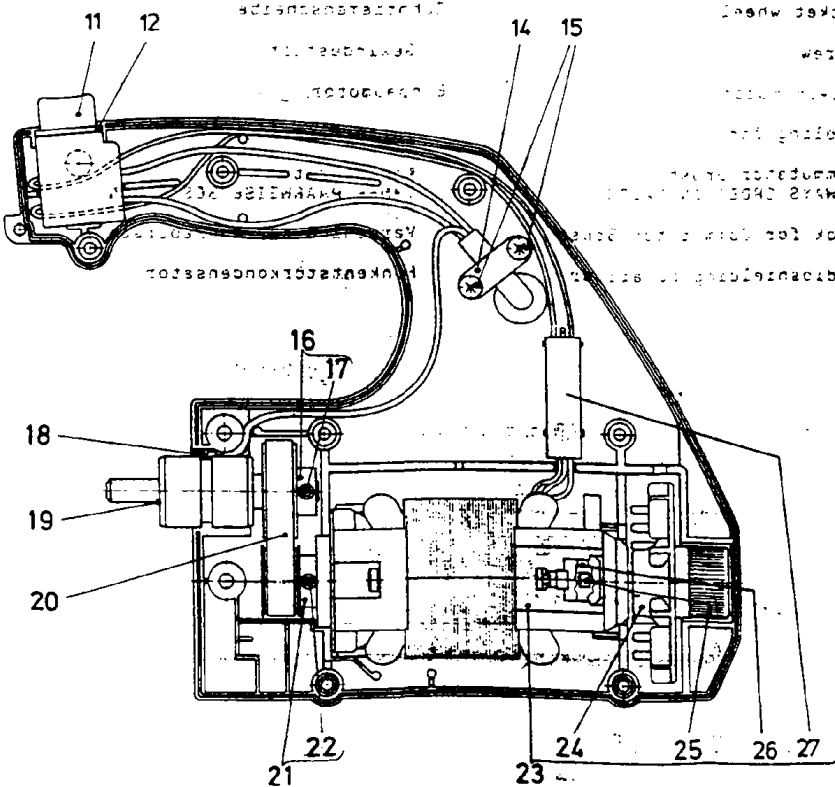
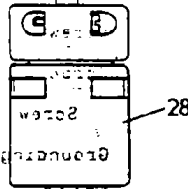
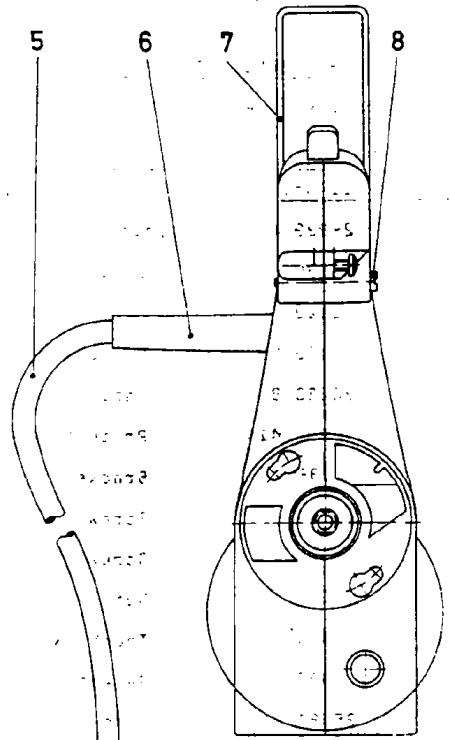
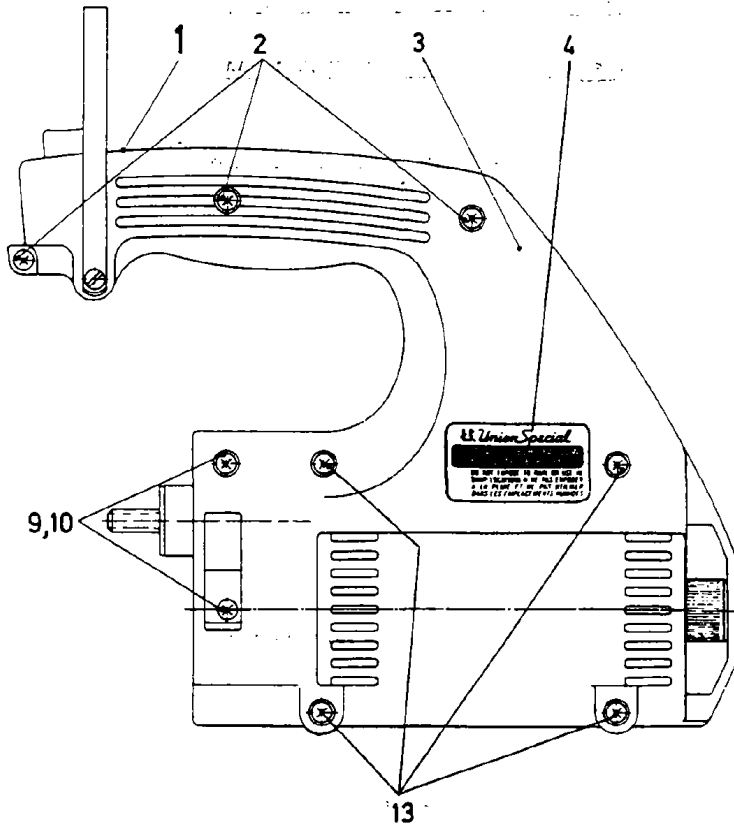
Protection Class I with ground wire

MOTOR KOMPLETT TEIL NR. 29929 A (220-240 V/50-60 Hz) MASCHINEN 2200 A, AA

Schutzklasse I mit Schutzleiter

Ref.No. Pos.Nr.	Part No. Teil Nr.	Description	Beschreibung	Amt.Rec Anzahl
1	29929 A	Motor Assembly	Motor komplett	1
2	95580	Screw	Schraube	3
3	2129 M	Motor housing	Motorgehäuse	1
4	M 129 VG	Power plate	Leistungsschild	1
5	90233 B	Cable with plug	Kabel mit Stecker	1
6	998-416	Protecting sleeve	Knickschutzhülse	1
7	2288	Bracket	Haltebügel	1
8	99271	Screw	Schraube	1
9	95665	Screw	Schraube	2
10	95257	Nut	Mutter	2
11	998-20 B	Thumb Switch	Druckknopfschalter	1
12	998-20 BA	Gasket	Filzrahmen	1
13	95581	Screw	Schraube	4
14	99654 B	Cable clamp	Kabelschelle	1
15	95580	Screw	Schraube	2
16	2265 OA	Sprocket wheel	Zahnriemenscheibe	1
17	95515	Screw	Gewindestift	1
18	95182	Grounding screw	Erdungsschraube	1
19	2265	Pinion with bearing assembly	Ritzel mit Lager komplett	1
20	999-233	Toothed belt	Zahnriemen	1
21	2265 C	Sprocket wheel	Zahnriemenscheibe	1
22	95515	Screw	Gewindestift	1
23	997A-502 N	Built-in motor	Einbaumotor	1
24	995-506 A	Cooling fan	Luftvorläufer	1
25	995-518 A	Commutator brush ALWAYS ORDER IN PAIRS	Kohlebürste IMMER PAARWEISE BESTELLEN	2
26	995-524	Look for Commutator Brush	Verschleiß für Kohlebürste	2
27	995-523	Radioshielding capacitor	Funkentstörkondensator	1



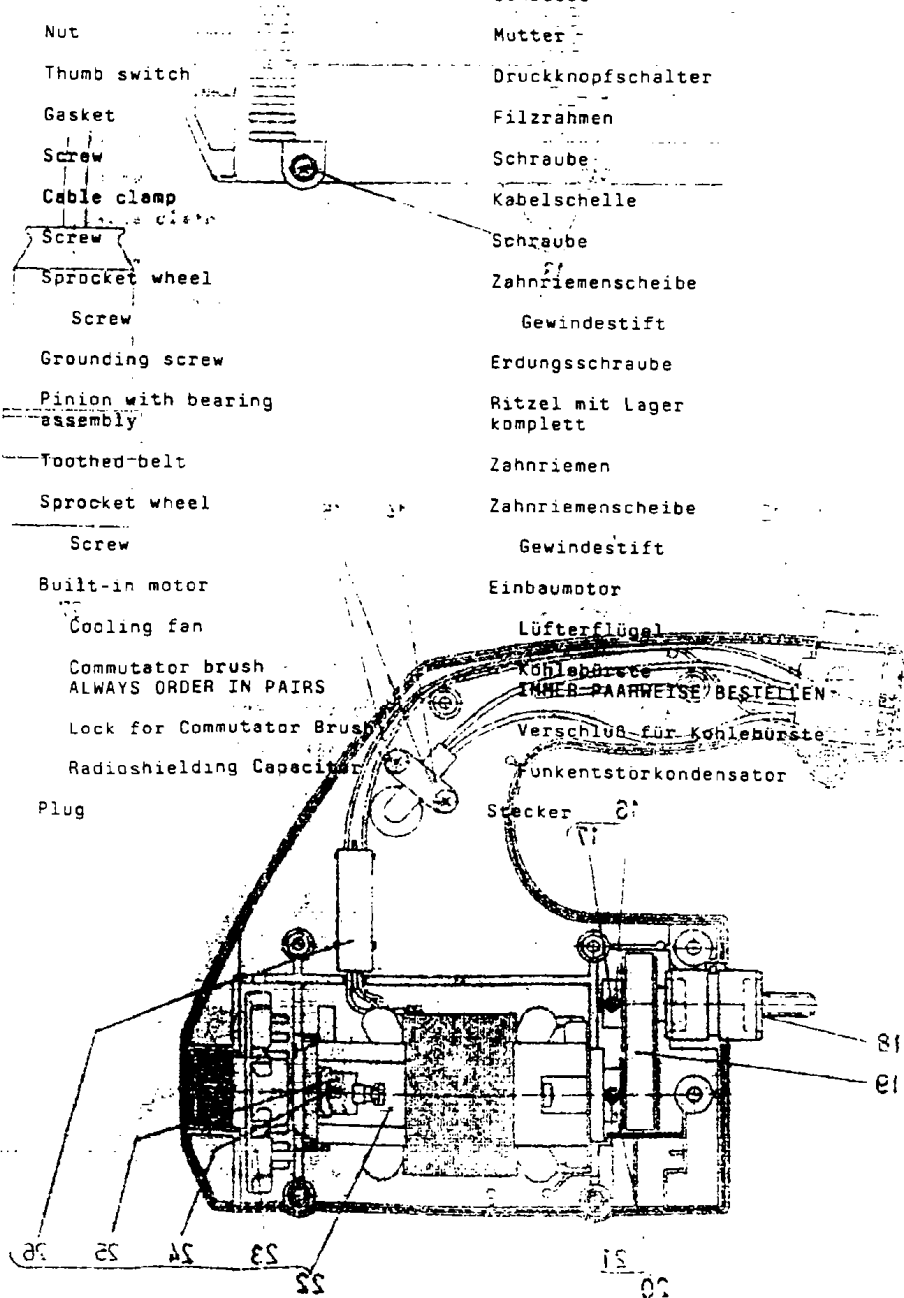


WIRING-DIAGRAM
SCHALTPLAN

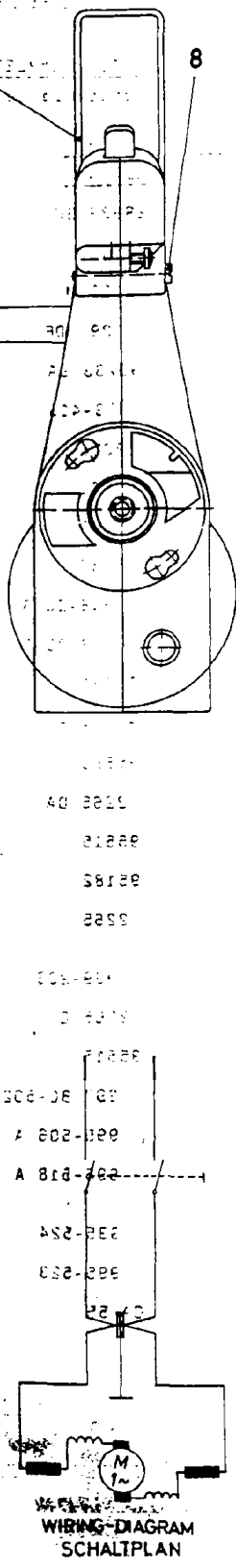
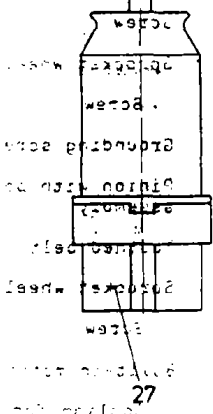
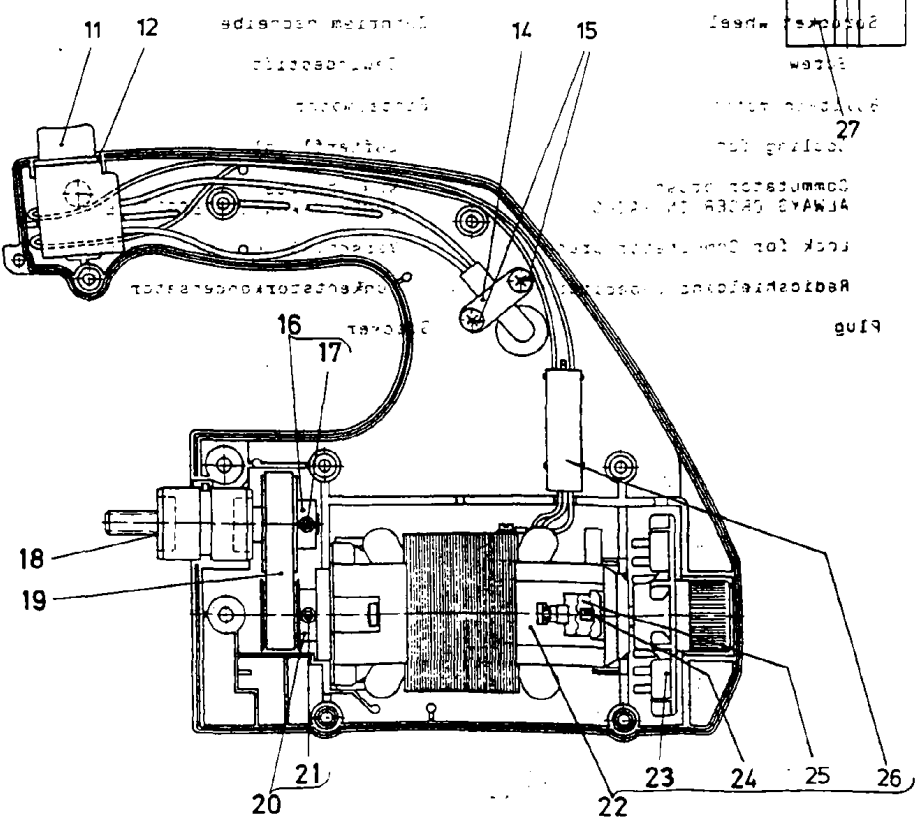
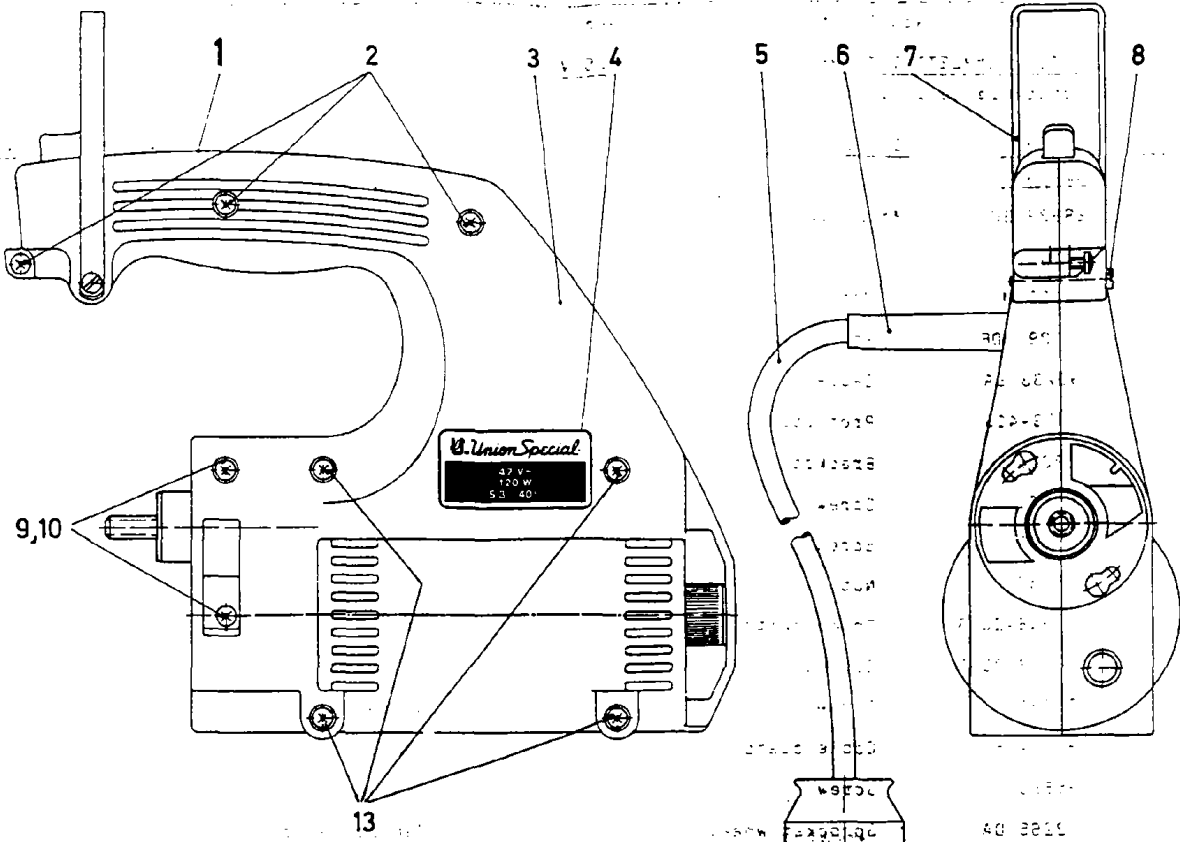
MOTOR ASSEMBLY PART NO. 29929 BC (110-125 V/50-60 Cycles) STYLES 2200 B, BA
 Protection Class I with ground wire green

MOTOR KOMPLETT TEIL-NR. 29929 BC (110-125 V/50-60 HZ) MASCHINEN 2200 B, BA
 Schutzklasse I mit Schutzleiter grün

Ref.No. Pos.Nr.	Part No. Teil Nr.	Description	Beschreibung	Amt. Req Anzahl
1	29929 BC	Motor assembly	Motor komplett	1
2	95580	Screw	Schraube	3
3	2129 M	Motor housing	Motorgehäuse	1
4	M 129 VDE	Power plate	Leistungsschild	1
5	90233 BA	Cable	Kabel	1
6	988-416	Protection sleeve	Knickschutztülle	1
7	2288	Bracket	Haltebügel	1
8	99271	Screw	Schraube	1
9	95665	Screw	Schraube	2
10	95257	Nut	Mutter	2
11	998-20 B	Thumb switch	Druckknopfschalter	1
12	998-20 BA	Gasket	Filzrahmen	1
13	95581	Screw	Schraube	4
14	99654 B	Cable clamp	Kabelschelle	1
15	95580	Screw	Schraube	2
16	2265 DA	Sprocket wheel	Zahnriemenscheibe	1
17	95515	Screw	Gewindestift	1
18	95182	Grounding screw	Erdungsschraube	1
19	2265	Pinion with bearing assembly	Ritzel mit Lager komplett	1
20	999-233	Toothed-belt	Zahnriemen	1
21	2265 C	Sprocket wheel	Zahnriemenscheibe	1
22	95515	Screw	Gewindestift	1
23	997 BC-502	Built-in motor	Einbaumotor	1
24	995-506 A	Cooling fan	Lüfterflügel	1
25	995-518 A	Commutator brush ALWAYS ORDER IN PAIRS	Kohlebürste IMMER-PAARWEISE BESTELLEN	2
26	995-524	Lock for Commutator Brush	Verschluss für Kohlebürste	2
27	995-523	Radioshielding Capacitor	Funkentstörkondensator	1
28	CA-55	Plug	Stecker	1

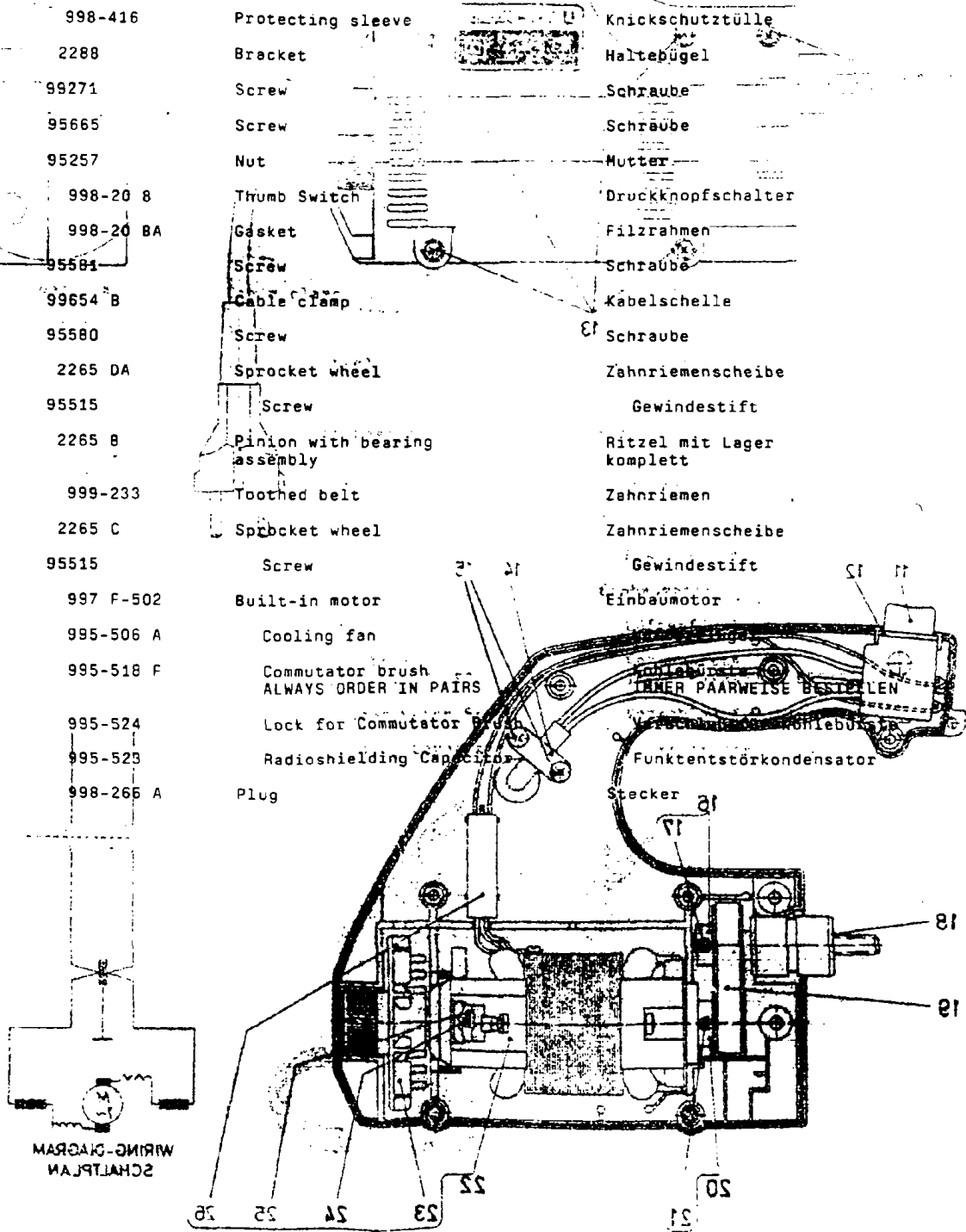


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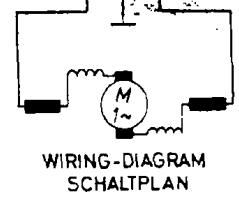
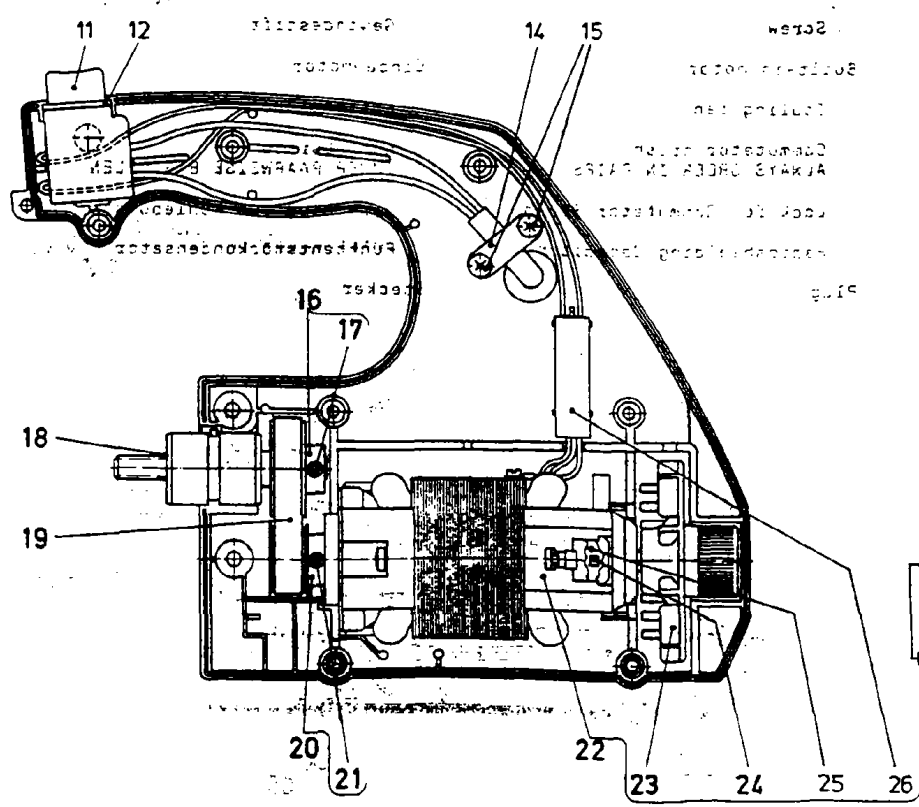
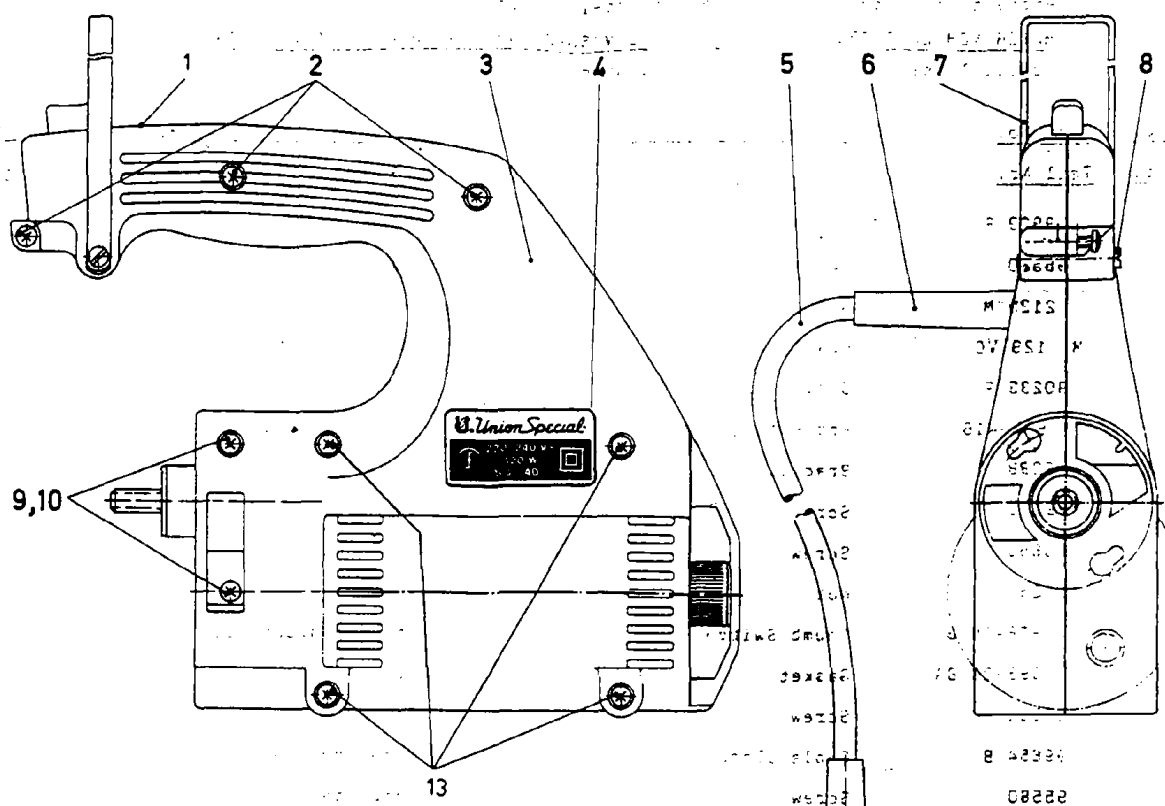


MOTOR ASSEMBLY PART NO. 29929 F (42 V/50-60 Cycles) STYLES 2200 F, FA
 Protection Class III for safety extra-low voltage
 MOTOR KOMPLETT TEIL NR. 29929 F (42 V/50-60 Hz) MASCHINEN 2200 F, FA
 Schutzklasse III für Schutzkleinspannung

Ref. No.	Part No.	Description	Beschreibung	Amt. R
Pos. Nr.	Teil Nr.			Anzahl
1	29929 F	Motor assembly	Motor komplett	1
2	95580	Screw	Schraube	3
3	2129 M	Motor housing	Motorgehäuse	1
4	M 129 VC	Power plate	Leistungsschild	1
5	90233 F	Cable	Kabel	1
6	998-416	Protecting sleeve	Knickschutztülle	1
7	2288	Bracket	Haltebügel	1
8	99271	Screw	Schraube	1
9	95665	Screw	Schraube	2
10	95257	Nut	Mutter	2
11	998-20 8	Thumb Switch	Druckknopfschalter	1
12	998-20 BA	Gasket	Filzrahmen	-
13	95581	Screw	Schraube	4
14	99654 B	Cable clamp	Kabelschelle	1
15	95580	Screw	Schraube	2
16	2265 DA	Sprocket wheel	Zahnriemenscheibe	1
17	95515	Screw	Gewindestift	1
18	2265 B	Pinion with bearing assembly	Ritzel mit Lager komplett	1
19	999-233	Toothed belt	Zahnriemen	1
20	2265 C	Sprocket wheel	Zahnriemenscheibe	1
21	95515	Screw	Gewindestift	1
22	997 F-502	Built-in motor	Einbaumotor	1
23	995-506 A	Cooling fan	Kühlventilator	1
24	995-518 F	Commutator brush ALWAYS ORDER IN PAIRS	Kohlebürste IMMER PAARWEISE BESTELLEN	2
25	995-524	Lock for Commutator Brush	Bürstenverriegelung	2
26	995-523	Radioshielding Capacitor	Funktentstörkondensator	1
27	998-266 A	Plug	Stecker	1

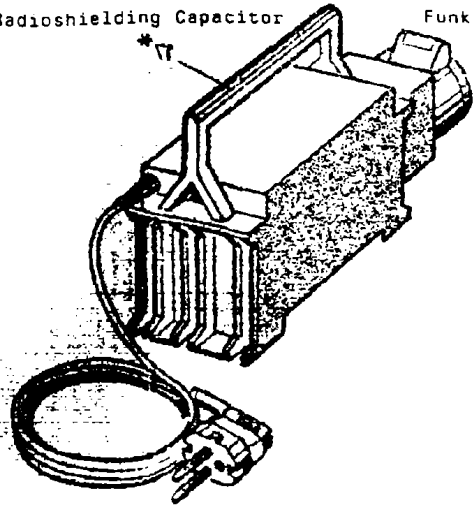


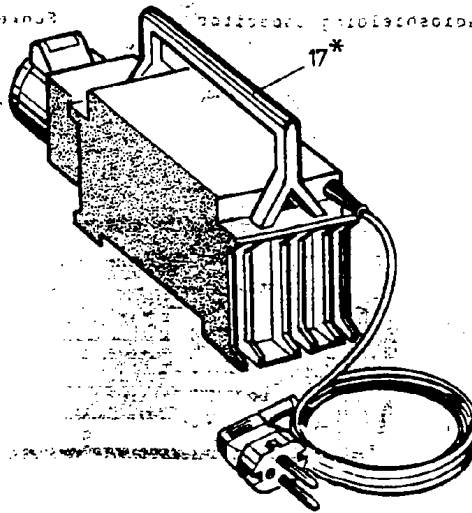
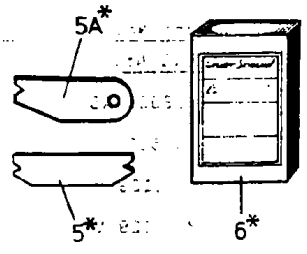
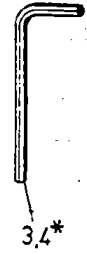
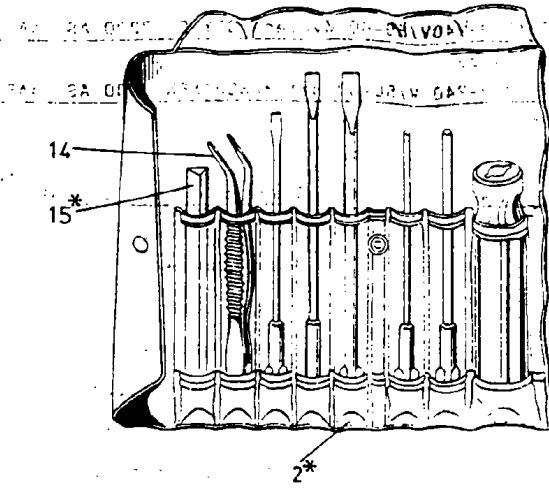
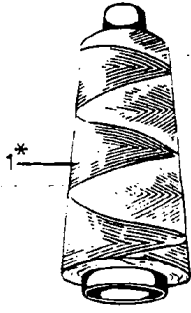
WIRING-DIAGRAM
SCHALTPLAN



MOTOR ASSEMBLY PART NO. 29929 AS (220-240V/50-60 Cycles) /STYLES 2200 AS, AAS
 Protection Class II without ground wire
 MOTOR KOMPLETT TEIL NR. 29929 AS (220-240 V/50-60 Hz) MASCHINEN 2200 AS, AAS
 Schutzklasse II ohne Schutzleiter

Ref. No. Pos. Nr.	Part No. Teil Nr.	Description	Beschreibung	Amt. R. Anzahl
1	29929 AS	Motor assembly	Motor komplett	1
2	95580	Screw	Schraube	3
3	2129 M	Motor housing	Motorgehäuse	1
4	M 129 VF	Power plate	Leistungsschild	1
5	90233 A	Cable with plug	Kabel mit Stecker	1
6	998-416	Protecting sleeve	Knickschutzhülle	1
7	2288	Bracket	Haltebügel	1
8	99271	Screw	Schraube	1
9	95665	Screw	Schraube	2
10	95257	Nut	Mutter	2
11	998-20 B	Thumb switch	Druckknopfschalter	1
12	998-20 BA	Gasket	Filzrahmen	1
13	95581	Screw	Schraube	4
14	99554 B	Cable clamp	Kabelschelle	1
15	95580	Screw	Schraube	2
16	2265 DA	Sprocket wheel	Zahnriemenscheibe	1
17	95515	Screw	Gewindestift	1
18	2265 B	With bearing	Ritzel mit Lager komplett	1
19	99-233	Toothed belt	Zahnriemen	1
20	2265 C	Sprocket wheel	Zahnriemenscheibe	1
21	95515	Screw	Gewindestift	1
22	997-502 N	BUILT-IN motor	Einbaumotor	1
23	995-506 A	*Cooling fan *T	*Lüfterfüge *8	1
24	995-518 A	Commutator brush ALWAYS ORDER IN PAIRS	Kohlebürste IMMER PAARWEISE BESTELLEN	2
25	995-524	Lock for Commutator Brush	Verschluss für Kohlebürste	2
26	995-523	Radioshielding Capacitor	Funkentstörkondensator	1





ACCESSORI

ZUBEHÖR

Ref. No. Pos. Nr.	Part No. Teil Nr.	Description	Beschreibung	Am An
1 *	Z1-124-200BL	Thread Cone, cotton, blue, 200 g	Garnrolle, Baumwolle, blau, 200 g	1,0
	Z1-124-200GE	Thread Cone, cotton, yellow, 200 g	Garnrolle, Baumwolle, gelb, 200 g	1,0
	Z1-124-200GN	Thread Cone, cotton, green, 200 g	Garnrolle, Baumwolle, grün, 200 g	1,0
	Z1-124-200RT	Thread Cone, cotton, red, 200 g	Garnrolle, Baumwolle, rot, 200 g	1,0
	Z1-124-200WS	Thread Cone, cotton, white, 200 g	Garnrolle, Baumwolle, weiß, 200 g	1,0
	Z1-204-200WS	Thread Cone, polyester, white, 200 g	Garnrolle, Polyester, weiß, 200 g	1,0
2 *	G 21208	Tool-Bag	Werkzeugtasche	
3 *	95601	Hexagon Socket Head Wrench Size: 4 mm	Sechskantstiftschlüssel SW: 4 mm	
4 *	95606	Hexagon Socket Head Wrench Size: 2,5 mm	Sechskantstiftschlüssel SW: 2,5 mm	
5 *	21225-4/4,4	Looper Gauge for two thread double locked stitch	Greifereinstell-Lehre für Zweifaden- Doppelkettstich	
5A *	21225-9/64	Looper Gauge for single thread chain stitch	Greifereinstell-Lehre für Einfaden- Einfachkettstich	
6 *	9854 G-Div.	Needle (refer to page 4)	Nadel (siehe Seite 4)	
7 *	95626	Screwdriver for recessed-head screws Size 2	Kreuzschlitzschraubendreher Größe 2	
8 *	21202	Screwdriver 0,8 x 5,5 x 275 mm Length over all	Schraubendreher 0,8 x 5,5 x 275 mm Gesamtlänge	
9 *	21201	Screwdriver 0,5 x 3,5 x 195 mm Length over all	Schraubendreher 0,5 x 3,5 x 195 mm Gesamtlänge	
10 *	J 118-8	Threading Hook	Einfadelhaken	
11 *	116	Single ended open jaw wrench, Size 7,2 mm	Einmaulschlüssel SW 7,2 mm	
12 *	G 28604 L	Oil, 0,5 l container	Öl, 0,5 l Behälter	
	G 28604 E	Oil, 5,0 l container	Öl, 5,0 l Behälter	
13 *	G 43294 B	Oil Can	Öler	
14 *	118	Pair of tweezers	Pinzette	
15 *	999-117	Grind File	Carborundum Feile	
17 *	998 A-614	Single-phase Safety Transformer with handle, splashproof. Primary 220 volts secondary 42 volts, 50-60 cycles, power 250 VA. For Styles 2200 F and 2200 FA.	Einphasen-Sicherheitstransformator mit Tragegriff, spritzwassergeschützt. Primär 220 V, sekundär 42 V, 50-60 Hz Leistung 250 VA. Für die Maschinen 2200 F und 2200 FA.	

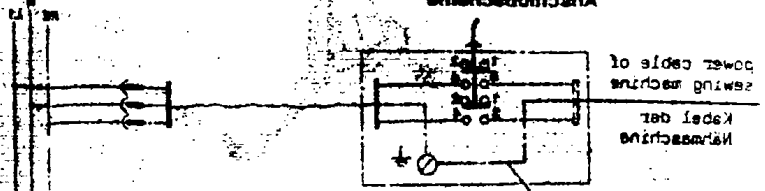
NOTE: The connection of the
machine power cable on the
foot switch has to be accom-
plished by an electrical
specialist.

BEACHTEN SIE: Der Anschluss
des Kabels der Maschine am
Fußschalter muss von einem
Elektriker ausgeführt werden.
BEACHTEN SIE: Der Anschluss
des Kabels der Maschine an
den Fußschalter muss von einem
Elektriker ausgeführt werden.
BEACHTEN SIE: Der Anschluss
des Kabels der Maschine an
den Fußschalter muss von einem
Elektriker ausgeführt werden.

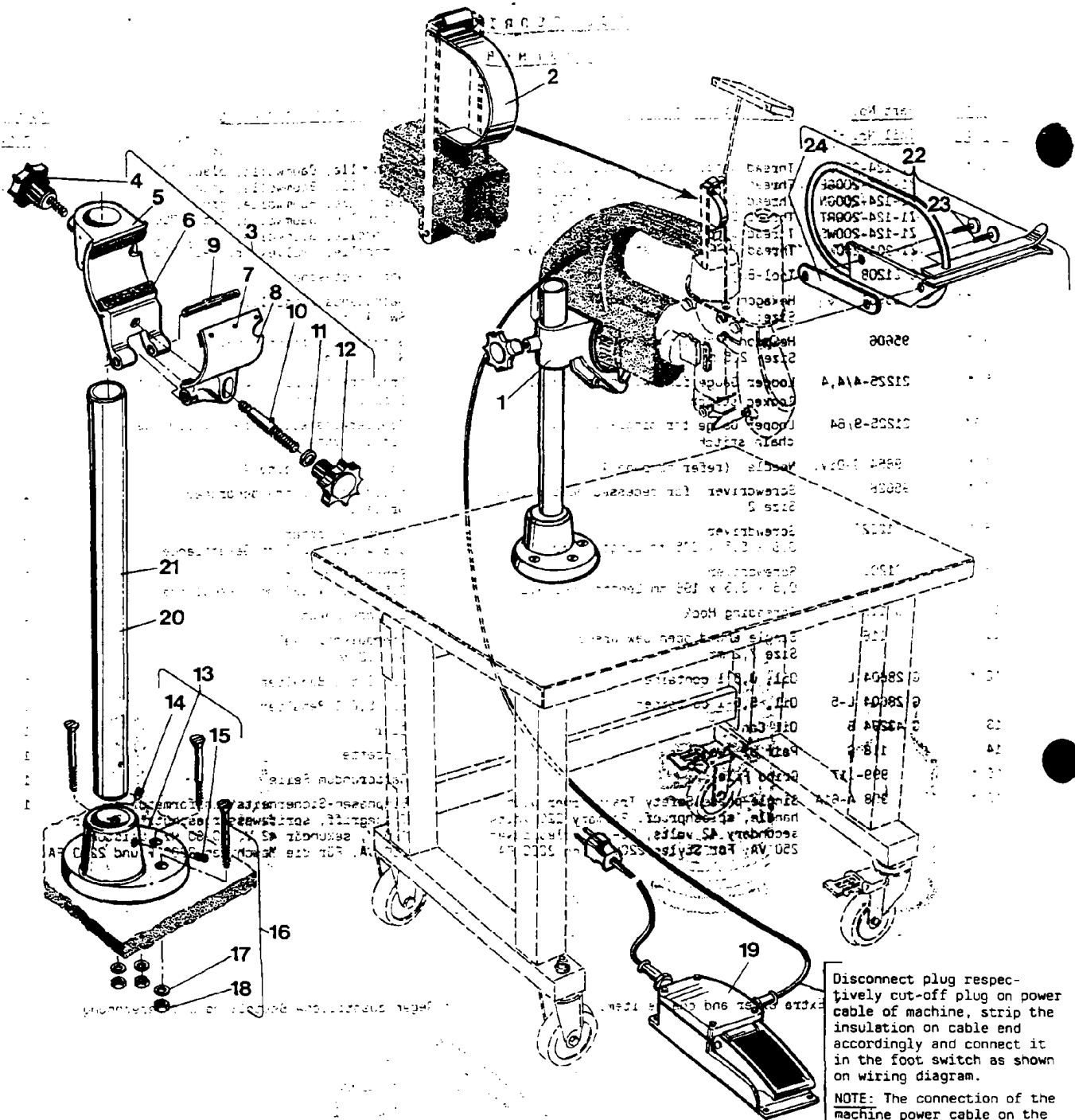
Extra order and charge item

Gegen zusätzliche Bestellung und Berechnung.

Wiring Diagram
Anschlußdiagramm



not used on styles S200 A2 and A2A
(A2U)
Green-yellow or green (A2U)
Red
Blue
Black
White
Brown
Yellow
Orange
Purple
Pink
Grey
Light blue
Dark blue
Light green
Dark green
Light purple
Dark purple
Light pink
Dark pink
Light grey
Dark grey



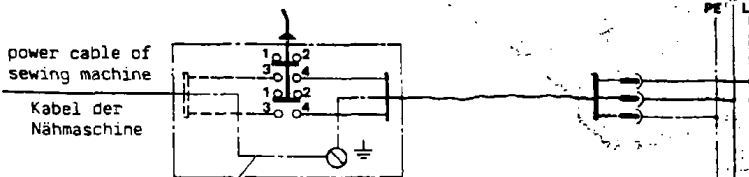
Disconnect plug respectively cut-off plug on power cable of machine, strip the insulation on cable end accordingly and connect it in the foot switch as shown on wiring diagram.

NOTE: The connection of the machine power cable on the foot switch has to be accomplished by an electrician!

Montieren Sie den Stecker bzw. schneiden Sie den Stecker am Kabel der Maschine ab, isolieren Sie das Kabelende entsprechend ab und schließen Sie es im Fußschalter, wie im Anschlußschema gezeigt, an.

BEACHTEN SIE: Der Anschluß des Kabels der Maschine am Fußschalter muß von einem Elektriker durchgeführt werden!

**Wiring Diagram
Anschlußschema**

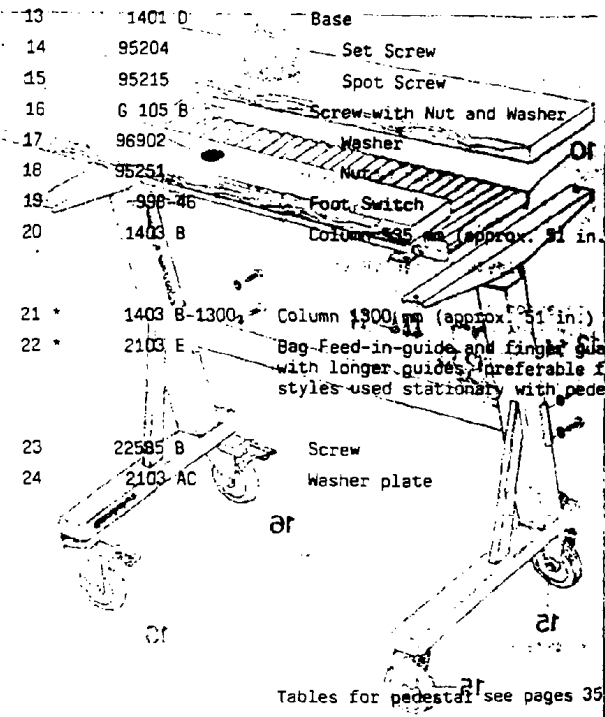
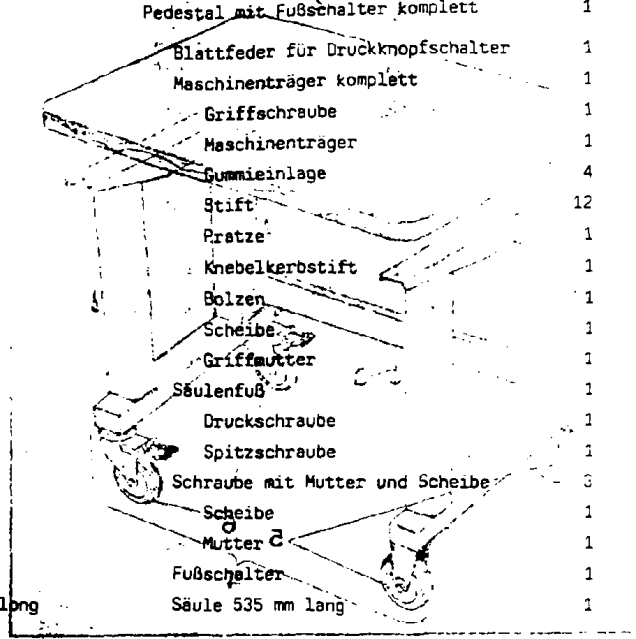


ground wire,
green-yellow or green (USA)
not used on styles 2200 AS and AAS

Erdungsleiter,
grün-gelb oder grün (USA)
bei den Maschinen 2200 AS und AAS
nicht vorhanden

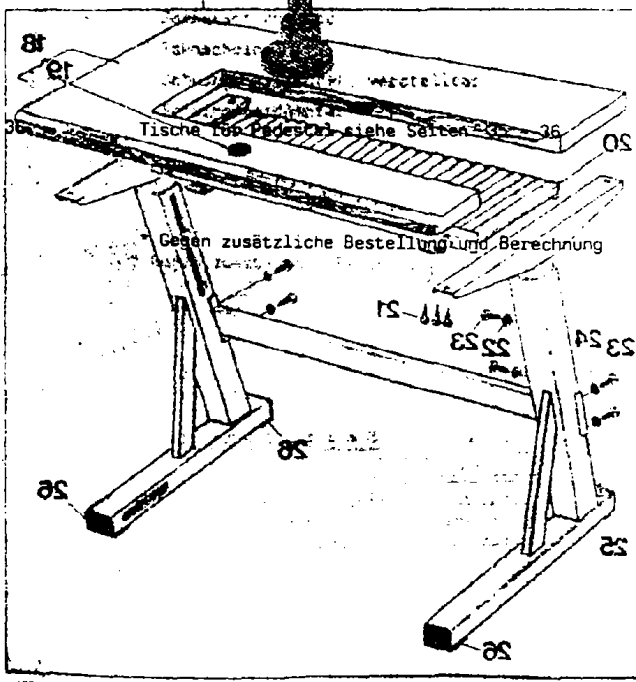
PEDESTAL FOR STYLES 2200 A, AA, AS, AAS, B, AND BA
PEDESTAL FÜR DIE MASCHINEN 2200 A, AA, AS, AAS, B, UND BA

Ref.No. Pos.Nr.	Part No. Teil Nr.	Description	Beschreibung	Amt.Req Anzahl
1 *	H 1400 F	Pedestal and Foot Switch Assembly	Pedestal mit Fußschalter komplett	1
2	2288 B	Leaf Spring for Thumb Switch	Blattfeder für Druckknopfschalter	1
3	A 9355	Machine Support Assembly	Maschinenträger komplett	1
4	1460 T	Clamp Screw	Griffschraube	1
5	1460 P	Machine Support	Maschinenträger	1
6	1460 X	Rubber Pad	Gummieinlage	4
7	96877	Pin	Stift	12
8	1460 R	Clamp	Pratze	1
9	96854	Center Grooved Dowel Pin	Knebelkerbstift	1
10	95800	Stud	Bolzen	1
11	1025 U	Washer	Scheibe	1
12	1460 W	Clamp Nut	Griffmutter	1



Tables for pedestal see pages 35

13	1401 D	Base	Säulenfuß	1
14	95204	Set Screw	Druckschraube	1
15	95215	Spot Screw	Spitzschraube	1
16	G 105 B	Screw with Nut and Washer	Schraube mit Mutter und Scheibe	3
17	96902	Washer	Scheibe	1
18	95251	Nut	Mutter	1
19	998-46	Foot Switch	Fußschalter	1
20	1403 B	Column 535 mm (approx. 51 in.) long	Säule 535 mm lang	1
21 *	1403 B-1300	Column 1300 mm (approx. 51 in.) long	Säule 1300 mm lang	1
22 *	2103 E	Bag-Feed-in-guide and finger guard with longer guides, preferable for styles used stationarily with pedestal.	Sackeinführung und Fingerabweiser mit längeren Führungen, vorzugsweise für Maschinen, die stationär mit Pedestal verwendet werden.	1
23	22585 B	Screw	Schraube	2
24	2103-AC	Washer plate	Unterlegplatte	1



* Extra order and charge item
* Extra order and charge item

Gegen zusätzliche Bestellung und Berechnung

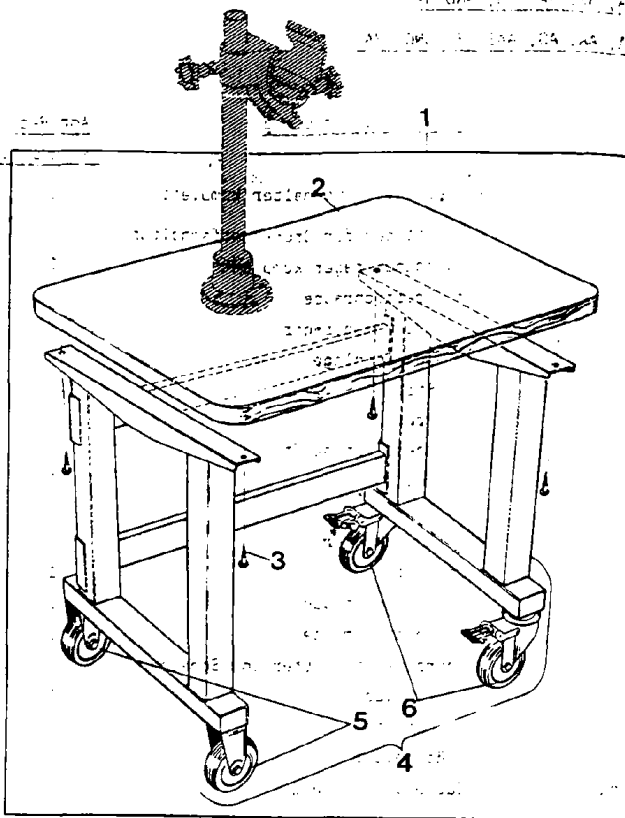


FIG. 1
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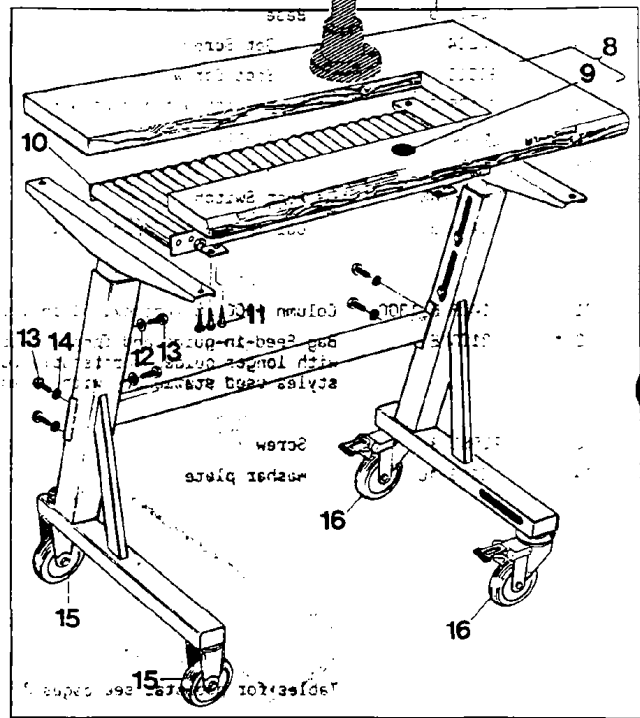


FIG. 7
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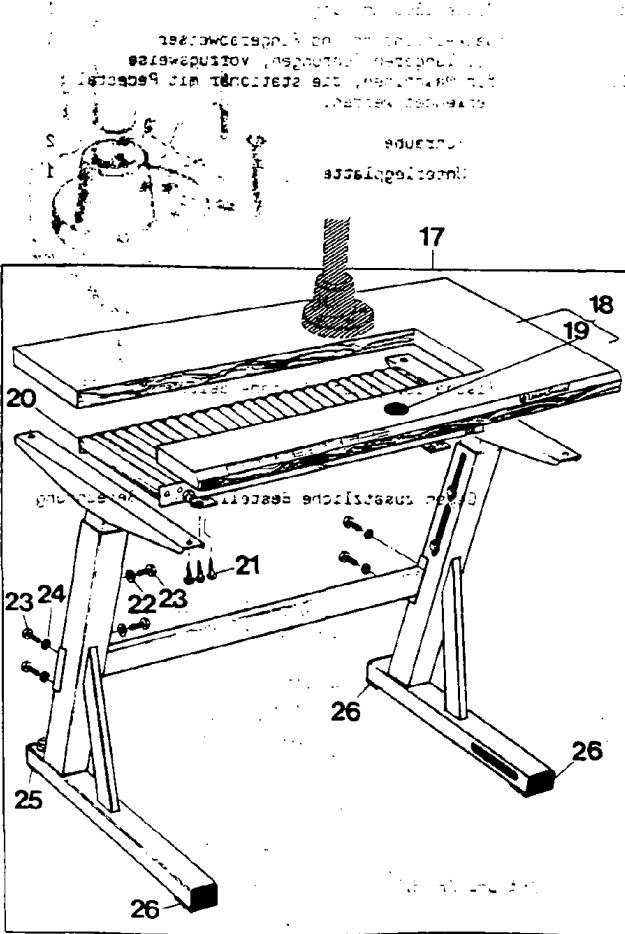
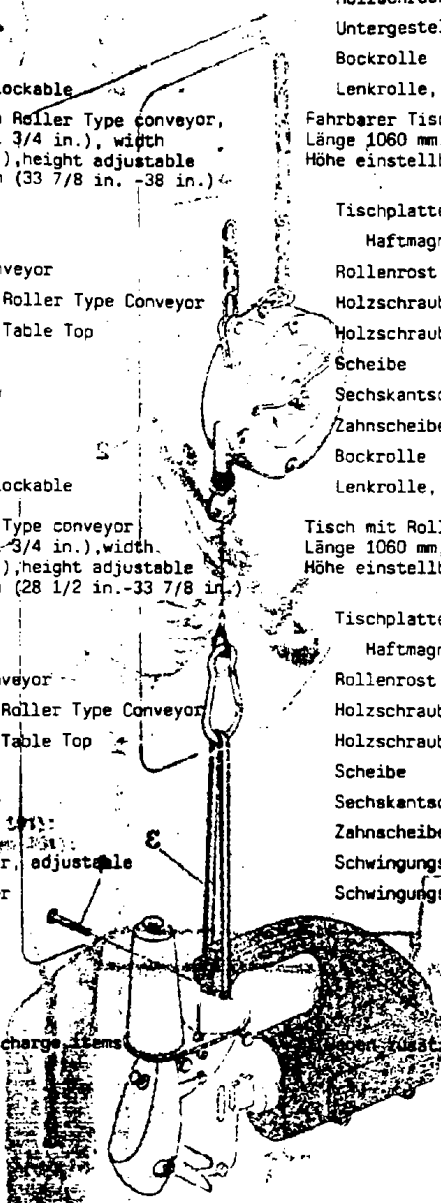


FIG. 17
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TABLES FOR PEDESTAL MOUNTED STYLES
 TISCHE FÜR PEDESTAL MONTIERTE HÄSCHENEN

Ref.No. Pos.Nr.	Part No. Teil Nr.	Description Beschreibung	Bezeichnung	Amt. Req. Anzahl
1*	A 9847 B	Small movable table, length 700 mm (27 9/16 in.), width 550 mm (21 5/8 in.), height 760 mm (30 in.)	Kleiner fahrbarer Tisch, Länge 700 mm, Breite 550 mm, Höhe 760 mm	1
2	G 21371 KB	Table Board	Tischplatte	1
3	90561 K	Wood Screw	Holzschraube	4
4	A 9847 C	Frame, movable	Untergestell, fahrbar	1
5	999-135 D	Roller	Bockrolle	2
6	999-136 D	Guide Roller, lockable	Lenkrolle, feststellbar	2
7*	90709 PS	Movable table with Roller Type conveyor, length 1060 mm (41 3/4 in.), width 550 mm (21 5/8 in.), height adjustable from 860 to 970 mm (33 7/8 in. - 38 in.)	Fahrbarer Tisch mit Rollenrost, Länge 1060 mm, Breite 550 mm, Höhe einstellbar von 860 bis 970 mm	1
8	G 21371 WY-1	Table Board	Tischplatte	1
9	90710 A	Magnet	Haftmagnet	1
10	90711	Roller Type Conveyor	Rollenrost	1
11	90561 G	Wood Screw for Roller Type Conveyor	Holzschraube für Rollenrost	8
	90561 G	Wood Screw for Table Top	Holzschraube für Tischplatte	4
12	96901 Z	Washer	Scheibe	4
13	95322 Z	Hex. Head Screw	Sechskantschraube	8
14	96121 Z	Lock Washer	Zahnscheibe	4
15	999-135 A	Roller	Bockrolle	2
16	999-136	Guide Roller, lockable	Lenkrolle, feststellbar	2
17*	90709 PR	Table with Roller Type conveyor, length 1060 mm (41 3/4 in.), width 550 mm (21 5/8 in.), height adjustable from 725 to 835 mm (28 1/2 in. - 33 7/8 in.)	Tisch mit Rollenrost, Länge 1060 mm, Breite 550 mm, Höhe einstellbar von 725 bis 835 mm	1
18	G 21371 WY-1	Table Board	Tischplatte	1
19	90710 A	Magnet	Haftmagnet	1
20	90711	Roller Type Conveyor	Rollenrost	1
21	90561 G	Wood Screw for Roller Type Conveyor	Holzschraube für Rollenrost	8
	90561 G	Wood Screw for Table Top	Holzschraube für Tischplatte	4
22	96901 Z	Washer	Scheibe	4
23	95322 Z	Hex. Head Screw	Sechskantschraube	8
24	96121 Z	Lock Washer	Zahnscheibe	4
25	90709 PB	Vibration Damper, adjustable	Schwingungsdämpfer, verstellbar	1
26	90709 PA	Vibration Damper	Schwingungsdämpfer	3

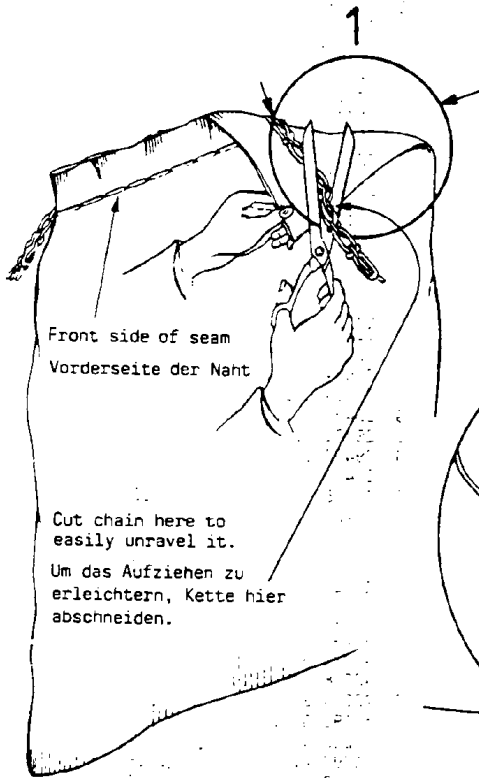


* Extra order and charge items * Zusätzliche Bestellung und Berechnung

REFERENCE TO THE DRAWING FOR THE LOCATION OF THE VIBRATION DAMPERS
 BEZUG AUF DIE ZEICHNUNG FÜR DIE LAGE DER SCHWINGUNGSDÄMPFER

HOW TO UNRAVEL A BAG CLOSING SEAM?
WIE ZIEHT MAN EINE SACKZUNÄHNAHT AUF?

Two-thread double locked stitch (stitch type 401):
Zweifaden-Doppelkettenstich (Nähstichtyp 401):

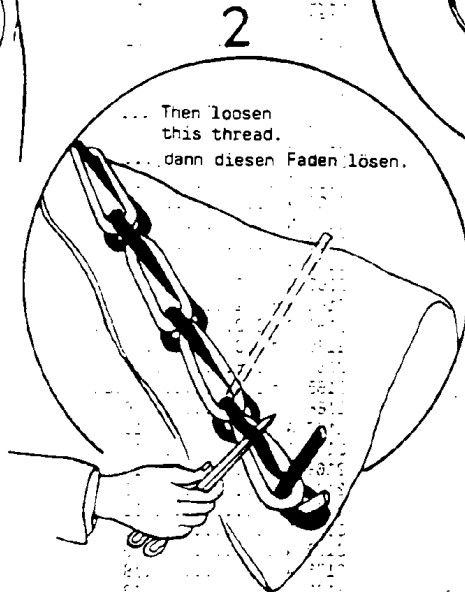


Front side of seam
Vorderseite der Naht

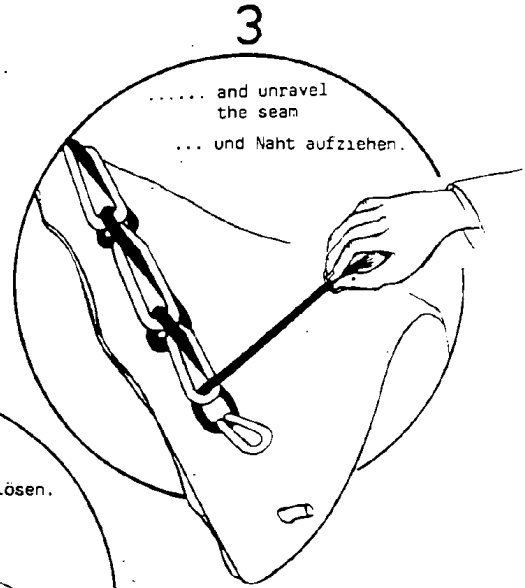
Cut chain here to easily unravel it.
Um das Aufziehen zu erleichtern, Kette hier abschneiden.

The bag can be quickly opened without damaging it only from this end of the chain.

Sack läßt sich schnell und ohne Beschädigung nur von diesem Kettenende öffnen.



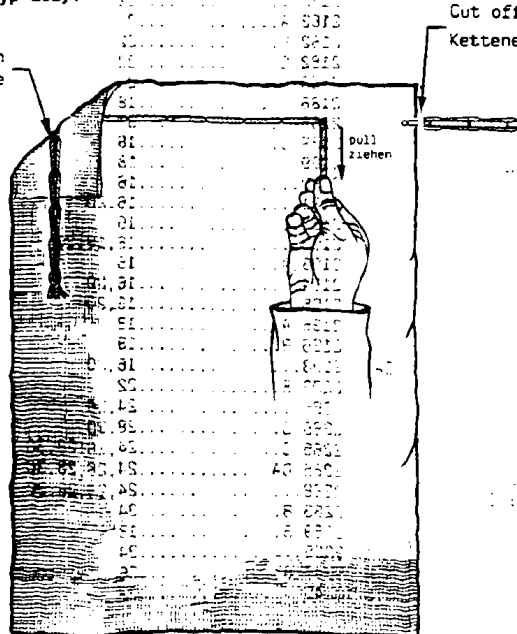
Then loosen this thread.
dann diesen Faden lösen.



..... and unravel the seam
... und Naht aufziehen.

Single thread chainstitch (stitch type 101):
Einfaden-Einfachkettenstich (Nähstichtyp 101):

Thread chain at rear side of seam
Fadenkette auf der Rückseite



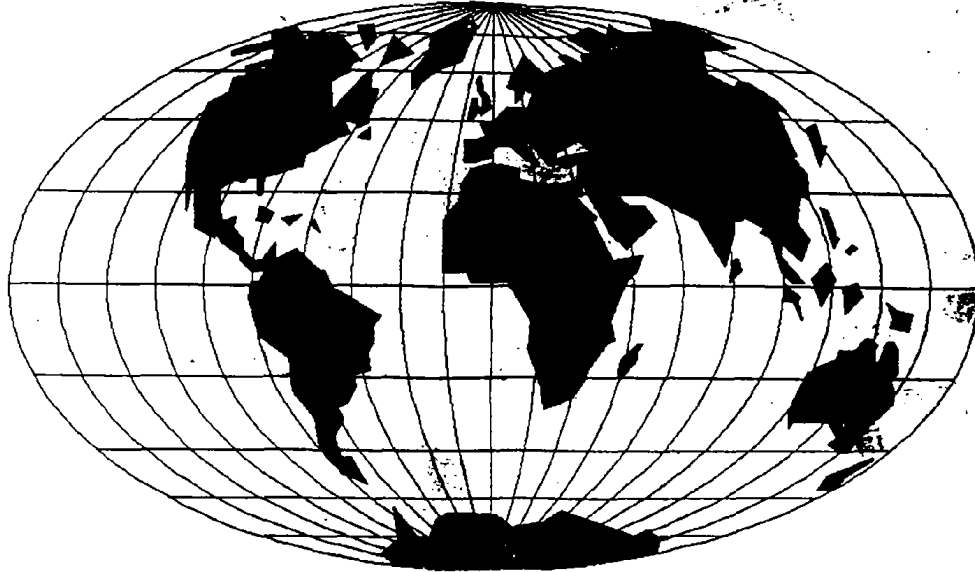
Cut off chain on right side
Kettenende rechts abschneiden

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 (PART NUMBER INDEX WITH MAX THREE DIG)

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73	22	2143	18	21225-4/4, 4	32
73 C	20	2144	20	21225-9/64	32
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G 660 210	20	2158 E	20	G 29491 N	20
907	18	2159 A	18	G 29492	20
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995-518 A	24, 26, 30	2163	18	G 29496	18
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1460 R	34	2182 A	22	90233 BA	26
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WORLDWIDE SALES AND SERVICE

Union Special Corporation maintains sales and service facilities throughout the world. These offices will aid you in the selection of the right sewing equipment for your particular operation. Union Special Corporation representatives and service technicians are factory trained and are able to serve your needs promptly and efficiently. Whatever your location, there is a qualified representative to serve you.

Corporate Office: One Union Special Plaza
Huntley, IL 60142
Phone: 847•669•5101
Fax: 847•669•4454

European Distribution Center: Union Special GmbH
Raiffeisenstrasse 3
D-71696 Möglingen, Germany
Tel: 49•07141•247•0
Fax: 49•07141•247•100

Brussels, Belgium
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Huntley, IL
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Suwanee, GA
Wayne, NJ

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• Weitere Vertretungen in allen Teilen der Welt.

Union Special unterhält Verkaufs- und Kundendienst-Niederlassungen in der ganzen Welt. Diese helfen Ihnen in der Auswahl der richtigen Maschine für Ihren speziellen Bedarf. Union Special Vertreter und Kundendiensttechniker sind in unseren Werken ausgebildet worden, um Sie schnell und fachmännisch zu bedienen.

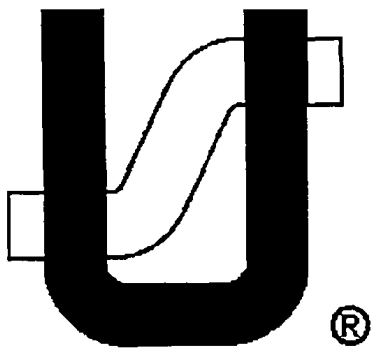

Finest Quality

Union Special
INDUSTRIAL SEWING EQUIPMENT

The following Adjusting Specifications Sheets are what this UNION SPECIAL® machine has been adjusted to for maximum performance.

Please be advised to use any adjusting instructions that are in any manuals that may accompany this machine for REFERENCE ONLY. All correct tolerances and adjustments for this machine are in the Adjusting Specification Sheets.

If further assistance is needed please contact your Union Special Corporation representative.



Finest Quality

DATE REVISED:
951.TXT

12/03/97
1405-1

N. MILLER
MJG

TERRITORIAL SPECIFICATIONS: NONE

MACHINE STYLE: 2200 A, B, F, L, AB, AS, AT, FC, LC

STITCH TYPE: 401 SEAM: SSa-1

MACHINE SPEED: 1200 - 1700 R.P.M. DEPENDING ON MATERIAL TO BE SEWN

STITCH LENGTH: 3 - 8-1/2 SPI SET AT: 3-1/2

SEW-OFF MATERIAL: CONTAINER BAG PAPER
2200 AB ONLY - CREPE TAPE

NEEDLE STYLE: 9854G SIZE: 200/080

THREAD	TYPE	SIZE
NEEDLE	COTTON OR BLENDED COTTON (SPUN POLY)	12/4 (13/4)
LOOPER	COTTON OR BLENDED COTTON (SPUN POLY)	12/4 (13/4)

NOTE: For shorter stitch lengths 5-1/2 to 8-1/2 S.P.I. use needle size 125/049 and thread size 24/4.

1. **LOOPER SETTING:**

Set the looper so the looper point is 5/32" (4mm) from the centerline of the needle, when the looper is at its farthest position to the right. The looper point should pass as close as possible to the back of the needle without contacting with .003 to .005" (0.08 to 0.13mm) clearance.

2. **NEEDLE HEIGHT SETTING:**

Set the needle height so that the top of its eye is flush with the lower edge of the looper when the looper moves to the left and its point is flush with the left side of the needle.

3. **LOWER FEED DOG SETTING:**

The height of the feed dog should be set at one full tooth, approximately 1/16" (1.6mm) above the throat plate.

4. NEEDLE GUARD SETTING:

Set the needle guard so that it just touches the needle at its most forward point of travel.

5. KNIFE SETTING ALL STYLES EXCEPT 2200 AB:

A) Set the stationary knife so that its tip is .006" (0.15mm) from the bottom of the throat plate.

B) Set the movable knife so that it just clears the bottom of the throat plate in its entire arc of travel, and its pilot prong overlaps the stationary knife by 1/8" (3mm) in its completely opened position. In cutting position of the knives, the cutting edge of the movable knife should overlap the cutting edge of the stationary knife by at least 3/64" (1mm).

KNIFE SETTING FOR 2200AB:

Set lower knife with approximately 6mm space between the farthest inside point of the upper and lower knife.

6. SPECIAL INSTRUCTIONS:

Setting the feeler on 2200 AT: Align feeler with slot in throat plate and set it as high as possible. Loosen screw for making this adjustment and set feeler as required. When the feeler is in its highest position, guide should just contact the push button of switch without pressing it. make sure that fork of guide is aligned with guide pin. Retighten screw.

7. SEWING TEST:

Make sewing test on (24) plies of container bag paper, sewn on and off (10) times. The machine must chain continuously at 3-1/2 S.P.I.

8. SEWING SAMPLE:

Attach a sample using (24) plies of container bag paper, sewn two times with at least 2" (51mm) of chain at the end.

SEWING SAMPLE FOR 2200 AB:

Attach a sample using (24) plies of container bag paper, sewn one time with at least 2" (51mm) of sewn tape at the start of the sample. The start of the tape should have a clean cut.

U. Union Special

I 22008
II CL1850880

UNION SPECIAL CORPORATION
One Union Special Plaza
Huntley, IL 60142 / U S A

EG-KONFORMITÄTSEKKLÄRUNG

de EG DECLARATION OF CONFORMITY

en

DECLARATION DE CONFORMITE CE

fr

it DICHIARAZIONE CE DI CONFORMITA

it

Hiermit erklären wir, daß die Bauart der Nähmaschine tragbare Sackzunähmaschine

We hereby declare that the sewing unit described as portable bag closer

Nous déclarons la conformité de la machine portable à fermer les sacs

Dichiaro che la struttura della macchina per chiusura sacchi portatile

Klasse Ser.-Nr. II

style ser.-No. II

type no. de fabr. II

modello mat. II

folgenden einschlägigen Bestimmungen entspricht

- EG-Maschinenrichtlinie 89/392/EWG.*
- EG-EMV-Richtlinie 89/336/EWG.*
- EG-Niederspannungsrichtlinie 73/23/EWG.*

*alle zuletzt geändert durch 93/68/EWG.

Angewandete harmonisierte Normen, insbesondere:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014.

Angewandete deutsche Normen, insbesondere:

DIN 5310, DIN 45635 T48

complies with the following applicable regulations:

- EC Machinery Directive 89/392/EEC.*
- EC-EMC Directive 89/336/EEC.*
- EC Low Voltage Directive 73/23/EEC.*

*all last amended by 93/68/EEC.

Applied harmonized standards, in particular:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014

Applied German standards, in particular:

DIN 5310, DIN 45635 T48

sous prescriptions correspondantes ci-après:

- directive CE sur les machines 89/392/CEE.*
- directive CE sur la compatibilité électromagnétique 89/336/CEE.*
- directive CE sur la basse tension 73/23/CEE.*

*dernière actualisation effectuée par 93/68/CEE.

Normes appliquées après harmonisation, notamment:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014

Normes allemandes appliquées:

DIN 5310, DIN 45635 T48

corrisponde alle seguenti specifiche disposizioni:

- direttive CE per macchine 89/392/CEE.*
- direttive CE per compatibilità elettromagnetica 89/336/CEE.*
- direttive CE per bassa tensione 73/23/CEE.*

*tutte modificate ultimamente da 93/68/CEE.

Norme applicate dopo armonizzazione, in particolare:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014

Norme tedesche utilizzate:

DIN 5310, DIN 45635 T48

DECLARAÇÃO DE CONFORMIDADE

pt

DECLARACIÓN DE CONFORMIDAD

es

EF-KONFORMITETSERKLÆRING

da

CONFORMITEITSVERKLARING VAN DE E.G.

nl

Declaramos pelo presente instrumento que o tipo de construção da portable bag closer

Por la presente declaramos que el tipo de maquina portatil de cerrar sacos

Herved erklærer vi at konstruktionen af bærbart sækkelukkler

Hierbij verklaar wij dat het constructietype van bovenvermelde draagbare zakdendichtmaaimachine

tipo nr. fabr. II

tipo no. fabr. II

style ser.-no. II

typ ser.-nr. II

corresponde às seguintes determinações básicas:

- directiva das CE relativa a máquinas 89/392/CEE.*
- directiva das CE relativa a compatibilidade electromagnética 89/336/CEE.*
- directiva das CE de baixa tensão 73/23/CEE.*

*modificadas por último por 93/68/CEE.

Normas harmonizadas aplicadas, especialmente:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014.

Normas alemãs aplicadas:

DIN 5310, DIN 45635 T48.

corresponde a las disposiciones siguientes:

- directiva CE sobre máquinas 89/392/CEE.*
- directiva CE sobre compatibilidad electromagnética 89/336/CEE.*
- directiva CE sobre baja tensión 73/23/CEE.*

*modificadas ultimamente por 93/68/CEE.

Normas armonizadas utilizadas, especialmente:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014

Normas alemanas utilizadas:

DIN 5310, DIN 45635 T48.

svarer til de vedtagne bestemmelser i

- EF-maskinregulativ 89/392/EØF.*
- EF-elektromagnetisk kompatibilitet regulativ 89/336/EØF.*
- EF-lavspændingsregulativ 73/23/EØF.*

*sidst ændret ved 93/68/EØF.

Anvendte harmoniserede normer, specielt:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014

Anvendte tyske normer:

DIN 5310, DIN 45635 T48.

conform is aan de volgende toepasbare voorschriften

- E G -machinerichtlijn 89/392/EWG.*
- E G richtlijn voor electro-magnetische compatibiliteit 89/336/EWG.*
- E G richtlijn voor lage voltage 73/23/EWG.*

*laatst gewijzigd door 93/68/EWG

Toegepaste, geharmoniseerde normen, namelijk:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014

Toegepaste Duitse normen:

DIN 5310, DIN 45635 T48

ΔΗΛΩΣΗ ΣΥΜΦΩΝΙΑΣ ΜΕ ΤΟΥΣ ΟΡΟΥΣ

el

EY-VAATIMUSTENMUKAISUUSVAKUUTUS

fi

EU KRAVDEKLARATION

sv

ΤΗΣ ΕΥΡΩΠΑΙΚΗΣ ΚΟΙΝΟΤΗΤΑΣ

Δηλώνω δια του παρόντος, ότι η μονάδα ραφής που περιγράφεται σαν:

φορητή μηχανή για το κλείσιμο γεμάτων σακκων

τύπος..... αλφών αριθ.....II.....

Täten vakuutamme, että markkinoille saatettu ompeluyksikkö, kannettava säkkinsulkykone

malli sarjanumero II

Vi förklarar härmed att Ssymaskinen nedan beskriven som bärbar säckförslutnings enhet

typ serie Nr. II

τηρεί τους ακόλουθους εφαρμοσμένους κανονισμούς:

- Οροι του Συμβουλίου της ΕΚ 89/392/ΕΟΚ.*
- Οροι ΕΚ περί ηλεκτρομαγνητικής συμβατότητα 89/336/ΕΟΚ.*
- Οροι ΕΚ περί χαμηλής τάσεως 73/23/ΕΟΚ.*

*ως τελευταίως ονημοσκησθησαν δια της 93/68/ΕΟΚ.

Σε εφαρμογή και σύμφωνα με τα προτυπα: Ειδικότερα:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014.

Εφαρμοσμένα γερμανικά προτυπα: ειδικότερα:

DIN 5310, DIN 45635 T48.

Täyttää seuraavat määräykset

- koneidirektiivi 89/392/EY.*
- sähkömagneettinen yhteensopivuus direktiivi 89/336/EY.*
- pienjänniteidirektiivi 73/23/EY.*

*lähimelän muutos 93/68/EY.

Koneen suunnittelussa on sovellettu seuraavia yhdenmukaisia standardeja:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014

Koneen suunnittelussa on sovellettu seuraavia saksalaisia standardeja: DIN 5310, DIN 45635 T48.

följda av följande gällande regler:

- EU rådets direktiv för maskiner 89/392/EEC.*
- EU direktiv för kompatibilitet med elektromagnet 89/336/EEC.*
- EU lågspännings direktiv 73/23/EEC.*

*senaste ändring 93/68/EEC

Tillämpad standard enligt:

EN 292-1, EN 292-2, EN 28662-1, HD 400 1, EN 55014

Tillämpad Tysk standard enligt:

DIN 5310, DIN 45635 T48.

Union Special Corporation

P.J. Schwabe
Quality Assurance

UNION SPECIAL CORPORATION

**LOCKSTITCH MACHINES
DOUBLE LOCKED STITCH
AND ALL OTHER UNION SPECIAL
LOOPER TYPE MACHINES**

**RECOMMENDED LUBRICATION
OIL SPECIFICATION REQUIREMENTS**

All oils shall be non-compounded, straight mineral oils, of high viscosity index (will not thin down excessively with heat). Practically all oil companies have Union Special specifications and their industrial representatives will make their recommendations conforming to Union Special requirements.

UNION SPECIAL
SPEC. 175

Viscosity at 100° F. (Secs.)	90-125
Flash Point (Min.)	350° F.
Color A.S.T.M. (Max.)	1
Viscosity Index (Min.)	85
Aniline No.	175-225
Copper Corrosion (Max.)	1A
Neutralization No. (Max.)	0.10

NOTICE

Union Special machines are manufactured to close tolerances. To insure a long life at high operating speed, lubricate all oil holes and wick fed reservoirs with an oil equivalent to the above properties. Whenever a can of oil is sent with a machine, that oil should be used as it will aid materially in obtaining full benefit of the quality built into these machines.

ADJUSTING AND INSPECTION

Serial No. <i>CL1850880</i>	Insp. By <i>B.W.V.</i>
Style <i>2200B</i>	Adj. By <i>LW</i>
Needle Type <i>985465</i>	Size <i>200/080</i>
Stitches Per Inch <i>3 1/2</i>	Bobbin Thd. <i>13/4 Poly</i>
Needle Thd. <i>13/4 Poly</i>	

Please refer to above information on any communications regarding the QUALITY or packing of this machine.

UNION SPECIAL CORPORATION

(SEE OTHER SIDE)

Form SUK0001

PRINTED IN U.S.A.

WARNING

FILL THE RESERVOIR WITH PROPER OIL. LUBRICATE THOROUGHLY. LET STAND FOR 10 MINUTES. RUN SLOWLY FOR 5 MINUTES BEFORE OPERATING AT HIGH SPEEDS.

NEEDLES CAN BREAK AND CAUSE EYE INJURY. THIS CAN BE PREVENTED BY OPERATORS WEARING SAFETY GLASSES.

CAUTION: PROPERLY GROUND ALL ELECTRICAL EQUIPMENT.

A FOLDER OR ATTACHMENT NOT PROVIDING SUFFICIENT FINGER PROTECTION AT THE NEEDLE, MAY REQUIRE AUXILIARY FINGER PROTECTION.

WORN PARTS OR IMPROPER INSTALLATION MAY CREATE EXCESSIVE NOISE.

UNION SPECIAL CORPORATION PRODUCES SAFE EQUIPMENT THAT MEETS OR EXCEEDS RECOGNIZED SAFETY STANDARDS.

UNION SPECIAL CORPORATION
HUNTLEY, ILLINOIS - U.S.A.

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(SEE OTHER SIDE)



Union Special
INDUSTRIAL SEWING EQUIPMENT

SAFETY MANUAL

NO.DA2507



Deutsch	(de)	SICHERHEITS-HINWEISE
English	(en)	SAFETY RULES
Français	(fr)	INSTRUCTIONS DE SECURITE
Italiano	(it)	NORME DI SICUREZZA
Español	(es)	REGLAMENTACION SOBRE SEGURIDAD
Ελληνικά	(el)	ΚΑΝΟΝΕΣ ΑΣΦΑΛΕΙΑΣ
Dansk	(da)	SIKKERHEDSBESTEMMELSER
Svensk	(sv)	SÄKERHETSBESTÄMMELSER
Suomi	(fi)	TURVALLISUUSMÄÄRÄYKSET
Português	(pt)	REGRAS DE SEGURANCA
Nederlands	(nl)	VEILIGHEIDSMAAATREGELEN
Norsk	(no)	SIKKERHETSREGLER

Union Special Corporation
One Union Special Plaza, Huntley, IL 60142, USA

Union Special GmbH, Ralfelsenstraße 3
D-71696 Möglingen, Fed. Rep. of Germany

DA2507
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REV. 9/18/98

INSTRUCTIONS

SAFETY RULES

This sewing machine must not be used until it has been determined that the sewing units and the sewing systems into which these sewing machines will be placed conform with the provisions of the EC Council Directive Machinery, of June 14, 1989, as amended *

1. Only properly trained personnel are permitted to operate this machine.
2. Observe the national safety rules adopted in your country.
3. This machine should only be used for the purpose intended.
4. All safety devices must be in position when the machine is ready for work or when in use. Using the machine without safety devices is prohibited.
5. For your personal protection it is recommended that you wear safety glasses.
6. If alterations are made to the machine all of the machinery safety rules must be considered. Conversions and changes are made at your own risk.
7. Danger points are marked with the following warning symbols.



8. The following operations must not be performed until the machine has been disconnected from its power supply by turning-off the main switch or by pulling out the main plug:
 - 8.1 Threading needle(s), looper, spreader etc.
 - 8.2 Replacing sewing tools such as needle, presser foot, throat plate, looper, spreader, feed dog, needle guard, folder, fabric guide etc.
 - 8.3 Leaving the work place unattended.
 - 8.4 Maintenance work.
 - 8.5 When using clutch motors without actuation lock, wait until the motor has completely stopped.
 9. Maintenance, repair and conversion works (see item 6) must only be done by trained technicians or qualified personnel. Only genuine spare parts approved by Union Special should be used for repairs.
 10. Any work on the electrical equipment must be done by qualified electricians or under direction and supervision of qualified personnel.
 11. Work on parts and equipment under electrical tension is prohibited. Exceptions are described in the applicable sections of standard sheet EN 50110.
 12. The machine must be disconnected from the compressed air supply before performing any maintenance or repairs. After disconnecting, residual air pressure must be bled from the compressed air supply. Exceptions are only allowed for adjusting work and function checks done by qualified personnel.
- * This restriction does not apply to complete sewing units and sewing systems delivered by Union Special.

Union Special Corporation
One Union Special Plaza, Huntley, IL. 60142, USA

Union Special GmbH, Raiffelsenstraße 3,
D-71696 Möglingen, Fed. Rep. of Germany

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MODE D'EMPLOI

INSTRUCTIONS DE SECURITE

La mise en route de la machine n'est autorisée que jusqu'au moment où on a déterminé que les éléments de couture respectivement les installations de couture - dans lesquelles ces machines à coudre seront incorporées - sont conformes avec les normes de la C.E.E. *

1. La mise en route de chaque machine ne peut être effectuée que par des opérateurs qualifiés
2. Observez les règles de sécurité en vigueur dans votre pays.
3. Chaque machine ne peut être utilisée que pour ce qu'elle est prévue. Un autre usage au delà de la description n'est pas prévu.
4. Tout l'appareillage de sécurité doit être mis en place lorsque la machine est prête à l'emploi. Opérer sans appareillage de sécurité n'est pas autorisé
5. Pour votre protection personnelle, nous vous recommandons de porter des lunettes de sécurité
6. En cas de conversion de la machine et de changements, toutes les règles de sécurité en vigueur doivent être considérées. Des conversions et changements sont effectués à vos propres risques
7. Les avertissements dans les instructions sont marqués avec un des symboles suivants



8. Pour la suite la machine doit être déconnectée du réseau électrique soit par déconnexion de l'interrupteur ou soit par isolement de la machine du secteur.
 - 8.1. Pour enfiler le(s) aiguille(s), le crochet, fil de couverture, etc.
 - 8.2. Pour remplacer les pièces de couture telles qu'aiguille, pied-presseur, plaque à aiguille, crochet, doigt de couverture, transporteur, protège-aiguille, guide, guide-tissu, etc
 - 8.3. Quand on quitte le lieu de travail et quand le lieu de travail est sans surveillance
 - 8.4. Pour des travaux d'entretien.
 - 8.5. En cas d'emploi de moteurs à friction sans sécurité d'arrêt, il faut attendre l'arrêt total du moteur.
 9. Entretien, réparation et travaux de conversion (voir art. 6) ne doivent être exécutés que par des techniciens spécialisés ou par du personnel qualifié. Pour les dépannages seulement de pièces de rechange Union Special originales doivent être utilisées.
 10. Tout travail à l'équipement électrique doit être exécuté par des électriciens ou sous supervision de personnel qualifié.
 11. Des travaux aux pièces détachées et équipements sous tension électrique ne sont pas autorisés. Les exceptions sont décrites dans les secteurs appropriés de la feuille standard EN 50110
 12. Avant d'effectuer des travaux de service et de réparation à l'équipement pneumatique, la machine doit être déconnectée de l'alimentation du compresseur d'air. Si - après déconnexion de l'alimentation du compresseur d'air - il reste encore de la pression (p.e. à des installations pneumatiques avec un réservoir d'air) il faut évacuer l'air complètement. Exception est faite pour des travaux d'ajustements et de contrôle des fonctions, faits par du personnel qualifié
- * Cette restriction n'est pas valable sur machines à coudre respectivement installations à coudre livrées par Union Special

Union Special Corporation
One Union Special Plaza, Huntley, IL. 60142, USA

Union Special GmbH, Raiffelsenstraße 3,
D-71696 Möglingen, Fed. Rep. of Germany

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APPENDIX I - MANUFACTURED PLANTING SOIL DATA

MANUFACTURED

PLANTING

SOIL

The Middlesex Corporation (TMC) hired BATG Environmental Inc. of Hingham, Massachusetts to sample and get analysis on material to be used as ordinary borrow at The Regional Transportation Center in Woburn, Massachusetts. The Project Owner was the Massachusetts Port Authority (MPA). The MPA project number was 1.727. The Massachusetts Department of Environmental Protection project Identification Number was DEP #348-409.

BATG sampled the borrow at a material pit and Con-Test Analytical Laboratory tested and produced the following test results. They are listed on reports of thirteen and twenty pages that follow immediately in this Section.



RECEIVED FEB 22 2000

February 17, 2000

Report No. 25.19219.0002-1

Mr. Adam Westhaver
BATG Environmental
150 Recreation Park Dr., Unit #5
Hingham, MA 02043

Re: Woburn Regional
Transportation Center

Gentlemen:

The following are test results of a sample of soil as delivered to this laboratory on 2-8-00.

1. Sample Description

<u>Sample No.</u>	<u>Description</u>	<u>Source</u>
C-38	Sandy Gravel	BATG Environmental

2. Washed Sieve Analysis (% passing by weight)

<u>Sieve Size (mm)</u>	<u>Result</u>
1" (25.0)	100
3/4 (19.0)	96
1/2 (12.5)	87
3/8 (9.5)	82
#4 (4.75)	77
10 (2.00)	72
20 (.850)	66
40 (.425)	56
50 (.300)	29
80 (.180)	15
200 (.075)	9.4

Should you have any questions or require additional information, please do not hesitate to call.

Sincerely,

Thomas Bowker
Regional Division Manager

TB/dc





RECEIVED FEB 16 2000

39 Spruce Street • 2nd Floor • East Longmeadow, MA 01028 • FAX 413/525-6405 • TEL 413/525-2332

BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043
ATTN: ADAM WESTHAVER

REPORT DATE: 02/16/00

PURCHASE ORDER NUMBER: 00-100

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-46635
JOB NUMBER: 00-100

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report

PROJECT LOCATION: WRTC

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
MLO#1	00B02723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	8260 sludge (a)
MLO#1	00B02723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	8260 sludge (b)
MLO#1	00B02723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	8270-sludge bn-1
MLO#1	00B02723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	8270-sludge bn-2
MLO#1	00B02723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	8270-sludge-acid
MLO#1	00B02723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	cyanide-tot slgd
MLO#1	00B02723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	metals-8 slg icp
MLO#1	00B02723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	pest/pcbs-sludge
MLO#1	00B02723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	solids (percent)
MLO#1	00B02723	SOIL	MIDDLESEX LITTLETON OVER BORDER #1	tph gc dry 8100m

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

AIHA 308
MASSACHUSETTS MA100
CONNECTICUT PH-0567
NEW YORK ELAP 10899

AIHA ELLAP (LEAD) 6838
NEW HAMPSHIRE 2516
VERMONT DOH (LEAD) No. 15036
RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 2/17/00
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director



39 Spruce Street • 2nd Floor • East Longmeadow, MA 01028 • FAX 413/525-6405 • TEL 413/525-2332
02/16/00

ADAM WESTHAVER
BATG, ENVIRONMENTAL
150 RECREATION PARK DRIVE
HINGHAM, MA 02043

page 1 of 13

Purchase Order Number: 00-100

Project Location: WRTC
Date Received: 02/08/00

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00B02723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Acetone	mg/kg dry wt	ND	02/14/00	WSD	0.112		
Acrolein	mg/kg dry wt	ND	02/14/00	WSD	0.045		
Acrylonitrile	mg/kg dry wt	ND	02/14/00	WSD	0.017		
Benzene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Bromobenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
Bromochloromethane	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
Bromodichloromethane	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
Bromomethane	mg/kg dry wt	ND	02/14/00	WSD	0.003		
Bromoform	mg/kg dry wt	ND	02/14/00	WSD	0.003		
2-Butanone (MEK)	mg/kg dry wt	ND	02/14/00	WSD	0.027		
n-Butylbenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
sec-Butylbenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
tert-Butylbenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
Carbon Disulfide	mg/kg dry wt	ND	02/14/00	WSD	0.007		
Carbon Tetrachloride	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Chlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Chlorodibromomethane	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Chloroethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		
2-Chloroethylvinylether	mg/kg dry wt	ND	02/14/00	WSD	0.021		
Chloroform	mg/kg dry wt	ND	02/14/00	WSD	0.002		
Chloromethane	mg/kg dry wt	ND	02/14/00	WSD	0.034		
2-Chlorotoluene	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
4-Chlorotoluene	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
1,2-Dibromo-3-Chloropropane	mg/kg dry wt.	ND	02/14/00	WSD	0.004		
1,2-Dibromoethane	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
Dibromomethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,2-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,3-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
1,4-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.002		
cis-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	02/14/00	WSD	0.005		
trans-1,4-Dichloro-2-Butene	mg/kg dry wt	ND	02/14/00	WSD	0.005		
Dichlorodifluoromethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		

MDL = Method Detection Limit
ND = Not Detected
BDL = Below Detection Limit
NM = Not Measured

SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00802723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
1,1-Dichloroethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,2-Dichloroethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,1-Dichloroethylene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
cis-1,2-Dichloroethylene	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
trans-1,2-Dichloroethylene	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,2-Dichloropropane	mg/kg dry wt	ND	02/14/00	WSD	0.001		
1,3-Dichloropropane	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
2,2-Dichloropropane	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
1,1-Dichloropropene	mg/kg dry wt.	ND	02/14/00	WSD	0.003		
cis-1,3-Dichloropropene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
trans-1,3-Dichloropropene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Ethyl Benzene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Ethyl Methacrylate	mg/kg dry wt	ND	02/14/00	WSD	0.002		
Hexachlorobutadiene	mg/kg dry wt.	ND	02/14/00	WSD	0.003		
2-Hexanone	mg/kg dry wt	ND	02/14/00	WSD	0.022		
Iodomethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		
Isopropylbenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.001		
p-Isopropyltoluene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
MTBE	mg/kg dry wt	ND	02/14/00	WSD	0.002		
Methylene Chloride	mg/kg dry wt	BDL	02/14/00	WSD	0.034		
MIBK	mg/kg dry wt	ND	02/14/00	WSD	0.020		
Naphthalene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
n-Propylbenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
Styrene	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,1,1,2-Tetrachloroethane	mg/kg dry wt	ND	02/14/00	WSD	0.001		
1,1,2,2-Tetrachloroethane	mg/kg dry wt	ND	02/14/00	WSD	0.003		
Tetrachloroethylene	mg/kg dry wt	ND	02/14/00	WSD	0.001		
Toluene	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,2,3-Trichlorobenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
1,2,4-Trichlorobenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
1,1,1-Trichloroethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,1,2-Trichloroethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		

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SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



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02/16/00

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00802723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Trichloroethylene	mg/kg dry wt	ND	02/14/00	WSD	0.002		
Trichlorofluoromethane	mg/kg dry wt	ND	02/14/00	WSD	0.002		
1,2,3-Trichloropropane	mg/kg dry wt	ND	02/14/00	WSD	0.003		
1,2,4-Trimethylbenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
1,3,5-Trimethylbenzene	mg/kg dry wt.	ND	02/14/00	WSD	0.002		
Vinyl Acetate	mg/kg dry wt	ND	02/14/00	WSD	0.037		
Vinyl Chloride	mg/kg dry wt	ND	02/14/00	WSD	0.001		
m-Xylene	mg/kg dry wt	ND	02/14/00	WSD	0.003		
o + p Xylene	mg/kg dry wt	ND	02/14/00	WSD	0.001		

Analytical Method(s):

SW846 8260

SAMPLES ARE CONCENTRATED BY PURGE & TRAP, FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

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SPEC LIMIT = a client specified, recommended, or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.



Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00B02723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Acenaphthene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Acenaphthylene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Aniline	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Anthracene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Benzidine	mg/kg dry wt	ND	02/14/00	WSD	2.40		
Benzoic Acid	mg/kg dry wt	ND	02/14/00	WSD	1.03		
Benzo(a)anthracene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Benzo(a)pyrene	mg/kg dry wt	ND	02/14/00	WSD	0.69		
Benzo(b)fluoranthene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Benzo(g,h,i)perylene	mg/kg dry wt	ND	02/14/00	WSD	1.03		
Benzo(k)fluoranthene	mg/kg dry wt	ND	02/14/00	WSD	0.69		
Benzyl Alcohol	mg/kg dry wt	ND	02/14/00	WSD	0.69		
Bis(2-chloroethoxy)methane	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Bis(2-chloroethyl)ether	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Bis(2-chloroisopropyl)ether	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Bis(2-ethylhexyl)phthalate	mg/kg dry wt	ND	02/14/00	WSD	0.34		
4-Bromophenyl phenyl ether	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Butylbenzylphthalate	mg/kg dry wt	ND	02/14/00	WSD	0.69		
4-Chloroaniline	mg/kg dry wt	ND	02/14/00	WSD	0.69		
4-Chloro-3-methylphenol	mg/kg dry wt	ND	02/14/00	WSD	0.69		
2-Chloronaphthalene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2-Chlorophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
4-Chlorophenylphenyl ether	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Chrysene	mg/kg dry wt	ND	02/14/00	WSD	0.69		
Dibenzofuran	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Dibenz(a,h)anthracene	mg/kg dry wt	ND	02/14/00	WSD	0.69		
1,2-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1,3-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1,4-Dichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
3,3'-Dichlorobenzidine	mg/kg dry wt	ND	02/14/00	WSD	0.69		
2,4-Dichlorophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Diethylphthalate	mg/kg dry wt	ND	02/14/00	WSD	0.34		

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635

Job Number: 00-100

Sample Matrix: SOIL

Sampled: 02/07/00

MIDDLESEX LITTLETON OVER BORDER #1

MLO#1

	Units	00802723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
2,4-Dimethylphenol	mg/kg dry wt	ND	02/14/00	WSD	1.37		
Dimethylphthalate	mg/kg dry wt	ND	02/14/00	WSD	0.69		
Di-n-butylphthalate	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Di-n-octylphthalate	mg/kg dry wt	ND	02/14/00	WSD	0.69		
4,6-Dinitro-2-methylphenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2,4-Dinitrophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2,4-Dinitrotoluene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2,6-Dinitrotoluene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1,2-Diphenylhydrazine	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Fluoranthene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Fluorene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Hexachlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Hexachlorobutadiene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Hexachlorocyclopentadiene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Hexachloroethane	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Indeno(1,2,3-cd)pyrene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Isophorone	mg/kg dry wt	ND	02/14/00	WSD	0.34		
o-cresol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
m & p-cresol(s)	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2-Methylnaphthalene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Naphthalene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2-Nitroaniline	mg/kg dry wt	ND	02/14/00	WSD	0.34		
3-Nitroaniline	mg/kg dry wt	ND	02/14/00	WSD	0.34		
4-Nitroaniline	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Nitrobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2-Nitrophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
4-Nitrophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
N-Nitrosodimethylamine	mg/kg dry wt	ND	02/14/00	WSD	0.34		
N-Nitrosodiphenylamine	mg/kg dry wt	ND	02/14/00	WSD	0.34		
N-Nitroso-di-n-propylamine	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Pentachlorophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Phenanthrene	mg/kg dry wt	ND	02/14/00	WSD	0.34		

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00802723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Phenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
Pyrene	mg/kg dry wt	ND	02/14/00	WSD	1.03		
Pyridine	mg/kg dry wt	ND	02/14/00	WSD	0.34		
1,2,4-Trichlorobenzene	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2,4,5-Trichlorophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		
2,4,6-Trichlorophenol	mg/kg dry wt	ND	02/14/00	WSD	0.34		

Analytical Method(s):

SW846 8270

SAMPLES ARE EXTRACTED IN METHYLENE CHLORIDE/ACETONE AND FOLLOWED BY GC/MS TARGET COMPOUND ANALYSIS.

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00B02723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
----- Cyanide	mg/kg dry wt.	ND	02/16/00	SSK	1.0	-----	---

Analytical Method(s):

MODIFIED SW846 9012

DISTILLATION FOLLOWED BY REACTION WITH CHLORAMINE-T/PYRIDINE-BARBITURIC ACID AND PHOSPHATE BUFFER. ANALYSIS BY AUTOMATED FLOW INJECTION SPECTROPHOTOMETRY.

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635

Job Number: 00-100

Sample Matrix: SOIL

Sampled: 02/07/00

MIDDLESEX LITTLETON OVER BORDER #1

MLO#1

	Units	00802723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Arsenic	mg/kg dry wt.	8.94	02/14/00	PM	5.14		
Barium	mg/kg dry wt.	21.4	02/14/00	PM	0.10		
Cadmium	mg/kg dry wt.	ND	02/14/00	PM	0.05		
Chromium	mg/kg dry wt.	17.1	02/14/00	PM	0.36		
Lead	mg/kg dry wt.	3.90	02/14/00	PM	2.57		
Mercury	mg/kg dry wt.	ND	02/15/00	APP	0.008		
Selenium	mg/kg dry wt.	5.36	02/14/00	PM	5.14		
Silver	mg/kg dry wt.	ND	02/14/00	PM	0.51		

Analytical Method(s):

Arsenic
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Barium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Cadmium
SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Chromium
SW846 3050/6010

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regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.



SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Lead

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Mercury

SW846 3050/7471

SAMPLES ARE DIGESTED WITH ACIDS AND THEN ANALYZED BY
COLD VAPOR (FLAMELESS) ATOMIC ABSORPTION SPECTROPHOTOMETRY

Selenium

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

Silver

SW846 3050/6010

SAMPLES ARE DIGESTED WITH NITRIC ACID AND THEN ANALYZED BY
INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY.

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NM = Not Measured

SPEC LIMIT = a client specified, recommended, or
regulatory level for comparison with data to
determine PASS (P) or FAIL (F) condition of results.

Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635
Job Number: 00-100
Sample Matrix: SOIL

Sampled: 02/07/00
MIDDLESEX LITTLETON OVER BORDER #1
MLO#1

	Units	00B02723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
Aldrin	mg/kg dry wt	ND	02/09/00	JB	0.03		
alpha-BHC	mg/kg dry wt	ND	02/09/00	JB	0.03		
beta-BHC	mg/kg dry wt	ND	02/09/00	JB	0.03		
delta-BHC	mg/kg dry wt	ND	02/09/00	JB	0.03		
gamma-BHC (Lindane)	mg/kg dry wt	ND	02/09/00	JB	0.03		
Chlordane	mg/kg dry wt	ND	02/09/00	JB	0.10		
4,4'-DDD	mg/kg dry wt	ND	02/09/00	JB	0.03		
4,4'-DDE	mg/kg dry wt	ND	02/09/00	JB	0.03		
4,4'-DDT	mg/kg dry wt	ND	02/09/00	JB	0.03		
Dieldrin	mg/kg dry wt	ND	02/09/00	JB	0.03		
Endosulfan I	mg/kg dry wt	ND	02/09/00	JB	0.03		
Endosulfan II	mg/kg dry wt	ND	02/09/00	JB	0.03		
Endosulfan Sulfate	mg/kg dry wt	ND	02/09/00	JB	0.03		
Endrin	mg/kg dry wt	ND	02/09/00	JB	0.03		
Endrin Aldehyde	mg/kg dry wt	ND	02/09/00	JB	0.03		
Heptachlor	mg/kg dry wt	ND	02/09/00	JB	0.03		
Heptachlor Epoxide	mg/kg dry wt	ND	02/09/00	JB	0.03		
Methoxychlor	mg/kg dry wt	ND	02/09/00	JB	0.26		
PCB-1221	mg/kg dry wt.	ND	02/09/00	JB			
PCB-1232	mg/kg dry wt.	ND	02/09/00	JB			
PCB-1242	mg/kg dry wt.	ND	02/09/00	JB			
PCB-1248	mg/kg dry wt.	ND	02/09/00	JB			
PCB-1254	mg/kg dry wt.	ND	02/09/00	JB			
PCB-1260	mg/kg dry wt.	ND	02/09/00	JB			
PCB's	mg/kg dry wt.	ND	02/09/00	JB	0.026		
Toxaphene	mg/kg dry wt	ND	02/09/00	JB	0.10		

Analytical Method(s):

SW846 3550/8082

SAMPLES ARE EXTRACTED WITH SONICATION, CONCENTRATED, AND ANALYZED BY GAS

MDL = Method Detection Limit
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CHROMATOGRAPHY WITH ELECTRON CAPTURE DETECTION.

MDL = Method Detection Limit
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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635

Job Number: 00-100

Sample Matrix: SOIL

Sampled: 02/07/00

MIDDLESEX LITTLETON OVER BORDER #1

MLO#1

	Units	00B02723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Solids, total	%	97.3	02/10/00	SBP			

Analytical Method(s):

SM 2540G

PERCENT OF SAMPLE REMAINING AFTER DRYING OVERNIGHT AT 103-105 DEGREES CENTIGRADE.

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Purchase Order Number: 00-100

LIMS-BAT #: LIMS-46635

Job Number: 00-100

Sample Matrix: SOIL

Sampled: 02/07/00

MIDDLESEX LITTLETON OVER BORDER #1

MLO#1

	Units	00802723	Date Analyzed	Analyst	MDL	SPEC LIMIT	P/F
-----	-----	-----	-----	-----	---	-----	---
Unknown Hydrocarbons	mg/kg dry wt.	BDL	02/10/00	MFF	8.6		

Analytical Method(s):

MODIFIED SW846 8100

SAMPLES ARE EXTRACTED INTO METHYLENE CHLORIDE AND ANALYZED BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION (FID). ALL PEAKS ELUTING IN THE PETROLEUM FUEL REGION ARE QUANTITATED AS #2 FUEL OIL.

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 02/16/00

Lims Bat #: LIMS-46635

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QC Batch Number: CYANIDE-0780

Sample Id	Analysis	QC Analysis	Values	Units	Limits
00B02723	Cyanide	Sample Amount	<1.025	mg/kg dry wt.	
		Duplicate Value	<1.025	mg/kg dry wt.	



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 QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 02/16/00

Lims Bat #: LIMS-46635

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QC Batch Number: GC/ECD-2986

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00B02723	Chlordane	Sample Amount	<0.10	mg/kg dry wt	
		Duplicate Value	<0.10	mg/kg dry wt	
	PCB-1232	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	PCB-1242	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	PCB-1254	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	PCB-1260	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	PCB-1248	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	PCB-1221	Sample Amount	0.000	mg/kg dry wt.	
		Duplicate Value	0.000	mg/kg dry wt.	
	alpha-BHC	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	83.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.08	mg/kg dry wt	
		MSD % Recovery	80.50	%	
		MSD Range	2.50	units	
		delta-BHC	Sample Amount	<0.03	mg/kg dry wt
	Duplicate Value		<0.03	mg/kg dry wt	
Sample Amount	<0.03		mg/kg dry wt		
Matrix Spk Amt Added	0.10		mg/kg dry wt		
MS Amt Measured	0.06		mg/kg dry wt		
Matrix Spike % Rec.	57.50		%		
Duplicate Sample Amt	<0.03		mg/kg dry wt		
MSD Amount Added	0.10		mg/kg dry wt		
MSD Amt Measured	0.06		mg/kg dry wt		
MSD % Recovery	55.00		%		
MSD Range	2.50		units		
beta-BHC	Sample Amount		<0.03	mg/kg dry wt	
	Duplicate Value	<0.03	mg/kg dry wt		
	Sample Amount	<0.03	mg/kg dry wt		



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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates
 Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab Fortified Blanks and Duplicates
 Standard Reference Materials and Duplicates
 Method Blanks

Report Date: 02/16/00

Lims Bat #: LIMS-46635

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QC Batch Number: GC/ECD-2986

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	90.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	
		MSD % Recovery	88.50	%	
		MSD Range	1.50	units	
	gamma-BHC (Lindane)	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	89.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	
		MSD % Recovery	86.00	%	
		MSD Range	3.00	units	
	Heptachlor	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	90.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	
		MSD % Recovery	88.00	%	
		MSD Range	2.00	units	
	Aldrin	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	89.50	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	



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Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		MSD % Recovery	87.00	%	
		MSD Range	2.50	units	
	Heptachlor Epoxide	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.10	mg/kg dry wt	
		Matrix Spike % Rec.	95.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.10	mg/kg dry wt	
		MSD % Recovery	92.50	%	
		MSD Range	2.50	units	
	Endosulfan I	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.08	mg/kg dry wt	
		Matrix Spike % Rec.	80.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.08	mg/kg dry wt	
		MSD % Recovery	79.50	%	
		MSD Range	0.50	units	
	4,4'-DDE	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	92.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	
		MSD % Recovery	89.00	%	
		MSD Range	3.00	units	
	Dieldrin	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	



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Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		MS Amt Measured	0.09	mg/kg dry wt	
		Matrix Spike % Rec.	89.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.09	mg/kg dry wt	
		MSD % Recovery	83.50	%	
		MSD Range	5.50	units	
	Endrin	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.10	mg/kg dry wt	
		Matrix Spike % Rec.	97.50	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.10	mg/kg dry wt	
		MSD % Recovery	97.50	%	
		MSD Range	0.00	units	
	4,4'-DDD	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.11	mg/kg dry wt	
		Matrix Spike % Rec.	105.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.11	mg/kg dry wt	
		MSD % Recovery	105.00	%	
		MSD Range	0.00	units	
	Endosulfan II	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.10	mg/kg dry wt	
		Matrix Spike % Rec.	92.50	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.10	mg/kg dry wt	
		MSD % Recovery	92.50	%	



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Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		MSD Range	0.00	units	
	4,4'-DDT	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.06	mg/kg dry wt	
		Matrix Spike % Rec.	56.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.06	mg/kg dry wt	
		MSD % Recovery	55.00	%	
		MSD Range	1.00	units	
	Endrin Aldehyde	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.12	mg/kg dry wt	
		Matrix Spike % Rec.	120.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.12	mg/kg dry wt	
		MSD % Recovery	120.00	%	
		MSD Range	0.00	units	
	Endosulfan Sulfate	Sample Amount	<0.03	mg/kg dry wt	
		Duplicate Value	<0.03	mg/kg dry wt	
		Sample Amount	<0.03	mg/kg dry wt	
		Matrix Spk Amt Added	0.10	mg/kg dry wt	
		MS Amt Measured	0.07	mg/kg dry wt	
		Matrix Spike % Rec.	70.00	%	
		Duplicate Sample Amt	<0.03	mg/kg dry wt	
		MSD Amount Added	0.10	mg/kg dry wt	
		MSD Amt Measured	0.08	mg/kg dry wt	
		MSD % Recovery	75.00	%	
		MSD Range	5.00	units	
	Methoxychlor	Sample Amount	<0.26	mg/kg dry wt	
		Duplicate Value	<0.26	mg/kg dry wt	
		Sample Amount	<0.26	mg/kg dry wt	
		Matrix Spk Amt Added	0.51	mg/kg dry wt	
		MS Amt Measured	0.53	mg/kg dry wt	



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Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
		Matrix Spike % Rec.	103.00	%	
		Duplicate Sample Amt	<0.26	mg/kg dry wt	
		MSD Amount Added	0.51	mg/kg dry wt	
		MSD Amt Measured	0.49	mg/kg dry wt	
		MSD % Recovery	96.00	%	
		MSD Range	7.00	units	
	Toxaphene	Sample Amount	<0.10	mg/kg dry wt	
		Duplicate Value	<0.10	mg/kg dry wt	
	PCB's	Sample Amount	<0.026	mg/kg dry wt.	
		Duplicate Value	<0.026	mg/kg dry wt.	
	Dibutyl Chlorendate	Surrogate Recovery	119.5	%	
BLANK-23922	Chlordane	Blank	<0.10	mg/kg dry wt	
	PCB-1232	Blank	0.000	mg/kg dry wt.	
	PCB-1242	Blank	0.000	mg/kg dry wt.	
	PCB-1254	Blank	0.000	mg/kg dry wt.	
	PCB-1260	Blank	0.000	mg/kg dry wt.	
	PCB-1248	Blank	0.000	mg/kg dry wt.	
	PCB-1221	Blank	0.000	mg/kg dry wt.	
	alpha-BHC	Blank	<0.02	mg/kg dry wt	
	delta-BHC	Blank	<0.02	mg/kg dry wt	
	beta-BHC	Blank	<0.02	mg/kg dry wt	
	gamma-BHC (Lindane)	Blank	<0.02	mg/kg dry wt	
	Heptachlor	Blank	<0.02	mg/kg dry wt	
	Aldrin	Blank	<0.02	mg/kg dry wt	
	Heptachlor Epoxide	Blank	<0.02	mg/kg dry wt	
	Endosulfan I	Blank	<0.02	mg/kg dry wt	
	4,4'-DDE	Blank	<0.02	mg/kg dry wt	
	Dieldrin	Blank	<0.02	mg/kg dry wt	
	Endrin	Blank	<0.02	mg/kg dry wt	
	4,4'-DDD	Blank	<0.02	mg/kg dry wt	
	Endosulfan II	Blank	<0.02	mg/kg dry wt	
	4,4'-DDT	Blank	<0.02	mg/kg dry wt	
	Endrin Aldehyde	Blank	<0.02	mg/kg dry wt	
	Endosulfan Sulfate	Blank	<0.02	mg/kg dry wt	
	Methoxychlor	Blank	<0.25	mg/kg dry wt	
	Toxaphene	Blank	<0.10	mg/kg dry wt	
	PCB's	Blank	<0.025	mg/kg dry wt.	



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QC Batch Number: GC/FID-3193

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00802723	Unknown Hydrocarbons	Sample Amount	<8.6	mg/kg dry wt.	
		Duplicate Value	<8.6	mg/kg dry wt.	
		Duplicate RPD	0.0	%	
		Sample Amount	<8.6	mg/kg dry wt.	
		Matrix Spk Amt Added	34.3	mg/kg dry wt.	
		MS Amt Measured	27.2	mg/kg dry wt.	
		Matrix Spike % Rec.	61.6	%	
		Duplicate Sample Amt	<8.6	mg/kg dry wt.	
		MSD Amount Added	34.3	mg/kg dry wt.	
		MSD Amt Measured	29.9	mg/kg dry wt.	
		MSD % Recovery	69.4	%	
		MSD Range	7.8	units	
		BLANK-23842	Unknown Hydrocarbons	Blank	<8.3



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QC Batch Number: GCMS/SEM1-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00802723	Naphthalene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	1,2-Dichlorobenzene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Acenaphthene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	3.43	mg/kg dry wt	
		MS Amt Measured	2.37	mg/kg dry wt	
		Matrix Spike % Rec.	69.20	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	3.43	mg/kg dry wt	
		MSD Amt Measured	2.21	mg/kg dry wt	
		MSD % Recovery	64.38	%	
	MSD Range	4.82	units		
	Acenaphthylene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Aniline	Sample Amount	<0.34	mg/kg dry wt	
Duplicate Value		<0.34	mg/kg dry wt		
Anthracene	Sample Amount	<0.34	mg/kg dry wt		
	Duplicate Value	<0.34	mg/kg dry wt		
Benzidine	Sample Amount	<2.40	mg/kg dry wt		
	Duplicate Value	<2.40	mg/kg dry wt		
Benzo(a)anthracene	Sample Amount	<0.34	mg/kg dry wt		
	Duplicate Value	<0.34	mg/kg dry wt		
Benzo(a)pyrene	Sample Amount	<0.69	mg/kg dry wt		
	Duplicate Value	<0.69	mg/kg dry wt		
Benzo(b)fluoranthene	Sample Amount	<0.34	mg/kg dry wt		
	Duplicate Value	<0.34	mg/kg dry wt		
Benzo(g,h,i)perylene	Sample Amount	<1.03	mg/kg dry wt		
	Duplicate Value	<1.03	mg/kg dry wt		
Benzoic Acid	Sample Amount	<1.03	mg/kg dry wt		
	Duplicate Value	<1.03	mg/kg dry wt		
Benzyl Alcohol	Sample Amount	<0.69	mg/kg dry wt		
	Duplicate Value	<0.69	mg/kg dry wt		
Bis(2-chloroethyl)et	Sample Amount	<0.34	mg/kg dry wt		
	Duplicate Value	<0.34	mg/kg dry wt		
Bis(2-chloroethoxy)m	Sample Amount	<0.34	mg/kg dry wt		
	Duplicate Value	<0.34	mg/kg dry wt		



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Sample Id	Analysis	QC Analysis	Values	Units	Limits
	Bis(2-chloroisopropyl)	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Bis(2-ethylhexyl)pht	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	4-Bromophenyl phenyl	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Butylbenzylphthalate	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	4-Chloroaniline	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	2-Chloronaphthalene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	4-Chlorophenylphenyl	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Chrysene	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Dibenz(a,h)anthracen	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Dibenzofuran	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	3,3'-Dichlorobenzidi	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Diethylphthalate	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Dimethylphthalate	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Di-n-butylphthalate	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2,4-Dinitrotoluene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	3.43	mg/kg dry wt	
		MS Amt Measured	2.56	mg/kg dry wt	
		Matrix Spike % Rec.	74.67	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	3.43	mg/kg dry wt	
		MSD Amt Measured	2.52	mg/kg dry wt	
		MSD % Recovery	73.61	%	
		MSD Range	1.06	units	



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	2,6-Dinitrotoluene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	1,2-Diphenylhydrazin	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Di-n-octylphthalate	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Fluoranthene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Fluorene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Hexachlorobenzene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Hexachlorobutadiene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Hexachlorocyclopenta	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Hexachloroethane	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Indeno(1,2,3-cd)pyre	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Isophorone	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2-Methylnaphthalene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2-Nitroaniline	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	3-Nitroaniline	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Nitrobenzene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	N-Nitrosodimethylami	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	N-Nitroso-di-n-propy	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	3.43	mg/kg dry wt	
		MS Amt Measured	2.05	mg/kg dry wt	
		Matrix Spike % Rec.	59.77	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	



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		MSD Amount Added	3.43	mg/kg dry wt	
		MSD Amt Measured	1.91	mg/kg dry wt	
		MSD % Recovery	55.82	%	
		MSD Range	3.95	units	
	N-Nitrosodiphenylami	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Phenanthrene	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Pyrene	Sample Amount	<1.03	mg/kg dry wt	
		Duplicate Value	<1.03	mg/kg dry wt	
		Sample Amount	<1.03	mg/kg dry wt	
		Matrix Spk Amt Added	3.43	mg/kg dry wt	
		MS Amt Measured	2.65	mg/kg dry wt	
		Matrix Spike % Rec.	77.44	%	
		Duplicate Sample Amt	<1.03	mg/kg dry wt	
		MSD Amount Added	3.43	mg/kg dry wt	
		MSD Amt Measured	2.74	mg/kg dry wt	
		MSD % Recovery	79.85	%	
		MSD Range	2.41	units	
	1,2,4-Trichlorobenze	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	3.43	mg/kg dry wt	
		MS Amt Measured	2.17	mg/kg dry wt	
		Matrix Spike % Rec.	63.44	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	3.43	mg/kg dry wt	
		MSD Amt Measured	2.10	mg/kg dry wt	
		MSD % Recovery	61.20	%	
		MSD Range	2.24	units	
	4-Chloro-3-methylphe	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
		Sample Amount	<0.69	mg/kg dry wt	
		Matrix Spk Amt Added	6.85	mg/kg dry wt	
		MS Amt Measured	4.79	mg/kg dry wt	
		Matrix Spike % Rec.	69.84	%	
		Duplicate Sample Amt	<0.69	mg/kg dry wt	
		MSD Amount Added	6.85	mg/kg dry wt	
		MSD Amt Measured	4.63	mg/kg dry wt	



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QC Batch Number: GCMS/SEMI-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
		MSD % Recovery	67.50	%	
		MSD Range	2.34	units	
	2-Chlorophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	6.85	mg/kg dry wt	
		MS Amt Measured	3.76	mg/kg dry wt	
		Matrix Spike % Rec.	54.92	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	6.85	mg/kg dry wt	
		MSD Amt Measured	3.63	mg/kg dry wt	
		MSD % Recovery	52.96	%	
		MSD Range	1.96	units	
	2,4-Dichlorophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2,4-Dimethylphenol	Sample Amount	<1.37	mg/kg dry wt	
		Duplicate Value	<1.37	mg/kg dry wt	
	4,6-Dinitro-2-methyl	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2,4-Dinitrophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	o-cresol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	m & p-cresol(s)	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2-Nitrophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	4-Nitrophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	6.85	mg/kg dry wt	
		MS Amt Measured	4.92	mg/kg dry wt	
		Matrix Spike % Rec.	71.80	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	6.85	mg/kg dry wt	
		MSD Amt Measured	5.22	mg/kg dry wt	
		MSD % Recovery	76.14	%	
		MSD Range	4.33	units	
	Phenol	Sample Amount	<0.34	mg/kg dry wt	



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QC Batch Number: GCMS/SEMI-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	6.85	mg/kg dry wt	
		MS Amt Measured	3.56	mg/kg dry wt	
		Matrix Spike % Rec.	52.00	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	6.85	mg/kg dry wt	
		MSD Amt Measured	3.49	mg/kg dry wt	
		MSD % Recovery	50.92	%	
		MSD Range	1.08	units	
	2,4,5-Trichloropheno	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	2,4,6-Trichloropheno	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Pentachlorophenol	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
		Sample Amount	<0.34	mg/kg dry wt	
		Matrix Spk Amt Added	6.85	mg/kg dry wt	
		MS Amt Measured	5.38	mg/kg dry wt	
		Matrix Spike % Rec.	78.56	%	
		Duplicate Sample Amt	<0.34	mg/kg dry wt	
		MSD Amount Added	6.85	mg/kg dry wt	
		MSD Amt Measured	5.76	mg/kg dry wt	
		MSD % Recovery	84.00	%	
		MSD Range	5.44	units	
	Pyridine	Sample Amount	<0.34	mg/kg dry wt	
		Duplicate Value	<0.34	mg/kg dry wt	
	Benzo(k)fluoranthene	Sample Amount	<0.69	mg/kg dry wt	
		Duplicate Value	<0.69	mg/kg dry wt	
	Phenol-d6	Surrogate Recovery	59.8	%	24.0-113.0
	Nitrobenzene-d5	Surrogate Recovery	64.4	%	23.0-120.0
	2-Fluorobiphenyl	Surrogate Recovery	64.8	%	25.0-121.0
	2,4,6-Tribromophenol	Surrogate Recovery	72.0	%	19.0-122.0
	Terphenyl-d14	Surrogate Recovery	81.5	%	18.0-137.0
	2-Fluorophenol	Surrogate Recovery	62.1	%	30.0-115.0
BLANK-23923	Napthalene	Blank	<0.33	mg/kg dry wt	
	1,2-Dichlorobenzene	Blank	<0.33	mg/kg dry wt	
	Acenaphthene	Blank	<0.33	mg/kg dry wt	
	Acenaphthylene	Blank	<0.33	mg/kg dry wt	



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QC Batch Number: GCMS/SEMI-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
	Aniline	Blank	<0.33	mg/kg dry wt	
	Anthracene	Blank	<0.33	mg/kg dry wt	
	Benzidine	Blank	<2.33	mg/kg dry wt	
	Benzo(a)anthracene	Blank	<0.33	mg/kg dry wt	
	Benzo(a)pyrene	Blank	<0.67	mg/kg dry wt	
	Benzo(b)fluoranthene	Blank	<0.33	mg/kg dry wt	
	Benzo(g,h,i)perylene	Blank	<1.00	mg/kg dry wt	
	Benzoic Acid	Blank	<1.00	mg/kg dry wt	
	Benzyl Alcohol	Blank	<0.67	mg/kg dry wt	
	Bis(2-chloroethyl)et	Blank	<0.33	mg/kg dry wt	
	Bis(2-chloroethoxy)m	Blank	<0.33	mg/kg dry wt	
	Bis(2-chloroisopropy	Blank	<0.33	mg/kg dry wt	
	Bis(2-ethylhexyl)pht	Blank	<0.33	mg/kg dry wt	
	4-Bromophenyl phenyl	Blank	<0.33	mg/kg dry wt	
	Butylbenzylphthalate	Blank	<0.67	mg/kg dry wt	
	4-Chloroaniline	Blank	<0.67	mg/kg dry wt	
	2-Chloronaphthalene	Blank	<0.33	mg/kg dry wt	
	4-Chlorophenylphenyl	Blank	<0.33	mg/kg dry wt	
	Chrysene	Blank	<0.67	mg/kg dry wt	
	Dibenz(a,h)anthracen	Blank	<0.67	mg/kg dry wt	
	Dibenzofuran	Blank	<0.33	mg/kg dry wt	
	3,3'-Dichlorobenzidi	Blank	<0.67	mg/kg dry wt	
	Diethylphthalate	Blank	<0.33	mg/kg dry wt	
	Dimethylphthalate	Blank	<0.67	mg/kg dry wt	
	Di-n-butylphthalate	Blank	<0.33	mg/kg dry wt	
	2,4-Dinitrotoluene	Blank	<0.33	mg/kg dry wt	
	2,6-Dinitrotoluene	Blank	<0.33	mg/kg dry wt	
	1,2-Diphenylhydrazin	Blank	<0.33	mg/kg dry wt	
	Di-n-octylphthalate	Blank	<0.67	mg/kg dry wt	
	Fluoranthene	Blank	<0.33	mg/kg dry wt	
	Fluorene	Blank	<0.33	mg/kg dry wt	
	Hexachlorobenzene	Blank	<0.33	mg/kg dry wt	
	Hexachlorobutadiene	Blank	<0.33	mg/kg dry wt	
	Hexachlorocyclopenta	Blank	<0.33	mg/kg dry wt	
	Hexachloroethane	Blank	<0.33	mg/kg dry wt	
	Indeno(1,2,3-cd)pyre	Blank	<0.33	mg/kg dry wt	
	Isophorone	Blank	<0.33	mg/kg dry wt	
	2-Methylnaphthalene	Blank	<0.33	mg/kg dry wt	
	2-Nitroaniline	Blank	<0.33	mg/kg dry wt	



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QC Batch Number: GCMS/SEMI-2266

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
	3-Nitroaniline	Blank	<0.33	mg/kg dry wt	
	Nitrobenzene	Blank	<0.33	mg/kg dry wt	
	N-Nitrosodimethylami	Blank	<0.33	mg/kg dry wt	
	N-Nitroso-di-n-propy	Blank	<0.33	mg/kg dry wt	
	N-Nitrosodiphenylami	Blank	<0.33	mg/kg dry wt	
	Phenanthrene	Blank	<0.33	mg/kg dry wt	
	Pyrene	Blank	<1.00	mg/kg dry wt	
	1,2,4-Trichlorobenze	Blank	<0.33	mg/kg dry wt	
	4-Chloro-3-methylphe	Blank	<0.67	mg/kg dry wt	
	2-Chlorophenol	Blank	<0.33	mg/kg dry wt	
	2,4-Dichlorophenol	Blank	<0.33	mg/kg dry wt	
	2,4-Dimethylphenol	Blank	<1.33	mg/kg dry wt	
	4,6-Dinitro-2-methyl	Blank	<0.33	mg/kg dry wt	
	2,4-Dinitrophenol	Blank	<0.33	mg/kg dry wt	
	o-cresol	Blank	<0.33	mg/kg dry wt	
	m & p-cresol(s)	Blank	<0.33	mg/kg dry wt	
	2-Nitrophenol	Blank	<0.33	mg/kg dry wt	
	4-Nitrophenol	Blank	<0.33	mg/kg dry wt	
	Phenol	Blank	<0.33	mg/kg dry wt	
	2,4,5-Trichloropheno	Blank	<0.33	mg/kg dry wt	
	2,4,6-Trichloropheno	Blank	<0.33	mg/kg dry wt	
	Pentachlorophenol	Blank	<0.33	mg/kg dry wt	
	Pyridine	Blank	<0.33	mg/kg dry wt	
	Benzo(k)fluoranthene	Blank	<0.67	mg/kg dry wt	



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QC Batch Number: GCMS/VOL-4729

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00802723	1,2-Dichloroethane-d	Surrogate Recovery	109.600	%	56.000-128.000
	Toluene-d8	Surrogate Recovery	93.200	%	65.000-113.000
	Bromofluorobenzene	Surrogate Recovery	97.200	%	62.000-137.000
BLANK-23903	Acetone	Blank	<0.250	mg/kg dry wt	
	Benzene	Blank	<0.003	mg/kg dry wt	
	Carbon Tetrachloride	Blank	<0.002	mg/kg dry wt	
	Chloroform	Blank	<0.004	mg/kg dry wt	
	1,2-Dichloroethane	Blank	<0.004	mg/kg dry wt	
	1,4-Dichlorobenzene	Blank	<0.004	mg/kg dry wt	
	Ethyl Benzene	Blank	<0.003	mg/kg dry wt	
	2-Butanone (MEK)	Blank	<0.060	mg/kg dry wt	
	MIBK	Blank	<0.044	mg/kg dry wt	
	Naphthalene	Blank	<0.005	mg/kg dry wt.	
	Styrene	Blank	<0.004	mg/kg dry wt	
	Tetrachloroethylene	Blank	<0.002	mg/kg dry wt	
	Toluene	Blank	<0.004	mg/kg dry wt	
	1,1,1-Trichloroethan	Blank	<0.004	mg/kg dry wt	
	Trichloroethylene	Blank	<0.005	mg/kg dry wt	
	Trichlorofluorometha	Blank	<0.004	mg/kg dry wt	
	o + p Xylene	Blank	<0.002	mg/kg dry wt	
	m-Xylene	Blank	<0.006	mg/kg dry wt	
	1,2-Dichlorobenzene	Blank	<0.004	mg/kg dry wt	
	1,3-Dichlorobenzene	Blank	<0.003	mg/kg dry wt	
	1,1-Dichloroethane	Blank	<0.004	mg/kg dry wt	
	1,1-Dichloroethylene	Blank	<0.003	mg/kg dry wt	
	MTBE	Blank	<0.004	mg/kg dry wt	
	trans-1,2-Dichloroet	Blank	<0.004	mg/kg dry wt	
	Vinyl Chloride	Blank	<0.002	mg/kg dry wt	
	Methylene Chloride	Blank	<0.075	mg/kg dry wt	
	Chlorobenzene	Blank	<0.003	mg/kg dry wt	
	Chloromethane	Blank	<0.075	mg/kg dry wt	
	Bromomethane	Blank	<0.006	mg/kg dry wt	
	Chloroethane	Blank	<0.004	mg/kg dry wt	
	cis-1,3-Dichloroprop	Blank	<0.002	mg/kg dry wt	
	trans-1,3-Dichloropr	Blank	<0.002	mg/kg dry wt	
	Chlorodibromomethane	Blank	<0.002	mg/kg dry wt	
	1,1,2-Trichloroethan	Blank	<0.004	mg/kg dry wt	
	2-Chloroethylvinylet	Blank	<0.048	mg/kg dry wt	
	Bromoforn	Blank	<0.006	mg/kg dry wt	



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QC Batch Number: GCMS/VOL-4729

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
	1,1,2,2-Tetrachloroe	Blank	<0.007	mg/kg dry wt	
	2-Chlorotoluene	Blank	<0.003	mg/kg dry wt.	
	Hexachlorobutadiene	Blank	<0.006	mg/kg dry wt.	
	Isopropylbenzene	Blank	<0.003	mg/kg dry wt.	
	p-Isopropyltoluene	Blank	<0.004	mg/kg dry wt.	
	n-Propylbenzene	Blank	<0.004	mg/kg dry wt.	
	sec-Butylbenzene	Blank	<0.003	mg/kg dry wt.	
	tert-Butylbenzene	Blank	<0.004	mg/kg dry wt.	
	1,2,3-Trichlorobenze	Blank	<0.004	mg/kg dry wt.	
	1,2,4-Trichlorobenze	Blank	<0.004	mg/kg dry wt.	
	1,2,4-Trimethylbenze	Blank	<0.004	mg/kg dry wt.	
	1,3,5-Trimethylbenze	Blank	<0.005	mg/kg dry wt.	
	4-Chlorotoluene	Blank	<0.003	mg/kg dry wt.	
	Dibromomethane	Blank	<0.006	mg/kg dry wt	
	cis-1,2-Dichloroethy	Blank	<0.002	mg/kg dry wt.	
	1,1-Dichloropropene	Blank	<0.007	mg/kg dry wt.	
	1,2-Dichloropropane	Blank	<0.003	mg/kg dry wt	
	1,3-Dichloropropane	Blank	<0.002	mg/kg dry wt.	
	2,2-Dichloropropane	Blank	<0.004	mg/kg dry wt.	
	1,1,1,2-Tetrachloroe	Blank	<0.002	mg/kg dry wt	
	1,2,3-Trichloropropa	Blank	<0.006	mg/kg dry wt	
	n-Butylbenzene	Blank	<0.004	mg/kg dry wt.	
	Dichlorodifluorometh	Blank	<0.005	mg/kg dry wt	
	Bromochloromethane	Blank	<0.002	mg/kg dry wt.	
	Bromobenzene	Blank	<0.002	mg/kg dry wt.	
	Iodomethane	Blank	<0.004	mg/kg dry wt	
	Acrolein	Blank	<0.100	mg/kg dry wt	
	Acrylonitrile	Blank	<0.038	mg/kg dry wt	
	Carbon Disulfide	Blank	<0.015	mg/kg dry wt	
	Vinyl Acetate	Blank	<0.082	mg/kg dry wt	
	2-Hexanone	Blank	<0.048	mg/kg dry wt	
	trans-1,4-Dichloro-2	Blank	<0.010	mg/kg dry wt	
	Ethyl Methacrylate	Blank	<0.004	mg/kg dry wt	
	cis-1,4-Dichloro-2-B	Blank	<0.012	mg/kg dry wt	
	Bromodichloromethane	Blank	<0.002	mg/kg dry wt.	
	1,2-Dibromo-3-Chloro	Blank	<0.008	mg/kg dry wt.	
	1,2-Dibromoethane	Blank	<0.004	mg/kg dry wt.	



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QC Batch Number: HG-1381

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
BLANK-23930	Mercury	Blank	<0.010	mg/kg dry wt.	



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QC Batch Number: ICP-4178

Sample Id	Analysis	QC Analysis	Values	Units	Limits
-----	-----	-----	-----	-----	-----
00802723	Silver	Sample Amount	<0.51	mg/kg dry wt.	
		Duplicate Value	<0.51	mg/kg dry wt.	
	Arsenic	Sample Amount	8.94	mg/kg dry wt.	
		Duplicate Value	10.01	mg/kg dry wt.	
		Duplicate RPD	11.25	%	
	Barium	Sample Amount	21.45	mg/kg dry wt.	
		Duplicate Value	22.96	mg/kg dry wt.	
		Duplicate RPD	6.81	%	
	Cadmium	Sample Amount	<0.05	mg/kg dry wt.	
		Duplicate Value	0.06	mg/kg dry wt.	
		Duplicate RPD	200.00	%	
	Chromium	Sample Amount	17.14	mg/kg dry wt.	
		Duplicate Value	17.63	mg/kg dry wt.	
		Duplicate RPD	2.78	%	
	Lead	Sample Amount	3.90	mg/kg dry wt.	
		Duplicate Value	4.11	mg/kg dry wt.	
		Duplicate RPD	5.26	%	
	Selenium	Sample Amount	5.36	mg/kg dry wt.	
Duplicate Value		<5.14	mg/kg dry wt.		
Duplicate RPD		200.00	%		

CHAIN OF CUSTODY RECORD

Client Name: Middlesex Telephone: 781-740 2078
 Attn: Adam Westhaver Batch # _____
 Address: 150 Recreation Pl Home Project #: 00-100
Hungtown MA 02043
 Site Location: Branche/Hungtown WRTC Client P.O. #: 00-100
 Sampled By: AMW Fax #: 781-740 2079
 Call Results: Yes _____ No ✓
 Fax Results: Yes ✓ No _____

James 46635
Analysis Required

Field Sample I.D.	Sample Description	Lab #	DATE SAMPLED		Composite	Grab	MATRIX							Preservative (Use Code)	Container (Use Code)								
			Start Date/Time	Stop Date/Time			WASTE WATER	GROUND WATER	DWG WATER	Soil	Air	Other											
	Middlesex L. Athletes Overboard #1	0000723	1500	2-7-00	✓						✓			06 A	I	8260	8270	8080	ACIA 8 METALS	TRIT 800	Cyanide		

CONTAINER CODE: P: PLASTIC (___ Size) Ø = 40 ml vial Ø = Glass (83 size) Ø = 1000 ml Amber Ø = Other _____

PRESERVATIVE CODE: Ø ICED N = HNO₃ H = HCl S = NaOH T = Na₂S₂O₃ O = OTHER _____

Relinquished by: (Signature) [Signature] Date Time 1330 2-8-00 Received by: (Signature) [Signature] 28/00 1335

Relinquished by: (Signature) [Signature] Date Time 2/8/00 Received by: (Signature) [Signature] And a Paper 3°C

Relinquished by: (Signature) _____ Date Time _____ Received by: (Signature) _____

Turnaround Requested _____ 24-Hour _____ 48-Hour _____ Norm. _____
 Other 5-7 day Turn Date Required _____

Remarks/Comments: LAB Detection below 5' soil 8705

*MATRIX OTHER _____

The University of Massachusetts at Amherst was asked to analyze the plantable soil mixture and its components. They asked for new samples of the Ordinary Borrow along with the other components to perform some additional testing. Eight random samples were taken out of the already approved Ordinary Borrow stock pile. The U of M at Amherst test results of the Ordinary Borrow follow in this section.

SOIL ANALYSIS REPORT FOR RESEARCH

08/30/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S000828-201
BAG NUMBER: 44316

SOIL WEIGHT: 5.73 g/5cc

MIDDLESEX CORP, FLD. OFC. JOB 405
30A ATLANTIC AVENUE
WOBURN, MA 01801

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: LITTLETON ORDINARY BORROW #1
SOIL TYPE:

SOIL PH 5.8 ALUMINUM (AL): 14 PPM (Soil Range: 10-300)
BUFFER PH 7.4

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 1	XX			
POTASSIUM (K) 10	XX			
CALCIUM (CA) 44	X			
MAGNESIUM (MG) 6	X			
AMMONIUM (NH4-N) 0	X			
NITRATE (NO3-N) 1				

CATION EXCH CAP 0.3 MEQ/100G
PERCENT BASE SATURATION K= 8.2 MG-14.8 CA=77.2

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.1	0.1-2.0	Copper (Cu)	0.1	0.3-8.0
Manganese (Mn)	0.2	3 - 20	Iron (Fe)	1.8	1.0- 40
Zinc (Zn)	0.1	0.1- 70			

EXTRACTED LEAD (PB) 0 PPM. ESTIMATED TOTAL LEAD IS 32 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

SOIL ANALYSIS REPORT FOR RESEARCH

08/30/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S000828-202
BAG NUMBER: 44316

SOIL WEIGHT: 5.54 g/5cc

MIDDLESEX CORP, FLD. OFC. JOB 405
30A ATLANTIC AVENUE
WOBBURN, MA 01801

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: LITTLETON ORDINARY BORROW #2
SOIL TYPE:

SOIL PH 5.8 ALUMINUM (AL): 13 PPM (Soil Range: 10-300)
BUFFER PH 7.4

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 2		XX		
POTASSIUM (K) 10		XX		
CALCIUM (CA) 40		X		
MAGNESIUM (MG) 5		X		
AMMONIUM (NH4-N) 0		X		
NITRATE (NO3-N) 3		XX		

CATION EXCH CAP PERCENT BASE SATURATION
0.3 MEQ/100G K= 9.0 MG=13.5 CA=77.6

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.1	0.1-2.0	Copper (Cu)	0.2	0.3-8.0
Manganese (Mn)	0.2	3 - 20	Iron (Fe)	1.4	1.0- 40
Zinc (Zn)	0.1	0.1- 70			

EXTRACTED LEAD (PB) 0 PPM. ESTIMATED TOTAL LEAD IS 31 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

SOIL ANALYSIS REPORT FOR RESEARCH

08/30/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION

LAB NUMBER: S000828-203

BAG NUMBER: 44316

UNIVERSITY OF MASSACHUSETTS

AMHERST, MA 01003

SOIL WEIGHT: 5.99 g/5cc

MIDDLESEX CORP, FLD.OFC.JOB 405
30A ATLANTIC AVENUE
WOBURN, MA 01801

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: LITTLETON ORDINARY BORROW #3
SOIL TYPE:

SOIL PH 5.8 ALUMINUM (AL): 14 PPM (Soil Range: 10-300)
BUFFER PH 7.4

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 1		XX		
POTASSIUM (K) 10		XX		
CALCIUM (CA) 44		X		
MAGNESIUM (MG) 5		X		
AMMONIUM (NH4-N) 0		X		
NITRATE (NO3-N) 1				

CATION EXCH CAP 0.3 MEQ/100G PERCENT BASE SATURATION
K= 8.3 MG=13.6 CA=78.3

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.1	0.1-2.0	Copper (Cu)	0.2	0.3-8.0
Manganese (Mn)	0.3	3 - 20	Iron (Fe)	1.3	1.0- 40
Zinc (Zn)	0.1	0.1- 70			

EXTRACTED LEAD (PB) 0 PPM. ESTIMATED TOTAL LEAD IS 30 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

SOIL ANALYSIS REPORT FOR RESEARCH

08/30/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATIONLAB NUMBER: S000828-204
BAG NUMBER: 44316

UNIVERSITY OF MASSACHUSETTS

AMHERST, MA 01003

SOIL WEIGHT: 5.50 g/5cc

MIDDLESEX CORP, FLD.OFC.JOB 405
30A ATLANTIC AVENUE
WOBURN, MA 01801

CONCERNS:

ANALYSIS REPORTSAMPLE ID: LITTLETON ORDINARY BORROW #4
SOIL TYPE:SOIL PH 5.8 ALUMINUM (AL): 15 PPM (Soil Range: 10-300)
BUFFER PH 7.4

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 2	XXX			
POTASSIUM (K) 10	XX			
CALCIUM (CA) 43	X			
MAGNESIUM (MG) 5	X			
AMMONIUM (NH4-N) 0	X			
NITRATE (NO3-N) 3	XX			

CATION EXCH CAP PERCENT BASE SATURATION
0.3 MEQ/100G K= 8.6 MG=13.7 CA=77.9

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.1	0.1-2.0	Copper (Cu)	0.2	0.3-8.0
Manganese (Mn)	0.2	3 - 20	Iron (Fe)	1.7	1.0- 40
Zinc (Zn)	0.1	0.1- 70			

EXTRACTED LEAD (PB) 0 PPM. ESTIMATED TOTAL LEAD IS 31 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.-----
COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

SOIL ANALYSIS REPORT FOR RESEARCH

08/30/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S000828-205
BAG NUMBER: 44316

SOIL WEIGHT: 5.92 g/5cc

MIDDLESEX CORP, FLD. OFC. JOB 405
30A ATLANTIC AVENUE
WOBURN, MA 01801

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: LITTLETON ORDINARY BORROW #5
SOIL TYPE:

SOIL PH 5.8 ALUMINUM (AL): 15 PPM (Soil Range: 10-300)
BUFFER PH 7.4

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 2	XX			
POTASSIUM (K) 10	XX			
CALCIUM (CA) 47	X			
MAGNESIUM (MG) 5	X			
AMMONIUM (NH4-N) 0	X			
NITRATE (NO3-N) 2	X			

CATION EXCH CAP PERCENT BASE SATURATION
0.3 MEQ/100G K= 7.9 MG=13.2 CA=79.0

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.0	0.1-2.0	Copper (Cu)	0.2	0.3-8.0
Manganese (Mn)	0.3	3 - 20	Iron (Fe)	1.7	1.0- 40
Zinc (Zn)	0.1	0.1- 70			

EXTRACTED LEAD (PB) 0 PPM. ESTIMATED TOTAL LEAD IS 30 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.0 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

SOIL ANALYSIS REPORT FOR RESEARCH

08/30/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S00082B-206
BAG NUMBER: 44316

SOIL WEIGHT: 6.44 g/5cc

MIDDLESEX CORP, FLD.OFC.JOB 405
30A ATLANTIC AVENUE
WOBURN, MA 01801

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: LITTLETON ORDINARY BORROW #6
SOIL TYPE:

SOIL PH 5.8 ALUMINUM (AL): 16 PPM (Soil Range: 10-300)
BUFFER PH 7.4

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 2	XX			
POTASSIUM (K) 13	XXX			
CALCIUM (CA) 52	X			
MAGNESIUM (MG) 6	X			
AMMONIUM (NH4-N) 0	X			
NITRATE (NO3-N) 1				

CATION EXCH CAP PERCENT BASE SATURATION
0.3 MEQ/100G K= 9.2 MG=13.7 CA=77.2

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.0	0.1-2.0	Copper (Cu)	0.4	0.3-8.0
Manganese (Mn)	0.3	3 - 20	Iron (Fe)	1.7	1.0- 40
Zinc (Zn)	0.1	0.1- 70			

EXTRACTED LEAD (PB) 0 PPM. ESTIMATED TOTAL LEAD IS 30 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

SOIL ANALYSIS REPORT FOR RESEARCH

08/30/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S000828-207
BAG NUMBER: 44316

SOIL WEIGHT: 5.64 g/5cc

MIDDLESEX CORP, FLD.OFC.JOB 405
30A ATLANTIC AVENUE
WOBURN, MA 01801

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: LITTLETON ORDINARY BORROW #7
SOIL TYPE:

SOIL PH 5.8 ALUMINUM (AL): 15 PPM (Soil Range: 10-300)
BUFFER PH 7.4

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 2	XX			
POTASSIUM (K) 10	XX			
CALCIUM (CA) 48	X			
MAGNESIUM (MG) 6	X			
AMMONIUM (NH4-N) 0	X			
NITRATE (NO3-N) 2	X			

CATION EXCH CAP 0.3 MEQ/100G PERCENT BASE SATURATION
K= 7.7 MG=13.8 CA=78.7

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.1	0.1-2.0	Copper (Cu)	0.3	0.3-8.0
Manganese (Mn)	0.2	3 - 20	Iron (Fe)	1.5	1.0- 40
Zinc (Zn)	0.1	0.1- 70			

EXTRACTED LEAD (PB) 0 PPM. ESTIMATED TOTAL LEAD IS 32 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.1 PPM.

COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

SOIL ANALYSIS REPORT FOR RESEARCH

08/30/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S000828-208
BAG NUMBER: 44316

SOIL WEIGHT: 5.78 g/5cc

MIDDLESEX CORP, FLD. OFC. JOB 405
30A ATLANTIC AVENUE
WOBURN, MA 01801

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: LITTLETON ORDINARY BORROW #8
SOIL TYPE:

SOIL PH 5.8 ALUMINUM (AL): 17 PPM (Soil Range: 10-300)
BUFFER PH 7.4

NUTRIENT LEVELS: PPM		LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P)	2	XX			
POTASSIUM (K)	10	XX			
CALCIUM (CA)	50	X			
MAGNESIUM (MG)	6	X			
AMMONIUM (NH4-N)	0	X			
NITRATE (NO3-N)	2	X			

CATION EXCH CAP 0.3 MEQ/100G PERCENT BASE SATURATION
K= 7.4 MG=13.8 CA=78.9

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.1	0.1-2.0	Copper (Cu)	0.3	0.3-8.0
Manganese (Mn)	0.3	3 - 20	Iron (Fe)	1.7	1.0- 40
Zinc (Zn)	0.1	0.1- 70			

EXTRACTED LEAD (PB) 0 PPM. ESTIMATED TOTAL LEAD IS 32 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

The Engineer for the Project DEP #348-409, Stone & Webster, revised the contract quantity to Three Thousand, four Hundred, Thirty-nine cubic yards for the Manufactured Planting Soil (Contract Section 02900) in June of 2000. The contractor was to furnish a Sandy Borrow (test results seen previously in this section), a compost meeting Class A (E.P.A. Federal) or Type I (Massachusetts), and a peat to mix together to make a manufactured product. The contract specifications follow in this section identifying the required properties.



October 5, 2000

Massachusetts Port Authority
Capital Projects Department
One Harborside Drive, Suite 209S
East Boston, MA 02128-2909

Attention: Kenneth Johnson Jr. P.E.
Project Manager

Contract: Massachusetts Port Authority Project No. 1.727
Woburn Regional Transportation Center
Letter No. RN-MPA-146

Subject: Loam EPA Compliance

Dear Mr. Johnson:

Per request from MPA Resident Chris Ambrose Chemical Testing was performed on the Manufactured Loam that is going to be used as planting soil. The data sheets along with a cover letter from BATG are enclosed. Soil test results of the mixture for Organic Content have been forwarded to the Landscape Architect. The three component samples were within the parameters set forth in the project specifications for nutrients.

Sincerely,

A handwritten signature in black ink, appearing to read "Rick Noblet".

Rick Noblet P.E.
Project Manager

cc: Job/Central File
Cyril Ezumezu MBTA
Bill Bregoli MBTA
Chris Ambrose MPA
Bill Palmieri S&W
Laura Robinson P.E. TMC
Joe Phinney TMC
Al Taney P.E. Maverick

One Spectacle Pond Road • Littleton, MA 01460 • 978-742-4400 • 978-742-4455 FAX

Construction 978-742-4422 978-742-4423 FAX • Accounting 978-742-4466 978-742-4467 FAX
Estimating 978-742-4433 978-742-4434 FAX



BATG Environmental, Inc.

October 04, 2000

BATG Project Number: 20-100

The Middlesex Corporation
One Spectacle Pond Road
Littleton, Massachusetts 01460

Attn: Joseph Phinney
Rick Noblet

Re: Analytical Summarization regarding
Landscape Loam - 3 Materials
Woburn Regional Transportation Center, Woburn, MA

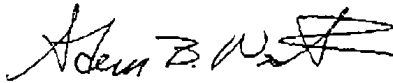
Gentlemen:

Attached please find a summary table containing analytical data summarizing laboratory results for the representative sample of materials identified as Landscape Loam - 3 Materials. BATG has reviewed the corresponding analytical data and is providing the following information. The analytical data indicates that constituents contained in the representative soil sample are below S-1 Soil Standards for all constituents except for total petroleum hydrocarbons by EPA method 8100. The S-1 Reportable Concentration for total petroleum hydrocarbons (TPH) is 200 parts per million (ppm). The soil sample indicated constituent concentrations of 310. Although the constituent concentrations of the soil sample indicate elevated levels of TPH, BATG believe that this was due to the high level of organic material contained in the Landscape Loam - 3 Material.

BATG consulted with Contest the laboratory performing the analyses and asked Contest to quantify the TPH constituents to aliphatic compounds detailed in the Massachusetts Contingency Plan (MCP) at 310 CMR 40.1600. Contest reviewed the soil samples chromatograph and determined that the soil sample elutes carbon ranges in the C₂₅ through C₃₆ aliphatic compound range. The MCP S-1 Reportable Concentration for aliphatic compound within this range is 2,500 ppm. Therefore, the soil sample is below the S-1 Soil Standards dictated by the criteria established in the project specifications.

If you have any questions or require further clarification please feel free to contact the undersigned at (781) 740-2078. Thank you for the opportunity to provide quality environmental services.

Sincerely,
BATG Environmental, Inc.



Adam B. Westhaver
Project Manager

cc: Project Files



39 Spruce Street - 2nd Floor - East Longmeadow, MA 01028 - FAX 413/525-6405 - TEL 413/525-2332

October 3, 2000

BATG Environmental
150 Recreation Place Drive
Singham, MA 02045
Attn: Adam Westhaver

Dear Adam:

This letter is to follow up on our conversation October 2, 2000 concerning an analysis for TPH by method 8100. Our laboratory ID for this sample was 00E25769. Looking at the chromatogram indicates that the contamination in the sample elutes at the very end of the analysis. Method 8100 normally does not give us the carbon ranges but in this case an aliphatic standard was analyzed during this run which indicates that the contamination starts at about C28 through about C36 (aliphatic). Aromatic standards were not analyzed during this run but it is estimated to start at about C18-C20. Attached are copies of the sample and standards analyzed.

If you have any questions please feel free to call.

Sincerely,

A handwritten signature in black ink that reads "Tod Kopyscinski". The signature is written in a cursive style with a large, sweeping "T" and "K".

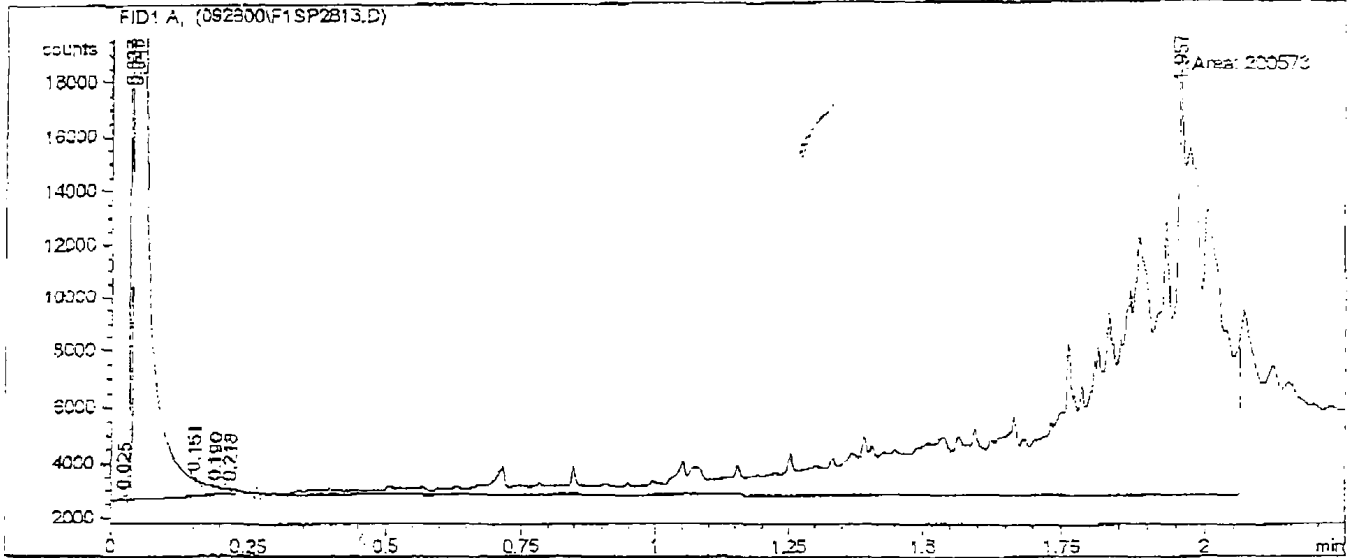
Tod Kopyscinski
Director of Operations

Injection Date : 9/28/00 1:27:22 PM
Sample Name : 25769 1;10
Acq. Operator : JB

Seq. Line : 13
Vial : 13
Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\1\METHODS\ETPH02.M
Last changed : 9/21/00 1:19:10 PM by JB
Analysis Method : C:\HPCHEM\1\METHODS\PETROF1.M
Last changed : 9/28/00 1:35:11 PM by JB
(modified after loading)

PETRO METHODS ETPH



External Standard Report

Sorted By : Retention Time
Calib. Data Modified : 9/28/00 1:35:08 PM
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: FID1 A,

RetTime [min]	Sig	Type	Area counts*s	Ant/Area	Amount [ng/ul]	Exp	Name
1.957	1	MM	2.00573e5	3.87940e-3	778.10355		#2 FUEL

Totals : 778.10355

Results obtained with enhanced integrator

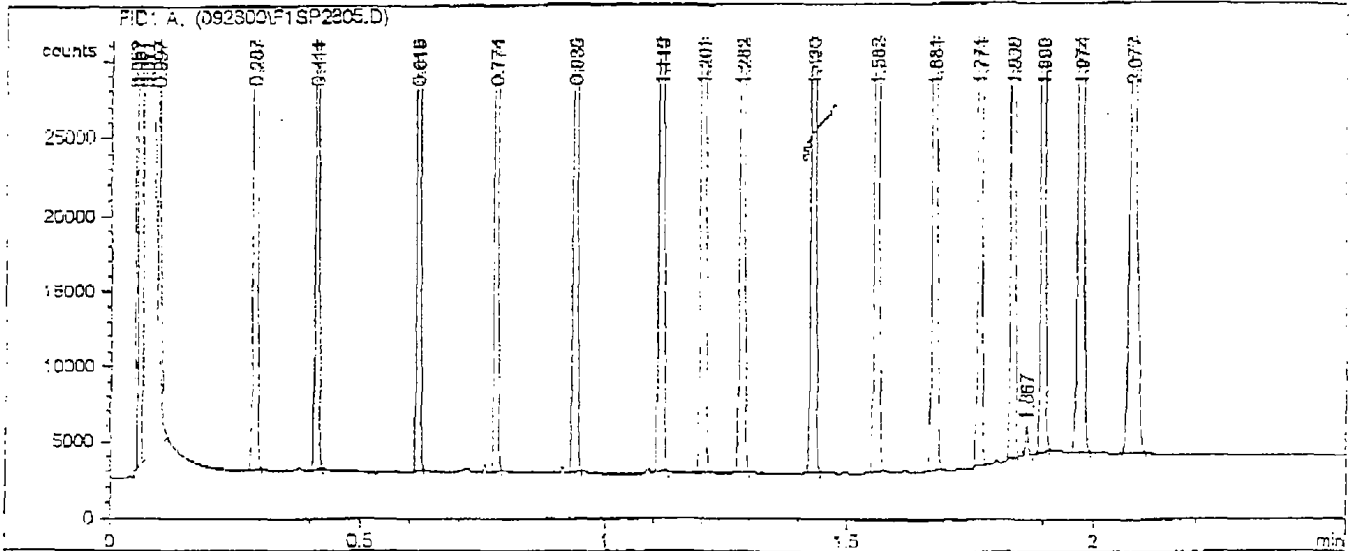
*** End of Report ***

Injection Date : 9/28/00 8:49:07 AM
Sample Name : ETPH 3000
Acq. Operator : JB

Seq. Line : 5
Vial : 51
Inj. : 1
Inj. Volume : 1 µl

Acq. Method : C:\HPCHEM\1\METHODS\ETPH02.M
Last changed : 9/21/00 1:19:10 PM by JB
Analysis Method : C:\HPCHEM\1\METHODS\ETPH02.M
Last changed : 9/28/00 9:36:31 AM by JB
(modified after loading)

PETRO METHODS ETPH



External Standard Report

Sorted By : Retention Time
Calib. Data Modified : 9/28/00 9:36:28 AM
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: FID1 A,

RetTime [min]	Sig	Type	Area counts*s	Amt/Area	Amount [ng/ul]	Exp	Name
0.257	1	BB	4.43343e4	4.84602e-3	214.84485	C-9	
0.411	1	BB	4.54523e4	4.74795e-3	215.80631	C-10	
0.616	1	BB	4.56517e4	4.71313e-3	214.68959	C-12	
0.774	1	BB	4.54625e4	4.70673e-3	213.98017	C-14	
0.936	1	BB	4.55417e4	4.65335e-3	211.92130	C-16	
1.115	1	BB	4.56426e4	4.65021e-3	212.24746	C-18	
1.201	1	BB	4.48629e4	4.73716e-3	212.52244	C-19	
1.282	1	BB	4.58798e4	4.63693e-3	212.74143	C-20	
1.430	1	BB	4.56311e4	4.66473e-3	212.85717	C-22	
1.552	1	BB	4.55721e4	4.71340e-3	214.79968	C-24	
1.681	1	BB	4.55359e4	4.75576e-3	216.55785	C-26	
1.771	1	BB	4.45593e4	4.91172e-3	218.91153	C-28	
1.838	1	BB	4.34223e4	5.07877e-3	220.53152	C-30	

Injection Date : 9/28/00 8:49:07 AM
Sample Name : ETPH 3000
Acq. Operator : JB

Seq. Line : 5
Vial : 5
Inj : 1
Inj Volume : 1 ul

Acq. Method : C:\HPCHEM\1\METHODS\ETPH02.M
Last changed : 9/22/00 1:19:10 PM by JB
Analysis Method : C:\HPCHEM\1\METHODS\ETPH02.M
Last changed : 9/28/00 8:36:31 AM by JB
(modified after loading)

PETRO METHODS ETPH

RetTime [min]	Sig	Type	Area counts*s	Amt/Area	Amount [ng/ul]	Grp	Name
1.899	1	BB	4.31365e4	5.12510e-3	221.07857	C-32	
1.974	1	BB	4.23698e4	5.26712e-3	223.15593	C-34	
2.077	1	MM	4.85670e4	6.95843e-3	282.28311	C-36	

Totals : 3528.93921

! Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)

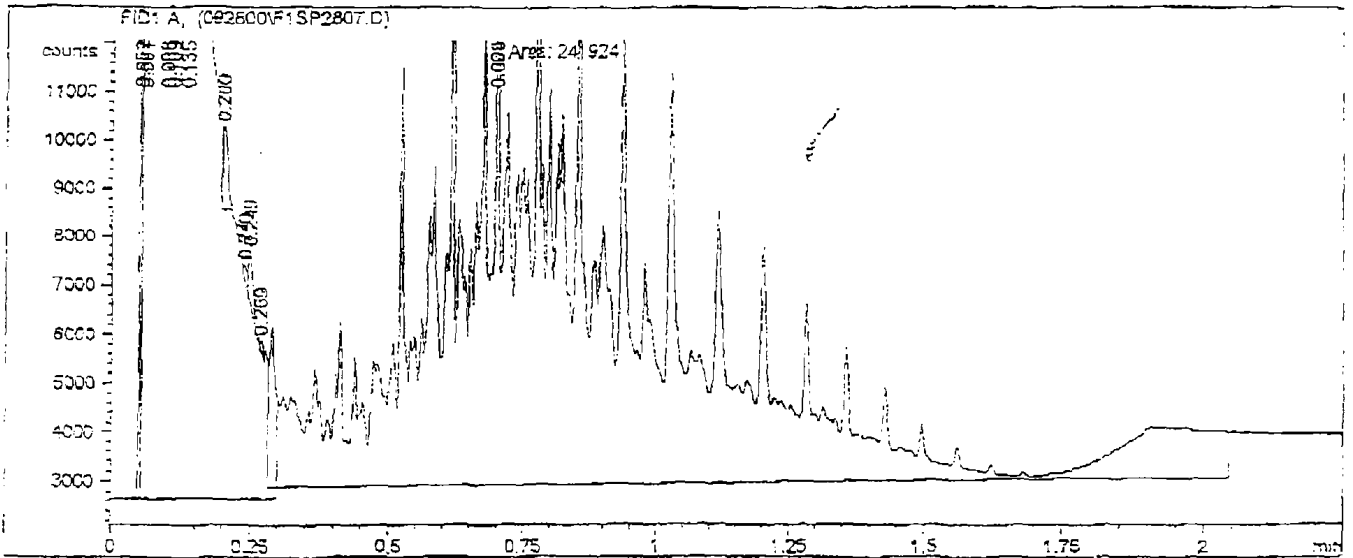
*** End of Report ***

Injection Date : 9/28/00 9:08:34 AM
Sample Name : #2 1000
Acq. Operator : JB

Seq. Line : 7
Vial : 7
Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\1\METHODS\ETPH01.M
Last changed : 7/13/00 11:34:14 AM by JB
Analysis Method : C:\HPCHEM\1\METHODS\PETROF1.M
Last changed : 9/28/00 9:45:42 AM by JB
(modified after loading)

PETRO METHODS ETPH



External Standard Report

Sorted By : Retention Time
Calib. Data Modified : 9/28/00 9:45:36 AM
Multiplier : 1.0000
Dilution : 1.0000

Signal 1: FID1 A,

RetTime [min]	Sig	Type	Area counts*s	Amt/Area	Amount [ng/µl]	Grp	Name
0.698	1	MM	2.41924e5	2.87940e-3	938.51931	#2	FUEL

Totals : 938.51931

Results obtained with enhanced integrator!

*** End of Report ***

TABLE 1
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Landscape Loam-3		RCS-1	Method 1
VPH				
C5 - C8 Aliphatic Hydrocarbons	-		100	100
C9 - C12 Aliphatic Hydrocarbons	-		1000	1000
C9 - C10 Aromatic Hydrocarbons	-		100	100
Benzene	-		10	10
Ethylbenzene	-		80	80
Methyl tert butyl ether (MTBE)	-		0.3	0.3
Naphthalene	-		4	4
Toluene	-		90	90
m & p Xylenes	-		500	500
o-Xylene	-		500	500
EPH				
C9 - C18 Aliphatic Hydrocarbons	-		1000	1000
C19 - C36 Aliphatic Hydrocarbons	-		2500	2500
C11 - C22 Aromatic Hydrocarbons	-		200	200
Acenaphthene	-		20	20
Acenaphthylene	-		100	100
Anthracene	-		1000	1000
Benzo(a)anthracene	-		0.7	0.7
Benzo(a)pyrene	-		0.7	0.7
Benzo(b)fluoranthene	-		0.7	0.7
Benzo(g,h,i)perylene	-		1000	1000
Benzo(k)fluoranthene	-		NA	7
Chrysene	-		7	7
Dibenzo(a,h)anthracene	-		0.7	0.7
Fluoranthene	-		1000	1000
Fluorene	-		400	400
Indeno(1,2,3-cd)pyrene	-		0.7	0.7
2-Methylnaphthalene	-		4	4
Naphthalene	-		4	4
Phenanthrene	-		100	100
Pyrene	-		700	700
VOLATILE ORGANIC COMPOUNDS				
volatile organic compounds	-		NA	NA

"-" = Non Detect

NA = Not Applicable

TABLE 1
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Landscape Learn-3	RCS-1	Method 1
POLYAROMATIC HYDROCARBONS			
Acenaphthalene	-	100	20
Acenaphthylene	-	100	100
Aniline	-	1000	1,000
Anthracene	-	1000	1,000
Benzidine	-	10	NA
Benzoic Acid	-	1000	NA
Benzo(a)anthracene	-	0.7	0.7
Benzo(a)pyrene	-	0.7	0.7
Benzo(b)fluoranthene	-	0.7	0.7
Benzo(g,h,i)perylene	-	1000	1,000
Benzo(k)fluoranthene	-	NA	7
Benzyl Alcohol	-	NA	NA
Bis(2-chloroethoxy)methane	-	500	NA
Bis(2-chloroethyl)ether	-	0.7	0.7
Bis(2-chloroisopropyl)ether	-	NA	0.7
Bis(2-ethylhexyl)phthalate	0.47	100	100
4-Bromophenyl phenyl ether	-	100	NA
Burylbenzylphthalate	-	100	NA
4-Chloroaniline	-	NA	NA
4-Chloro-3-methylphenol	-	NA	NA
2-Chloronaphthalene	-	1000	NA
2-Chlorophenol	-	0.7	0.7
4-Chlorophenylphenyl ether	-	1000	NA
Chrysene	-	7	7
Dibenzofuran	-	100	NA
Dibenz(a,h)anthracene	-	0.7	0.7
1,2-Dichlorobenzene	-	100	100
1,3-Dichlorobenzene	-	100	100
1,4-Dichlorobenzene	-	2	2
3,3'-Dichlorobenzidine	-	1	1
2,4-Dichlorobenzene	-	NA	NA
Diethylphthalate	-	0.7	0.7
2,4-Dimethylphenol	-	0.7	0.7
Dimethylphthalate	-	0.7	0.7
Di-n-butylphthalate	-	NA	NA
Di-n-octylphthalate	-	NA	NA
4,6-Dinitro-2-methylphenol	-	NA	NA
2,4-Dinitrophenol	-	3	3
2,4-Dinitrotoluene	-	0.7	0.7
2,6-Dinitrotoluene	-	100	NA
1,2-Diphenylhydrazine	-	50	NA
Fluoranthene	-	1000	1000
Fluorene	-	400	400
Hexachlorobenzene	-	0.7	0.7
Hexachlorobutadiene	-	3	3
Hexachlorocyclopentadiene	-	50	NA
Hexachloroethane	-	6	6
Indeno(1,2,3-cd)pyrene	-	0.7	0.7
Isophorone	-	100	NA
o-cresol	-	NA	NA
m&p-cresol(s)	0.56	NA	NA
2-Methylnaphthalene	-	4	4

TABLE 1
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Landscape Loam-3		RCS-1	Method 1
POLYAROMATIC HYDROCARBONS				
Napthalene	-		4	4
2-Nitroaniline	-		NA	NA
3-Nitroaniline	-		NA	NA
4-Nitroaniline	-		NA	NA
Nitrobenzene	-		500	NA
2-Nitrophenol	-		100	NA
4-Nitrophenol	-		100	NA
N-Nitrosodimethylamine	-		50	NA
N-Nitrosodiphenylamine	-		100	NA
N-Nitroso-di-n-propylamine	-		50	NA
Pentachlorophenol	-		5	5
Phenanthrene	-		100	100
Phenol	-		60	60
Pyrene	-		700	700
Pyridine	-		500	NA
1,2,4-Trichlorobenzene	-		100	100
2,4,5-Trichlorophenol	-		2	2
2,4,6-Trichlorophenol	-		3	3

"-" = Non Detect

NA = Not Applicable

TABLE 2
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Landscape Loam-3	RCS-1	Method 1
Total Petroleum Hydrocarbons	310	200	200
Metals			
Arsenic	7.06	30	30
Barium	26.6	1000	1000
Cadmium	0.08	30	30
Chromium	10.8	1000	1000
Lead	10	300	300
Mercury	0.056	20	20
Selenium	-	400	400
Silver	-	100	100
Cyanide	-	100	100
Aldrin	-	0.03	0.03
alpha-BHC	-	50	NA
beta-BHC	-	10	NA
delta-BHC	-	10	NA
gamma-BHC (lindane)	-	NA	NA
Chlordane	-	1	NA
4,4'-DDD	-	2	2
4,4'-DDE	-	2	2
4,4'-DDT	-	2	2
Dieldrin	-	0.03	0.03
Endosulfan I	-	NA	NA
Endosulfan II	-	NA	NA
Endosulfan Sulfate	-	NA	NA
Enarlin	-	0.6	0.6
Enarlin Aldehyde	-	10	NA
Heptachlor	-	0.1	0.1
Heptachlor Epoxide	-	0.06	0.06
Methoxychlor	-	30	30
PCB-1221	-	NA	NA
PCB-1232	-	NA	NA
PCB-1242	-	NA	NA
PCB-1248	-	NA	NA
PCB-1254	-	NA	NA
PCB-1260	-	NA	NA
PCB's	-	2	2
Toxaphene	-	10	NA

"-" = Non Detect

NA = Not Applicable

The Second component of the plantable soil was the Compost that was furnished by Agresource of Amesbury, Massachusetts. Samples were taken from a stock pile that was well aged (more than a year) by BATG Environmental Inc. for the project. A letter BATG wrote to the Landscape Subcontractor Turfmaster Corporation Inc. of Tyngsboro, Massachusetts, follows stating that the Tested compost was acceptable to bring to the project. All test results dealing with the compost follow the referenced BATG letter.



BATG Environmental, Inc.

August 17, 2000

BATG Project Number 00-124

Mr. Joseph Barraso
Turfmaster Corporation
5B Middlesex Road
Tyngsboro, MA 01879

Re: Woburn Regional Transportation Center
Massport Authority Contract No. 1.727
Turfmaster Soil Sample-02

Dear Mr. Barraso:

BATG Environmental, Inc. (BATG) collected one soil sample for analyses in accordance with the project specification requirements at Section 02900 (Manufactured Planting Soil, Seeding, Planting), and in accordance with project specifications at Section 01568 (RAM Plan Appendix TA-1). Attached please find summary tables and a copy of the laboratory results. Laboratory analyses were performed by University of Massachusetts Soil Testing Lab. located in Amherst, Massachusetts, and Contest Analytical Laboratory, a Massachusetts certified laboratory, located in East Longmeadow, Massachusetts.

Laboratory results for the manufactured planting soil indicate that several constituents exceeded the Acceptable Range and/or the Unacceptable Level as stated in the Project Specifications-Section 02900. Laboratory results for the manufactured planting soil are acceptable to bring on site in accordance with the project specification requirements at section 01568 (RAM Plan Appendix TA-1). If you have any questions regarding this information or would like further assistance, please contact the undersigned at 781-740-2073.

Very Truly Yours,

BATG Environmental, Inc.

Brian M. Sullivan
Field Geologist

Adam B. Westhaver
Project Manager

cc: Project File

Northeast Environmental Laboratory, Inc.

100 Rainbow Terrace Unit H, Danvers, MA 01923
[578] 777-4442 DEP #MA&123 Fax [978] 774-1744

Date - 7/11/00
Time - 8:25 AM
To - Middlesex Eng.

Subject - Agresource

Pages - 16
Reference - 4648034668
Fax No - 17819350385

ATTN: Laura Robinson

JUL 10 2000 4:06 PM FR MATRIX ANALYTICAL 430 2497 TO NORTHEAST LAB P.02



ANALYTICAL DATA SUMMARY

Report Date: 07/10/2000

Account: Northeast Environmental Lab
 Address: 106 Rainbow Terrace Dr N
 Danvers, MA 01923
 978-774-1744

Project Manager: JL
 Project Name: Ag Resource Backgrounds-06/23/00
 Project No:

Sample Information

Laboratory ID	Client/Field ID	Laboratory ID	Client/Field ID
0175250-001	31503	0175250-003	06-23001-001
0175250-002	31503		

Reviewed by

Glen Brink
 Laboratory Director

Lab Certifications

EPA ID: No. MA059
 Massachusetts: No. M-MA059
 Maine: Reciprocity
 Rhode Island: No. 57
 South Carolina: No. 88011

New Jersey: No. 59935
 Connecticut: No. PHD515
 New York: ELAP No. 11116
 New Hampshire: No. 2041

Matrix Analytical, Inc. ■ 106 South Street ■ Hopkinton, MA 01748-2295 ■ 1 (800) 362-8749

JUL 10 2000 4:33 PM FR MATRIX ANALYTICAL 435 2437 TO NORTHEAST LAB P.03



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account: Northeast Environmental Lab. Project Name: Aeresource Eicsoids 06/23/00
Address: 10R Rainbow Terrace Unit F Project Number:
Danvers, MA 01923 Project Manager: JL
Sampler Name: Northeast Environmental Lab.

Sample Information

Lab ID: 01752250-001 Date Sampled: 06/22/2000 17:00
Client ID: 31505 Date Received: 06/23/2000 : 0
Matrix: Soil Date Reported: 07/10/2000

Analytical Parameter	Result	Units	Limit	Method	Analyst	Date Analyzed
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SAMPLE PREPARATION

Metal Digestion 06/27/00 3051
Mercury Digestion 06/27/00 7470/7471

TRACE METALS

Arsenic	6.7	mg/kg	0.5	7060	je	06/28/2000
Barium	131	mg/kg	1	6010B	rw	06/28/2000
Cadmium	1	mg/kg	1	6010B	rw	06/28/2000
Chromium	18	mg/kg	2	6010B	rw	06/28/2000
Lead	100	mg/kg	10	6010B	rw	06/28/2000
Mercury	0.6	mg/kg	0.1	7471	ag	06/27/2000
Selenium	1.1	mg/kg	0.5	7740	je	06/28/2000
Silver	6	mg/kg	2	6010B	rw	06/28/2000

VOLATILE ORGANICS

Acetone	ND	ug/kg	3000	8260B/5035	ak	06/26/2000
Acrolein	ND	ug/kg	4000	8260B/5035	ak	06/26/2000
Acrylonitrile	ND	ug/kg	4000	8260B/5035	ak	06/26/2000
Benzene	ND	ug/kg	50	8260B/5035	ak	06/26/2000
Bromobenzene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
Bromochloromethane	ND	ug/kg	100	8260B/5035	ak	06/26/2000
Bromodichloromethane	ND	ug/kg	100	8260B/5035	ak	06/26/2000
Bromoform	ND	ug/kg	100	8260B/5035	ak	06/26/2000
Bromomethane	ND	ug/kg	200	8260B/5035	ak	06/26/2000
2-Butanone	ND	ug/kg	300	8260B/5035	ak	06/26/2000
n-Butylbenzene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
sec-Butylbenzene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
tert-Butylbenzene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
Carbon Disulfide	ND	ug/kg	200	8260B/5035	ak	06/26/2000

JUL 18 2000 4:55 PM FR MATRIX ANALYTICAL 433 2457 TO NORTHEAST LAB P.04



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account: Northeast Environmental Lab. Project Name: Agresource Biosolids 06/23/00
Address: 10R Rainbow Terrace Unit H Project Number:
Danvers, MA 01923 Project Manager: JL
Sampler Name: Northeast Environmental Lab

Sample Information

Lab ID: 01732250-001 Date Sampled: 06/22/2000 17:00
Client ID: 31505 Date Received: 06/23/2000 : 0
Matrix: Soil Date Reported: 07/10/2000

Analytical Parameter	Result	Unit	Detection Limit	Method No.	Analyst	Date Analyzed
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VOLATILE ORGANICS

Carbon Tetrachloride	ND	ug/kg	200	8260B/5035	ak	06/26/2000
Chlorobenzene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
Chloroethane	ND	ug/kg	200	8260B/5035	ak	06/26/2000
2-Chloroethylvinyl Ether	ND	ug/kg	200	8260B/5035	ak	06/26/2000
Chloroform	ND	ug/kg	100	8260B/5035	ak	06/26/2000
Chloromethane	ND	ug/kg	200	8260B/5035	ak	06/26/2000
2-Chlorotoluene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
4-Chlorotoluene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
1,2-Dibromo-3-Chloropropane	ND	ug/kg	200	8260B/5035	ak	06/26/2000
Dibromochloromethane	ND	ug/kg	50	8260B/5035	ak	06/26/2000
1,2-Dibromoethane (EDB)	ND	ug/kg	200	8260B/5035	ak	06/26/2000
Dibromomethane	ND	ug/kg	200	8260B/5035	ak	06/26/2000
1,2-Dichlorobenzene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
1,3-Dichlorobenzene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
1,4-Dichlorobenzene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
Dichlorodifluoromethane	ND	ug/kg	200	8260B/5035	ak	06/26/2000
1,1-Dichloroethane	ND	ug/kg	200	8260B/5035	ak	06/26/2000
1,2-Dichloroethane	ND	ug/kg	50	8260B/5035	ak	06/26/2000
1,1-Dichloroethene	ND	ug/kg	100	8260B/5035	ak	06/26/2000
cis-1,2-Dichloroethene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
trans-1,2-Dichloroethene	ND	ug/kg	200	8260B/5035	ak	06/26/2000
1,2-Dichloropropane	ND	ug/kg	100	8260B/5035	ak	06/26/2000
1,3-Dichloropropane	ND	ug/kg	200	8260B/5035	ak	06/26/2000
2,2-Dichloropropane	ND	ug/kg	200	8260B/5035	ak	06/26/2000
1,1-Dichloropropane	ND	ug/kg	200	8260B/5035	ak	06/26/2000
cis-1,3-Dichloropropene	ND	ug/kg	50	8260B/5035	ak	06/26/2000
trans-1,3-Dichloropropene	ND	ug/kg	50	8260B/5035	ak	06/26/2000
Ethylbenzene	ND	ug/kg	200	8260B/5035	ak	06/26/2000

JUL 10 2000 4:37 PM FR MH RIX HNHLYTJCHL 405 2457 TO NORTHEAST LAB 7.66



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account: Northeast Environmental Lab. Project Name: Agreource Biosolids 06/23/00
Address: 10R Rainbow Terrace Unit F Project Number:
Danvers, MA 01923 Project Manager: JL
Sampler Name: Northeast Environmental Lab.

Sample Information

Lab ID: 01752250-001 Date Sampled: 06/23/2000 17:00
Client ID: 31505 Date Received: 06/23/2000 : 0
Matrix: Soil Date Reported: 07/10/2000

Analytical Parameter	Result	Unit	Detection Limit	Method	Quality	Date
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SURROGATE STUDIES - VOLATILES

Bromofluorobenzene	87	Percent			ak	06/26/2000
Dibromofluoromethane	87	Percent			ak	06/26/2000
Toluene-D8	99	Percent			ak	06/24/2000

PAH's

Extraction Date:	06/27/00				ak	
Acenaphthene	ND	ug/kg	500	8270C	ak	06/28/2000
Acenaphthylene	ND	ug/kg	500	8270C	ak	06/28/2000
Anthracene	ND	ug/kg	500	8270C	ak	06/28/2000
Benzo (a) Anthracene	1,500	ug/kg	500	8270C	ak	06/28/2000
Benzo (a) Pyrene	1,100	ug/kg	500	8270C	ak	06/28/2000
Benzo (b) Fluoranthene	2,100	ug/kg	500	8270C	ak	06/28/2000
Benzo (k) Fluoranthene	ND	ug/kg	500	8270C	ak	06/28/2000
Benzo (g,h,i) Perylene	ND	ug/kg	500	8270C	ak	06/28/2000
Chrysene	1,600	ug/kg	500	8270C	ak	06/28/2000
Dibenz (a,b) Anthracene	ND	ug/kg	500	8270C	ak	06/28/2000
Fluoranthene	1,800	ug/kg	500	8270C	ak	06/28/2000
Fluorene	ND	ug/kg	500	8270C	ak	06/28/2000
Indeno (1,2,3-cd) Pyrene	ND	ug/kg	500	8270C	ak	06/28/2000
2-Methyl Naphthalene	ND	ug/kg	500	8270C	ak	06/28/2000
Naphthalene	ND	ug/kg	500	8270C	ak	06/28/2000
Phenanthrene	ND	ug/kg	500	8270C	ak	06/28/2000
Pyrene	2,000	ug/kg	500	8270C	ak	06/28/2000

The detection limit reported is based on a X5 dilution of the sample.

SURROGATE STUDIES - BASE NEUTRALS

2-Fluorobiphenyl	85	Percent			ak	06/28/2000
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JUL 10 2000 4:58 PM FR MATRIX ANALYTICAL 435 2457 10 NORTHEAST LAB P.07



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account: Northeast Environmental Lab. Project Name: Agresource Biosolids 06/23/00
Address: 10R Rainbow Terrace Unit F Project Number:
Danvers, MA 01923 Project Manager: JL
Sampler Name: Northeast Environmental Lab.

Sample Information

Lab ID: 01752250-001 Date Sampled: 06/22/2000 17:00
Client ID: 31505 Date Received: 06/23/2000 : 0
Matrix: Soil Date Reported: 07/10/2000

Analytical Parameter	Result	Unit	Conc	Method	Ampl	Date Analyzed
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SURROGATE STUDIES - BASE NEUTRALS

Nitrobenzene-D5	70	Percent			sk	06/28/2000
p-Terphenyl-D14	85	Percent			sk	06/28/2000

PESTICIDES

Extraction Date:	06/26/00					
Aldrin	ND	ug/kg	500	8081A	rl	07/06/2000
Alpha-BHC	ND	ug/kg	500	8081A	rl	07/06/2000
Beta-BHC	ND	ug/kg	500	8081A	rl	07/06/2000
Chlordane	ND	ug/kg	2500	8081A	rl	07/06/2000
4,4-DDD	ND	ug/kg	500	8081A	rl	07/06/2000
4,4-DDE	ND	ug/kg	500	8081A	rl	07/06/2000
4,4-DDT	ND	ug/kg	500	8081A	rl	07/06/2000
Delta-BHC	ND	ug/kg	500	8081A	rl	07/06/2000
Dieldrin	ND	ug/kg	500	8081A	rl	07/06/2000
Endosulfan I	ND	ug/kg	500	8081A	rl	07/06/2000
Endosulfan II	ND	ug/kg	500	8081A	rl	07/06/2000
Endosulfan Sulfate	ND	ug/kg	500	8081A	rl	07/06/2000
Endrin	ND	ug/kg	500	8081A	rl	07/06/2000
Endrin Aldenylde	ND	ug/kg	500	8081A	rl	07/06/2000
Gamma-BHC	ND	ug/kg	500	8081A	rl	07/06/2000
Heptachlor	ND	ug/kg	500	8081A	rl	07/06/2000
Heptachlor Epoxide	ND	ug/kg	500	8081A	rl	07/06/2000
Methoxychlor	ND	ug/kg	500	8081A	rl	07/06/2000
Toxaphene	ND	ug/kg	2500	8081A	rl	07/06/2000

The detection limit reported is based on a X10 dilution of the sample.
Detection limit due to matrix interference.

JUL 10 2000 4:58 PM FR MATRIX ANALYTICAL 435 2457 TO NORTHEAST LAB P.08



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account:	Northeast Environmental Lab.	Project Name:	Agrsource Biosolids 06/23/00
Address:	106 Rainbow Terrace Unit H Danvers, MA 01923	Project Number:	
		Project Manager:	JL
		Sampler Name:	Northeast Environmental Lab.

Sample Information

Lab ID:	01752250-00	Date Sampled:	06/22/2000 17:00
Client ID:	31505	Date Received:	06/23/2000 : 0
Matrix:	Soil	Date Reported:	07/10/2000

Analytical Parameter	Result	Unit	Description	Method	Analyst	Date Analyzed
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(Comments cont.)

PCBS

Extraction Date:	06/26/00				vc	
PCB-1016	ND	ug/kg	250	8082	rt	07/01/2000
PCB-1221	ND	ug/kg	250	8082	rt	07/01/2000
PCB-1232	ND	ug/kg	250	8082	rt	07/01/2000
PCB-1242	ND	ug/kg	250	8082	rt	07/01/2000
PCB-1248	ND	ug/kg	250	8082	rt	07/01/2000
PCB-1254	ND	ug/kg	250	8082	rt	07/01/2000
PCB-1260	ND	ug/kg	250	8082	rt	07/01/2000

SURROGATE STUDIES - PESTICIDES/PCBS

2,4,5,6-Tetrachloro-meta-xylene	121	Percent			rt	07/01/2000
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MISCELLANEOUS TESTING

Percent Moisture	38.0	Percent			ca	06/26/2000
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CYANIDE/SULFIDE

Total Cyanide Distillation Date:	06/27/00					
Cyanide, Total	0.03	mg/kg	1	9012	rt	06/27/2000

JUL 10 2000 4:09 PM PM MATRIX ANALYTICAL 405 2437 TO NORTHEAST LAB P.11

Matrix Analytical, Inc.



106 South Street
Hopkinton, MA 01748
508-438-8824

VPH DATA (SOIL)

SAMPLE INFORMATION

Matrix	<input checked="" type="checkbox"/> Soil <input type="checkbox"/> Sediment <input type="checkbox"/> Other:		
Containers	<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Broken <input type="checkbox"/> Leaking		
Sample Preservatives	Comment: Methanol Trip Blank		
	Soil or Sediment	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Samples NOT preserved in Methanol or air-tight container
		<input type="checkbox"/> Samples rec'd in Methanol: <input type="checkbox"/> covering soil <input type="checkbox"/> not covering soil		mL Methanol/g soil ☐ 1 to +/- 25%
		<input type="checkbox"/> Samples received in air-tight container: <input type="checkbox"/> Other:	
Temperatures	<input checked="" type="checkbox"/> Received on ice <input checked="" type="checkbox"/> Received at 4 ° C <input type="checkbox"/> Other:		

VPH ANALYTICAL RESULTS

Client: Northeast Environmental Lab.

Method for Ranges: MADEP VPH 98-1	Client Project: Agresource Biosolids
Method for Target Analytes: MADEP VPH 98-1	Lab ID: 01752250-002 Client ID: Trip Blank
VPH Surrogate Standards PID: Naphthalene-d8 FID: Naphthalene-d8	Date Collected: 06/19/00
	Date Received: 06/23/00
	Date Analyzed: 07/01/00
	% Moisture (soil): N/A -Methanol Trip Blank

Range/Target Analyte	Elution Range	Result	Units	RL	Dilution Factor
Unadjusted C5-C8 Aliphatics m	N/A	<2500	ug/kg	2500	1
Unadjusted C9-C12 Aliphatics m	N/A	<500	ug/kg	500	1
Benzene	C5-C8	<250	ug/kg	250	1
Ethylbenzene	C9-C12	<250	ug/kg	250	1
Methyl-tert-butylether	C5-C8	<250	ug/kg	250	1
Naphthalene	C9-C10	<250	ug/kg	250	1
Toluene	C5-C8	<250	ug/kg	250	1
m- & p- Xylenes	C9-C12	<500	ug/kg	500	1
o-Xylene	C9-C12	<250	ug/kg	250	1
C5-C8 Aliphatic Hydrocarbons n.a	N/A	<2500	ug/kg	2500	1
C9-C12 Aliphatic Hydrocarbons n.a	N/A	<500	ug/kg	500	1
C9-C10 Aromatic Hydrocarbons m	N/A	<250	ug/kg	250	1
PID surrogate % Recovery		99	%		
FID surrogate % Recovery		101	%		
Surrogate Acceptance Range		70-130%	%		

- (1) Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range
- (2) C5-C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range
- (3) C9-C12 Aliphatic Hydrocarbons exclude cone of Target Analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons


CERTIFICATION

Were all QA/QC procedures REQUIRED by the VPH Method followed? Yes No - Details Attached

Were all performance/acceptance standards for required QA/QC procedures achieved? Yes No - Details Attached

Were any significant modifications made to the VPH method, as specified in Sect 11.3? No Yes - Details Attached

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

 Glen E. Breland (Laboratory Director)

DATE: 07/10/2000

JUL 10 2000 8:00 PM FROM MATRIX ANALYTICAL 435 2457 TO NORTHEAST LAB P.12



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account:	Northeast Environmental Lab.	Project Name:	Agresource Biosolids 06/23/00
Address:	10R Rainbow Terrace Unit B Danvers, MA 01923	Project Number:	
		Project Manager:	JL
		Sampler Name:	

Sample Information

Lab ID:	01752250-003	Date Sampled:	// /
Client ID:	QC-Report - Soil	Date Received:	// /0
Matrix:	Soil	Date Reported:	07/10/2000

Analytical Parameter	Result	Unit	Limit	Method	Analyst	Date
----------------------	--------	------	-------	--------	---------	------

DUPLICATE STUDIES

Arsenic ID:	2265-012	
Arsenic Variance:	11	Percent
Barium ID:	2265-012	
Barium Variance:	7	Percent
Cadmium ID:	2265-012	
Cadmium Variance:	0	Percent
Chromium ID:	2265-012	
Chromium Variance:	1	Percent
Lead ID:	2265-012	
Lead Variance:	4	Percent
Mercury ID:	2251-001	
Mercury Variance:	4	Percent
Selenium ID:	2156-004	
Selenium Variance:	2	Percent
Silver ID:	2263-012	
Silver Variance:	15	Percent

MATRIX SPIKE STUDIES - METALS

Arsenic ID:	2265-012	
Arsenic Recovery:	106	Percent
Barium ID:	2265-012	
Barium Recovery:	81	Percent
Cadmium ID:	2265-012	
Cadmium Recovery:	93	Percent
Chromium ID:	2265-012	
Chromium Recovery:	84	Percent
Lead ID:	2265-012	
Lead Recovery:	92	Percent

JUL 10 2000 4:03 PM FR MATRIX ANALYTICAL 435 2437 TO NORTHEAST LAB P.10

Matrix Analytical, Inc.



106 South Street
 Hopkinton, MA 01748
 508-435-6824

VPH DATA (SOIL)

SAMPLE INFORMATION

Matrix	<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Other:
Containers	<input checked="" type="checkbox"/> Satisfactory	<input type="checkbox"/> Broken	<input type="checkbox"/> Leaking
Sample Preservatives	Comment		
	Soil or Sediment	<input type="checkbox"/> N/A	<input type="checkbox"/> Samples NOT preserved in Methanol or air-tight container
		<input checked="" type="checkbox"/> Samples rec'd in Methanol:	<input checked="" type="checkbox"/> covering soil	☐ not covering soil
		<input checked="" type="checkbox"/> Samples received in air-tight container:	<input type="checkbox"/> Other:
Temperatures	<input checked="" type="checkbox"/> Received on Ice	<input checked="" type="checkbox"/> Received at 4 ° C	<input type="checkbox"/> Other:

VPH ANALYTICAL RESULTS

Client: Northeast Environmental Lab.

Method for Ranges: MADEP VPH 98-1	Client Project	Agresource Biosolids
Method for Target Analytes: MADEP VPH 98-1	Lab ID	01752250-001
	Client ID	31505
VPH Surrogate Standards	Date Collected	06/22/00
	Date Received	06/23/00
	Date Analyzed	07/01/00
	% Moisture (soil)	38.0

Range/Target Analyte	Elution Range	Result	Units	RL	Dilution Factor
Unadjusted C5-C8 Aliphatics (1)	N/A	<2500	ug/kg	2500	1
Unadjusted C9-C12 Aliphatics (1)	N/A	<500	ug/kg	500	1
Benzene	C5-C8	<250	ug/kg	250	1
Ethylbenzene	C9-C12	<250	ug/kg	250	1
Methyl-tert-butylether	C5-C8	<250	ug/kg	250	1
Naphthalene	C9-C10	<250	ug/kg	250	1
Toluene	C5-C8	<250	ug/kg	250	1
m- & p- Xylenes	C9-C12	<500	ug/kg	500	1
o-Xylene	C9-C12	<250	ug/kg	250	1
C5-C8 Aliphatic Hydrocarbons (2)	N/A	<2500	ug/kg	2500	1
C9-C12 Aliphatic Hydrocarbons (2)	N/A	<500	ug/kg	500	1
C9-C10 Aromatic Hydrocarbons (3)	N/A	<250	ug/kg	250	1
PID surrogate % Recovery		81	%		
FID Surrogate % Recovery		82	%		
Surrogate Acceptance Range		70-130%	%		

(1) Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range
 (2) C5- C8 Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range
 (3) C9-C12 Aliphatic Hydrocarbons exclude conc of Target Analytes eluting in that range AND concentration of C9-C10 Aromatic Hydrocarbons

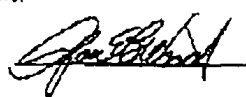
CERTIFICATION

Were all QA/QC procedures REQUIRED by the VPH Method followed? Yes No - Details Attached

Were all performance/acceptance standards for required QA/QC procedures achieved? Yes No - Details Attached

Were any significant modifications made to the VPH method, as specified in Sect 11.3? No Yes - Details Attached

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

 Glen E. Breland (Laboratory Director)

DATE: 07/10/2000

JUL 16 2000 4:56 PM FR MATRIX ANALYTICAL 435 2457 TO NORTHEAST LAB P.09

Matrix Analytical, Inc.



106 South Street
Hopkinton, MA 01748
508-435-6824

EPH DATA (SOIL)

SAMPLE INFORMATION

Matrix Soil Sediment Other:
Containers Satisfactory Broken Leaking: Comment
Temperature Received on Ice Received at 4 ° C Other:
Extraction Method Soil: Sonication

EPH ANALYTICAL RESULTS

Client Northeast Environmental Lab.

Method for Ranges: MADEP EPH 98-1 Client Project Agresource Biosolids
Method for Target Analytes: MADEP EPH 98-1 Lab ID 01752250-001 Client ID 31505
Date Collected 06/22/00
Date Received 06/23/00
Date Extracted 06/26/00
Date Analyzed 06/28/00
% Moisture (soil) 38.0

Table with columns: Range/Target Analyte, Result, Units, RL, Dilution Factor. Rows include Unadjusted C11-C22 Aromatics, Diesel PAH Analytes (Naphthalene, 2-Methylnaphthalene, Phenanthrene, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)Anthracene, Benzo(a)Pyrene, Benzo(b)Fluoranthene, Benzo(g,h,i)Perylene, Benzo(k)Fluoranthene, Chrysene, Dibenzo(a,h)Anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)Pyrene, Pyrene), C9-C18 Aliphatic Hydrocarbons, C19-C36 Aliphatic Hydrocarbons, C11-C22 Aromatic Hydrocarbons, and various Surrogate % Recovery and Acceptance Range rows.

CERTIFICATION

Were all QA/QC procedures REQUIRED by the EPH Method followed? Yes No-Details Attached
Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes No-Details Attached
Were any significant modifications made to the EPH method, as specified in Section 11.3? No Yes-Details Attached
I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.
Glen E. Breland (Laboratory Director) DATE: 07/10/2000

JUL 10 2000 8:00 PM FR MATRIX ANALYTICAL 405 2437 TO NORTHEAST LAB P.14



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
I (800) 362-8749

F I N A L R E P O R T

Client Information

Account:	Northeast Environmental Lab.	Project Name:	Agresource Biosolids 06/23/00
Address:	10R Rainbow Terrace Unit 21 Danvers, MA 01923	Project Number:	
		Project Manager:	IT.
		Sampler Name:	

Sample Information

Lab ID:	01752250-003	Date Sampled:	11 / 10
Client ID:	QC-Report - Soil	Date Received:	11 / 10
Matrix:	Soil	Date Reported:	07/10/2000

Analytical Parameter	Result	Units	Limit	Method	Analyst	Date Analyzed
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MATRIX SPIKE STUDIES - PESTICIDES

Dieldrin	87	Percent
4,4-DDT	36	Percent
Endrin	43	Percent
Heptachlor	44	Percent
Lindane	41	Percent

MATRIX SPIKE STUDIES - PCBs

Sample ID:	2236-004
PCB-1221	85 Percent

MATRIX SPIKE/DUPLICATE STUDIES - MISC.

Cyanide ID:	2250-001
Cyanide Recovery:	93
Cyanide ID:	2250-001
Cyanide Variance:	0

METHOD SUMMARIES

Acid/Base Neutral analysis is performed using H/P 5970 GC/MS systems with autosampler. Analysis is performed using a megabore column. Tuning is based on DFTEP criteria. Procedural guidelines described in SW846 are used for all analysis.

Metal analysis is performed using Graphite Furnace/Atomic Absorption or ICP Spectroscopy. Mercury is determined by Cold Vapor method.

NOTE: Analytical results have been corrected and are reported on a dry weight basis. If required, detection limits can also be corrected to dry weight using the percent moisture data included in this report.

JUL 10 2000 01:01 PM FR MATRIX ANALYTICAL 435 2457 TO NORTHEAST LAB P.15



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account:	Northeast Environmental Lab.	Project Name:	Agresource Biosolids 05/23/00
Address:	108 Rainbow Terrace Unit H Danvers, MA 01923	Project Number:	
		Project Manager:	JL
		Sampler Name:	

Sample Information

Lab ID:	01752150-003	Date Sampled:	/ /
Client ID:	QC-Report - Soil	Date Received:	/ /
Matrix:	Soil	Date Reported:	07/10/2000

Analytical Parameter	Result	Unit	Method	Date

METHOD SUMMARIES

Pesticide/PCB analysis is performed according to EPA 600 and SW846 protocol. Equipment includes H/P 5890 series II GC with H/P 7673 autosampler. GC is equipped with dual columns and dual ECD detectors for compound confirmation. Data reduction is performed using an H/P chemstation.

Volatile organic analysis is performed using Hewlett Packard 5890 GC's and 5970 and 5972 MSD's when requested. Chromatography incorporates megabore columns. Procedures follow EPA and SW846 guidelines for all analysis.

The Massachusetts DEP Volatile Petroleum Hydrocarbon procedure is performed by Gas Chromatography with dual detectors (PID & PID) in series and is suitable for water, soil and sediment matrices. The PID chromatogram is used to determine the individual concentrations of targeted analytes and collective concentration of aromatic hydrocarbons within the C9-C10 range.

The PID chromatogram is used to determine the collective concentration of aliphatic hydrocarbons within the C5-C8 and C9-C12 ranges. The VPH result is corrected for the target analytes but has not been adjusted (toxicologically weighted) based on a Jan. 15, 1997 communication in LSPs from James C. Colman, Assistant Commissioner, Bureau of Waste Site Cleanup, Massachusetts DEP.

The Massachusetts DEP Extractable Petroleum Hydrocarbon procedure is performed by Gas Chromatography with an FID detector and is suitable for water, soil and sediment matrices. The sample is separated into aliphatic and aromatic fractions using silica gel and analyzed separately. The aliphatic chromatogram is integrated within the C9-C18 and C19-C36 ranges.

JUL 10 2000 01:00 PM FR MATRIX ANALYTICAL 433 2457 TO NORTHEAST LAB P.13



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account:	Northeast Environmental Lab.	Project Name:	Agresource Biosolids 06/23/00
Address:	108 Rainbow Terrace Unit H Danvers, MA 01923	Project Number:	
		Project Manager:	JL
		Sampler Name:	

Sample Information

Lab ID:	01752250-005	Date Sampled:	// /
Client ID:	QC-Report - Soil	Date Received:	// /0
Matrix:	Soil	Date Reported:	07/10/2000

Analytical Parameter	Result	Units	Method	NO	Analysis	Date Analyzed
----------------------	--------	-------	--------	----	----------	---------------

MATRIX SPIKE STUDIES - METALS

Mercury ID:	2262-001		
Mercury Recovery:	102	Percent	
Selenium ID:	2156-004		
Selenium Recovery:	91	Percent	
Silver ID:	2265-012		
Silver Recovery:	84	Percent	

METHOD BLANKS

Method Blank - Pesticide/PCB	ND	ug/l	8083
Method Blank - Semi Volatile	ND	ug/l	625/6270A
Method Blank - Volatile	ND	ug/l	8260B

MATRIX SPIKE STUDIES - VOLATILES

Sample ID:	2156-004		
Benzene	118	Percent	
Chlorobenzene	112	Percent	
1,1-Dichloroethene	114	Percent	
Toluene	109	Percent	
Trichloroethene	102	Percent	

MATRIX SPIKE STUDIES BASE/NEUTRALS

Sample ID:	2235-002		
Acenaphthene	86	Percent	
Pyrene	132	Percent	

MATRIX SPIKE STUDIES - PESTICIDES

Sample ID:	2243-001		
Aldrin	46	Percent	

JUL 10 2000 09:07 PM FR MATRIX ANALYTICAL 435 245: 10 NORTHEAST LAB P.15



Matrix Analytical, Inc.
106 South Street
Hopkinton, MA 01748-2295
1 (800) 362-8749

FINAL REPORT

Client Information

Account:	Northeast Environmental Lab.	Project Name:	Agresource Bioreolds 06/23/00
Address:	10R Rainbow Terrace Unit H Danvers, MA 01923	Project Number:	
		Project Manager:	JL
		Sampler Name:	

Sample Information

Lab ID:	01752250-003	Date Sampled:	11
Client ID:	QC-Report - Soil	Date Received:	11 : 0
Matrix:	Soil	Date Reported:	07/10/2000

Analytical Parameter	Result	Unit	Method	Date Analyzed

METHOD SUMMARIES

The aromatic chromatogram is integrated within the C11-C21 range and is used to identify and quantify individual concentrations of targeted analytes. The EPH result is corrected for the target analytes but has not been adjusted (toxicologically weighted) based on a Jan. 15, 1997 communication to LSPs from James C. Colman, Assistant Commissioner, Bureau of Waste Site Cleanup, Massachusetts DEP.

METHOD REFERENCES

1. Test Methods For Evaluating Solid Waste: Physical Chemical Methods. EPA SW 846. Rev. December 1996.
2. Methods For Chemical Analysis of Water and Wastes. EPA 600/4-79-200. Revised March 1983.
3. Standard Methods For Examination of Water and Wastewater. APHA-AWWA-WACF., 18th Edition. 1992.
4. EPA Methods For The Determination of Organic Compounds in Drinking Water.

ANALYSIS REPORT FOR COMPOST

07/06/00

SOIL AND PLANT TISSUE TESTING LABORATORY
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

Lab Number: C000701-111
Bag Number: 43807

SAMPLE INFORMATION

AGRESOURCE/GEOFF KUTER
100 MAIN STREET
AMESBURY, MA 01913

COMPOSTING METHOD:
AGE:
INTENDED USE:
COMPONENTS:

COMPOST ANALYSIS REPORT

SAMPLE ID: IPSWICH/BIOSOLIDS

Dry Bulk Density: 0.34 grams/cm³ (0.29 tons/yd³)
Moisture As Received: 40.1 %
Moist Bulk Density: 0.57 grams/cm³ (0.48 tons/yd³)
Coarse Fragments: 15.5

pH (v:v): 6.8
Soluble Salts (Elec. Cond.): 3.45 dS/M

Total Nitrogen: 1.63 % (9.4 lbs/yd³)
Nitrate-N: 305 mg/kg (0.18 lbs/yd³)
Ammonium-N: 407 mg/kg (0.23 lbs/yd³)

Organic Matter: 40.7 %
Estimated Organic Carbon: 22.0 %
Carbon/Nitrogen Ratio: 13.5

NUTRIENT RATING

NUTRIENT LEVELS:	PPM	LOW	MEDIUM	HIGH	VERY HIGH
Phosphorus (P)	278	xxxxxxxxxxxxxxxxxxxxxxxx			
Potassium (K)	2420	xxxxxxxxxxxxxxxxxxxxxxxx			
Calcium (Ca)	9267	xxxxxxxxxxxxxxxx			
Magnesium (Mg)	942	xxxxxxxxxxxx			

EQUIVALENT BASE CATION PERCENTAGES
Ca =77.0 Mg =12.9 K =10.3

POTENTIAL ACIDITY
0.0 lbs CaCO₃/yd³

EXTRACTABLE MICRONUTRIENTS

EXTRACTABLE HEAVY METALS

MICRONUTRIENT	mg/kg	COMPOST RANGE
Boron (B)	7.4	(0.5-20)
Manganese (Mn)	327.8	(5-200)
Zinc (Zn)	10.6	(5-50)
Copper (Cu)	1.7	(0.5-5)
Iron (Fe)	29.6	(5-200)

METAL	mg/kg	COMPOST RANGE
Lead (Pb)	1.8	(0-25)
Cadmium (Cd)	0.1	(0-1.0)
Nickel (Ni)	0.1	(0-2.5)
Chromium (Cr)	0.3	(0-2.5)

Consult enclosed interpretation sheet. Questions may be directed to either Frank Mangan (Extension Specialist) at (978) 422-6374 or the UMass Soil Lab at (413)545-2311

Table I
Woburn Regional Transportation Center
Manufactured Planting Soil, Seeding, Planting Analytical Results

U.S. Sieve No.	Percent Passing by Weight		Percent Passing
	Maximum	Minimum	
4	100	97	100
10	95	90	94.3
40	85	60	83.8
100	60	38	29.1
200	35	22	11
0.002mm	5	0	1

Organic Matter	Acceptable Range
2.60%	4-6%

Acidity	Range
7.4	5.5-6.5

Soluble Salt Content (ppm)*	Range (ppm)
345.6	75

*lab results originally in decisiemens/Meter
converted to ppm, multiplied by 640 (i.e.,

Carbon:Nitrogen ratio range: between 10 and 14 to 1
Lab results ratio:

Substance	Lab Results mg/kg (ppm)	Acceptable Range (ppm)	Unacceptable Level (ppm)
Aluminum	16	40-400	>400
Ammonium	15	6-24	>24
Arsenic	9.56	<1	30+
Boron	0.8	<0.3	1.0+
Cadmium	0	<0.2	5.0+
Calcium	959	300-1600	>1600
Chromium	0.1		250+
Cobalt	2.16		50+
Copper	0.5	0.3	6.0+
Iron	8.5	3-20	>20
Lead	34	33-110	>110
Magnesium	92		>150
Manganese	59.7	3-15	>15
Mercury	0.02		2+
Molybdomen	ND	0-15	40+
Nickel	0		100+
Nitrate	34	30-235	235+
Phosphorous	41	3-18	18+
Potassium	214	25-110	110+
Selenium	ND		36+
Zinc	2.8	3-70	500+
PCBs	ND	0	1+

TABLE 2
 WOBURN REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS
 SOIL CONTAMINANT CONCENTRATIONS, RCS-1 STANDARDS, AND METHOD 1 RISK BASED STANDARDS (mg/Kg)

	Turfmaster Landscape Lawn-02	RCS-1	Method 1
Total Petroleum Hydrocarbons	ND	200	200
HEAVY METALS			
Arsenic	0.56	30	30
Barrium	21.4	1000	1000
Cadmium	0	30	30
Chromium	0.1	1000	1000
Lead	34	300	300
Mercury	0.02	20	20
Selenium	ND	400	400
Silver	ND	100	100
Cyanide	ND	100	100
PESTICIDES			
PCB/Pesticides	ND	0.03	0.03
POLY AROMATIC HYDROCARBONS			
Poly Aromatic Hydrocarbons	ND	NA	NA
VOLEATILE ORGANIC COMPOUNDS			
Acetone	0.155		
2-Butanone (MEK)	0.053	NA	NA

ND = Non Detect

NA = Not Applicable

Agresource, Inc.
100 Main Street
Amesbury, MA 01913
978-388-5110
Fax 978-388-4198

www.agresourceinc.com

facsimile transmittal

To: Rick Noblet Fax: 781-935-0383

From: Tim Gould Date: 9-22-00

Re: Pages:

CC:

- Urgent
- For Review
- Please Comment
- Please Reply
- Please Recycle

Notes:

Rick

Attached is a recent analysis from UMass Lab that is representative of the compost ~~sample~~ you picked up. Call with any questions.

Tim G.

ANALYSIS REPORT FOR COMPOST

09/12/00

SOIL AND PLANT TISSUE TESTING LABORATORY
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

Lab Number: C000701-111
Bag Number: 43807

SAMPLE INFORMATION

AGRSOURCE/GROFF KUTER
100 MAIN STREET
AMESBURY, MA 01913

COMPOSTING METHOD:
AGE:
INTENDED USE:
COMPONENTS:

COMPOST ANALYSIS REPORT

SAMPLE ID: IPSWICH/BIOSOLIDS

Dry Bulk Density: 0.34 grams/cm3 (0.29 tons/yd3)
Moisture As Received: 40.1 %
Moist Bulk Density: 0.57 grams/cm3 (0.48 tons/yd3)
Coarse Fragments: 15.5

pH (v:v): 6.8
Soluble Salts (Elec. Cond.): 3.45 ds/M

Total Nitrogen: 1.63 % (9.4 lbs/yd3)
Nitrate-N: 305 mg/kg (0.18 lbs/yd3)
Ammonium-N: 407 mg/kg (0.23 lbs/yd3)

Organic Matter: 40.7 %
Estimated Organic Carbon: 22.0 %
Carbon/Nitrogen Ratio: 13.5

NUTRIENT RATING

NUTRIENT LEVELS:	PPM	LOW	MEDIUM	HIGH	VERY HIGH
Phosphorus (P)	278	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
Potassium (K)	2420	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
Calcium (Ca)	9257	XXXXXXXXXXXXXXXXXXXX			
Magnesium (Mg)	942	XXXXXXXXXXXX			

EQUIVALENT BASE CATION PERCENTAGES
Ca =77.0 Mg =12.9 K =10.3

POTENTIAL ACIDITY
0.0 lbs CaCO3/yd3

EXTRACTABLE MICRONUTRIENTS

EXTRACTABLE HEAVY METALS

MICRONUTRIENT	mg/kg	COMPOST RANGE
Boron (B)	7.4	(0.5-20)
Manganese (Mn)	327.8	(5-200)
Zinc (Zn)	10.6	(5-50)
Copper (Cu)	1.7	(0.5-5)
Iron (Fe)	29.6	(5-200)

METAL	mg/kg	COMPOST RANGE
Lead (Pb)	1.8	(0-25)
Cadmium (Cd)	0.1	(0-1.0)
Nickel (Ni)	0.1	(0-2.5)
Chromium (Cr)	0.3	(0-2.5)

Consult enclosed interpretation sheet. Questions may be directed to either Frank Mangan (Extension Specialist) at (978) 422-6374 or the UMass Soil Lab at (413)545-2311

Page 2

UMass Extension: Working Partners United States Department of Agriculture cooperating
University of Massachusetts Extension offers equal opportunity in programs and employment

Ca =77.0 Mg =12.9 K =10.3

0.0 lbs CaCO3/yd3

EXTRACTABLE MICRONUTRIENTS

MICRONUTRIENT	mg/kg	COMPOST RANGE
Boron (B)	7.4	(0.5-20)
Manganese (Mn)	327.8	(5-200)
Zinc (Zn)	10.6	(5-50)
Copper (Cu)	1.7	(0.5-5)
Iron (Fe)	29.6	(5-200)

EXTRACTABLE HEAVY METALS

METAL	mg/kg	COMPOST RANGE
Lead (Pb)	1.8	(0-25)
Cadmium (Cd)	0.1	(0-1.0)
Nickel (Ni)	0.1	(0-2.5)
Chromium (Cr)	0.3	(0-2.5)

Consult enclosed interpretation sheet. Questions may be directed to either Frank Mangan (Extension Specialist) at (978) 422-6374 or the UMass Soil Lab at (413)545-2311

09-12-89 10:53 TO:MIDDLESEX CORP. - WOBURN

FROM:4135451931

P01

The Third Requirement of the Plantable Soil mixture was Peat that was to be furnished by Morse Brothers of Windham, Maine. Their source of the Peat was from Worchester Peat Company of Cherryfield, Maine. The University of Maine as well as Lambda-Max Ecological Research Lab of Minneapolis, Minnesota had tested the material (Worchester Peat). The results of those tests are included in the section to follow.

WORCESTER PEAT CO., INC.

FACSIMILE TRANSMITTAL SHEET

TO: RICK NOBLETT	FROM: MIKE TRICKEY
TO:	DATE: 9-25-00
FAX NUMBER: 781-935-0383	TOTAL NO. OF PAGES INCLUDING COVER: 4
PHONE NUMBER:	SENDER'S REFERENCE NUMBER:
RE:	YOUR REFERENCE NUMBER:

URGENT
 FOR REVIEW
 PLEASE COMMENT
 PLEASE REPLY
 PLEASE RECYCLE

NOTES/COMMENTS:

HC73 BOX 35E
DEBLOIS ME 04622
PHONE:207-638-2811 FAX:207-638-2731

Chasey Pennington

$\lambda_{1 \max}$

LAMBDA-MAX
ECOLOGICAL RESEARCH
1061 25th Ave SE
Minneapolis, MN 55414-2637
(612) 378-4804, fax (612) 378-5087
TIN 41-1742606, MN 1026939

May 18, 1997

To: Mr. Todd Hutchinson
Rootzone Development
P.O. Box 1008
Shoreham, New York
New York 11778

Post-It Fax Note	7871	Date	5/16	Page	2
To	T. W. Hutchinson	From	J. A. Janssens		
Co-Rep.					
Phone 1		Phone 2			
Fax #	904 423-9866	Fax #			


Dear Mr. Hutchinson,

Enclosed are the results of the abiotic-variable and sediment-composition analyses of "Worcester Peat", received on May 12, 1997, from the Worcester Peat Co., Lane Road, DeBoro, ME 04822.

The peat is an excellent fibric *Sphagnum* peat with a small, highly humified wood component (6%). In the coarse-sediment fiber there is only a trace of true mosses and herbaceous remains (<1%), some rootlet material (2%) and about 1% of large mineral particles in the form of small gravel and sand, presumably mixed in during the processing. Among the identifiable botanical remains I recorded charcoal particles, seeds of Ericaceous plants, and leaves of a Polytrichaceae moss (presumably *Polytrichum strictum*). The bulk of the peat consists out of remains of *Sphagnum austrii*, a common bog moss found in oligotrophic or slightly minerotrophic habitats in oceanic areas of eastern North America, often forming large and open hummocks.

Its moisture content-as-received equals 59%, its bulk density-as-received averages to 112 g L⁻¹ or 0.112g cm⁻³ (measured by two methods), the organic matter-as-received equals 106 g L⁻¹ and, on a % dry weight basis, ash content, ash-as-carbonates, fine (rubbed) fiber, and coarse fiber are respectively 2%, 0%, 64%, and 27%. The fine-fiber content might be slightly over-estimated, because a small fraction of the peat (<10%) did refuse to be wetted sufficiently to remove the <150 µm fraction. This is a common situation in *Sphagnum* peats of which parts have been dried completely.

Sincerely Yours,


Jan A. Janssens, Ph.D
Senior Partner

enc.: 'Definitions and Interpretation of Abiotic Variables and Biological Components of Peat' - in mail
Report
Invoice # 1039 - in mail

Bryophyte, Charac. & Vascular Plant Flora, Vegetation Analysis, Peatland Ecology, Paleo-environmental Reconstruction, Isotopic Stereo-chemistry, Herbarium Curator, Permanent Vegetation Plots, Peat Soils & Microfossil Analyses, Water Chemistry

PHONE NO. 1

617-378-0007

Worcester Peat

Abiotic Variables and Composition

Analyst: Jeanne A. Janssen, Ph.D.

16-May-97

Abiotic Variables:

Moisture:	39 % total weight
Bulk density (bulk):	116.1 g/L
Bulk density (abio):	108.8 g/L
Organic matter:	106.2 g/L
Ash content:	2.38 % dry weight
Carbonates:	-0.23 % dry weight
Fine fiber:	63.7 % dry weight
Coarse fiber:	27.0 % dry weight

Composition of Coarse Fiber or Sediment:

% Sphagnopals:	81	Summary:	
% Bryopsids:	0	% Graminoid:	2
% Herbaceous:	0	% Moss:	0
% Rootlets:	2	% Sphagnum:	81
% Lignous:	16	% Wood:	16
% Mineral:	1		
Comments:	gravel, charcoal, Ericad seeds, POLY film, SPHAAUST		

Interpretation: fibric Sphagnum peat

UNIVERSITY OF MAINE

Analytical Lab/Maine Soil Testing Service

5722 Dondog Hill
Orono, Maine 04469-7722

From: Worcester Peat
PO Box 283
Cherryfield, ME 04622-0283

Job# 204
Date Rec.: 3-31-97
Date Printed: 4-2-97

Sample Type: Peat

Parameter	Peat - (Screened)
T.S.	3.31 %
T.V.S.	98.6 "
Ash	1.38 "
pH	3.5
Total Carbon	52.2 %
" Nitrogen	0.87 "
" Ca	1732 mg/kg
" K	290 "
" Mg	2375 "
" P	429 "
" Al	1066 "
" B	6.25 "
" Cu	2.77 "
" Fe	1176 "
" Mn	38.8 "
" Zn	25.5 "
H2O Extractable Cl	54.9 "
" SO4-S	53.4 "

(Reported on dry-weight basis.)

William P. Cook

William P. Cook
Assistant Chemist

THE LAND GRANT UNIVERSITY AND SEA GRANT COLLEGE OF MAINE

The University of Massachusetts at Amherst was asked to help lay out guidelines for a proper mix design with criteria that would meet the contract specifications with the materials that were proposed for usage. The following section contains the recommended and used mix proportions. The included test results were as follows: 1) The four test results marked with an "X" are two parts Ordinary Borrow (Test data supplied earlier in this section), and one part Compost (Test data supplied earlier in this section). This did not meet project specifications as mixed. 2) The above mixture was then mixed at three parts of that (Ordinary Borrow and Compost) with one part of Peat (Test data supplied earlier in this section). This mixture had test results that are labeled with a "Y". The completed mixture in number two above is what was ultimately used on the site as Manufactured Planting Soil.



UNIVERSITY of MASSACHUSETTS

UMass Extension

Agroecology Program
Soil and Plant Tissue
Testing Laboratory
West Experiment Station
Box 38010
Amherst, MA 01003-8010
413.545.2311
413.545.1931 fax

At these mixing rates:
The following Electrical conductivity values
might be expected:

1:2 mix (4% target) \Rightarrow EC = 0.47 $\frac{ds}{m}$
* (300 ppm)

2:3 mix (5% target) \Rightarrow EC = 0.61 $\frac{ds}{m}$
* (390 ppm)

3:4 mix (6% target) \Rightarrow EC = 0.75 $\frac{ds}{m}$
* (480 ppm)

* assumes EC x 640 = ppm

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UNIVERSITY of
MASSACHUSETTS

UMass Extension

Agroecology Program
Soil and Plant Tissue
Testing Laboratory
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Subject: Adjusting Organic Matter in Soil Materials

If one knows the present organic matter percentage of a soil, the organic matter percentage of an organic amendment (ex. peat moss), and the percentage of organic matter desired in a mix of the two, the volume ratio of the two that must be combined can be determined as follows:

If A = current soil organic matter % #

and B = organic matter % of organic amendment ##

and C = target soil organic matter % after amendment has been added

then $X = \frac{(B - C)}{(B - A)}$ where X = the fraction by weight of dry soil in final mix

and $1 - X$ = the fraction by weight of dry organic amendment needed in mix

To convert weights (X and 1-X) to volumes (since that is how one will work with the material)

a conversion must be made using the dry bulk densities of the materials being mixed.

So, $S = X / P_s$ and $T = (1 - X) / P_o$

where P_s is the dry bulk density of the soil *

P_o is the dry bulk density of the organic amendment **

S = volume parts of soil material

T = volume parts of organic amendment

By dividing S/T you obtain volume parts of soil per 1 volume part organic amendment.

Obtained from soil test

Can be assumed to be 100 % for peat moss; composts are typically around 25 to 45 %

* The dry bulk density of soil can usually be assumed to be about 1.0 to 1.2 grams/cc.

** The dry bulk density of peat moss can be assumed to be about 0.15 grams/cc.

The dry bulk densities of composts are typically in the range of 0.2 to 0.4 grams/cc.

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UMass Extension

Agroecology Program
Soil and Plant Tissue
Testing Laboratory

West Experiment Station
Box 38010
Amherst, MA 01003-8010
413.545.2311
413.545.1931 fax

Assumptions: ⁽¹⁾ Compost % O.M. 40.7%
corrected for coarse fragments
= 34.4%

(2) Sand % O.M. 0%

(3) Target % O.M. \Rightarrow 4%, 5%, 6%

Ratio of Compost to Sand to
achieve target (by volume/volume)

4% \Rightarrow 1 part compost : 2 parts soil

5% \Rightarrow 2 parts compost : 3 parts soil

6% \Rightarrow 3 parts compost : 4 parts soil.

Page 1

Soil and Plant Tissue Testing Laboratory
West Experiment Station
University of Massachusetts
Amherst, MA 01003-8020

RESULTS AND INTERPRETATION OF SOIL TEST

The goal of soil testing is to provide guidelines for the efficient use of soil amendments, such as lime and fertilizer. Those provided with your soil test are the best now available for the crop chosen. Problems directly related to disease, insects, and to some extent weather and cultural practices can not be addressed by a soil test.

The Soil Sample - One of the most important steps in soil testing is obtaining the soil sample. It should represent the soil in which the plants are or will be growing. Randomly take several small samples across the area of concern, through a depth that contains or will contain the bulk of the plant's roots. A poor sample will result in bad recommendations.

SOIL TEST RESULTS

Soil pH, Buffer pH, and pH adjustments - Soil pH is a measure of the soil's acidity and is a primary factor in plant growth. When pH is maintained at the proper level for a given crop, plants nutrients are at maximum availability, toxic elements are often at reduced availability, and beneficial soil organisms are most active. Most plants prefer a soil pH between 5.5 and 7.5 and the majority do best in the middle part of this range. Some notable acid-loving exceptions are blueberries, potatoes, and rhododendrons.

Due to the climate and rock-types in which the soils of New England have formed, soils here tend to be naturally very acidic (4.5-5.5). For this reason they must often be amended with materials capable of raising the pH. Many products are available to accomplish this, but ground limestone is the most common. Lime recommendations are made in its terms.

Buffer pH is a measure of the soil's capacity to resist pH change after lime has been added. Two soils with the same soil pH may have quite different buffer pH's, and thus one will require significantly more limestone than the other to obtain an optimal soil pH. The extent to which the buffer pH is lower than 6.8 is proportional to the amount of limestone needed.

Occasionally soil pH must be lowered, because either the plant requires acid soil, or the soil was previously over-limed. Incorporating elemental sulfur is the most effective way to lower soil pH. In the soil the sulfur oxidizes to sulfuric acid. One to two pounds of sulfur will lower the pH of most New England soils about 0.5 unit. Unfortunately, sulfur is rarely available in garden centers. Contact the Soil Lab for other options.

Cation Exchange Capacity and Percentage Base Saturation - Cation exchange capacity (CEC) is an important measure of the soil's ability to retain and to supply nutrients. The bulk of this capacity in limed New England soils resides in finely divided soil organic matter. A smaller contribution comes from the soil's clay particles. The basic nutrient cations (positively charged ions) of Calcium (Ca^{++}), Magnesium (Mg^{++}), and Potassium (K^+), and the acidic cations of Aluminum and Hydrogen account for nearly all the adsorbed cations in the soil. Very sandy soils, low in organic matter, commonly have CEC's less than 5. New England soils with very high CEC's (greater than 40) are invariably rich in organic matter. A CEC between 10 and 15 is typical and usually adequate.

CEC is important because it represents the primary soil reservoir of readily available Potassium, Calcium, Magnesium and several micronutrients. It also helps to prevent their leaching. The ease with which a plant gains access to these nutrients depends somewhat on the relative percentages of the adsorbed cations. For this reason it is suggested that percentage saturation levels be held within loosely defined ranges. For example, a soil with base saturations of Calcium 70%, Magnesium 12% and Potassium 4% would be considered balanced for most crops and has a soil pH of about 6.5.

Individual Nutrients

Nitrogen (N) - Nitrogen is essential to nearly every aspect of plant growth. Nitrogen is absorbed from the soil as nitrate (NO_3^-) and ammonium (NH_4^+). This soil test estimates their current levels. Fertilizer recommendations are not generally made on the basis of these measurements because their levels can fluctuate greatly with soil and weather conditions over short periods of time. Instead, they are used to assess extremes of nitrogen fertility. For example, very high ammonium levels can be toxic to the roots of many plants, particularly if the soil pH is above 7. Very high levels of either form may coincide with fertilizer "burn." Recommendations are made on the presumptions that very little nitrogen remains in the soil after the growing season and that most crops require between 1 and 4 lbs of nitrogen per 1000 square feet per year. Adjustments are often made for soils recently or continuously supplied with manure or compost, which contain nitrogen that will be released during the growing season.

Phosphorus (P) or Phosphorus Pentoxide (P_2O_5) - Among other important functions, phosphorus provides plants with a means of using the energy harnessed by photosynthesis to drive its metabolism. A deficiency of this nutrient can lead to impaired vegetative growth, weak root systems, and fruit and seed of poor quality and low yield. Soil phosphorus exists in a wide range of forms. Some is present as part of soil organic matter and becomes available to plants as the organic matter decomposes. Most inorganic soil Phosphorus is bound tightly to the surface of soil mineral particles. Warm, moist, well aerated soils at about pH 6.5 optimize the release of both these forms. Plants require fairly large quantities of phosphorus, but the levels of phosphorus available to plant roots at any one time is quite low. Soil tests attempt to assess the soil's ability to supply phosphorus from bound forms during the growing season.

Potassium (K) or Potash (K₂O) - Potassium rivals nitrogen as the nutrient element absorbed in greatest amounts by plants. Like nitrogen, a relatively large proportion of plant-available potassium is taken up by crops each growing season. Plants deficient in potassium are unable to utilize nitrogen and water efficiently, and are more susceptible to disease. Most available potassium exists as an exchangeable cation (see above). The slow release of potassium from native soil minerals can replenish some of the potassium lost by crop removal and leaching. This ability, however, is limited and variable. Fertilization is often necessary to maintain optimum yields.

Calcium (Ca) - Calcium is essential in the proper functioning of plant cell walls and membranes. Sufficient calcium must also be present in actively growing plant parts, especially storage organs such as fruits and roots. Properly limed soils with a constant and adequate moisture will normally supply sufficient calcium to plants. High humidity and poor soil drainage hinder calcium movement into these plant parts and should be avoided.

Magnesium (Mg) - Magnesium acts together with phosphorus to drive plant metabolism and is part of chlorophyll, a vital substance for photosynthesis. Like Calcium, Magnesium is ordinarily supplied through liming. Low magnesium levels in many soils will normally not cause problems, provided the exchangeable cations (see above) are in good balance. If Mg levels are low and lime is required, dolomitic lime (rich in Mg) will be recommended. If Mg is low and lime is not required, Epsom salt (magnesium sulfate) may be incorporated at a rate of 5-10 lbs/1000 square feet.

Micronutrients - The micronutrients are elements essential to plants, but required in very small amounts. In most properly limed soils they are available in sufficient quantities. Five of these (iron, manganese, zinc, copper, and boron) are tested routinely. Micronutrient fertilizer recommendations are not available. Extremely high values, however, are noted.

Aluminum - Aluminum is not an essential nutrient for plants. At elevated levels it can be extremely toxic to plant roots and limit the plant's ability to take up phosphorus. Extractable aluminum increases greatly at soil pH's below 5.5. Proper liming, however, will lower aluminum to acceptable levels. Aluminum sensitivity varies greatly with plant type. Acid-loving plants, such as rhododendrons, can tolerate very high aluminum levels. Lettuce, carrots and beets are very sensitive. Hydrangea, a non-sensitive plant, produces blue flowers at low pH and pink flowers at high pH due to the effect of aluminum on pigment formation.

Toxic Heavy Metals - This laboratory routinely tests lead (Pb) and cadmium (Cd). Lead is naturally present in soils in the range of 15 to 40 parts lead per million parts soil (ppm). At these levels it presents no danger to people or plants. Soil pollution with lead-based paints and the tetraethyl lead of past automotive fuels have increased soil lead levels to several thousand ppm in some places. Unless the total lead level in your soil exceeds 150 ppm, it is simply reported as low and can be considered safe (assuming the sample submitted was representative of the area of concern). Values above 300 ppm are potentially dangerous to people. In such cases consult the separate insert on soil lead levels.

Cadmium is extremely toxic to both plants and animals. It is naturally present in soils at safely low levels (less than 1 ppm). Industrial discharges of cadmium, however, often cause municipal sewage sludge to contain elevated levels of cadmium. Composted sludges are often used as soil amendments. Although safe upper limits of cadmium for both plants and animals have not been established, monitoring soil Cd levels helps avoid excesses when such materials are used. Unless the cadmium in your soil exceeds 1 ppm it is not reported.

Soluble Salts - Soluble salts (SS), such as those used on roads to promote melting and those present in many commercial (and some natural) fertilizers, can cause severe water stress and nutritional imbalances in plants. Generally, seedlings are more sensitive than established plants to elevated SS levels and great variation exists between plant species. Most soils have values between 0.08 and 0.50 by the method used by this lab. The middle of this range is typical of most fertile mineral soils. Values higher than 0.60 may cause damage to sensitive plants (such as onions, etc.). A SS level can change rapidly in the soil due to leaching (washing out), so evaluating its significance must consider the effects of time and growing conditions. Excessive SS levels can often be corrected by leaching with liberal amounts (2 to 4 inches) of fresh water. Normal off season precipitation will usually correct salt problems resulting from over-fertilization.

GENERAL COMMENTS- Implementing the recommendations given in the enclosed report will correct the nutrient status of your soil for the plant type indicated. It may or may not solve a given horticultural plant growth problem. Other cultural factors may need to be evaluated. Many reports provide both "natural and organic" and "synthetic chemical" fertilizer alternatives.

The numerical results of this soil test reflect the properties of your soil and the analytical procedures used by the U Mass lab. One can not directly compare the extracted nutrient levels of one laboratory to those of another, because different labs may use different procedures. However, the evaluation of the results (whether they represent low, medium or high levels) and the accompanying recommendations should be consistent between labs if all other factors of crop production are the same.

Questions regarding soil testing may be directed to the Soil and Plant Tissue Testing Laboratory at (413) 545-2311.

Email: bodine@pssci.umass.edu

URL: <http://www.umass.edu/plsoils/soiltest/>

SOIL ANALYSIS REPORT FOR RESEARCH

09/20/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S000918-111
BAG NUMBER: 45139

SOIL WEIGHT: 6.49 g/5cc

MIDDLESEX/KEVIN HARTWELL
30A ATLANTIC AVENUE
WOBURN, MA 01801

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: TOP SOIL/A
SOIL TYPE:

SOIL PH 7.0 ALUMINUM (AL): 14 PPM (Soil Range: 10-300)
BUFFER PH 7.3 ORGANIC MATTER: 2.7 %. Desirable range 4-8%.

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 27	XX			
POTASSIUM (K) 394	XX			
CALCIUM (CA) 718	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
MAGNESIUM (MG) 125	XX			
AMMONIUM (NH4-N) 4	XXXXXXXXXX			
NITRATE (NO3-N) 45	XX			

CATION EXCH CAP 4.4 MEQ/100G PERCENT BASE SATURATION K=18.0 MG=18.2 CA=64.0 SOLUBLE SALTS 0.52 dS/M (Soil Range: 0.08-0.50)

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.8	0.1-2.0	Copper (Cu)	0.4	0.3-8.0
Manganese (Mn)	10.6	3 - 20	Iron (Fe)	4.0	1.0- 40
Zinc (Zn)	2.7	0.1- 70			

EXTRACTED LEAD (PB) 1 PPM. ESTIMATED TOTAL LEAD IS 41 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.1 PPM.

COMMENTS

(X)

SOIL ANALYSIS REPORT FOR RESEARCH

09/20/00

SOIL AND PLANT TISSUE TESTING LAB
 WEST EXPERIMENT STATION
 UNIVERSITY OF MASSACHUSETTS
 AMHERST, MA 01003

LAB NUMBER: S000918-112
 BAG NUMBER: 45139

SOIL WEIGHT: 6.32 g/5cc

MIDDLESEX/KEVIN HARTWELL
 30A ATLANTIC AVENUE
 WOBURN, MA 01801

CONCERNS:

 ANALYSIS REPORT

SAMPLE ID: TOP SOIL/B
 SOIL TYPE:

SOIL PH 7.2 ALUMINUM (AL): 13 PPM (Soil Range: 10-300)
 BUFFER PH 7.3 ORGANIC MATTER: 3.9 %. Desirable range 4-8%.

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 35	XX			
POTASSIUM (K) 523	XX			
CALCIUM (CA) 942	XX			
MAGNESIUM (MG) 168	XX			
AMMONIUM (NH4-N) 4	XXXXXXXXXX			
NITRATE (NO3-N) 45	XX			

CATION EXCH CAP 5.9 MEQ/100G PERCENT BASE SATURATION K=18.1 MG=18.5 CA=63.6 SOLUBLE SALTS 0.64 dS/M (Soil Range: 0.08-0.50)

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	1.1	0.1-2.0	Copper (Cu)	0.4	0.3-8.0
Manganese (Mn)	13.3	3 - 20	Iron (Fe)	4.6	1.0- 40
Zinc (Zn)	2.9	0.1- 70			

EXTRACTED LEAD (PB) 1 PPM. ESTIMATED TOTAL LEAD IS 40 PPM.
 EXTRACTED CADMIUM (CD) 0.0 PPM.
 EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.1 PPM.

 COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

SOIL AND PLANT TISSUE TESTING LAB
 WEST EXPERIMENT STATION
 UNIVERSITY OF MASSACHUSETTS
 AMHERST, MA 01003

LAB NUMBER: S000918-113
 BAG NUMBER: 45139

SOIL WEIGHT: 6.39 g/5cc

MIDDLESEX/KEVIN HARTWELL
 30A ATLANTIC AVENUE
 WOBURN, MA 01801

CONCERNS:

 ANALYSIS REPORT

SAMPLE ID: TOPSOIL/C
 SOIL TYPE:

SOIL PH 7.0 ALUMINUM (AL): 14 PPM (Soil Range: 10-300)
 BUFFER PH 7.3 ORGANIC MATTER: 2.6 %. Desirable range 4-8%.

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 25	XX			
POTASSIUM (K) 454	XX			
CALCIUM (CA) 807	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			
MAGNESIUM (MG) 142	XX			
AMMONIUM (NH4-N) 4	XXXXXXX			
NITRATE (NO3-N) 45	XX			

CATION EXCH CAP 5.0 MEQ/100G PERCENT BASE SATURATION K=18.3 MG=18.3 CA=63.5 SOLUBLE SALTS 0.55 dS/M (Soil Range: 0.08-0.50)

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.8	0.1-2.0	Copper (Cu)	0.2	0.3-8.0
Manganese (Mn)	10.3	3 - 20	Iron (Fe)	4.3	1.0- 40
Zinc (Zn)	2.6	0.1- 70			

EXTRACTED LEAD (PB) 1 PPM. ESTIMATED TOTAL LEAD IS 41 PPM.
 EXTRACTED CADMIUM (CD) 0.0 PPM.
 EXTRACTED NICKEL (NI) 0.0 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

 COMMENTS



SOIL ANALYSIS REPORT FOR RESEARCH

09/20/00

SOIL AND PLANT TISSUE TESTING LAB
 WEST EXPERIMENT STATION
 UNIVERSITY OF MASSACHUSETTS
 AMHERST, MA 01003

LAB NUMBER: S000918-114
 BAG NUMBER: 45139

SOIL WEIGHT: 6.69 g/5cc

MIDDLESEX/KEVIN HARTWELL
 30A ATLANTIC AVENUE
 WOBURN, MA 01801

CONCERNS:

 ANALYSIS REPORT

SAMPLE ID: TOP SOIL/D
 SOIL TYPE:

SOIL PH 7.1 ALUMINUM (AL): 11 PPM (Soil Range: 10-300)
 BUFFER PH 7.3 ORGANIC MATTER: 2.5 %. Desirable range 4-8%.

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 27	XX			
POTASSIUM (K) 406	XX			
CALCIUM (CA) 770	XX			
MAGNESIUM (MG) 133	XX			
AMMONIUM (NH4-N) 4	XXXXXXXXXX			
NITRATE (NO3-N) 45	XX			

CATION EXCH CAP 4.5 MEQ/100G PERCENT BASE SATURATION K=17.4 MG=18.3 CA=64.5 SOLUBLE SALTS 0.46 ds/M (Soil Range: 0.08-0.50)

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.8	0.1-2.0	Copper (Cu)	0.2	0.3-8.0
Manganese (Mn)	10.6	3 - 20	Iron (Fe)	3.5	1.0- 40
Zinc (Zn)	2.5	0.1- 70			

EXTRACTED LEAD (PB) 1 PPM. ESTIMATED TOTAL LEAD IS 41 PPM.
 EXTRACTED CADMIUM (CD) 0.0 PPM.
 EXTRACTED NICKEL (NI) 0.0 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

 COMMENTS

(X)

SOIL ANALYSIS REPORT FOR RESEARCH

09/20/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S000918-115
BAG NUMBER: 45139

SOIL WEIGHT: 5.51 g/5cc

MIDDLESEX/KEVIN HARTWELL
30A ATLANTIC AVENUE
WOBURN, MA 01801

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: TSA/TOP SOIL & PEAT
SOIL TYPE:

SOIL PH 5.7 ALUMINUM (AL): 8 PPM (Soil Range: 10-300)
BUFFER PH 6.6 ORGANIC MATTER: 8.1 %. Desirable range 4-8%.

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 23	XX	XX	XX	XX
POTASSIUM (K) 391	XX	XX	XX	XX
CALCIUM (CA) 762	XX	XX	XX	XX
MAGNESIUM (MG) 170	XX	XX	XX	XX
AMMONIUM (NH4-N) 12	XX	XX	XX	XX
NITRATE (NO3-N) 42	XX	XX	XX	XX

CATION EXCH CAP 9.4 MEQ/100G PERCENT BASE SATURATION K= 9.7 MG=13.5 CA=36.8 SOLUBLE SALTS 0.41 dS/M (Soil Range: 0.08-0.50)

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.5	0.1-2.0	Copper (Cu)	0.1	0.3-8.0
Manganese (Mn)	13.7	3 - 20	Iron (Fe)	2.8	1.0- 40
Zinc (Zn)	2.3	0.1- 70			

EXTRACTED LEAD (PB) 1 PPM. ESTIMATED TOTAL LEAD IS 39 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

Y

SOIL ANALYSIS REPORT FOR RESEARCH

09/20/00

SOIL AND PLANT TISSUE TESTING LAB
 WEST EXPERIMENT STATION
 UNIVERSITY OF MASSACHUSETTS
 AMHERST, MA 01003

LAB NUMBER: S000918-116
 BAG NUMBER: 45139

SOIL WEIGHT: 5.07 g/5cc

MIDDLESEX/KEVIN HARTWELL
 30A ATLANTIC AVENUE
 WOBURN, MA 01801

CONCERNS:

 ANALYSIS REPORT

SAMPLE ID: TSB/TOP SOIL & PEAT
 SOIL TYPE:

SOIL PH 5.1 ALUMINUM (AL): 10 PPM (Soil Range: 10-300)
 BUFFER PH 6.2 ORGANIC MATTER: 7.9 %. Desirable range 4-8%.

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 16	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
POTASSIUM (K) 298	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
CALCIUM (CA) 572	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
MAGNESIUM (MG) 150	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
AMMONIUM (NH4-N) 12	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
NITRATE (NO3-N) 42	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			

CATION EXCH CAP 13.5 MEQ/100G PERCENT BASE SATURATION K= 5.6 MG= 9.0 CA=20.9 SOLUBLE SALTS 0.38 dS/M (Soil Range: 0.08-0.50)

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.4	0.1-2.0	Copper (Cu)	0.1	0.3-8.0
Manganese (Mn)	12.5	3 - 20	Iron (Fe)	2.7	1.0- 40
Zinc (Zn)	1.6	0.1- 70			

EXTRACTED LEAD (PB) 1 PPM. ESTIMATED TOTAL LEAD IS 36 PPM.
 EXTRACTED CADMIUM (CD) 0.0 PPM.
 EXTRACTED NICKEL (NI) 0.0 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

 COMMENTS

COMPUTER PROGRAM & RECOMMENDATIONS BY DEPT OF PLANT & SOIL SCI UMASS-AMHERST.

Y

SOIL ANALYSIS REPORT FOR RESEARCH

09/20/00

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S000918-117
BAG NUMBER: 45139

SOIL WEIGHT: 5.57 g/5cc

MIDDLESEX/KEVIN HARTWELL
30A ATLANTIC AVENUE
WOBBURN, MA 01801

CONCERNS:

ANALYSIS REPORT

SAMPLE ID: TSC/TOP SOIL & PEAT
SOIL TYPE:

SOIL PH 5.6 ALUMINUM (AL): 9 PPM (Soil Range: 10-300)
BUFFER PH 6.7 ORGANIC MATTER: 5.9 %. Desirable range 4-8%.

NUTRIENT LEVELS: PPM	LOW	MEDIUM	HIGH	VERY HIGH
PHOSPHORUS (P) 16	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
POTASSIUM (K) 340	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
CALCIUM (CA) 603	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
MAGNESIUM (MG) 139	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
AMMONIUM (NH4-N) 12	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			
NITRATE (NO3-N) 42	XXXXXXXXXXXXXXXXXXXXXXXXXXXX			

CATION EXCH CAP 7.2 MEQ/100G PERCENT BASE SATURATION K=10.9 MG=14.2 CA=37.6 SOLUBLE SALTS 0.43 ds/M (Soil Range: 0.08-0.50)

MICRONUTRIENT	PPM	SOIL RANGE	MICRONUTRIENT	PPM	SOIL RANGE
Boron (B)	0.5	0.1-2.0	Copper (Cu)	0.1	0.3-8.0
Manganese (Mn)	12.3	3 - 20	Iron (Fe)	2.7	1.0- 40
Zinc (Zn)	1.8	0.1- 70			

EXTRACTED LEAD (PB) 1 PPM. ESTIMATED TOTAL LEAD IS 38 PPM.
EXTRACTED CADMIUM (CD) 0.0 PPM.
EXTRACTED NICKEL (NI) 0.1 PPM. EXTRACTED CHROMIUM (CR) 0.0 PPM.

COMMENTS

(Y)

APPENDIX J – INTRUSIVE WORK LOCATIONS

INTRUSIVE WORK SHEET

		Per Contract Drawings						ACTUAL								
No.	Description/Location	Proposed Intrusion	Finish Grade Elevation	Geotextile Elevation	Bottom Footing Excavation	Regulated Soil Quantity (cf)	Quantity Lean Conc Fill (cf)	Installation Date	Hole Diameter (ft)	Geotextile Elevation	Bottom Footing Excavation	Area for Excavation (sf)	Regulated Soil Quantity (cf)	Sleeve Diam (ft)	Area for Lean Conc (sf)	Quantity Lean Conc Fill (cf)
Light Pole Foundations																
1	628 50' LIGHT POLE - LONG-TERM PARKI	48" D. EXCAV FOR 36" SLEEVE (28" FDN)	74.2	70.5	63.45	32	40	May-June	4	70.7	63.2	12.56637061	94.2	3	5.5	41.3
2	628 50' LIGHT POLE - LONG-TERM PARKI	48" D. EXCAV FOR 36" SLEEVE (28" FDN)	74.4	70.0	63.65	63	36	May-June	4	69.3	63.5	12.56637061	72.9	3	5.5	31.9
3	628 50' LIGHT POLE - LONG-TERM PARKI	48" D. EXCAV FOR 36" SLEEVE (28" FDN)	71.9	69.6	61.15	109	48	May-June	4	69.8	60.9	12.56637061	111.8	3	5.5	49
4	628 50' LIGHT POLE - LONG-TERM PARKI	48" D. EXCAV FOR 36" SLEEVE (28" FDN)	70.9	68.1	60.35	103	45	May-June	4	67.2	59.6	12.56637061	95.5	3	5.5	41.8
5	628 50' LIGHT POLE - LONG-TERM PARKI	48" D. EXCAV FOR 36" SLEEVE (28" FDN)	74.7	70.7	63.55	88	38	May-June	4	70.8	64.1	12.56637061	84.2	3	5.5	36.9
6	628 50' LIGHT POLE - LONG-TERM PARKI	48" D. EXCAV FOR 36" SLEEVE (28" FDN)	74.1	70.0	63.35	87	38	6/25/00	4	70.4	63.3	12.56637061	89.2	3	5.5	39.1
7	628 50' LIGHT POLE - LONG-TERM PARKI	48" D. EXCAV FOR 36" SLEEVE (28" FDN)	74.2	70.3	63.45	89	39	5/31/00	4	70.6	63	12.56637061	95.5	3	5.5	41.8
8	628 50' LIGHT POLE - LONG-TERM PARKI	48" D. EXCAV FOR 36" SLEEVE (28" FDN)	73.5	69.0	62.75	82	36	5/31/00	4	69.8	62.3	12.56637061	94.2	3	5.5	41.3
9	628 50' LIGHT POLE - LONG-TERM PARKI	48" D. EXCAV FOR 36" SLEEVE (28" FDN)	74.4	71.8	63.85	303	45	May-June	4	71.9	63.9	12.56637061	100.5	3	5.5	44
10	64.40' LIGHT POLE - CUL DE SAC, WEST E	48" D. EXCAV FOR 36" SLEEVE (24" FDN)	75.9	67.7	66.65	14	7	6/2/00	4	67.6	66	12.56637061	20.1	3	5.5	8.8
11	64.40' LIGHT POLE - CUL DE SAC, EAST EN	48" D. EXCAV FOR 36" SLEEVE (24" FDN)	75.9	67.8	66.65	18	8	2-Jun	4	71.4	67.4	12.56637061	50.3	3	5.5	22
12	63 25' LIGHT POLE - CUL DE SAC, INTERS	Foundation Above Geotextile	75.4	67.9	68.35	0	0	6/9/00								
13	63 25' LIGHT POLE - WEST SIDE, ENTRAN	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	75.4	70.0	68.35	18	9	6/9/00								
14	63 25' LIGHT POLE - WEST SIDE, LONG-T	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	74.5	70.7	67.25	34	17	May-June	3.5	70.3	67.3	9.621127502	28.9	2.5	4.7	14.1
15	63 25' LIGHT POLE - WEST SIDE, LONG-TE	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	74.2	70.2	66.95	34	16	May-June	3.5	70.6	67.2	9.621127502	32.7	2.5	4.7	16
16	63 25' LIGHT POLE - EAST SIDE, LONG-TE	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	74.4	71.2	67.35	39	19	6/9/00	3.5	71.3	67.4	9.621127502	37.5	2.5	4.7	18.3
17	63 25' LIGHT POLE - EAST SIDE, LONG-TE	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	75.0	70.8	67.75	32	16	5/25/00	3.5	70.8	67.8	9.621127502	28.9	2.5	4.7	14.1
18	63 25' LIGHT POLE - ISLAND ENTERING I	FOUND. ANCHORED TO TOP OF CONC SL	75.5	72.0	72.00	0	0	6/15/00								
19	63 25' LIGHT POLE - ISLAND ENTERING I	FOUND. ANCHORED TO TOP OF CONC SL	74.6	72.0	72.00	0	0	6/15/00								
20	63 25' LIGHT POLE - LONG-TERM EXIT TO	FOUND. ANCHORED TO TOP OF CONC SL	74.5	72.0	72.00	0	0	6/15/00								
21	63 25' LIGHT POLE - MAIN ACCESS ROAD	FOUND. ANCHORED TO TOP OF CONC SL	73.9	72.0	72.00	0	0	6/15/00								
22	63 25' LIGHT POLE - MAIN ACCESS ROAD	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	74.3	71.8	67.05	48	24	6/28/00	3.5	71.7	67.5	9.621127502	40.4	2.5	4.7	19.7
23	63 25' LIGHT POLE - MAIN ACCESS ROAD	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	74.3	71.0	67.05	40	20	6/28/00	3.5	70.95	67.6	9.621127502	32.2	2.5	4.7	15.7
24	63 25' LIGHT POLE - MAIN ACCESS ROAD	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	72.4	71.5	65.35	62	30	6/28/00								
25	63 25' LIGHT POLE - ATLANTIC AVENUE	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	70.7		63.45	72	35	6/28/00	3.5	68	66	9.621127502	19.2	2.5	4.7	9.4
26	63 25' LIGHT POLE - MAIN ACCESS ROAD	FOUND. ANCHORED TO TOP OF CONC SL	76.5	71.7	71.70	0	0									
27	63 25' LIGHT POLE - MAIN ACCESS ROAD	FOUND. ANCHORED TO TOP OF CONC SL	74.4	71.8	71.80	0	0	6/15/00								
28	63 25' LIGHT POLE - MAIN ACCESS ROAD	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	73.7	69.2	66.45	29	14	May-June	3.5	68	66.8	9.621127502	11.5	2.5	4.7	5.6
29	63 25' LIGHT POLE - MAIN ACCESS ROAD	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	74.3	71.4	67.05	44	22	6/21/00	3.5	66.3	64.5	9.621127502	17.3	2.5	4.7	8.5
30	63 25' LIGHT POLE - MAIN ACCESS ROAD	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	74.5	71.5	67.25	43	21	6/21/00	3.5	69.1	67.9	9.621127502	11.5	2.5	4.7	5.6
31	63 25' LIGHT POLE - MAIN ACCESS ROAD	FOUND. ANCHORED TO TOP OF GRANIT	72.3		69.10	0	0	6/21/00								
32	63 25' LIGHT POLE - ATLANTIC AVENUE	42" D. EXCAV. FOR 30" SLEEVE (24" FDN)	70.7	69.7	63.45	24	12	6/21/00	3.5	66.02	63.7	9.621127502	22.3	2.5	4.7	10.9
33	61.40' LIGHT POLE - ACCESS TO DIALY PA	48" D. EXCAV FOR 36" SLEEVE (24" FDN E	74.7	71.1	65.45	74	32	6/2/00	4	71.3	66	12.56637061	66.6	3	5.5	29.2
34	61.40' LIGHT POLE - ACCESS TO DIALY PA	48" D. EXCAV FOR 36" SLEEVE (24" FDN E	74.0	68.1	66.75	20	9	6/2/00	4	68.4	66.75	12.56637061	20.7	3	5.5	9.1
35	61.40' LIGHT POLE - ACCESS TO DIALY PA	48" D. EXCAV FOR 36" SLEEVE (24" FDN E	74.0	69.7	66.75	40	18		4	69.4	66.2	12.56637061	40.2	3	5.5	17.6
36	61.40' LIGHT POLE - ACCESS TO DIALY PA	48" D. EXCAV FOR 36" SLEEVE (24" FDN E	74.8	72.1	67.55	60	24	4/20/00	4	71.79	65.75	12.56637061	75.9	3	5.5	33.2
37	61.40' LIGHT POLE - ACCESS TO DIALY PA	48" D. EXCAV FOR 36" SLEEVE (24" FDN E	76.2	70.2	66.95	44	19	4/14/00	4	69.11	66.82	12.56637061	28.8	3	5.5	12.6
38	61.40' LIGHT POLE - ACCESS TO DIALY PA	48" D. EXCAV FOR 36" SLEEVE (24" FDN E	77.7	72.1	68.45	49	21	4/13/00	4	71.62	67.26	12.56637061	54.8	3	5.5	24

INTRUSIVE WORK SHEET

No.	Description/Location	Proposed Intrusion	Finish Grade Elevation	Geotextile Elevation	Bottom Footing Excavation	Regulated Soil Quantity (cf)	Quantity Lean Conc Fill (cf)	Installation Date	Hole Diameter (ft)	Geotextile Elevation	Bottom Footing Excavation	Area for Excavation (sf)	Regulated Soil Quantity (cf)	Sleeve Diam (ft)	Area for Lean Conc (sf)	Quantity Lean Conc Fill (cf)
39	64 40' LIGHT POLE - BUSWAY MEDIAN, W	48"D. EXCAV. FOR 36" SLEEVE (24" FDN E	76.1	72.5	66.85	74	32	6/27/00	4	72.8	66.6	12.56637061	779	3	5.5	34.1
40	64 40' LIGHT POLE - BUSWAY MEDIAN, W	48"D. EXCAV. FOR 36" SLEEVE (24" FDN E	75.5	71.0	66.25	63	27	6/27/00	4	70.5	70	12.56637061	63	3	5.5	2.8
41	64 40' LIGHT POLE - BUSWAY MEDIAN, E	48"D. EXCAV. FOR 36" SLEEVE (26" FDN	79.8	71.4	66.55	64	28									
42	63 Vantage/ Runway, North Curbside	42"D. EXCAV. FOR 30" SLEEVE (24" FDN	79.2	71.4	67.95	36	17	5/15/00	3.5	71.4	67.75	9.621127502	35.1	3	2.6	9.5
43	63 25' Light Pole - Runway, South Curb, Logan	42"D. EXCAV. FOR 30" SLEEVE (24" FDN	74.9	71.0	67.65	35	17	6/27/00	3.5	70.5	70	9.621127502	4.8	3	2.6	1.3
44	63 25' Light Pole - Runway Entrance, South Cu	42"D. EXCAV. FOR 30" SLEEVE (24" FDN	75.2	68.8	67.95	11	5	6/23/00	3.5	69.2	68.1	9.621127502	10.6	3	2.6	2.9
45	63 25' Light Pole - Runway Entr. So. Curbside	FOUNDATION ABOVE GEOTEXTILE	76.1	68.8	68.85	0	0									
49	63 25' Light Pole - Short-Term Parking, So. Cu	42"D. EXCAV. FOR 30" SLEEVE (24" FDN	74.8	69.3	67.95	19	9	6/23/00	3.5	69.7	68.3	9.621127502	13.5	3	2.6	3.6
50	63 25' Light Pole - Short-Term Parking, North	42"D. EXCAV. FOR 30" SLEEVE (24" FDN	75.0	69.4	67.75	18	9	6/21/00	3.5	69.2	68	9.621127502	11.5	3	2.6	3.1
51	63 25' Light Pole - Short-Term Parking, North	FOUND. ANCHORED TO TOP OF ABANDO	79.3	72.0	72.00	0	0									
52	63 Light Pole - Short-term Access Road, North	42"D. EXCAV. FOR 30" SLEEVE (24" FDN	79.3	71.0	68.05	31	15	7/2/00	3.5	70.9	70.2	9.621127502	6.7	3	2.6	1.8
53	63 Light Pole - Short-term Access Road, North	42"D. EXCAV. FOR 30" SLEEVE (24" FDN	74.7	68.7	67.45	34	7	6/21/00								
54	63 Light Pole - Short-term Access Road, North	42"D. EXCAV. FOR 30" SLEEVE (24" FDN	75.7	69.0	68.45	8	4									
55	63 Light Pole - Short-term Access Road, North	42"D. EXCAV. FOR 30" SLEEVE (24" FDN	75.7	68.7	68.45	5	2		3.5	71.6	68.43	9.621127502	30.5	3	2.6	
56	63 Light Pole - Short-term Access Road, North	42"D. EXCAV. FOR 30" SLEEVE (24" FDN	75.3	71.5	68.05	36	17									
57	62A 50' Light Pole - Daily Parking, West Side	48"D. EXCAV. FOR 36" SLEEVE (28" FDN	76.0	73.4	65.25	106	46	4/21/00	4	73.7	64.69	12.56637061	113.2	3	5.5	49.6
58	62A 50' Light Pole - Daily Parking, West Side	48"D. EXCAV. FOR 36" SLEEVE (28" FDN	77.8	73.6	67.05	85	37	4/20/00	4	73.7	66.35	12.56637061	92.4	3	5.5	40.4
59	62A 50' Light Pole - Daily Parking, West Side	48"D. EXCAV. FOR 36" SLEEVE (28" FDN	77.6	73.0	66.85	80	35	4/18/00	4	73.1	66.35	12.56637061	84.8	3	5.5	37.1
60	62A 50' Light Pole - Daily Parking, West Side	48"D. EXCAV. FOR 36" SLEEVE (28" FDN	78.6	75.1	67.85	94	41	4/17/00	4	75.28	67.35	12.56637061	99.7	3	5.5	43.6
61	62A 50' Light Pole - Daily Parking, West Side	48"D. EXCAV. FOR 36" SLEEVE (28" FDN	79.4	75.5	68.65	89	39	4/17/00	4	75.93	68.06	12.56637061	98.9	3	5.5	43.3
62	62A 50' Light Pole - Daily Parking, Middle	FOUND. ANCHORED TO TOP OF ABANDO	75.8	72.1	72.30	0	0	4/21/00	4	71.85	70.51	12.56637061	16.8	3	5.5	7.4
63	62A 50' Light Pole - Daily Parking, Middle	FOUND. ANCHORED TO TOP OF ABANDO	76.1	72.4	72.60	0	0	4/21/00	4	72.73	70.6	12.56637061	26.8	3	5.5	11.7
64	62A 50' Light Pole - Daily Parking, Middle	48"D. EXCAV. FOR 36" SLEEVE (28" FDN E	77.0	73.5	66.25	94	41	4/18/00	4	73.37	65.7	12.56637061	96.4	3	5.5	42.2
65	62A 50' Light Pole - Daily Parking, Middle	48"D. EXCAV. FOR 36" SLEEVE (28" FDN E	78.0	74.8	67.25	98	43	4/17/00	4	74.82	66.85	12.56637061	100.2	3	5.5	43.8
66	62A 50' Light Pole - Daily Parking, Middle	48"D. EXCAV. FOR 36" SLEEVE (28" FDN E	79.7	77.0	68.95	104	46	4/18/00	4	76.91	68.45	12.56637061	106.3	3	5.5	46.5
67	62A 50' LIGHT POLE - DAILY PARKING, EA	48"D. EXCAV. FOR 36" SLEEVE (28" FDN E	75.2	71.4	64.45	90	40	6/1/00	4	69.2	66	12.56637061	40.2	3	5.5	17.6
68	62A 50' LIGHT POLE - DAILY PARKING, EA	48"D. EXCAV. FOR 36" SLEEVE (28" FDN E	76.7	73.1	65.95	93	41	4/21/00	4	73.1	65.25	12.56637061	98.6	3	5.5	43.2
69	62A 50' LIGHT POLE - DAILY PARKING, EA	48"D. EXCAV. FOR 36" SLEEVE (28" FDN E	74.2	73.7	65.45	107	47	4/27/00	4	73.64	65	12.56637061	108.6	3	5.5	47.5
<i>Note on 69 - HIT CONCRETE SLAB ON 4/20/00 AT 68.34. BROKE THROUGH ON 4/27/00 AND COMPLETED SLEEVE INSTALLATION</i>																
70	62A 50' LIGHT POLE - DAILY PARKING, EA	48"D. EXCAV. FOR 36" SLEEVE (28" FDN E	77.2	73.9	66.45	97	42	4/19/00	4	73.98	66.4	12.56637061	95.3	3	5.5	41.7
71	65 36' Pedestrian Light Pole - South Side of Bu	FOUNDATION ABOVE GEOTEXTILE	67.1	72.35	0	0	0	9/22/00								
72	65 36' Pedestrian Light Pole - South Side of Bu	FOUNDATION ABOVE GEOTEXTILE	72.0	72.35	0	0	0	9/22/00								
79	65 36' Pedestrian Light Pole - West End of Bus	30"D. EXCAV. FOR 24" SLEEVE (18" FDN	76.5	71.4	71.25	2	1									
87	63 25' Light Pole - Runway Entr. So. Curbside	42" D EXCAV. FOR 30" Sleeve	74.5	73.9	67.25	44	33	4/13/00	3.5	73.79	68.16	9.621127502	54.2	2.5	4.7	26.5
81	61 40' Light Pole - Pres. Way, South Curbside	48" D EXCAV. FOR 36" Sleeve	78.5	73.6	69.25	58	25	4/13/00	4	73.85	69.36	12.56637061	56.4	3	5.5	24.7
82	61 40' Light Pole - Pres. Way, South Curbside	48" D EXCAV. FOR 36" Sleeve	80.0	77.0	70.75	82	36	4/11/00	4	77.2	72.7	12.56637061	56.5	3	5.5	24.8
83	61 40' Light Pole - Pres. Way, South Curbside	48" D EXCAV. FOR 36" Sleeve	81.4	78.4	72.35	82	36	4/12/00	4	78.4	72.8	12.56637061	70.4	3	5.5	30.8
84	61 40' Light Pole - Pres. Way, South Curbside	48" D EXCAV. FOR 36" Sleeve	82.0	80.5	73.65	89	39	4/12/00	4	80.13	72.72	12.56637061	93.1	3	5.5	40.8
85	61 40' Light Pole - Pres. Way, South Curbside	Foundation Above Geotextile (no intrusion)	83.2	73.1	73.95	0	0	4/14/00	4	71.79	70.84	12.56637061	11.9	3	5.5	5.2
86	61 40' Light Pole - Pres. Way, South Curbside	48"D. EXCAV. FOR 36" SLEEVE (26" FDN	80.0	72.3	70.75	23	10	May-June	4	72.2	71.1	12.56637061	13.8	3	5.5	6.1
80	61 40' Light Pole - Pres. Way, South Curbside	48"D. EXCAV. FOR 36" SLEEVE (26" FDN	78.5	73.6	69.25	58	25	May-June	3.5	69.9	68.12	9.621127502	17.1	2.5	4.7	8.4

INTRUSIVE WORK SHEET

		Per Contract Drawings						ACTUAL							
No.	Description/Location	Proposed Intrusion	Finish Grade Elevation	Geotextile Elevation	Bottom Footing Excavation	Regulated Soil Quantity (cf)	Quantity Lean Conc Fill (cf)	Installation Date	Geotextile Elevation	Bottom Footing Excavation	depth of Reg. Soil (ft)	Regulated Soil Quantity (cf)	Trench Length (ft)	Trench Width (ft)	actual station
Miscellaneous Site Structure Foundations															
A	Local Bus Canopy Foundation - West	3' wide x 8' long Footing (Embed 4')	75.3	72.2	70.80	95	0	5/5/00	72.1	70.60	1.50	75	10	5	
B	Local Bus Canopy Foundation - 24' fr	3' wide x 8' long Footing (Embed 4')	75.1	71.6	70.60	75	0	5/5/00	71.8	70.60	1.20	60	10	5	
C	Local Bus Canopy Foundation - 48' fr	3' wide x 8' long Footing (Embed 4')	75.1	71.3	70.60	60	0	5/5/00	71.2	70.60	0.60	30	10	5	
D	Local Bus Canopy Foundation - 72' fr	3' wide x 8' long Footing (Embed 4')	75.1	71.5	70.60	70	0	5/5/00	71.6	70.60	1.00	50	10	5	
E	Local Bus Canopy Foundation - East E	3' wide x 8' long Footing (Embed 4')	75.1	71.6	70.60	75	0	5/5/00	71.6	70.60	1.00	50	10	5	
F	Logan Express Bus Canopy Foundatio	3' wide x 8' long Footing (Embed 4')	76.9	68.0	72.40	0	0								
G	Logan Express Bus Canopy Foundatio	3' wide x 8' long Footing (Embed 4')	76.6	68.0	72.10	0	0								
H	Logan Express Bus Canopy Foundatio	3' wide x 8' long Footing (Embed 4')	76.3	71.5	71.80	0	0								
I	Logan Express Bus Canopy Foundatio	3' wide x 8' long Footing (Embed 4')	76.0	71.8	71.50	40	0								
J	Logan Express Bus Canopy Foundatio	3' wide x 8' long Footing (Embed 4')	75.7	71.7	71.20	50	0								
Civil Work															
K	CB-3 to existing CB (including pipe tr	3' wide x 35' long Trench	73.1	70.5	68.10	252	0	5/8/00	70.6	66	4.60	165.6	6	6	CB3 only
L	Electric Manholes in Utility Corridor	18'x18' Excavation, Foundation abo	74.0	65.9	66.00	0	0								
M	Water Line for Hydrant at South End	3' wide x 20' long (in Geotextile) T	74.0	70.0	68.50	90	0	4/13/00	69.4	68.2	1.20	96	32	2.5	
N	Water Line Parallel to Box Culvert, Lo	3' wide x 20' long (in Geotextile) T	74.0	70.0	68.50	90	0	May-June	69.4	69	0.40	33	33	2.5	
O1	Water Line for Hydrant at So. End of Daily Let							May-June	70.6	68.5	2.10	110.25	21	2.5	
O2	Water Line for Hydrant at So. End of Daily Let							May-June	70.6	68.4	2.20	121	22	2.5	
O3	Water Line for Hydrant at Center of Daily Let	3' wide x 40' long Trench	76.7	72.9	71.20	204	0	May-June	72.3	69.9	2.40	270	45	2.5	
P	20" Water Line at North West Corner	5' wide x 50' long Trench	77.0	69.0	68.00	250	0	May-June	69.3	68.6	0.70	51.333333	20	3.5666667	
Q	20" Water Line at Crossing Under Tr	5' wide x 50' long Trench, Bottom	70.6	64.4	65.80	0	0								
R	Excavation for Guardrail Corridor, N	5' wide x 200' long Trench, Bottom	75.0	70.1	70.30	0	0								
S	Excavation for Fence Post Corridor,	4' wide x 4.5' deep Trench(287' w	varies	varies	varies	1,807	0	10-Aug			1.00	640	160	4	
T	Extension of Utility Corridor to Atlan	24' x 30' excavation	72.5	70.4	64.80	4,010	0	4/21/00	69.8	67.3	2.50	916.66667	40	9.1666667	0+75-UP
U	Excavation for Full Depth Pavement,	200' lg x(30' W X 1/2 X 1.50' DP)+(4' W X 1/2 X 0.33' DP)				4,632	0								
V	Excavation for Atlantic Ave Curb Ext	3.5' wide X (302+25)' long X 1' dee				1,145	0	5-Jul			1.83	1038.525	227	2.5	
W	Excavation for Atlantic Ave Sidewalk	6' wide X (102+90)' long X 4' deep				578	0	5-Jul			1.00	1240	310	4	
X	(not included in orig. scope)	hydrant @ sta. 6+10 on 8" water						4/13/00			3.50	192.5	22	2.5	
Y	(not included in orig. scope)	conduit run from lpb 66-65-64						4/19/00			1.50	990	330	2	
Z	(not included in orig. scope)	gas main tie-in: sta 18+10-18+45						5/11/00	68.2	67.5	0.70	49	35	2	
AA	(not included in orig. scope)	gas main tie-in: sta 18+00						5/12/00	68.6	67.5	1.10	13.2	6	2	
BB	(not included in orig. scope)	H-112 (3'x3' hh + 1' pay limit)						5/8/00	71.5	70.9	0.60	15	5	5	
CC	(not included in orig. scope)	H-112A (3'x3' hh + 1' pay limit)						5/8/00	71.5	70.9	0.60	15	5	5	
DD	(not included in orig. scope)	H-114 (3'x3' hh + 1' pay limit)						5/10/00	73.75	72.26	1.49	37.25	5	5	
EE	(not included in orig. scope)	H-114A (3'x3' hh + 1' pay limit)						5/10/00	73.75	72.26	1.49	37.25	5	5	
FF	(not included in orig. scope)	H-11 (3'x3' hh + 1' pay limit)						5/18/00	71.8	70.8	1.00	25	5	5	
GG	(not included in orig. scope)	H-11A (3'x3' hh + 1' pay limit)						5/18/00	71.86	70.8	1.06	26.5	5	5	
HH	(not included in orig. scope)	H-113/13A						May-June	68.1	61.4	6.70	167.5	5	5	
II	(not included in orig. scope)	CB 7 (4.83' OD + 1' pay limits)						5/8/00	6.83333333	71.4	67.4	35.67373091	146.7		
JJ	(not included in orig. scope)	3MH #2 & trench (20' long + 1' pay limits)						May-June	70.1	68.9	1.20	60	20	2.5	
Per Contract Drawings															
ACTUAL															
No.	Description/Location	Proposed Intrusion	Finish Grade Elevation	Geotextile Elevation	Bottom Footing Excavation	Regulated Soil Quantity (cf)	Quantity Lean Conc Fill (cf)	Installation Date	Geotextile Elevation	Bottom Footing Excavation	depth of Reg. Soil (ft)	Regulated Soil Quantity (cf)	Trench Length (ft)	Trench Width (ft)	actual station
Miscellaneous Site Structure Foundations															
KK	(not included in orig. scope)	Water Line Constr: no excavation below existing fabric grade, just replaced fabric which was at bottom of trench elevation													
LL	(not included in orig. scope)	Stripped existing asphalt cover: replaced with fabric									0.50	3150	70	90	
	(not included in orig. scope)	H-111A (3'x3' hh + 1' pay limit)						9/14/00	71.86	70.86	1.00	25	5	5	
	(not included in orig. scope)	Clean Corridor for Pipe-rail in parking lot						8/9/00			0.50	67.5	45	3	
	(not included in orig. scope)										1.00	129	43	3	
	(not included in orig. scope)	atlantic Ave 17+50 to 18+00						9-Jun			1.50	2400	32	50	
	(not included in orig. scope)	curb -sta 14+73 - 15+83, 16+33 - 18+00						8-Jun			1.66	1149.55	277	2.5	
	(not included in orig. scope)	Atlantic Ave - full width 18+00 - 19+00						8-Jun			1.00	3200	100	32	
Site work subtotal: Excav. Reg Matl:												20083.125	cf	1407.1	
												743.8	cy	52.1	

INTRUSIVE WORK SHEET

No.	Description/Location	Proposed Intrusion	Finish Grade Elevation	Geotextile Elevation	Bottom Footing Excavation	Regulated Soil Quantity (cf)	Quantity Lean Conc Fill (cf)	Installation Date	Geotextile Elevation	Bottom Footing Excavation	depth of Reg Soil (ft)	Regulated Soil Quantity (cf)	Trench Length (ft)	Trench Width (ft)	actual station
Railroad Right-of-Way Structures and Earthwork															
X	Foundations for Pedestrian Bridge N	6'-0"X18'-0" Footing (Bot/Fig EL 7	77.4	69.2	70.50	0	0								
Y	Foundations for Pedestrian Bridge N	15'-6" X 15'-6" Footing (Bot/Fig EL	78.8	72.5	71.50	306	0								
	Loading Dock	(18.5 x 18.5 x 5.5) + (10.3 x 2.4 x 3.1)						3/23/00				2648.7			
	Platform Footings from station 667+50 to 677+00														
	Footing 1							Jul-00	66.5	66.3	0.2	33.6	24	7	
	Footing 2 for platform							Jul-00	66.8	66.2	0.6	100.8	24	7	
	Footing 3 for platform							Jul-00	67.6	66.4	1.2	201.6	24	7	
	Footing 4 for platform							Jul-00	66.8	65.9	0.9	151.2	24	7	
	Footing 5 for platform							Jul-00	66.8	65.9	0.9	151.2	24	7	
	Footing 6 for platform							Jul-00	67	66.6	0.4	67.2	24	7	
	Footing 7 for platform							Jul-00	66.8	65.9	0.9	151.2	24	7	
	Footing 8 for platform														
	Footing 9 for platform							Jul-00	66.8	65.9	0.9	75.6	24	7	
	Footing 10 for platform							Jul-00	67	66.1	0.9	97.2	24	9	
	Footing 11 for platform							Jul-00	67	66.1	0.9	97.2	24	9	
	Footing 12 for platform							Jul-00	67.8	66.9	0.9	97.2	24	9	
	Footing 13 for platform							Jul-00	67.8	66.9	0.9	97.2	24	9	
	Footing 14 for platform							Jul-00	68.1	67.2	0.9	97.2	24	9	
	Footing 15 for platform							Jul-00	67.8	66.9	0.9	97.2	24	9	
	Footing 16 for platform							Jul-00	68.1	67.2	0.9	97.2	24	9	
	Footing 17 for platform							Jul-00	67.8	66.9	0.9	97.2	24	9	
	Footing 18 for platform							Jul-00	68	67.1	0.9	97.2	24	9	
	Footing 19 for platform							Jul-00	68	67.1	0.9	69.3	22	7	
	Footing 20 for platform							Jul-00	68.3	67.4	0.9	69.3	22	7	
	Footing 21 for platform							Jul-00	68.5	67.6	0.9	69.3	22	7	
	Footing 22 for platform							Jul-00	68.1	67.2	0.9	69.3	22	7	
	Footing 23 for platform							Jul-00	68.7	67.8	0.9	49.5	22	6	
	Footing 24 for platform							Jul-00	68.3	67.4	0.9	49.5	22	5	
	Footing 25 for platform							Jul-00	68.4	67.5	0.9	49.5	22	5	
	Footing 26 for platform							Jul-00	68.8	67.9	0.9	69.3	22	7	
	Footing 27 for platform							Jul-00	68.9	68	0.9	69.3	22	7	
	Footing 28 for platform							Jul-00	69.1	68.2	0.9	69.3	22	7	
	Footing 29 for platform							Jul-00	68.9	68	0.9	69.3	22	7	
	Footing 30 for platform							Jul-00	69.3	68.4	0.9	69.3	22	7	
	Footing 31 for platform							Jul-00	69.2	68.3	0.9	69.3	22	7	
	Footing 32 for platform														
	Footing 33 for platform							Jul-00	69.3	68.4	0.9	81	20	9	
	Footing 34 for platform							Jul-00	68.5	67.6	0.9	81	20	9	
	Footing 35 for platform								69.4	68.5	0.9	81	20	9	
	Footing 36 for platform								69.4	68.5	0.9	81	20	9	
	Footing 36A for platform										0	0			

INTRUSIVE WORK SHEET

No.	Description/Location	Proposed Intrusion	Finish Grade Elevation	Geotextile Elevation	Bottom Footing Excavation	Regulated Soil Quantity (cf)	Quantity Lean Conc Fill (cf)	Installation Date	Geotextile Elevation	Bottom Footing Excavation	depth of Reg. Soil (ft)	Regulated Soil Quantity (cf)	Trench Length (ft)	Trench Width (ft)	actual station
14 Req'd	Foundations for Pier for Frame Type Crawford FDNS - 6 for 10'x24' CIH	30"D. Excav. For 24" Sleeve (18" FD)	varies	E.X.6R-0.5/+	.6-(5.0+25)	326	118	Oct-00				156.87			
14 Req'd		54"D. Excav. For 48" Sleeve (18" FD)	varies	E.X.6R-0.5/+	.6-(5.5+25)	1,280	269								
14 Req'd	Wilbur FDNS - 6 for 10'x24' CIH+4	54"D. Excav. For 48" Sleeve (18" FD)	varies	E.X.6R-0.5/+	.6-(5.5+25)	1,280	269	Sep-00				672			
10 Req'd	Foundation for AMTRAK Standard Sl	54"D. Excav. For 48" Sleeve (18" FD)	varies	E.X.6R-0.5/+	F6-(5.5+25)	914	192								
1 Req'd	Foundation for AMTRAK High-Dwarf	54"D. Excav. For 48" SL (High Dwarf)	varies	E.X.6R-0.5/+	F6-(5.5+25)	91	19								
	RE-shape Abutment -685+76 to 686+76		varies					Nov-00				3105			
Railroad Right-of-Way Lateral Conduits Under															
	STA 653+83.44 - (2) 4" GRS conduits	18" W X 5" DP X 34' L				0									
	STA 653+85 - (3) 4" GRS conduits to	26" W X 5" DP X 10' L, 18" W X 5" DP X 24' L				0									
	STA 653+95 - (1) 4" GRS conduits cr	11" W X 5" DP X 22' L				0									
	STA 653+96 - (1) 2" GRS conduits cr	9" W X 5" DP X 22' L				0									
	STA 657+82.92 - (1) 2" GRS conduits	9" W X 5" DP X 36' L				0									
	STA 657+83.92 - (1) 4" GRS conduits	11" W X 5" DP X 36' L				0									
	STA 658+25.15 - (1) 4" GRS conduits	11" W X 5" DP X 36' L				0									
	STA 358+26.15 - (1) 2" GRS conduits	9" W X 5" DP X 43' L				0									
	STA 660+85.15 - (1) 4" GRS conduits	11" W X 5" DP X 43' L				16		4/25/00	15' X 1.25'		0.5	9.375	15	1.25	660+85 SB
								5/11/00	17.5x2.5'		1.083333333	47.395833	17.5	2.5	660+85 NB
	STA 660+86.15 - (1) 2" GRS conduits	9" W X 5" DP X 43' L				13						0			
	STA 663+50.04 - (1) 2" GRS conduits	9" W X 5" DP X 37' L				12		6/16/00	22' x 1.5' x 5'		1.5	165	22	5	663+50
	STA 663+51.04 - (1) 4" GRS conduits	11" W X 5" DP X 37' L				14									
	STA 664+09.54 - (1) 4" GRS to trk, (	26" W X 5" DP X 10' L, 18" W X 5" DP X 41' L, 11" W X 5" DP X 12' L				39									
	STA 664+11.08 - (2) 4" GRS conduits	18" W X 5" DP X 52' L				33									
	STA 664+12.66 - (2) 4" GRS conduits	18" W X 5" DP X 65' L				41									
	(not included in orig scope)							4/21/00	21' X 2.5'		1	52.5	21	2.5	664+20
	(not included in orig scope)							4/24/00	8.5' X 3'		2.25	57.375	8.5	3	664+20
	(not included in orig scope)							4/24/00	5.5' X 5.5'		2	60.5	5.5	5.5	665+00
	STA 670+97.52 - (6) 1-1/2" GRS con	50" W X 9" DP X 30' L				52									
	STA 667+27.19 - (1) 4" GRS conduits	11" W X 5" DP X 58' L				22									
	STA 667+28.13 - (1) 4" GRS conduits	cross 2 trks, (1) cross 1 trk				41									
	STA 667+33.13 - (1) 4" GRS conduits	11" W X 5" DP X 58' L				21									
	STA 677+34.13 - (1) 2" GRS conduits	9" W X 5" DP X 69' L				22		4/18/00	20' x 24"		0.67	25.8	20	2	667+33
	STA 667+34.75 - (1) 2" GRS conduits	9" W X 5" DP X 12' L				4									
	(not included in orig scope)							4/20/00	15' x 3'		0.83	37.35	15	3	677+33
	(not included in orig scope)							4/20/00	7' x 5'		3	105	7	5	677+27
								4/20/00	10' x 2'		0.5	10	10	2	677+25

INTRUSIVE WORK SHEET

No.	Description/Location	Proposed Intrusion	Finish Grade Elevation	Geotextile Elevation	Bottom Footing Excavation	Regulated Soil Quantity (cf)	Quantity Lean Conc Fill (cf)	Installation Date	Hole Diameter (ft)	Geotextile Elevation	Bottom Footing Excavation	Depth for Excavation (sf)	Regulated Soil Quantity (cf)	Trench Length (ft)	Trench Width (ft)	actual station	
	STA 678+32.39 - (2) 4" GRS conduits	18" W X 5" DP X 51' L				32		7/5/00				2	100	25	2	678+31	
	STA 678+33.95 - (3) 4" GRS conduits	26" W X 5" DP X 10' L, 11" W X 5" DP X 41' L				25											
	STA 678+96.13 - (1) 4" GRS conduits	11" W X 5" DP X 22' L				8		6/13/00				1.8	31.5	7	2.5	678+96	
	STA 678+97.13 - (1) 2" GRS conduits	9" W X 5" DP X 22' L				7											
	STA 680+06.3 - (3) 4" GRS conduits	26" W X 5" DP X 62' L				56											
	STA 681+61 - (1) 2" GRS conduits cross	9" W X 5" DP X 43' L				13											
	STA 681+62 - (1) 4" GRS conduits cross	11" W X 5" DP X 43' L				16		5/9/00	13'x2.5'			1.333333333	43.333333	13	2.5	681+62 SB	
								5/9/00	17.5'x3.5'			1.666666667	102.08333	17.5	3.5	681+62 BP	
								5/9/00	4'x3'			1.5	18	4	3	681+62 signal	
	STA 684+20.38 - (1) GRS conduits cross	9" W X 5" DP X 12' L				4		6/12/00	13'x 2.16'			0.5	14.04	13	2.16	684+22	
	STA 690+21 - (3) 4" GRS to track, (1	26" W X 5" DP X 10' L, 11" W X 5" DP X 24' L				0											
	STA 690+22.54 - (2) 4" GRS conduits	18" W X 5" DP X 34' L				0											
No.	Description/Location	Proposed Intrusion	Finish Grade Elevation	Geotextile Elevation	Bottom Footing Excavation	Regulated Soil Quantity (cf)	Quantity Lean Conc Fill (cf)	Installation Date	Hole Diameter (ft)	Geotextile Elevation	Bottom Footing Excavation	Depth of Excavation (ft)	Regulated Soil Quantity (cf)	Trench Length (ft)	Trench Width (ft)	actual station	
Railroad Right-of-Way Track Construction																	
	(not included in orig. scope)	sta. 680+00 - 682+00 (adj. SB)	SOUTH BY_PASS TRACK					5/1/00	200' long			1					
	(not included in orig. scope)	sta. 677+25 - 680+00 (adj. SB)	SOUTH BY_PASS TRACK					5/2/00	275' long			1					
	(not included in orig. scope)	sta. 676+00 - 677+25 (adj. SB)	SOUTH BY_PASS TRACK					5/2/00	175' long			1					
	(not included in orig. scope)	sta. 670+00 - 676+00 (adj. SB)	SOUTH BY_PASS TRACK					5/3/00	600' long			1					
	(not included in orig. scope)	sta. 683+50 - 687+00 (adjacent SB)	SOUTH BY_PASS TRACK					Jun-00	350' long				29970				
	(not included in orig. scope)	sta. 681+00 - 679+50 (adjacent NB)						Aug-00	150' long			1.5	900	150	4		
	(not included in orig. scope)	sta. 681+00 - 683+60 (adjacent NB)						Sep-00	260' long			2.5	1950	260	3		
	(not included in orig. scope)	sta. 661+40 - 662+80 (adjacent NB)						Sep-00	140' long			3	1680	140	4		
	(not included in orig. scope)	sta. 660+00 - 661+40 (adjacent NB)						Oct-00	140' long			2	840	140	3		
	(not included in orig. scope)	sta. 662+80 - 664 + 35 (adjacent NB)						Sep-01	155' long			2	1240	155	4		
No.	Description/Location	Proposed Intrusion	Finish Grade Elevation	Geotextile Elevation	Bottom Footing Excavation	Regulated Soil Quantity (cf)	Quantity Lean Conc Fill (cf)	Installation Date	Hole Diameter (ft)	Geotextile Elevation	Bottom Footing Excavation	Area of Excavation (ft)	Regulated Soil Quantity (cf)	Trench Length (ft)	Trench Width (ft)		
Railroad Right-of-Way Electrical conduits and Subdrain System Parallel to Track																	
	cut for 12" subdrain and electric con	various locations trench excav. Below fabric				4,090											
	Leaching Basin sta. 659+30	48" ID x 5" walls +1' pay limit						5/9/00	6.83333333	63.6	61.5	36.67373091	77				
	Underdrain DMH sta. 659+96	48" ID x 5" walls +1' pay limit						5/11/00	6.83333333			36.67373091	110				
	Underdrain DMH sta. 677+50	48" ID x 5" walls +1' pay limit						5/5/00	6.83333333	66.2	59.3	36.67373091	253				
No.	Description/Location	Proposed Intrusion	Finish Grade Elevation	Geotextile Elevation	Bottom Footing Excavation	Regulated Soil Quantity (cf)	Quantity Lean Conc Fill (cf)	Installation Date	Hole Diameter (ft)	Geotextile Elevation	Bottom Footing Excavation	depth of Reg. Soil (ft)	Regulated Soil Quantity (cf)	Trench Length (ft)	Trench Width (ft)		
	UD: LB to DMH sta. 659+96	65" I x 4'x3'						5/11/00		63.3	61.4	1.9	370.5	65	3		
	Electrical I-4 #1 sta. 666+00	3.5'x5' out-to-out plus 1' pay limits						5/16/00		66.5	64.7	1.8	79.2	5.5	8		
	Electrical I-4 #2 sta. 668+50	3.5'x5' out-to-out plus 1' pay limits						5/16/00		66.5	65.4	1.5	66	5.5	8		
	Electrical I-4 #4 sta. 671+02	3.5'x5' out-to-out plus 1' pay limits						5/17/00				1.5	66	5.5	8		
	Electrical I-4 #5 sta. 673+50	3.5'x5' out-to-out plus 1' pay limits						5/17/00		69.35	68.95	1.5	66	5.5	8		
	Electrical I-4 #6 sta. 676+00	3.5'x5' out-to-out plus 1' pay limits						5/17/00		68.15	67.9	1	44	5.5	8		
	Conduit -668+50 to 669 +90	MBTA Conduit trench						May-00				0.5	290	140	4		
	Conduit -665+50 to 664+10	MBTA Conduit trench						May-00				2.25	495	110	2		
sub-total estimated qty of Regulated Soil (cu.ft) =						26,034	2,519						48319.583			2866.314815	
cu yd =						964	93							1789.6 cy			106.2
ROW Subtotal: Excav. Reg. Matl:												48319.583					

INTRUSIVE WORK SHEET

APPENDIX K – REQUESTS FOR INFORMATION

**Request for Information Log
Anderson Regional Transportation Center
Massport Contract 1.727**

RFI Date	RFI #	RFI Description
2/8/2000	001	Precast Trough Alternate
3/1/2000	002	Track Underdrain Drainage Structure
3/9/2000	003	Track Grades
3/9/2000	004	Electrical Questions
3/14/2000	005	Reinforcing: Utility Duct Banks
3/14/2000	006	Ground Rod at LP Bases
3/14/2000	007	Electrical Manholes in R.O.W.
3/14/2000	008	Platform Canopies: Column Line 20
3/14/2000	009	Catch Basin Grades
3/14/2000	010	Intrusive Work in R.O.W.
3/14/2000	011	Wood for Platform Bench
3/16/2000	012	Gypsum Board Forms-Util. Duct Bank
3/16/2000	013	City Lights RFI 5&6
3/20/2000	014	Asphalt Paint on GRS Conduit
3/23/2000	015	Fiberoptic Conflict: Platform Ftgs
4/3/2000	016	Geotextile in ROW
4/4/2000	017	Misc Metals for Canopies
4/4/2000	018	Asphalt Saturated Roofing Felt
4/4/2000	019	Steel Pipe Guardrail
4/4/2000	020	Platform Canopy Questions
4/4/2000	021	Opening Dimensions in Building
4/6/2000	022	Handhole Grounding; Panel Conduits
4/14/2000	023	RGS Conduit Installation
4/14/2000	024	Canopy Detailing Questions
4/14/2000	025	City Lights Questions
4/27/2000	026	Platform Slopes and Grades
4/27/2000	027	Tower Corner Brick Detail
5/4/2000	028	ROW Design Changes
5/15/2000	029	SESCO Questions
5/18/2000	030	Type T Sign Foundation
5/30/2000	031	Platform Guardrails
5/31/2000	032	Bollards
6/1/2000	033	Parking Gate; Radio System
6/1/2000	034	LED Sign Location
6/5/2000	035	Schedule 80 PVC
6/19/2000	036	L2x2 on Stair Stringers
6/20/2000	037	Chain Link Fence on ROW
6/22/2000	038	City Lights Questions
6/26/2000	039	Light Poles Base Rehab
6/22/2000	040	Cable Tray to Duct Bank Transition:
6/27/2000	041	Masonry Scope of Work
6/28/2000	042	City Lights Questions
6/28/2000	043	Building Connections
7/11/2000	044	Color Coding of Conductors
7/17/2000	045	Pedestrian Ramp Roof Diagonal Braci
7/18/2000	046	Hot Water Heater Drip Pan Piping
7/20/2000	047	Concrete Sidewalk Dowels
7/31/2000	048	Platform Elec/Communications
7/31/2000	049	Hot Water Heater Drip Pan Piping
8/2/2000	050	Platform Foundation Correction

**Request for Information Log
Anderson Regional Transportation Center
Massport Contract 1.727**

RFI Date	RFI #	RFI Description
8/2/2000	051	Concrete Sidewalk Joint Sealant
8/4/2000	052	Platform Foundation Correction
8/2/2000	053	Bituminous Concrete Surface Course
8/18/2000	054	Lighting and PA System Supports in
8/18/2000	055	Lighting/Communications/Signage Con
8/18/2000	056	Stair Column Spacing
8/29/2000	057	Valley Plate
8/29/2000	058	Shims for Precast Panels
8/31/2000	059	Interior Carpentry Questions
9/6/2000	060	Signage Questions
9/6/2000	061	Sign Finish Questions
9/13/2000	062	Storage Building Questions
9/14/2000	063	Pedestrian Ramp/Bridge Wire Mesh
9/14/2000	064	Sign Case Questions
9/14/2000	065	Pedestrian Ramp Roof Welding
9/14/2000	066	Water Cooler Compressor Chase
9/22/2000	067	Stainless Steel ROW Railings
9/28/2000	068	Irrigation Questions
9/22/2000	069	SS Wedge Anchor Bolts for Ped
10/2/2000	070	Irrigation
10/3/2000	071	Columns for Pedestrian Bridge 1
10/9/2000	072	Benches for Seating (Waiting) Area
10/20/2000	073	Louver at Clock Tower
10/23/2000	074	Roof Closure Piece at Ped. Br #1
11/3/2000	075	SS Handrail Clarification
11/3/2000	076	Wire Mesh Frame Change
11/29/2000	077	Building Questions
11/8/2000	078	Cabinet Details
11/10/2000	079	Emergency Call Box
12/7/2000	080	Clock Circuits, Lighting Contactors
1/3/2001	081	Louvers & Dampers
1/3/2001	082	Ticket Office and Cash Room Changes
1/3/2001	083	Finish Carpentry Hdwr & Accessories
1/11/2001	084	Fire Extinguisher Cabinets
1/29/2001	085	Passenger Assistance System
1/30/2001	086	Sign Case
2/2/2001	087	Diffusers
2/2/2001	088	Sign Layout Drawing Review
2/21/2001	089	Add'l Elevator Punch List Items
3/12/2001	090	Accessibility Eval. w/ Mike Festa
4/19/2001	091	Crack Repair: Stair Landings
4/19/2001	092	Switch Breakers in Station Bldg

The Middlesex Corporation

REQUEST FOR INFORMATION

PO Box 212
Waban, MA 02468

TITLE: [REDACTED]
PROJECT: Woburn Regional Transportation Ctr

DATE: 02/08/2000

File # [REDACTED]
R.I.S.

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED:

REQUEST:

Enclosed is a letter dated February 4, 2000 from City Lights Electrical. As outlined, please review whether or not the Railduct 2000 system (fabricated by Carson Industries) is an acceptable alternative to the specified Plastibeton precast trough (fabricated by Synertech). If the Railduct 2000 is acceptable, a formal submittal will be made.

2-10-00

RESPONSE: (telecon w/ Palmieri to L. Robinson on 10 Feb 00)

1. As discussed with you this date, based on the data provided for review, Railduct 2000 HDPE (high density polyethylene) as manufactured by Carson Industries Ltd, is not considered to be an acceptable alternative for the high density polymer concrete channel trough system specified in Section 16117 - Precast Concrete Cable Trench.
2. The Plastibeton precast trough as manufactured by Synertech appears to be acceptable. If you intend to use this product, please make a formal submittal for formal review and approval.

c: C. Ambrose - MPA RE
C. Ezumezu - MBTA RE
K. Johnson - MPA
B. Bregoli - MBTA
J. Barrack - SW civil
H. Gordon - SW elect.

William Palmieri

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA

Requested By: The Middlesex Corporation

Date: 2/8/00

Signed: [Signature]
Laura Robinson

The Middlesex Corporation

REQUEST FOR INFORMATION

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

ANSWER

TITLE: [REDACTED]

DATE: 03/01/2000

PROJECT: Woburn Regional Transportation Ctr

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED: 03/07/2000

REQUEST: [REDACTED]

Contract Drawings TR - 6 through TR-9 identify that a 12-inch perforated PVC pipe is constructed as a track underdrain. While there is a pay item for the 12-inch pipe, there is not a pay item for the new leaching basin shown on Drawing TR-6, nor is there a pay item for the two drain manholes on Drawings TR-6 and TR-9.

Please advise The Middlesex Corporation on the following:

- a) Shall we plan for construction of the underdrain drainage structures per the Contract Drawings? Please note that this work is not outlined on the Intrusive Work Plans (C28 - C31), and the structures fall in areas where Class C soils are anticipated.
- b) While there is detail of the drain manhole, there is not a detail for the leaching basin. Please provide a detail for this item.
- c) How will payment for the structures be handled? If required, The Middlesex Corporation will provide a price for the work.

RESPONSE:

- a) Yes, construct underdrain structures per the Contract Drawings.
- b) Detail for leaching basin shall be similar to manhole detail, but using standard precast concrete leaching basin walls. Structures to conform 02400-2.02.
- c) Payment for structures will be made under items 02400.202 and 02400.221.

Stone & Webster
William J Palmieri

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA

Requested By: The Middlesex Corporation

Date: 3/1/00

Signed: *Laura Robinson*
Laura Robinson

Expedition®
TMC distr: RN,JP

The Middlesex Corporation

REQUEST FOR INFORMATION

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

ANSWER

TITLE: [REDACTED]

DATE: 03/09/2000

PROJECT: Woburn Regional Transportation Ctr

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED:

REQUEST:

As requested at a meeting between The Middlesex Corporation and Amtrak on 2/14/00 (at Amtrak's office), The Middlesex Corporation has performed a field survey of existing track grades. Attached are two sheets with existing Southbound track grade information. Please note that actual existing grades are different than existing grades identified on Contract Drawings TR-8 and TR-9. From approximately sta. 673+64 to 677+00, the existing grade is higher than the proposed final track grade. To maintain the 4-ft distance between rail and platform elevations, should track grades be lowered to proposed final grades, or should platform and corresponding new construction grades be raised?

(Note: a "+" on the tabulation sheets indicates a raise to final grade; a "-" on the tabulation sheets indicates a lowering to final grade)

RESPONSE:

1. Platform elevations should remain as shown on the expanded version (faxed to you on 2-25-00) of the table that appears on dwg S103.
2. ^{Southbound} Track elevations should be adjusted by Amtrak to the theoretical profile grade elevations as shown on that sheet, unless otherwise specifically waived by the MBTA.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bob Simon, Amtrak

already raised elevation

(Note: the "Proposed Gr." elevations given on the handwritten sheets which you attached to this RFI 003, are wrong at sta 668+60, 668+84, 676+28, and not rounded to 3 place accuracy at several other stations. Please use correct elevations when doing layout work. We have attached another copy of the expanded chart for your information and use.)

Requested By: The Middlesex Corporation

Date: 3/9/00

Stone & Webster

Signed: *Laura Robinson*
Laura Robinson

William J Palmieri
3-20-00

Expedition® TME distr: *Larry Weston*
RN, JP

S+A	EX-RAIL ELEV.	COL #	PROPOSED GR	DIF. ^{1/2}
668+60	69.371	# 1	69.6160 69.524	+2450 +153
668+84	69.445	# 2	69.6784 69.659	+233 +209
669+08	69.504	# 3	69.7408	+236
669+32	69.559	# 4	69.8032 69.800	+24 +241
669+56	69.619	# 5	69.8656 69.867	+246 +248
669+80	69.689	# 6	69.9280	+2390
670+04	69.759	# 7	69.9904	+2314
670+28	69.820	# 8	70.053 ²⁸	+233 ²⁸
670+52	69.890	# 9	70.1152	+225
670+76	69.969	# 10	70.178 ⁷⁴	+207 ⁸
671+00	70.040	# 11	70.2400	+200
671+24	70.134	# 12	70.3024	+1234
671+48	70.212	# 13	70.365 ⁴⁸	+152 ²⁸
671+72	70.306	# 14	70.4272	+1212
671+96	70.400	# 15	70.49 ⁴⁸⁹⁶	+5374 +59
672+20	70.491	# 16	70.5520	+2610
672+44	70.571	# 17	70.6144	+142
672+68	70.637	# 18	70.677 ⁶⁸	+591 +04
672+92	70.716	# 19	70.7392	+0232
673+16	70.791	# 20	70.802 ¹⁶	+0106 +011

+A.	EX-RAIL ELEV	COL #	PROPPOSE GR	DIFF
673+40	70.855	# 21	70.8640	+0.009
673+64	70.937	# 22	70.9264	-0.010
673+88	70.993	# 23	70.9888	-0.004
674+12	71.066	# 24	71.0512	-0.014
674+36	71.135	# 25	71.1136	-0.021
674+60	71.195	# 26	71.1760	-0.019
674+84	71.253	# 27	71.2384	-0.014
675+08	71.321	# 28	71.3008	-0.020
675+32	71.396	# 29	71.3632	-0.032
675+56	71.473	# 30	71.4256	-0.047
675+80	71.544	# 31	71.4880	-0.056
676+04	71.614	# 32	71.5504	-0.063
676+28	71.680	# 33	71.6128	-0.067
676+52	71.744	# 34	71.6752	-0.069
676+76	71.809	# 35	71.7376	-0.071
677+00	71.871	# 36	71.8000	-0.071

+ = RAISE TRACK
 - = LOWER TRACK.

Massport Project No. 1,727
 Region Transportation Center
 Woburn, Massachusetts

NOTES FOR CALCULATION OF VALUES IN PLATFORM LAYOUT SCHEDULE:

1. Station of column lines is based on stationing of existing southbound track. Platform layout based on track layout (drawing TR-1) and platform piers located 24'-0" on centers starting at sta 668+60.
2. Theoretical profile grade (top of rail) southbound track is taken from drawings TR-7 through TR-9, starting with elev = 68.58 at angle point sta 664+60 with upgradient of s=.00260.
3. Bot of flg elev = [(PG SB track) + (48" to edge platform) + (1/2" slope to center girder) - (12" thick deck) - (24" deep girder) - (1" total for 2 pads) - (30" deep wall) - (18" deep flg)] = PG - 3.04'
4. Bot of col baseplate elev = [(plat baseline elev)+(1'-0")+(3/4" grout)+(1/4" leveling plate)] for single cols, [-(4'-0")/(1/8") for double cols] = [plat baseline elev+1.0833' for single cols], [baseline+1.0417' for double cols]
5. Distance between SB and NB tracks based on track layout drawing TR-1. Perpendicular distances SB to NB curve provided by track design.
6. Offset NB to face east side wood strip = 5'-7" typ to NB TS (SB sta 673+89.98), increasing to 5'-8-1/2" at NB SC (SB sta 675+63.46), and 5'-8-1/2" beyond
7. Offset distance platform baseline to concrete face working point west side = (12'-1") - (2-1/2" wood strip)
8. Offset distance platform baseline to concrete face working point east side = (dist SB to NB) - (17'-8" SB to platform BL) - (offset NB to face east side wood strip) - (2-1/2" wood strip)
9. Platform elev at conc face working point west side = (PG SB track) + (4'-0")
10. Platform elev at conc surface platform baseline = (PG SB track) + (4'-0") + (12'-1" - 2-1/2")(1/8" per ft slope) = PG + 4.12'
11. Platform elev at conc face working point east side = (PG NB track) + (4'-0") (Note: no superelevation on inside rail of curved track)
12. Offset distance platform baseline to center of girder west side = [(12'-1") - (2-1/2" wood strip) - (3'-3" refuge area) - (9" to center girder)] = 7'-10-1/2"
13. Offset distance platform baseline to center of girder east side = [(offset BL to WP conc east side) - (3'-3" refuge area) - (9" to center girder)] = BLWP east - 4.0'
14. Offset distance platform baseline to edge of canopy west side = 8'-4" typical
15. Offset distance platform baseline to edge of canopy east side = (dist between SB to NB tracks) - (17'-8" SB to BL platform) - (8'-7-1/2" minimum clearance NB to edge of canopy)

PLATFORM LAYOUT SCHEDULE

Column Line	Station of Column Line Along S.B. Track	Theoretical P.G. Top of Rail Elev. S.B. Track	Bottom of Footing Elevation	Bottom of Column B.P. Elevation	Distance Between S.B. and N.B. Tracks	Offset From N.B. to Face of East Side Wood Strip	Offset Distance		Offset Distance				Offset Distance		
							Baseline to W.P. Platform	Platform Elevation at W.P.	Baseline to Precast Girder		Baseline to Edge Canopy				
							West Side	East Side	West Side	Baseline	East Side	West Side	East Side	West Side	East Side
1	668+60	69.6160	66.58	n.a.	35.3333	5.5833	11.8750	11.8750	73.6160	73.7397	73.6160	7.8750	7.8750	-	-
2	668+84	69.6784	66.64	74.8854	35.3333	5.5833	11.8750	11.8750	73.6784	73.8021	73.6784	7.8750	7.8750	-	-
3	669+08	69.7408	66.70	n.a.	35.3333	5.5833	11.8750	11.8750	73.7408	73.8645	73.7408	7.8750	7.8750	-	-
4	669+32	69.8032	66.76	75.0102	35.3333	5.5833	11.8750	11.8750	73.8032	73.9269	73.8032	7.8750	7.8750	-	-
5	669+56	69.8656	66.83	n.a.	35.3333	5.5833	11.8750	11.8750	73.8656	73.9893	73.8656	7.8750	7.8750	-	-
6	669+80	69.9280	66.89	75.1350	35.3333	5.5833	11.8750	11.8750	73.9280	74.0517	73.9280	7.8750	7.8750	-	-
7	670+04	69.9904	66.95	75.1974	35.3333	5.5833	11.8750	11.8750	73.9904	74.1141	73.9904	7.8750	7.8750	8.3330	8.3330
8	670+28	70.0528	67.01	75.2598	35.3333	5.5833	11.8750	11.8750	74.0528	74.1765	74.0528	7.8750	7.8750	8.3330	8.3330
9	670+52	70.1152	67.08	75.3222	35.3333	5.5833	11.8750	11.8750	74.1152	74.2389	74.1152	7.8750	7.8750	8.3330	8.3330
10	670+76	70.1776	67.14	75.3846	35.3333	5.5833	11.8750	11.8750	74.1776	74.3013	74.1776	7.8750	7.8750	8.3330	8.3330
11	671+00	70.2400	67.20	75.4054	35.3333	5.5833	11.8750	11.8750	74.2400	74.3637	74.2400	7.8750	7.8750	8.3330	8.3330
12	671+24	70.3024	67.26	75.4678	35.3333	5.5833	11.8750	11.8750	74.3024	74.4261	74.3024	7.8750	7.8750	-	-
13	671+48	70.3648	67.32	75.5302	35.3333	5.5833	11.8750	11.8750	74.3648	74.4885	74.3648	7.8750	7.8750	-	-
14	671+72	70.4272	67.39	75.5926	35.3333	5.5833	11.8750	11.8750	74.4272	74.5509	74.4272	7.8750	7.8750	-	-
15	671+96	70.4896	67.45	75.6550	35.3333	5.5833	11.8750	11.8750	74.4896	74.6133	74.4896	7.8750	7.8750	-	-
16	672+20	70.5520	67.51	75.7174	35.3333	5.5833	11.8750	11.8750	74.5520	74.6757	74.5520	7.8750	7.8750	-	-
17	672+44	70.6144	67.57	75.7798	35.3333	5.5833	11.8750	11.8750	74.6144	74.7381	74.6144	7.8750	7.8750	-	-
18	672+68	70.6768	67.64	75.8422	35.3333	5.5833	11.8750	11.8750	74.6768	74.8005	74.6768	7.8750	7.8750	-	-
19	672+92	70.7392	67.70	75.9046	35.3333	5.5833	11.8750	11.8750	74.7392	74.8629	74.7392	7.8750	7.8750	-	-
20	673+16	70.8016	67.76	76.0691	35.3333	5.5833	11.8750	11.8750	74.8016	74.9253	74.8016	7.8750	7.8750	8.3333	8.3333
21	673+40	70.8640	67.82	77.1968	35.3333	5.5833	11.8750	11.8750	74.8640	74.9877	74.8640	7.8750	7.8750	8.3333	8.3333
22	673+64	70.9264	67.89	75.3371	35.3333	5.5833	11.8750	11.8750	74.9264	75.0501	74.9264	7.8750	7.8750	8.3333	8.3333
23	673+88	70.9888	67.95	76.1958	35.3333	5.5833	11.8750	11.8750	74.9888	75.1125	74.9888	7.8750	7.8750	8.3333	8.3333
24	674+12	71.0512	68.01	76.2582	35.3320	5.5992	11.8750	11.8578	75.0512	75.1749	75.0512	7.8750	7.8578	8.3333	8.3333
25	674+36	71.1136	68.07	76.3206	35.3250	5.6165	11.8750	11.8335	75.1136	75.2373	75.1136	7.8750	7.8335	8.3333	8.3333
26	674+60	71.1760	68.14	76.3830	35.3040	5.6338	11.8750	11.7952	75.1760	75.2997	75.1760	7.8750	7.7952	-	-
27	674+84	71.2384	68.20	n.a.	35.2630	5.6511	11.8750	11.7369	75.2384	75.3621	75.2384	7.8750	7.7369	-	-
28	675+08	71.3008	68.26	76.5078	35.1950	5.6684	11.8750	11.6516	75.3008	75.4245	75.3008	7.8750	7.6516	-	-
29	675+32	71.3632	68.32	n.a.	35.0920	5.6857	11.8750	11.5313	75.3632	75.4869	75.3632	7.8750	7.5313	-	-
30	675+56	71.4256	68.39	76.6326	34.9400	5.7030	11.8750	11.3700	75.4256	75.5493	75.4256	7.8750	7.3700	-	-
31	675+80	71.4880	68.45	76.6950	34.7500	5.7083	11.8750	11.1727	75.4880	75.6117	75.4880	7.8750	7.1727	8.3333	8.3333
32	676+04	71.5504	68.51	76.7574	34.5140	5.7083	11.8750	10.9307	75.5504	75.6741	75.5504	7.8750	6.9307	8.3333	8.2223
33	676+28	71.6128	68.57	76.8198	34.2220	5.7083	11.8750	10.6387	75.6128	75.7365	75.6128	7.8750	6.6387	8.3333	7.9303
34	676+52	71.6752	68.64	76.8822	33.8790	5.7083	11.8750	10.2957	75.6752	75.7989	75.6752	7.8750	6.2957	8.3333	7.5873
35	676+76	71.7376	68.70	76.9030	33.4860	5.7083	11.8750	9.9027	75.7376	75.8613	75.7376	7.8750	5.9027	8.3333	7.1943

The Middlesex Corporation

REQUEST FOR INFORMATION

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

[REDACTED]
ANSWER

TITLE: **[REDACTED]**

DATE: 03/09/2000

PROJECT: Woburn Regional Transportation Ctr

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED:

REQUEST:

Attached are four pages prepared by City Lights Electrical Co., Inc., identified as RFI's 01 through 04. City Lights has requested review and a written response to these RFI's.

RESPONSE:

- see individual responses marked on each of the City Lights RFI's

Stone & Webster
William Palmieri 3-20-00

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA

Requested By: The Middlesex Corporation

Date: 3/9/00

Signed: Laura Robinson
Laura Robinson

Expedition 8

distr: CL,
JP, RN

12

Request for Information Form

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA

RFI Number	Submitted To	Submitted By	Copies To
01	Maddox Corporation 30 ATLANTIC AVENUE WOBURN, MA	Alan Lunn	
Date			
3/8/00			

Subject	Electrical	Co-Action
Site piping	N/A	

Coordination	Auto Layout	Routing
N/A	N/A	

Information:

Sta. # 670+97.52[±] handhole # HH-3, HH-4.
 Need to be clarified as to which pipes enters which handhole, coming from where.
 HH-4 has 2-4" where do they end up. Drawing E-9 has C-C detail w/ 4" which goes in HH-3 according to Note 7-E-4.
 E-5 has Note 4 which is not clear as to what it means. Need to know where 2-4" from HH-4 end up.
 HH-4 Drawing E-7 shows pipes entering N-S sides but has no details which pipes breakout from 6 way duct Bank.

RESPONSE:

SEE ATTACHED SKETCH FOR META-HH3 & HH4
 Stone & Webster
 Harold Gordon 3-20-00

Date Answered: _____ **Answered By:** _____

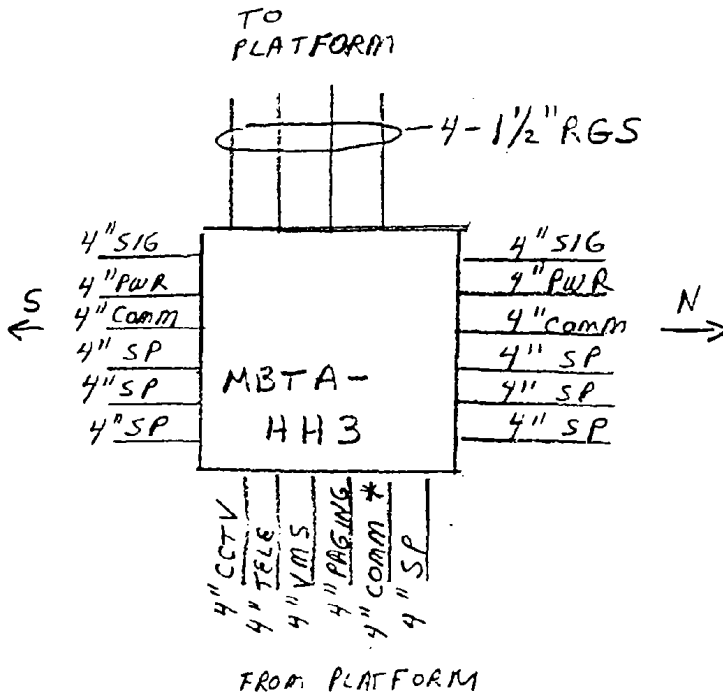
~~CALCULATION SHEET~~

▲ 5010 65

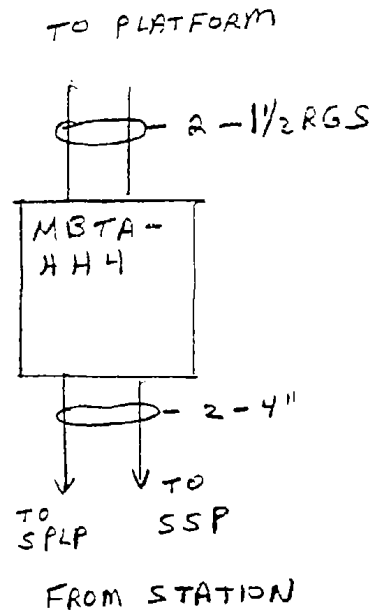
CALCULATION IDENTIFICATION NUMBER				PAGE ____
J.O. OR W.O. NO. 074730407	DIVISION & GROUP	CALCULATION NO. 2144 LIGHTS RFI-01	OPTIONAL TASK CODE	

3/20/00

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* 2-25 TO PR # 19, 1-25 TWR
GOING N ALONG TRACKS, 1-25 TWR
GOIN S ALONG TRACKS



Request for Information Form

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA

RFI Number	Submitted To	Submitted By	Copies To
02	Middlesex Corporation 30 ATLANTIC AVENUE WOBBURN, MA	Alan Lunn	
Date			
3/8/00			

Subject	Discussed	Co-Author
Site Piping/Transformer Pad.	N/A	

Cost Impact	Resource Impact	Other Impact
N/A	N/A	

Information Requested

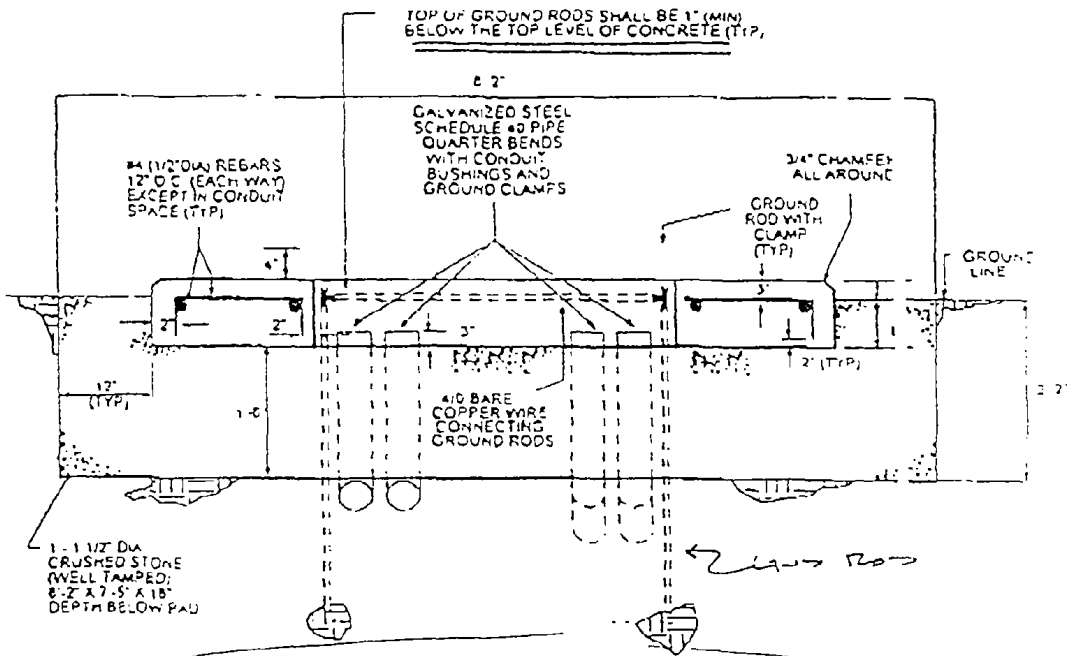
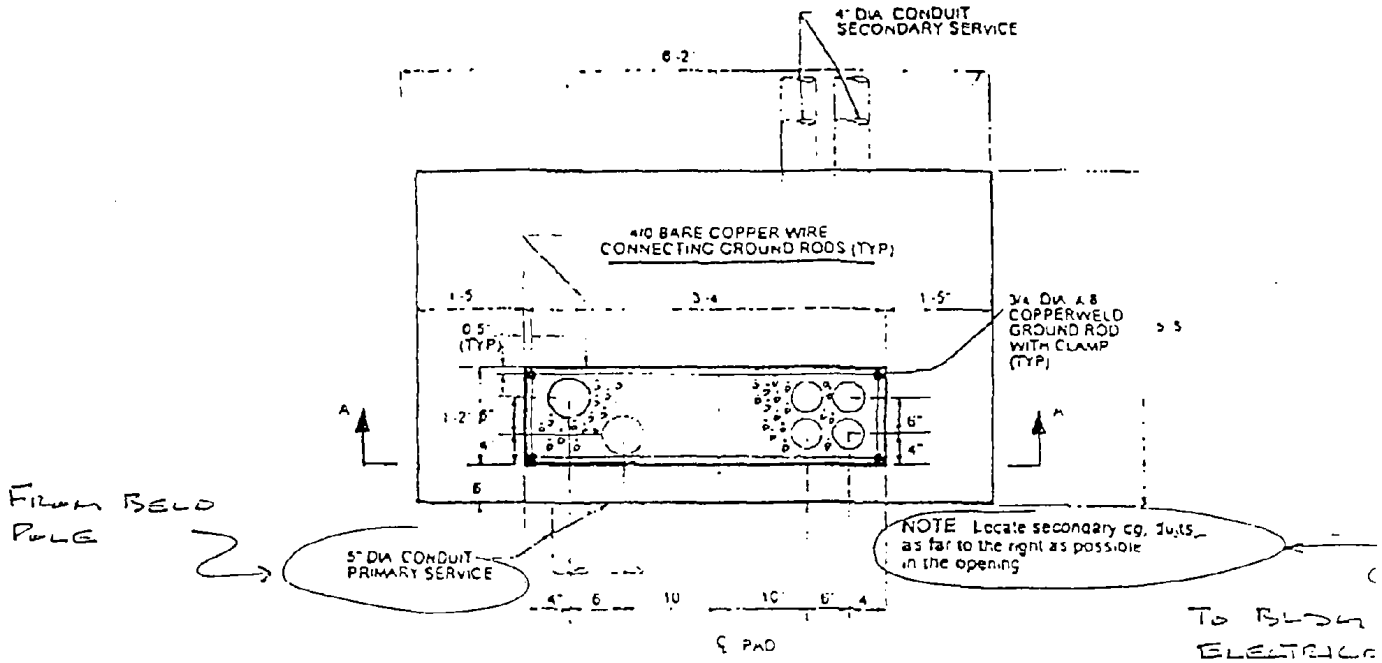
Question how many 4" pipes enter transformer pad.
 Detail on E-13 is in conflict with drawings S10, 12, E-4, E-5.

RESPONSE:
 2-5" & 4-4" PIPES ENTER PAD PER
 ATTACHED BECU DETAIL FOR 500KVA XMER,
 CONSTRUCTION STD 212-218 Rev 0 pg 2 of 4.
 Stone & Webster
 Harold Gordon 3-20-00

Date Answered: Answered By:

<p>Issued 01/30/98</p>	<p align="center">Boston Edison Company ELECTRIC DELIVERY SECTION</p> <p align="center">Construction Standard</p>	<p align="right">CS 2.12-2.18 Revision #0 Page 2 of 4</p>
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2 Procedure - cont'd.



Three Phase 112-1/2 Through 500 KVA Transformer Pads Figure 1

Request for Information Form

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA

RFI Number	Submitted To	Submitted By	Copies To
03	Middlesex Corporation 30 ATLANTIC AVENUE WOBURN, MA	Alan Lunn	
Date			
3/8/00			

Subject	Description	Co-Author
Site Piping	N/A	

Cost Estimate	Schedule Impact	Drawing Impact
N/A	N/A	

Information	Date Received
<p style="text-align: center;">E-9 has Detail "D-D" for MBTA HH-1. What does this refer to, sta. 66670. Show away duct banks only</p>	

RESPONSE:
<p>DETAIL D-D IS FOR MBTA-HH4. SEE SKETCH ATTACHED TO RFI-010 (TMC RFI-004) (CITY LIGHTS)</p> <p style="text-align: right;"><u>Stout & Webster</u> Harold Gordon 3-20-00</p>
<p>Date Answered: _____ Answered By: _____</p>

Request for Information Form

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA

RFI Number 04	Submitted To Mudrack Corporation 30 ATLANTIC AVENUE WOUBURN, MA	Requested By Alan Lunn	Copies To
Date 3/8/00			

Subject Site piping	Discipline N/A	Co-Author
-------------------------------	--------------------------	------------------

Cost Impact N/A	Business Impact N/A	Drawing Impact
---------------------------	-------------------------------	-----------------------

Information	Data Required
<p>1.) Drawing E-21: HH-2 to HH-7 calls for 5'-2" PVC, is 5' the total, this is not clear because of the note that calls for 1'-2" PVC for call box.</p> <p>2.) Drawing E-4 calls for 4'-4" from HH-2 to building Question: Is this to mean 2'-4" from HH-2, 2'-4" from HH-2A, 2'-4" from HH-1, 2'-4" from HH-1A, to building.</p>	

still owe response here (14)

RESPONSE:

2) Provide 2'-4" from station Bk1 to HH1, HH1A, HH2 & HH-1A
Stone & Webster
 Harold Gordon 3-20-00

Date Answered: Answered By:

The Middlesex Corporation

TRANSMITTAL
No. 004

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

PROJECT: Woburn Regional Transportation Ctr

DATE: 03/24/2000

TO: The Middlesex Corporation
30A Atlantic Ave
Woburn, MA 01801

REF: RFI responses

ATTN: Joe Phinney

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input type="checkbox"/> Shop Drawings	<input type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input checked="" type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	SENT VIA:	<input type="checkbox"/> Returned
<input type="checkbox"/> Specifications	<input type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input type="checkbox"/> Other:	<input type="checkbox"/> Separate Cover Via:	<input type="checkbox"/> Due Date:

ITEM	PACKAGE	SUBMITTAL	DRAWING	REV.	ITEM NO.	COPIES	DATE	DESCRIPTION	STATUS
					1	1	03/01/2000	RFI 002 response	
					10	1	03/16/2000	RFI 013 response	
					11	1	03/20/2000	RFI 014 response	
					2	1	03/09/2000	RFI 003 response	
					3	1	03/09/2000	RFI 004 response	
					4	1	03/14/2000	RFI 005 response	
					5	1	03/14/2000	RFI 006 response	
					6	1	03/14/2000	RFI 008 response	
					7	1	03/14/2000	RFI 010 response	
					8	1	03/14/2000	RFI 011 response	
					9	1	03/16/2000	RFI 012 response	

Remarks:

CC: Rick Noblet

Chris Downey, RFI 008 only

Henry Weston, RFI 003, 010 only

Expedition®

Signed:



Laura Robinson

The Middlesex Corporation

REQUEST FOR INFORMATION

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

ANSWER

TITLE: [REDACTED]
PROJECT: Woburn Regional Transportation Ctr

DATE: 03/14/2000

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED: 03/20/2000

REQUEST:

Can reinforcing steel in the utility duct banks (Drawing C-26) be eliminated in lieu of increasing the 28-day strength of the concrete? , The Middlesex Corporation would be willing to offer a credit of \$12,000 for this change . The amount of this credit has been calculated as follows: there are approximately 20,000 lbs of rebar in the utility duct banks for the project; at \$0.32 per pound for furnishing and \$0.32 per pound for installation less the added concrete cost comes to approximately \$12,000.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

RESPONSE :

1. It is our understanding that, contrary to the Request as stated above, TMC is proposing to use 5,000 psi concrete in lieu of the specified 3,000 psi concrete, if the requirement for reinforcing the duct banks is eliminated. Further, we understand that this, rather than the Request as stated above, is the basis for the offer of \$ 12,000 credit.
2. Stone & Webster recommends that the request to eliminate reinforcing in the duct banks be accepted only if the concrete strength is increased to 5,000 psi and TMC provides a credit of \$ 12,000.

Stone & Webster

William J Palmieri

Requested By: The Middlesex Corporation

Date: 3/14/00

Signed: Laura Robinson
Laura Robinson

Expedition [®] dist: RN, JP

REQUEST FOR INFORMATION

*ANSWER
Revised*

TITLE: [REDACTED]

DATE: 3/14/2000

PROJECT: Woburn Regional Transp. Ctr

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED: 03/20/2000

REQUEST:

Contract drawing E-24, Detail F identifies that the ground rod for a light pole base goes through the geotextile fabric that separates non-regulated from regulated material on-site. It is Middlesex Corporation's understanding that there are to be no breaks in the fabric continuity. Please clarify.

RESPONSE: by Stone & Webster

Original Response - 3/21/00

1. Geotextile fabric shall be sliced to allow installation of ground rod.
2. Ground rod shall extend approximately 12 inches above the level of existing geotextile to permit attachment of ground wires in a clean soil environment.
3. Geotextile fabric shall be restored by lapping and sewing a patch onto the cut fabric, with the patch fabric extending a minimum of 6 inches up onto, and secured to the ground rod.

Revised Response - confirming verbal response (tentative 4-6-00, final 4-13-00)

1. Based on EPA review and witnessing of ground rod penetration procedures proposed by TMC, and confirmed by EPA approval letter dated 4-10-00 (copy attached), the original response noted above is revised to accept the proposed method of installation as outlined in the EPA letter, summarized as follows:
 - a. Create a point on the end of 3/4" ground rods to allow for smooth penetration through the geotextile fabric;
 - b. Push the rod through the geotextile fabric or permeable cover, resulting in a smooth penetration which will sufficiently maintain a barrier between clean and contaminated soils.
 - c. If ground rods are ever removed in the future, then the landowner will be required to backfill and seal the rod's hole with grout.

RECEIVED
APR 20 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Gary Paulino, Alan Lunn, City Lights

REQUEST FOR INFORMATION

TITLE: Electrical Handholes, Right of Way

DATE: 3/14/2000

WRONG ANSWER

PROJECT: Woburn Regional Transp. Ctr

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED: 03/20/2000

NO

REQUEST:

- 1. Contract drawing TR-17 has a detail for a pullbox that is designed for HS-20 surcharge load. Please clarify where this pullbox is used.
- 2. Contract drawing E-9 and E-10 identify that there are several handholes constructed as part of the conduit bank. Note 9 on each sheet states that the handholes are per the detail on E24, but there is no such detail on E-24. Should the details on Drawing C-27 be used for these structures? Please clarify what the handholes look like, and how they are paid for in the Contract.

RESPONSE: by Stone & Webster (written response 4-18-00, confirming previous discussions with TMC prior to TMC Transmittal 031 dated 3-28-00 of Scituate/Ray shop drawings for hanholes)

- 1. Pullbox detailed on TR-17 for 4'x2'-6"x3' is typical for MBTA HH1, HH2, HH3, HH5, and HH6 as shown on drawing E9, along the east side of the right-of-way. MBTA HH4 is 2'x2'x2' as shown on drawing C27.
- 2. Reference on E-9 and E-10 to detail on E-24 is incorrect. Handholes for ductbank along the east side of the right-of-way are to be as typically detailed on TR-17 (except for HH4) as noted above in response to question 1.
- 3. Payment for 4'x2'-6"x3' deep handholes noted above is to be made under unit price for Item 03400.162 (precast concrete handhole 4'x4'x3' deep). Payment for 2'x2'x2' deep handhole noted above is to be made under unit price for Item 03400.161 (precast concrete handhole 2'x2'x2' deep).

RECEIVED
APR 20 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Gary Paulino, Alan Lunn, City Lights

The Middlesex Corporation

REQUEST FOR INFORMATION

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

ANSWER

TITLE: [REDACTED]

DATE: 03/14/2000

PROJECT: Woburn Regional Transportation Ctr

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED: 03/20/2000

REQUEST:

Bayshore Steel Detailing (detailer for IMS, canopy fabricator) has requested clarification of the following:

At column line 20, the ramp top of steel elevation is 78'-7" and the column base plates are at 78'-8." The ramp goes under the column base plates. Please clarify.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

RESPONSE :

At Column Line 20, lower the elevation of bottom of column base plate to 77.8567 (77'-10 1/4") to accept ramp framing. Adjust pier height accordingly.

Stone & Webster

William J Palmieri 3-20-00

Requested By: The Middlesex Corporation

Date: 3/14/00

Signed: *Laura Robinson*
Laura Robinson

Prepared by: *distr: IMS/ Bayshore
RN, JP, CD*

The Middlesex Corporation

REQUEST FOR INFORMATION

No. 009

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

TITLE: [REDACTED]
PROJECT: Woburn Regional Transportation Ctr

DATE: 03/14/2000

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED: 03/20/2000

REQUEST:

Per Detail 5 on Drawing C-25, the minimum depth required between catch basin frame and invert grades is 30.2" (allow 8" for frame/grate, 4" for two courses of brick, 6" for top of structure, and 12.20" for a 12-inch pipe ID plus one wall thickness). Some catch basin grades on Drawing C-9 and C-10 have less than the 30.2" (i.e. CB-13, CB-2). Please clarify.

→ could be eliminated if help

Didk eFST, look into & get back to us by wed late P.M.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

Requested By: The Middlesex Corporation

Date: 3/14/00

Signed: Laura Robinson
Laura Robinson

The Middlesex Corporation

REQUEST FOR INFORMATION

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

ANSWER

TITLE: [REDACTED]

DATE: 03/14/2000

PROJECT: Woburn Regional Transportation Ctr

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED: 03/20/2000

REQUEST:

1. Drawing TR-10 indicates that existing geotextile fabric ends at sta. 686+00. Please be advised that the Industri-Plex Site Record Drawings (dated 4/98, prepared by Meridian) indicate that the geotextile ends at approximately sta. 681+00. a) It is The Middlesex Corporation's understanding based on a statement made by Joe LeMay (EPA) that all excavated materials (particularly below the geotextile fabric, or in this case past the limit of the fabric) shall be treated as regulated soils unless classified otherwise. This is also stated in Spec Section 01566 (page 3, paragraph 1.06F). Please confirm that from sta. 681+00 to the northern limit of work any excavation should be performed in conformance with appropriate procedures for handling regulated material b) Please redefine the scope of work in this area (i.e. should new geotextile fabric be placed starting at the limit of existing, to the northern limit of work?). c) Please redefine the limit of the existing geotextile on the Contract Drawings, in accordance with the Industri-Plex Record Drawings. d) Please define the limit of the Superfund site with respect to the limits of work for this Contract.

RESPONSE:

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

a) Excavation of soils within the Superfund site limits that do not have an alternate cover (geotextile, paving, structure, etc) shall be excavated and hauled as regulated material until proven by testing. Geotextile along the RR ROW ends at approximately Sta. 682+10' instead of Sta. 686+00 as indicated on dwg TR-10.

b) Geotextile fabric is not required on top of clean rock surfaces or soils that are classified by testing to be Class B or better. Geotextile will be required to cover soils that are classified by testing to be Class C or worse.

c) See attached Part Plan from dwg TR10, revised to show approximate limits of geotextile at north end of track layout. Approximate limit of geotextile at south end is Sta 660+00'

d) Northern limit of Superfund site is approximately Sta 686+30' (ref. Alternate Cover Record Dwg M.8.4). Southern limit of Superfund Site is approximately Sta 660+00 (ref. Record Dwg M.8.2).

Stone & Webster William J. Palmieri 3-17-00

Requested By: The Middlesex Corporation

Date: 3/14/00

Signed: Laura Robinson
Laura Robinson

Expedition 2 distr. RN, JP, LW

The Middlesex Corporation

REQUEST FOR INFORMATION

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

ANSWER

TITLE: [REDACTED]
PROJECT: Woburn Regional Transportation Ctr
TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

DATE: 03/14/2000
JOB: 405
STARTED:
COMPLETED:
REQUIRED: 03/20/2000

REQUEST:

The platform benches identified on Drawings S-103 and GR-1 and referenced in Spec. Section 06200 - 2.02G are mahogany. On MBTA Contract R04CN26 (Light Rail Accessibility Program, D-Line), Ipe wood was used for benches on light rail platforms. Is Ipe an acceptable substitute for mahogany? Attached is technical data for this product, and a sample is being forwarded for your use.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Steve Baker, Baker-Wohl Architects

RESPONSE:

1. Ipe wood, as described in the attached technical data sheets and represented by the sample by DuMor, Inc for Clear IPE - Clear Non-Toxic Preservative is considered to be an acceptable substitute for mahogany.

Stone & Webster
William J Palmieri 3-17-00

Requested By: The Middlesex Corporation

Date: 3/14/00

Signed: [Signature]
Laura Robinson

Expedition 6
distr: RN, JP



DuMor, inc.

IPE

SPECIES: *Tabebuia* spp. Lapacho Group

FAMILY: Bignoniaceae

Other Common Names: Bethabara, Lapacho, Guayacan (Panama), Greenhart (Surinam), Lapacho negro (Paraguay, Argentina), Bethabara, Amapa (Mexico), Guayacan polvillo (Columbia), Tabuari (Peru), Cortez (Honduras, Nicaragua, Costa Rica), Flor Amarillo (Venezuela), Madera negra (Ecuador), Ipe (Brazil).

Distribution and Supplies: Throughout continental tropical America and some of the Lesser Antilles. The tree grows on a variety of sites, from ridge tops to riverbanks and marsh forests.

THE TREE

May grow to 140 to 150 feet in height with trunk diameters of 6 feet. Frequently to heights of 100 feet and diameters of 2 to 3 feet. Boles are clear to 60 feet and more, with or without buttresses.

THE WOOD

General Characteristics: Heartwood is olive brown to blackish, often with lighter or darker striping, often covered with a yellow powder; sharply demarcated from the whitish or yellowish sapwood. Texture fine to medium; luster low to medium; grain straight to very irregular; rather oily looking; without distinctive odor or taste.

Weight: Basic specific gravity (ovendry weight to green volume) 0.85-0.97; air dry density 66 to 75 pcf.

MECHANICAL PROPERTIES: (first and third sets based on 2" standard, second on 1")

Moisture content	Bending strength	Modulus of elasticity	Maximum crushing strength
	Psi	1,000-psi	Psi
Green	22,560	2,920	10,350
12%	25,360	3,140	13,010
12%	25,200	3,010	14,000
12%	28,000	3,350	-----

Janka side hardness; 3,060 lb. for green material and 3,680 lb. at 12%MC. Forest Products Laboratory toughness average for green and dry material is 404 in.-lb. (5/8-in. specimen).

Drying and Shrinkage: Generally reported to air dry rapidly with only slight checking and warping. Kiln schedule T3-C1 is suggested for 4/4 stock. Shrinkage green to ovendry: radial 6.6%; tangential 8.0%; volumetric 13.2%. Movement after manufacture is rated as small.

Working Properties: Moderately difficult to work especially with hand tools; has a blunting

effect of cutting edges, finishes smoothly except where grain is very rowy. The fine yellow dust produced in most operations may cause dermatitis in some workers.

Durability: Heartwood is very resistant to attack by decay, fungi and termites; not resistant to marine borers. T. Guayacan, however, is reported to have good resistance in Panama waters.

Preservation: The wood is reported to be extremely resistant to preservation treatments.

Uses: Railroad cross-ties, heavy construction, tool handles, turnery, industrial flooring, textile mill items, decorative veneers.

The Middlesex Corporation

REQUEST FOR INFORMATION

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

[REDACTED]
ANSWER

TITLE: **[REDACTED]**

DATE: 03/16/2000

PROJECT: Woburn Regional Transportation Ctr

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED:

REQUEST:

It is The Middlesex Corporation's understanding that the use of stay-in-place forms made of gypsum board, will be allowable for construction of the utility duct banks on the WRTC project. Please confirm. Please note that this was proposed by Chris Ambrose of Massport, to Joe LeMay (EPA) in a phone conversation on March 13, 2000, and this is acceptable to Mr. LeMay.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Rick Noblet, TMC
Joe Phinney, TMC

RESPONSE:

The use of gypsum board for stay-in-place forms for utility duct banks is acceptable.

Stone & Webster
William Palmieri 3-17-00

Requested By: The Middlesex Corporation

Date: 3/16/00

Signed: [Signature]
Laura Robinson

Exposition #
distr: CH,
RN, JP

The Middlesex Corporation**REQUEST FOR INFORMATION**30A Atlantic Ave.
Woburn, MA 01801Phone: 781-935-0779
Fax: 781-935-0383

ANSWER

TITLE: [REDACTED]
PROJECT: Woburn Regional Transportation Ctr
TO: Attn: Bill Palmieri
 Stone & Webster
 245 Summer Street
 Boston, MA 02210

DATE: 03/16/2000**JOB:** 405

STARTED:
COMPLETED:
REQUIRED:

REQUEST:

1. Please provide information on the transformer being provided by BeCo; specifically, please modify the XFMR Pad Detail on Drawing E-13 to conform to the transformer being placed on the pad. It is The Middlesex Corporation and City Lights' understanding that the transformer being provided by BeCo is different than what the pad was designed for.
2. Please confirm that as outlined during the meeting on March 14, 2000 at FST's office re: electrical work, 30-inch sweeps may be used instead of 60-inch sweeps any place on the project, to prevent having to excavate below the existing geotextile fabric.

cc:

Chris Ambrose, Massport
 Cyril Ezumezu, MBTA
 Alan Lunn, City Lights
 Gary Paulino, City Lights
 Rick Noblet, TMC
 Joe Phinney, TMC

RESPONSE:

To Current BECO XFMR is sized by BECO @ 500KVA.
 Refer to attached BECO Construction STD. 2.12-2.18 Rev#0,
 SH 2 of 4 for pad reqts.

2. 30-in sweeps may be used in lieu of 60-in sweeps
 to preclude excavating below geotextile fabric.

Stone & Webster

Harold Gordon 3.20.00

Requested By: The Middlesex Corporation

Date: 3/16/00Signed: Laura Robinson
Laura Robinson

The Middlesex Corporation

REQUEST FOR INFORMATION

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

ANSWERED

TITLE: [REDACTED]

DATE: 03/20/2000

PROJECT: Woburn Regional Transportation Ctr

JOB: 405

TO: Attn: Bill Palmieri
Stone & Webster
245 Summer Street
Boston, MA 02210

STARTED:
COMPLETED:
REQUIRED:

REQUEST:

Attached please find City Lights RFI 007. Due to the sensitive environmental issues pertaining to the WRTC site, the use of asphalt paint on GRS was questioned. Is asphalt paint to be used on the GRS conduit on this project?

RESPONSE:

The use of asphaltum coating on galvanized rigid steel conduits placed underground will not be required for this project.

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Gary Paulino, City Lights
Alan Lunn, City Lights

STONE & WEBSTER

Harold Gordon 3-21-00

Post-it* Fax Note	7671	Date	3/20	# of Pages	2
To	Bill Palmieri	From	Laura Robinson		
Co./Dept.	S & W	Co.	TMC		
Phone #		Phone #	781-935-0779		
Fax #	617 589 1008	Fax #			

Requested By: The Middlesex Corporation

Date: 3/20/00

Signed: [Signature]
Laura Robinson

Request for Information

City Lights Electrical Co., Inc.
Woburn Regional Transportation Center
MPA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA

RFI #: 007
Required By: 3/30/00
Printed on: 3/16/00

Request for Information #: 007 Date: 3/16/00

Rick Noblet
Middlesex Corporation
30 Atlantic Avenue
Woburn MA

Gary Paulino
City Lights Electrical Co., Inc.
5 Woodworth Street
Boston MA 02122

Asphalt Conduit Paint	Electrical		

Contract drawings E-9 and E-10 reflect the use of an Asphalt Paint on the galvanized rigid steel conduits being used for the under track signal conduit system.

It has been brought to our attention that this compound may not be necessary for use in this particular conduit application.

Please confirm at your earliest convenience.

RECEIVED
MAR 17 2000
Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

Answered By: _____ Date Answered: _____

REQUEST FOR INFORMATION

Answer

TITLE: [REDACTED] **DATE:** 3/23/00
PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

A locating service working for AT&T provide the attached hand-written information on the location of the fiberoptic line in the MBTA R.O.W. The Middlesex Corporation surveyor (Steve Davis) transferred the information and plotted it with reference to the bottom of platform footing elevation. Accordingly, a Plan ("Existing Conditions for AT&T Fiberoptic Line at Proposed Platform" dated 3/22/00) showing the estimated fiberoptic location and the platform footing was prepared. This Plan will be distributed to Massport, MBTA, and Stone & Webster separately. Please note that at approximately sta. 675+00 and 676+00, there is a conflict (see attached copies of the Plan in this area). Please advise.

RESPONSE: By: Stone & Webster (W.J. Palmieri) Date: 3-27-00

1. A meeting with AT&T is necessary to determine their course of action regarding long-term protection or relocation of fiber optic line, prior to making any decision on footings.
2. Please upgrade the Plan ("Existing Conditions for AT&T Fiberoptic Line at Proposed Platform" dated 3/22/00) to show the elevations of existing fiber optic line and proposed bottom of footing at each footing location.

W.J. Palmieri 3-27-00

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bob Simon, Amtrak

cc:
Rick Noblet, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION



TITLE: 

DATE: 4/3/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT

NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383


REQUEST:

During excavation for proposed construction of the Bypass track, the elevation of the existing geotextile fabric was discovered at a significantly higher elevation (12-18") than expected. Excavation work is being performed in the area from approximately station 6+80 headed in a southerly direction, from about 19 feet west of the rail to the rail. While cross sections on Contract Drawings TR-12 through TR-15 indicate that little to no excavation will be in contaminated materials for construction of the Bypass track, the geotextile is being uncovered, and cuts to proposed subgrade elevation would include excavation of what is to be considered Class C soils.

Please note that this is a changed condition which affects the scope of work, project schedule, and for which payment under Contract bid items (for the proposed scope of work in clean material) is not applicable. Immediate direction is needed on how to proceed. Should proposed trackbed construction be modified to avoid hitting the geotextile fabric? Please advise.

RESPONSE:

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bob Simon, Amtrak

cc:

Joe Phinney, TMC

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 4/4/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

RECEIVED
MAY 10 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

TO: Bill Palmieri, P.E.
Stone & Webster
25 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED
BY:

Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

- 1) Detail B and Detail J on Drawing S-108 identifies that a stainless steel cover plate is constructed as part of platform canopy columns. Please provide the following information:
 - a) Please reference the Spec Section where the material specification can be found (i.e. what is thickness of plate?).
 - b) Should there be studs at inside corners of the plates that become embedded in the concrete?
 - c) Please confirm that all columns on all canopies get the stainless steel cover plates.
 - d) Please reference the Spec Section where measurement and payment for the plates is described.
- 2) Detail D on Drawing S-108, Section 1-1/Drawing S-105, and Canopy Roof Plan/Drawing S-106 identifies a snowguard for the canopies. Please provide the following information:
 - a) Please reference the Spec Section where the material specification can be found (i.e. what is the material, size, and spacing on the rods, etc.).
 - b) Please reference the Spec Section where measurement and payment for the snowguard is described.

RESPONSE: by Stone & Webster (5-5-00, modified 5-10-00)

Question 1

- a) Stainless steel plate shall conform to ASTM A167, Type 304, mill finish. Plate shall be raised diamond pattern, not less than 1/8" minimum thickness.
- b) Each cover plate shall have eight (8) 1/4"x1/2"x3" hooked flat bar anchors located in the 3/4" chamfered corners, located approximately 4" from ends of the plate (4 top, 4 bot).
- c) All piers for Types 2, 3, 4, 5 and 8 foundations require a cover plate. All piers for Logan Express, Local Bus, and Park-and-Ride canopy foundations require a cover plate.
- d) Section 05100 para 1.02.A.1 includes "...any other miscellaneous steel..." that is not covered under other Sections of the Specifications. No separate measurement and payment is made for miscellaneous metals not covered under other sections of the specifications. Therefore the cost for the stainless steel cover plates should have been included under item 05100.100. If any uncertainty existed but was not questioned during the bidding period, it is possible that cost could have been included under item 01999.999 - All Other Work of General Contractor.

Question 2

- a) Snow guards for the platform canopy shall be (3) 1/2" diameter steel rods on 1"x1/4" flat bar as required by plans and details shown on drawings S106 and S108. Steel shall conform to ASTM A36 galvanized as required by drawing S1, Notes 2 and 10.
- b) Section 05100 para 1.02.A.1 includes "...any other miscellaneous steel..." that is not covered under other Sections of the Specifications. No separate measurement and payment is made for miscellaneous metals not covered under other sections of the specifications. Therefore the cost for the galvanized steel snow guards should have been included under item 05100.100. If any uncertainty existed but was not questioned during the bidding period, it is possible that cost could have been included under item 01999.999 - All Other Work of General Contractor.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Chris Downie, TMC

REQUEST FOR INFORMATION

ANSWER

TITLE: [REDACTED]

DATE: 4/4/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT

NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Spec Section 07500 Paragraph 2.01 J1 (page 8) notes that the Asphalt-Saturated Roofing Felt should be No. 15, unperforated organic felt, complying with ASTM D 226, Type II, 36-in. wide, approximate weight 18 lbs per sq. Please note that there appears to be a discrepancy with the "number" and the "type" designation of the specification. The No. 15 felt meets ASTM D226 Type I, and the No. 30 felt meets ASTM d226 Type II. Please advise as to which felt should be submitted for approval.

[REDACTED] by Baker/Wohl (for Stone & Webster)

Use No. 15 felt. Product to comply with ASTM Standard D226 Type I.

(This written response confirms verbal response given by C. Kicza on 4-6-00.)

RECEIVED
APR 20 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Chris Kicza, Baker-Wohl Architects

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Chris Downie, TMC

REQUEST FOR INFORMATION**No. 019****TITLE:** Steel Pipe Guardrail**DATE:** 4/4/00**PROJECT:** Woburn Regional Transp. Ctr**CONTRACT****NO:** Massport 1.727**TO:** Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008**REQUESTED**
BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383**REQUEST:**

Attached is a FAX and sketch from Spector Metals Products, proposed fabricator/installer of the Steel Pipe Guardrail for the WRTC project. Please provide information on the two items referenced:

1. Although Section 2 on Drawing D-23 notes that the "6x6x4-1.2" i-beam posts will be spaced at 6'-0" on center, there are four locations where the length of the guardrail doesn't lend itself to 6-foot spacing. Please confirm that Spector's proposed post spacing on these four sections is acceptable per the attached sketch. Shop drawings will be prepared for review and approval accordingly.
2. Please comment on locations where there is no 8-inch steel pipe guardrail to protect the decorative steel fencing. Should additional Steel Pipe Guardrail be added to the Contract scope of work?

RESPONSE:

(no response)

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Dirk Bakker, FST

cc:
Rick Noblet, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION

ANSWER

TITLE: [REDACTED]
PROJECT: Woburn Regional Transp. Ctr

DATE: 4/4/00
CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Please respond to the two items below, prepared by Chris Sprague of Bayshore Steel Detailing (detailer for IMS Inc, the canopy fabricator).

1. Per the attached sketch, how does the canopy roof deck get supported?
2. Please respond to questions 1 - 6 on the attached FAX dated 3-31-00 (from Bayshore to IMS).

[REDACTED] by Stone & Webster 4-17-00 (confirming verbal direction given 4-11-00)

1. The canopy roof deck 1'-4" extension at col. Line 11 & 35 will be supported by bent plates attached to canopy cols.

Response to questions 1-6 on attached FAX dated 3-31-00 (from Bayshore to IMS)

1. At col. line 1 thru 11 false downspouts are on the North side of the col. on col line 11 to 35 false downspouts are on the South side of the col. There are two false downspouts at col. line 24 one North and one South of the col.
2. The ramp canopy ridge shall be sloped from a point 8'-0" South of col. line 20 to match the elevation of the platform canopy ridge.
3. Downspout hangers are required at col. lines 11, 17 & 20. Provide supports off cols. Similar to sec. 4-4 on dwg. S-108.
4. Gutters and downspouts at col. line 20 may require some minor modifications to suit the response to question 2. Downspouts should run straight down from the gutter and return to 1'-3" south of the col.
5. At col. lines 32 thru 35 the std. Roof pitch shall be maintained as the distance to the eave from the baseline shortens. This will result in a slightly wider fascia on the canopy eave.
6. The transverse tube steel sections supporting the precast concrete panels in the pedestrian bridges shall be field welded to the longitudinal tube sections.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC

RECEIVED
APR 20 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

REQUEST FOR INFORMATION

ANSWER

TITLE: [REDACTED]

DATE: 4/4/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT

NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Section C on Drawing A-9 indicates that opening dimensions will be provided for monitors, the pay station, and an ATM installed in the Station Building by others. Please provide the opening dimensions.

RESPONSE: by Baker/Wohl (for Stone & Webster)

This equipment has not yet been selected. Dimensions will be provided when available. Please advise date when this must be finished.

(This written response confirms verbal response given by S. Baker on 4-18-00.)

** answer @ 4/20 mtg: dimensions will be provided by property manager after they negotiate the contract*

RECEIVED
APR 20 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Chris Kicza, Baker-Wohl Architects

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Chris Downey, TMC

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT

NO: Massport 1.727

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Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED
BY:

Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Please respond to the following two questions posed by City Lights Electrical Co., Inc. regarding
1) handhole and manhole grounding details (City Lights RFI 008)
2) vendor area panel conduits (City Lights RFI 009)

RECEIVED
MAY 04 2000

RESPONSE: by Stone & Webster and FST

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

Response to No. 1 (City Lights RFI-008):

- a. The appropriate grounding detail for manholes shown on C27 is as shown on BECO underground standards, Code 19. Attached copy of page from this code shows exterior grounding requirements. Complete standard shall be submitted by Contractor per spec Section 16119-1.05E. All ground wires within manhole shall be bonded together.
- b. The 12" square sump located at the bottom of handhole as shown on drawing C27 Details C and J, is open to allow water to drain from handhole. It was never intended to be used for a sump pump. The ground rod can be installed in the corner of this sump or outside the handhole to alleviate any conflicts. Relocation of ground rod to outside of handhole is at the contractor's option. No additional payment will be made for this work.

Response to No. 2 (City Lights RFI-009):

- a. The intent of running conduits from Tenant spaces to the Electric Room is to provide conduits above fixed construction (i.e. GWB) ceilings, to facilitate tenant fit-out without cutting of the ceilings. Tenant spaces 105, 109 and 110, have no ceilings under this contract, and will have conduits and ceilings installed by the tenants. However, Vestibule 107 is scheduled for GWB ceiling. Therefore, provide (3) 1" diameter conduits from Electric Room 108, above the GWB ceiling of Vestibule 107, to Tenant space 105.

cc:

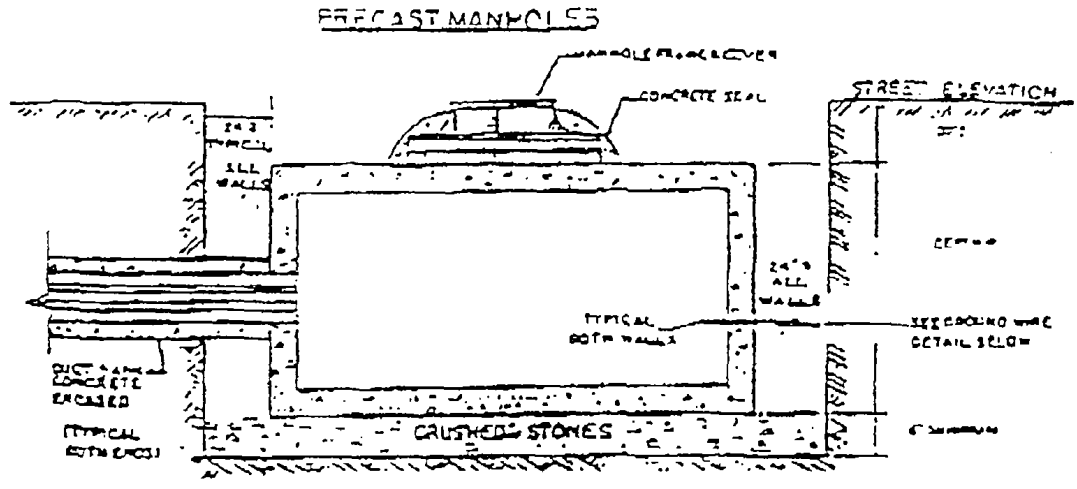
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Dirk Bakker, FST

[REDACTED]
Joe Phinney, TMC

APPROVED
 E.I.C. Dept.
 Drawn by
 Checked by
 Applied
 Checked
 Bidden Road
 Boston
 Massachusetts

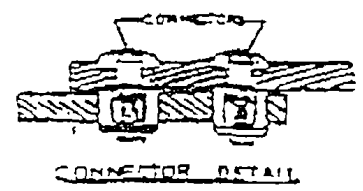
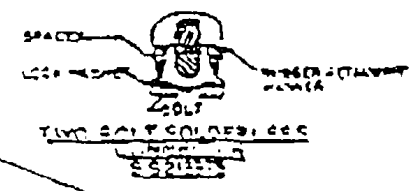
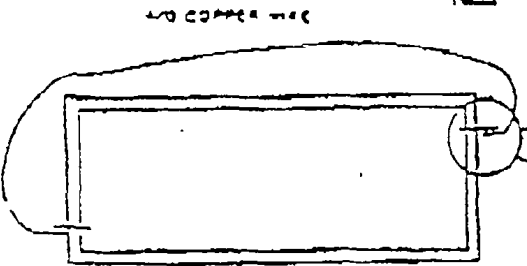
ISSUE OR CHANGES

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SEE CHART ON PAGE 2 FOR OVERALL DEPTH OF MANHOLE.

ELEVATION
 NTS



INSTALLATION INSTRUCTIONS
 EXCAVATION:

- OVERALL DEPTH OF EXCAVATION SHALL INCLUDE REQUIREMENT FOR MANHOLE FRAME, SPICK COLLAR, TOP TO BOTTOM LENGTH OF MANHOLE AND CRUSHED STONE BED.
- WIDTH OF EXCAVATION SHALL ALLOW FOR INSTALLATION OF 4/0 COPPER WIRE AS SHOWN ABOVE. SITE SHALL BE ADEQUATELY SHORED AND BRACED.
- MANHOLE SHALL BE PLACED ON A LEVEL BED OF CRUSHED STONE.
- 4/0 COPPER GROUND SHALL BE PLACED AROUND MANHOLE AND ATTACHED TO COPPER WIRE IN WALL AS SHOWN ABOVE.
- DUCT BANK SHALL BE INSTALLED IN ACCORDANCE WITH UNDERGROUND STANDARD 2.10-6.1.
- TWO COURSES OF BRICK SHALL BE INSTALLED AROUND ROOF SLAB OPENING PRIOR TO FRAME AND COVER INSTALLATION.

Request for Information

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA

RFI #: 008
 Required By: 4/20/00
 Printed on: 4/6/00

Request for Information # 008 Date: 4/6/00

Submitted To	Submitted By
Rick Noblet Middlesex Corporation 30 Atlantic Avenue Woburn MA	Gary Paulino City Lights Electrical Co., Inc. Five Woodworth Street Boston MA 02122

Subject	Discipline	Co-Author	Copies To
Handhole and Manhole Grounding Details	Electrical		

Cost Impact	Schedule Impact	Drawing Impact

Information Requested Date Required: 4/20/00

Contract drawing C-27 depicts MH and HH grounding details.

The detail for electric and communication manholes reflects 4/0 copper ground cable entering opposite sides of the manhole walls. Either end of the cable is not detailed for termination. Please provide the appropriate termination detailing.

The detail for a typical handhole reflects a ground rod installed within the sump. This could cause a conflict when using a sump pump to evacuate water from the hole. Is this the appropriate location for the ground rod?

Response

RECEIVED

APR 06 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

Answered By: _____ Date Answered: _____

Request for Information

City Lights Electrical Co., Inc.
Woburn Regional Transportation Center
MPA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA

RFI #: 009
Required By: 4/20/00
Printed on: 4/6/00

Request for Information # 009

Date: 4/6/00

Submitted To:

Rick Noblet
Middlesex Corporation
30 Atlantic Avenue
Woburn MA

Submitted By:

Gary Paulino
City Lights Electrical Co., Inc.
Five Woodworth Street
Boston MA 02122

Subject	Discipline	Co-Author	Coord. To
Vendor Area Panel Conduits	Electrical		

Cost Impact	Schedule Impact	Drawing Impact

Information Requested:

Date Required: 4/20/00

Contract Drawing E-5 reflects future electric panels (installed by others) within the vendor areas. One of the locations depicts 3-1" conduits running back to the electric room. The remaining locations do not.

Are we to assume that no conduits are to be installed for all but the one panel?

Response:

RECEIVED
APR 06 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

Answered By: _____

Date Answered: _____

REQUEST FOR INFORMATION

[REDACTED]
ANSWER

TITLE: **[REDACTED]**
PROJECT: Woburn Regional Transp. Ctr

DATE: 4/14/00
CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Attached is a sketch and procedure dated 4/13/00 prepared by The Middlesex Corporation for **installation of RGS Conduits** under a track which is temporarily out of service.

Is this method of work acceptable?

[REDACTED] by Stone & Webster, 4-17-00 (confirming verbal acceptance given 4-13-00)

The Alternate method proposed for installation of RGS under track that is temporarily out of service, as shown on the attached TMC sketch, is acceptable to Stone & Webster.

The proposed Alternate shown on the attached sketch is essentially as follows:

1. cut and remove existing bituminous concrete;
2. remove existing geotextile from cut area;
3. remove regulated soil from cut area as necessary for conduit installation;
4. place new geotextile into cut area (bottom, sides, top lap);
5. install RGS conduits and bedding up to within 4 inches of existing bituminous concrete surface;
6. fill top 4 inches of cut area with pre-mixed bagged concrete (i.e. Sakcrete), installed as dry mix that will become hydrated by natural moisture/runoff.

This written response confirms verbal acceptance given by Stone & Webster at the progress meeting held at the site on 4-13-00.

RECEIVED
APR 20 2000

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

WORK SHEET (TMC to Amtrak)

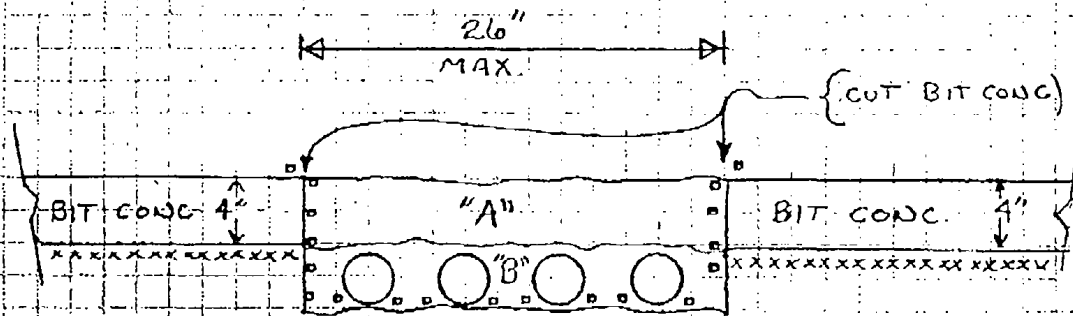
Project RTC (Woburn, MA.)
 Type of Work Signal Cable Laterals

Estimator RICK NOBLETT
 Date April 13, 2000

Item No. _____
 Sheet No. 1 of 1

Alternate Proposal for Installation of RGS Conduits Under a Temporarily Out of Service Track

(See DWG No. C-30)



- 1.) Cut & Remove Existing Bit Conc.
- 2.) Remove Existing Geotextile xxxxxx in Cuts
- 3.) Remove Contaminated Soil "B" in Cut
- 4.) Place New Geotextile Fabric □□□□ (Bottom, Sides, Top Lap)
- 5.) Install RGS Pipe and Bedding "B"
- * 6.) Fill Area "A" with Premixed Bagged Concrete (i.e. Sackrete (Do not hydrate)-

* Because of the time problem in getting the track back in service and the extremely small quantity of Bit Conc going into "A" we propose to use a dry mix concrete product prepackaged that can be placed quickly and when needed. When natural water runoff begins to soak into the mix a firm hard, structurally acceptable patch will result. Getting small quantities of Bit Conc. when required out onto the track bed could cause schedule problems and delay responses.

REQUEST FOR INFORMATION

ANSWER

TITLE: [REDACTED]

DATE: 4/14/00
CONTRACT

PROJECT: Woburn Regional Transp. Ctr

NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
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REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

The detailer working on **canopy shop drawings** (Chris Sprague @ Bayshore) has the following questions:

1. Ref. Drawing S-115 and S-116 Roof Plans: the small hip and valley roof that ties in with Stair 1B is 9'-6" wide. The stair roof is 8'-0" wide. Is it the intent to have the roof's panels match?
2. The bracing tubes on both bridge floors interfere with the elastomeric bearing pad plate bolts. Please clarify.

[REDACTED] by Stone & Webster 4-18-00 (confirm verbal direction given 4-18-00)

1. Work points for valley rafters shall be moved from 4'-9" off the centerline to 4'-0" off the centerline. This will result in a 9" return on each side and an eave width of 8'-0" which will match the width of the intersecting stairway roof.
2. In areas where the gusset plate or tube steel bracing interferes with the installation of the bearing pad bolts a short piece of tube steel shall be installed perpendicular to the brace and offset from the intersection to provide adequate clearance for bolt installation.

RECEIVED
APR 20 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION

ANSWER

TITLE: [REDACTED]
PROJECT: Woburn Regional Transp. Ctr

DATE: 4/14/00
CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
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245 Summer Street
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REQUESTED BY: Laura Robinson, P.E.
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30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

- 1) As outlined on attached ~~City Lights~~ RFI010, SESCO is proposing to relocate the two concealed cameras in the entrance sign to light pole #23. Is this relocation acceptable? Please note that an additional sweep will be installed in the light pole base to accommodate the camera wiring, if this relocation is acceptable.
- 2) As outlined in attached ~~City Lights~~ RFI011, please clarify the requirements for pay station intercom call boxes.
- 3) Contract Drawing E-7 identifies that a police automatic ring down telephone is to be installed at the south and north ends of the platform. As shown on the attached catalog cuts, the emergency call boxes specified are to be pole-mounted. There is no pole on the platform in the locations where Drawing E-7 indicates phone installation. Please advise.
 - a) Should the telephone on the south end of the platform be put on the light pole at column line 2?
 - b) Can the telephone on the north end of the platform be mounted on a support for Stair 2A and/or pedestrian bridge #2?

RESPONSE:

by Stone & Webster, 4-17-00

1. It is acceptable to relocate concealed cameras CCTV-1 and CCTV-2 from the entrance sign to the adjacent lightpole. However, the correct lightpole number should be No. 24 (G3 pole) not No. 23.
2. a. Pay Station ECB-4 labeled incorrectly on drawings E-12 and E21; should be labeled ECBC-4 and have a camera. Add a camera at pay station ECBC-4.
b. ECBC-1 is to be mounted on the bridge, near the door to second floor as shown on drawing E4. There is no pay station at this location.
3. Mounting of police automatic ring-down telephones on nearby lightpoles or structures is acceptable. (TELR1 to lightpole on line 2; TELR2 to west column on line 36.)

RECEIVED
APR 20 2000

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Gary Paulino, Alan Lunn, City Lights
Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

REQUEST FOR INFORMATION

TITLE: Platform Slope
PROJECT: Woburn Regional Transp. Ctr

DATE: 4/27/00
CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

- 1) A FAX from Stone & Webster dated 2/25/00 was received by The Middlesex Corporation revising the proposed grades for the platform (see attached). At a later date, the Bottom of Column Baseplate Elevation at column line 20 was revised from 78.6691 to 77.8567. Please confirm that the table on Contract Drawing S-103 should be amended accordingly.
- 2) A FAX from Stone & Webster dated 4/17/00 was received by The Middlesex Corporation confirming a telephone conversation (see attached copy). The precast supplier (CSI) has indicated that they are unable to accommodate the slight changes in platform slope described in the FAX (a change from 1/8" per foot slope to 3/16" per foot over 13 precast panels). Upon review of the slope changes however, the difference in elevation is only .0252 feet (higher) than proposed grades with the 13 panels fabricated with 1/8" per foot slope. If allowable tolerance between proposed and actual platform grades is 1/2-inch (similar to other rail construction projects), the .0252 feet (+/- 5/16") is within the tolerance. Please advise The Middlesex Corporation on what the allowable tolerances are between proposed and actual platform elevations, and if there's a different tolerance between grades that are higher than proposed and grades that are lower than proposed.

RESPONSE: by Stone & Webster (5-1-00)

Response to No. 1: Confirming previous discussions with TMC, the elevations given in the attached spreadsheet table are to be used, except the bottom of base plate elevation at column line 20 should be lowered to 77.8567 to accept ramp framing. The table on S103 should be amended accordingly.

Response to No. 2: Edge of platform elevation is required to be 4'-0" above top of rail of adjacent track. The allowable tolerance between proposed and as-built elevations for edge of platform is +/- 1/2" unless otherwise noted.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bob Simon, Amtrak

cc:
Joe Phinney, TMC
Chris Downey, TMC
Doug Carr, CSI

RECEIVED
MAY 04 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

Massport Project No. 1.727
 Regional Transportation Center
 Woburn, Massachusetts

NOTES FOR CALCULATION OF VALUES IN PLATFORM LAYOUT SCHEDULE:

1. Station of column lines is based on stationing of existing southbound track. Platform layout based on track layout (drawing TR-1) and platform piers located 24'-0" on centers starting at sta 668+60
2. Theoretical profile grade (top of rail) southbound track is taken from drawings TR-7 through TR-9, starting with elev = 68.58 at angle point sta 664+60 with upgradient of s=.00260.
3. Bot of Ilg elev = [(PG SB track) + (48" to edge platform) + (1/2" slope to center girder) - (12" thick deck) - (24" deep girder) - (1" total for 2 pacs) - (30" deep wall) - (18" deep Ilg)] = PG - 3.04'
4. Bot of col baseplate elev = [(plat baseline elev)+(1'-0")+(3/4" grout)+(1/4" leveling plate)] for single cols. [-(-4'-0")(1/8") for double cols] = [plat baseline elev+1.0833' for single cols], [baseline+1.0417' for double cols]
5. Distance between SB and NB tracks based on track layout drawing TR-1. Perpendicular distances SB to NB curve provided by track design.
6. Offset NB to face east side wood strip = 5'-7" typ to NB TS (SB sta 673+89.98), increasing to 5'-8-1/2" at NB SC (SB sta 675+63.46), and 5'-8-1/2" beyond
7. Offset distance platform baseline to concrete face working point west side = (12'-1") - (2-1/2" wood strip)
8. Offset distance platform baseline to concrete face working point east side = (dist SB to NB) - (17'-8" SB to platform BL) - (offset NB to face east side wood strip) - (2-1/2" wood strip)
9. Platform elev at conc face working point west side = (PG SB track) + (4'-0")
10. Platform elev at conc surface platform baseline = (PG SB track) + (4'-0") + (12'-1" - 2-1/2")(1/8" per ft slope) = PG + 4.12'
11. Platform elev at conc face working point east side = (PG NB track) + (4'-0") (Note: no super-elevation on inside rail of curved track)
12. Offset distance platform baseline to center of girder west side = [(12'-1") - (2-1/2" wood strip) - (3'-3" refuge area) - (9" to center girder)] = 7'-10-1/2"
13. Offset distance platform baseline to center of girder east side = [(offset BL to WP conc east side) - (3'-3" refuge area) - (9" to center girder)] = BLWP east - 4'0"
14. Offset distance platform baseline to edge of canopy west side = 8'-4" typical
15. Offset distance platform baseline to edge of canopy east side = (dist between SB to NB tracks) - (17'-8" SB to BL platform) - (8'-7-1/2" minimum clearance NB to edge of canopy)

PLATFORM LAYOUT SCHEDULE

Column Line	Station of Column Line Along S.B. Track	Theoretical P.G. Top of Rail Elev. S.B. Track	Bottom of Footing Elevation	Bottom of Column B.P. Elevation	Distance Between S.B. and N.B. Tracks	Offset From N.B. to Face of East Side Wood Strip	Offset Distance Baseline to W.P. Platform		Platform Elevation at W.P.			Offset Distance Baseline to Precast Girder		Offset Distance Baseline to Edge Canopy	
							West Side	East Side	West Side	Baseline	East Side	West Side	East Side	West Side	East Side
1	668+60	69.6160	66.58	n.a.	35.3333	5.5833	11.8750	11.8750	73.6160	73.7397	73.6160	7.8750	7.8750	-	-
2	668+84	69.6784	66.64	74.8854	35.3333	5.5833	11.8750	11.8750	73.6784	73.8021	73.6784	7.8750	7.8750	-	-
3	669+08	69.7408	66.70	n.a.	35.3333	5.5833	11.8750	11.8750	73.7408	73.8645	73.7408	7.8750	7.8750	-	-
4	669+32	69.8032	66.76	75.0102	35.3333	5.5833	11.8750	11.8750	73.8032	73.9269	73.8032	7.8750	7.8750	-	-
5	669+56	69.8656	66.83	n.a.	35.3333	5.5833	11.8750	11.8750	73.8656	73.9893	73.8656	7.8750	7.8750	-	-
6	669+80	69.9280	66.89	75.1350	35.3333	5.5833	11.8750	11.8750	73.9280	74.0517	73.9280	7.8750	7.8750	-	-
7	670+04	69.9904	66.95	75.1974	35.3333	5.5833	11.8750	11.8750	73.9904	74.1141	73.9904	7.8750	7.8750	8.3330	8.3330
8	670+28	70.0528	67.01	75.2598	35.3333	5.5833	11.8750	11.8750	74.0528	74.1765	74.0528	7.8750	7.8750	8.3330	8.3330
9	670+52	70.1152	67.08	75.3222	35.3333	5.5833	11.8750	11.8750	74.1152	74.2389	74.1152	7.8750	7.8750	8.3330	8.3330
10	670+76	70.1776	67.14	75.3846	35.3333	5.5833	11.8750	11.8750	74.1776	74.3013	74.1776	7.8750	7.8750	8.3330	8.3330
11	671+00	70.2400	67.20	75.4054	35.3333	5.5833	11.8750	11.8750	74.2400	74.3637	74.2400	7.8750	7.8750	8.3330	8.3330
12	671+24	70.3024	67.26	75.4678	35.3333	5.5833	11.8750	11.8750	74.3024	74.4261	74.3024	7.8750	7.8750	-	-
13	671+48	70.3648	67.32	75.5302	35.3333	5.5833	11.8750	11.8750	74.3648	74.4885	74.3648	7.8750	7.8750	-	-
14	671+72	70.4272	67.39	75.5926	35.3333	5.5833	11.8750	11.8750	74.4272	74.5509	74.4272	7.8750	7.8750	-	-
15	671+96	70.4896	67.45	75.6550	35.3333	5.5833	11.8750	11.8750	74.4896	74.6133	74.4896	7.8750	7.8750	-	-
16	672+20	70.5520	67.51	75.7174	35.3333	5.5833	11.8750	11.8750	74.5520	74.6757	74.5520	7.8750	7.8750	-	-
17	672+44	70.6144	67.57	75.7798	35.3333	5.5833	11.8750	11.8750	74.6144	74.7381	74.6144	7.8750	7.8750	-	-
18	672+68	70.6768	67.64	75.8422	35.3333	5.5833	11.8750	11.8750	74.6768	74.8005	74.6768	7.8750	7.8750	-	-
19	672+92	70.7392	67.70	75.9046	35.3333	5.5833	11.8750	11.8750	74.7392	74.8629	74.7392	7.8750	7.8750	-	-
20	673+16	70.8016	67.76	76.6931	35.3333	5.5833	11.8750	11.8750	74.8016	74.9253	74.8016	7.8750	7.8750	8.3333	8.3333
21	673+40	70.8640	67.82	77.1958	35.3333	5.5833	11.8750	11.8750	74.8640	74.9877	74.8640	7.8750	7.8750	8.3333	8.3333
22	673+64	70.9264	67.89	75.3371	35.3333	5.5833	11.8750	11.8750	74.9264	75.0501	74.9264	7.8750	7.8750	8.3333	8.3333
23	673+88	70.9888	67.95	76.1958	35.3333	5.5833	11.8750	11.8750	74.9888	75.1125	74.9888	7.8750	7.8750	8.3333	8.3333
24	674+12	71.0512	68.01	76.2582	35.3320	5.5992	11.8750	11.8578	75.0512	75.1749	75.0512	7.8750	7.8578	8.3333	8.3333
25	674+36	71.1136	68.07	76.3206	35.3250	5.6165	11.8750	11.8335	75.1136	75.2373	75.1136	7.8750	7.8335	8.3333	8.3333
26	674+60	71.1760	68.14	76.3830	35.3040	5.6338	11.8750	11.7952	75.1760	75.2997	75.1760	7.8750	7.7952	-	-
27	674+84	71.2384	68.20	n.a.	35.2630	5.6511	11.8750	11.7369	75.2384	75.3621	75.2384	7.8750	7.7369	-	-
28	675+08	71.3008	68.26	76.5078	35.1950	5.6684	11.8750	11.6516	75.3008	75.4245	75.3008	7.8750	7.6516	-	-
29	675+32	71.3632	68.32	n.a.	35.0920	5.6857	11.8750	11.5313	75.3632	75.4869	75.3632	7.8750	7.5313	-	-
30	675+56	71.4256	68.39	76.6326	34.9480	5.7030	11.8750	11.3700	75.4256	75.5493	75.4256	7.8750	7.3700	-	-
31	675+80	71.4880	68.45	76.6950	34.7560	5.7083	11.8750	11.1727	75.4880	75.6117	75.4880	7.8750	7.1727	8.3333	8.3333
32	676+04	71.5504	68.51	76.7574	34.5140	5.7083	11.8750	10.9307	75.5504	75.6741	75.5504	7.8750	6.9307	8.3333	8.2223
33	676+28	71.6128	68.57	76.8198	34.2220	5.7083	11.8750	10.6387	75.6128	75.7365	75.6128	7.8750	6.6387	8.3333	7.9303
34	676+52	71.6752	68.64	76.8822	33.8790	5.7083	11.8750	10.2957	75.6752	75.7989	75.6752	7.8750	6.2957	8.3333	7.5873
35	676+76	71.7376	68.70	76.9030	33.4860	5.7083	11.8750	9.9027	75.7376	75.8613	75.7376	7.8750	5.9027	8.3333	7.1943
36	677+00	71.8000	68.76	76.9654	33.0430	5.7083	11.8750	9.4597	75.8000	75.9237	75.8000	7.8750	5.4597	-	-

Facsimile Transmittal

Stone & Webster Engineering Corporation

245 Summer Street
Boston, MA 02107



Fax Number: (617) 589-1008
Verification: (617) 589-7120

DATE:	4/17/2000	CHARGE:	07473204(wobfax6.doc)
TO:	Laura Robinson The Middlesex Corporation	FAX:	781-935-0383
		PHONE:	781-935-0779
FROM:	Al Dennis	PHONE:	617-589-7120

Number of Pages *Including* Cover Sheet: 1

Message:

Laura

In response to our phone conversation this morning about the slope of precast panels for the platform deck surface. Precast panels P-8 through and including P-45, shown on Concrete Systems, Inc. submittal, need to be constructed to match design requirements shown on drawings S-103 & S-104.

Because of the fact that the platform width on the eastside of the baseline reduces between column line 23 and 36 the slope of the precast panel surface will vary in order to maintain the specified W.P. elevation at the platform edge. Platform Layout Schedule on drawing S-103 provides an offset distance from the baseline to the W.P. at the platform edge and a specified elevation for this W.P.

Please take the steps necessary to insure that the specified elevations at the platform edge are maintained.

If you have any questions or concerns please call at 617-589-7120.

Al Dennis P.E.

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 4/27/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT

NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

- 1) A FAX from Baker/Wohl Associates dated 4/12/00 was received, with a revised Detail 9 from Contract Drawing A-14. The revised detail eliminates the need for the shaped brick, an item with a long lead time that would impact the project schedule. The masonry subcontractor (Dependable Masonry) has reviewed the detail and unless otherwise notified, will use the Type 3 brick in place of the shaped brick as shown on the revised detail.

[REDACTED] by Baker/Wohl (for Stone & Webster)

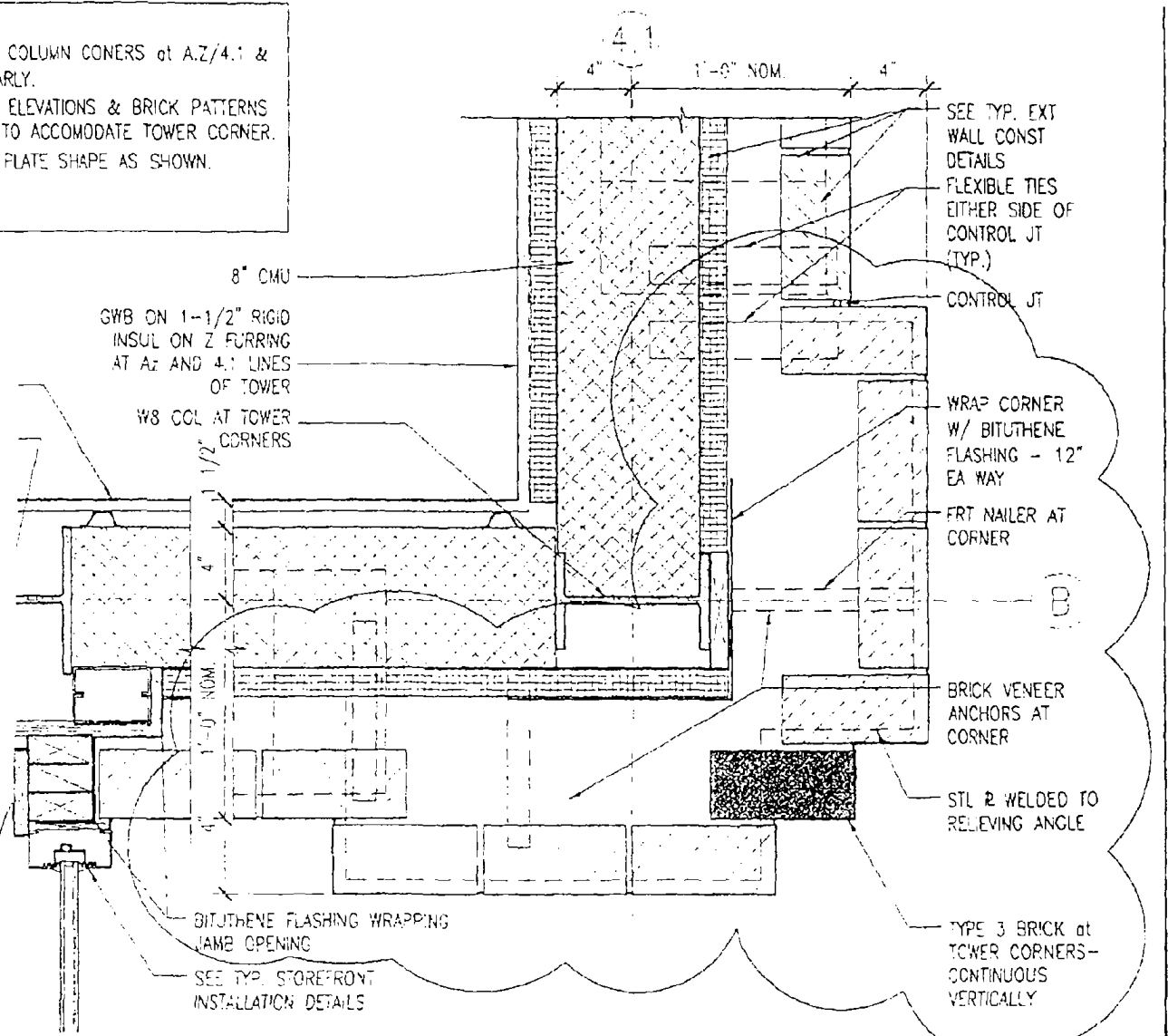
1. Proceed as directed by SK-2: shaped brick at corner has been replaced by Type 3 brick in configuration shown.

RECEIVED
MAY 04 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA

cc:
[REDACTED]
Joe Phinney, TMC
Edmund Henry, Dependable Masonry



- NOTES:
1. REVISE TOWER COLUMN CONERS at A.Z/4.1 & A.Z/2.8 SIMILARLY.
 2. REVISE TOWER ELEVATIONS & BRICK PATTERNS AS REQUIRED TO ACCOMODATE TOWER CORNER.
 3. REVISE STEEL PLATE SHAPE AS SHOWN.

Post-it® Fax Note	7671	Date	4.12.00	Foot	1
To	LAUREL ROBINSON	From	CLERIS KIRZD		
Co/Dept	TMC	Co	BWA		
Phone #		Phone #	617 350 2420		
Fax #	781 535 0383	Fax #	617 350 5383		

REVISION: 2

TOWER CORNER COLUMN at ENTRY

SCALE: 1-1/2" = 1'-0"

6



BAKER/WOHL ARCHITECTS

2A UNION PARK STREET
 BOSTON, MA 02118
 TEL: 617.350.7420
 FAC: 617.350.5383

PROJECT: WOBURN REGIONAL

TRANSPORTATION CENTER

DRAWING: REVISED TOWER COLUMN DETAIL

DATE: 4/12/00 SCALE: 1 1/2" = 1'-0"

SK-2

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 5/4/00

CONTRACT

PROJECT: Woburn Regional Transp. Ctr

NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
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REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

MPA General Requirements Chapter IV, Article 20, Chapter V, Article 30 and 35, indicate that no changes to the Contract scope of work can be made without the direction of the Engineer. The following items represent changes in scope of work in the ROW, which your approval:

1) The attached sketch was provided to The Middlesex Corporation (TMC) by Bob Simon of Amtrak. It identifies proposed work added to the Contract, to facilitate stormwater drainage near the signal cabinet at sta. 690+20. 30-inch CMP will be installed per the sketch, sloped to drain and to match the existing drainage swale slope; crushed stone will be used to backfill the pipe, up to surface grade.

- a) Are flared ends used at some or all of the pipe ends and if so, should they be CMP also?
- b) Please specify the size of stone to be used.

Upon receipt of this information, a price will be provided by TMC for this additional scope of work.

2) Crawford L-6 signal as shown on Contract Drawing TR-7 was discovered to be in a location where overhead wires would conflict with the signal post. This area also would've required a retaining wall to support the L-6 foundation. Amtrak has indicated that moving L-6 to sta. 665+00 will eliminate the need for a retaining wall, and will eliminate the conflict with overhead wires. Is this change acceptable?

3) Amtrak requested that additional space below the cable trench be provided to accommodate sweeps needed for vertical penetrations from the cable trench. The additional depth of excavation should also be provided so that Amtrak electrical employees can work in a "clean corridor." This additional work can be performed under Contract unit prices for excavation, etc. Is this acceptable?

4) GRS conduit locations have been changed by Amtrak; TMC is currently installing the GRS per Amtrak's directives.

- a) Are Amtrak's revised location acceptable?

- b) Is the Owner satisfied proceeding with construction without Contract Drawing revisions? Having only As-Built drawings (by TMC) to reflect engineering/design decisions made in the field leaves the possibility of questions at a later date. TMC is not comfortable progressing without Stone & Webster's input or written guidance and/or directives. Please note that if TMC is directed to proceed without written documentation of changes to the Contract Drawings, we will not be responsible for resolving any questions or conflicts requiring rework or future problems should they arise.

RESPONSE: by Stone & Webster

Question 1

Amtrak provided a sketch requiring additional filling around with new culvert pipes to facilitate flow along existing drainage ditches near station 690+20, in order to allow access from track side to and around the new Signal House on the east side of tracks and the new signal pole on the west side of tracks. The additional filling and culverts represent additional work to the Contract. Based on discussions in the field with Amtrak to determine their requirements for access, and TMC's field verification of existing culvert sizes in the existing drainage ditches, provide the following:

- a. Provide crushed stone fill conforming to Section 02509 para 2.05 Crushed Stone for Surface Treatment, to the limits required by Amtrak for access.
- b. Provide new galvanized CMP culverts placed to maintain flows in the existing drainage ditches. Based on TMC's field measurements of existing culvert sizes, provide 40 lineal feet of 24" CMP along the easterly drainage ditch (for Signal House access), and 20 lineal feet of 36" CMP on the westerly drainage ditch (for signal mast access). Flared CMP pipe ends shall be used at both ends of each pipe.

Question 2

The relocation of Crawford Signal L6 to Station 665+00 as suggested by Amtrak to clear overhead power lines has been reviewed by Stone & Webster and Systra and is acceptable.

Question 3

Amtrak's request to provide "clean" fill under sections of the cable trench system where cables exit from the bottom of the trench, has been reviewed by Stone & Webster and is acceptable. It was agreed that the cost for additional excavation, clean fill, etc., will be paid for under existing unit price items.

Question 4

The Contract requires that prior to construction, the location of GRS conduits and signal locations be coordinated with and agreed to by Amtrak as the end user.

- a) The Locations coordinated between TMC and Amtrak have been reviewed by Stone & Webster and are acceptable.
- b) The changes requested by Amtrak are the result of field engineering based on final layouts and operating conditions required by Amtrak. These changes are considered field design changes and should be recorded on "as-built" drawings to reflect final construction.

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 5/15/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
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REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Enclosed is a letter dated 5/10/00 from SESCO to City Lights Electric:

- 1) please review and confirm that SESCO's proposals for the Electronic Sign System, Public Address System, and Passenger Assistance System are acceptable
- 2) please review SESCO's comments on the Fire Alarm System.

Please note that shop drawing resubmittals for item 1) above have been forwarded with a copy of this letter, and that a meeting is tentatively scheduled for this Thursday May 18, 2000 to review fire alarm issues, including what's outlined on SESCO's letter.

RESPONSE: By Stone & Webster (6/6/00 confirming previous discussions with TMC/City Lights)

1. SESCO submittals for the Electronic Sign System (Section 16742), the Public Address System (Section 16770), Passenger Assistance System (Section 16741), and Fire Alarm System (Section 16721), have been reviewed by Stone & Webster and returned with comments as noted. Please refer to comments noted on the submittals as returned by S&W.
2. SESCO submittal for the Fire Alarm System (Section 16721), has been reviewed by Stone & Webster and returned with comments as noted. In addition, a joint meeting was held with Building and Fire officials on May 22, 2000 which resulted in further clarification and requirements by the officials. Please refer to comments noted on the submittals as returned by S&W, and the notes of meeting with the Fire officials.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Lisa Fera, City Lights



40 Pond Park Road
Hingham, MA 02043-4371

May 10, 2000

SES/CLE010

Ms. Lisa Fera
City Lights Electric
5 Woodworth Street
Dorchester, MA 02122

Ref: Regional Transportation Center
Woburn, MA
MPA Project No. 1.727
Specification Section 16775
Remote Monitoring Control Unit

Ms. Fera,

Please forward this correspondence regarding specification section 16775 Remote Monitoring and Control Units for review and comment.

The RMCU specified in this section has been manufacturer discontinued. As the system integrator we have addressed all system interfaces to this product in our individual system submittals and would like to summarize changes we have made to meet the desired intent of the various system specifications.

Electronic sign System -Section 16742
Public Address System - Section 16770

The MBTA Commuter Rail currently utilizes a public address field computer, which provides audio/visual simulcast messaging to the stations from CROCC in Somerville, MA.

The Public Address System submittal contains information on the Penta hardware to which the electronic signs and public address system equipment tie into. Woburn Station will be added to the system and the communications will be established via leased telephone line. No additional software is required.

Passenger Assistance System Section 16741

As specified the intercom stations were to be connected through the RMCU to the MBTA Police Department. The MBTA has recently installed a new Police Talkback System computer system as manufactured by Vandal Proof Products. Due to the obsolete system equipment all new passenger assistance stations on the MBTA have been the VPP stations intended to connect to the new PR1150 system computer.

Our system resubmittal details the materials and system operation as we see to be the best option in meeting the intent of the specification.

Fire Alarm System - Section 16721

The specification calls for the fire alarm system to transmit alarm conditions to CROCC via the RMCU. The Penta computer submitted under the public address system does not have this capability as far as we know. I am sure some means of transmission for this alarm could be proposed. Prior to doing so we would recommend a review of this requirement with the customer. Any transmission of this one alarm condition will require a leased telephone circuit which may not prove to be very cost effective. We also do not believe that any one person mans the CROCC facility at 32 Cobblehill Road full time. These types of alarm conditions when implemented using the RMCU did not require a dedicated circuit. The RMCU utilized the same circuit for l.e.d. sign data, control and indications, passenger assistance etc. minimizing the need for several dedicated circuits.

Respectfully Submitted,
Sesco Inc.

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 5/22/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

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245 Summer Street
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Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Contract Drawing C-15 indicates that signs 96 through 101 are mounted on Type J sign foundations. Contract Drawing GR-7 indicates however that Signs 100 and 101 are round "T" signs, which should go on a Type T Frame per Contract Drawing GR-5. In addition, Contract Drawings GR-1 and GR-2 indicate that Type T Frames are installed near the bottom of stairs leading to/from the pedestrian bridges.

1. It appears that the Type J frame type designation on Drawing C-15 for signs 100 - 101 is a mislabel, and that a Type T foundation should be used. Please confirm. This would revise the total number of Type J frames from 19 per Contract Drawings, to 18. Please advise as soon as possible, as the Type J precast foundations have been released for production.
2. Please provide a detail of the foundation for a Type T sign and indicate where payment for the Type T sign foundations is.

RESPONSE: By Stone & Webster (6/06/00)

1. On drawing C-15 at sign 100-101, frame Type J is mislabeled; should be frame Type T. On drawing C-16 at sign 102-103, frame Type T is correctly labeled. (Locate sign 102-103 between the guardrail and the fence instead of outside the fence).
2. Type T frames should utilize a modified Type J foundation, with the bolt size changed and pattern adjusted as required for Type T frame. Payment for the Type T (modified Type J) foundation should be made under unit price Item 03400.301 for Type J foundations. The total quantity of Type J and Type T foundations is 19.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC

RECEIVED
JUN 09 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 5/30/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Contract Drawing S-103 indicates there are to be two Type A Guardrail units at each end of the platform. Please provide details on what the guardrails look like, where the Specs describe them, and how measurement and payment is provided for in the Contract.

RESPONSE: By Stone & Webster (6-26-00)

1. Typical elevations and details for Type A guardrail units including gate at access ramp, shall be as shown on the attached sketch. The units shall be galvanized steel as shown.
2. Please provide three (3) guardrail units at the north end of the platform, and two (2) guardrail units plus one (1) gate unit for the access ramp at the south end of the platform.
3. Payment for the guardrails and gates should be made under unit price item 05100.100 for galvanized structural steel.

Attachment:

Sketch - Type A Guardrail and Gate

RECEIVED
JUN 29 2000
Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC

BAKER/WOHL ARCHITECTS

MEMORANDUM

DATE: 8 January 2001

TO: The Middlesex Corporation

FROM: Christopher Kicza

RE: REQUEST FOR INFORMATION No. 082
WOBURN REGIONAL TRANSPORTATION CENTER

CC: Chris Ambrose Massport
Bill Palmieri Stone and Webster



All these items were discussed directly between the property management company and Mark Bungard. No notes or minutes were issued as I understand. They only items I can respond to is those issues which Mark had informed me about. Middlesex should contact Mark to clarify all these issues.

1. Mark told me these partitions were eliminated to accommodate the counter equipment.
2. Verify with the property manager and Mark Bungard.
3. Verify with the property manager and Mark Bungard.
4. Verify with the property manager and Mark Bungard.
5. Mark told me these shelves were eliminated to accommodate the counter equipment.
6. Verify with the property manager and Mark Bungard.

As I had understood, Mark had already incorporated these changes into the casework and granite counter shop drawings revisions.

REQUEST FOR INFORMATION

No. 057A Page 1 of 2

11-08-2001

TITLE: ~~Changes to Ticket Office and Cash Room~~

DATE: 1/3/01 amended 1/11/01
distributed 1/17/01

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

The following changes were confirmed today in a meeting with Gerry Nolan of Massport, representatives of the FitzInn, Hunneman, and ITS. The Middlesex Corporation will proceed as follows unless notified by January 19, 2001 of any amendments:

1. The two privacy panels shown on Detail 5 (Enlarged Floor Plan) on Plan A-21 have been deleted.
2. The three wire grommets on Detail 5 (Enlarged Floor Plan) on Plan A-21 will be 3 inches in diameter. The center of the grommet will be 2-1/2 inches from the back of the granite countertops (leaving 1 inch of granite from the edge of the grommet to the back of the countertop). The drawers in the cabinets will not be as deep as the cabinets, to allow room behind the cabinet for computer cables, etc. that may go through the grommets.
3. Detail 5 (Enlarged Floor Plan) on Plan A-21 shows one wire grommet on the laminated countertop near the southeast corner of the building (intersection of column lines 1 and I). However, there will be three additional grommets. The grommet locations are as follows: one over the cabinet on the east wall; one in the corner (intersection of column 1 and I), one in the eastern-most cabinet on the south wall, and one in the western-most cabinet on the south wall.
4. The two cabinets in the Cash Room per Detail 1 (Room 101 West Elevation) on Plan A-21 have been eliminated to make room for a safe.
5. The ticket storage shelves on Detail 2 (Detail Section at Ticket Counter) on Plan A-28 have been eliminated to make room for the equipment that will be on the granite countertop.
6. The width of the granite deal tray on Detail 2 (Detail Section at Ticket Counter) on Plan A-28 has been reduced to make room for the equipment that will be on the granite countertop as follows: the 9-inch dimension from the hollow to the radius bullnose edge on the inside of the Ticket Room should be reduced to 4 inches (to match the 4-inch dimension from the hollow to the radius bullnose edge on the outside of the Ticket Room).
7. The depth of the cabinets under the ticket window has been increased from 18 inches to 22 inches. The granite countertop is 4 inches larger to accommodate this change.

REQUEST FOR INFORMATION**No. 082A page 2 of 2****TITLE:** Changes to Ticket Office and Cash Room**DATE:** 1/3/01 amended 1/11/01 distributed 1/17/01**PROJECT:** Woburn Regional Transp. Ctr**CONTRACT NO:** Massport 1.727**TO:** Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008**REQUESTED BY:** Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

8. All three drawers below the ticket window ("cash drawers") will have locks. The only other location for a lock is one of the cabinets along the south wall. The location of the lock doesn't matter - the finish carpenter can put the lock in either of the three cabinets.
9. The depth of the drawers in the cabinets along the south wall will be decreased so there's a space behind the cabinet for computer cables, etc. that may go through the grommets.
10. Holes will be drilled in the north side of the cabinet on the east wall for computer wiring etc., and between the three cabinets along the south wall.

RESPONSE: by Baker/Wohl (C.Kicza) 1/17/01

BWA has reviewed the changes to Ticket Office and Cash Room cabinetry and shelving as noted above (said to be confirmed by both Massport (G.Nolan) and representatives of FitzInn, Hunneman and ITS), and has the following comments.

Items #1, 4 and 5 - Credit should be provided for these items.

Item #10 - Provide grommets for all holes.

Item #2, 8, 9, et.al. - Coordinate grommet locations with depth of drawers.

cc: Chris Amerose, Massport
Gerry Nolan, Massport
Chris Kicza, BWA

Cyril Lazzarini, MBTA
Bill Breglia, MBTA

Rick Noblet, TMC
Joe Phinney, TMC
Gary Doiron, TMC

REQUEST FOR INFORMATION

TITLE: [REDACTED] **DATE:** 1/3/01

PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

1. Of the hardware/accessory items identified in Spec Section 06200 Paragraph 2.01B and 2.01C, please confirm that the following items are not required in the Station Building:
Paragraph 2.01B 8.b, Paper Slot Grommets
Paragraph 2.01B 9, Adjustable Shelving Hardware
Paragraph 2.01C, Clothes Closet Pole and Supports
If any of these items are required, please provide quantity and/or location(s).
2. The Middlesex Corporation understands that the Property Manager will decide what cabinets and/or drawers are to receive locks (Paragraph 2.01B 7 of Section 06200). Please provide this information.

RESPONSE: by Baker/Wohl (C.Kicza) 01-10-01

1. These items do not appear to be used. Typically, the GC verifies quantities.
2. GC to coordinate with Property Manager.

cc: Chris Ambrose, Massport
Gerry Nolan, Massport
Chris Kicza, BWA

Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

Rick Noblet, TMC
Joe Phinney, TMC
Gary Doiron, TMC

REQUEST FOR INFORMATION

TITLE:	Fire Extinguisher Cabinets	DATE:	1/11/01
PROJECT:	Woburn Regional Transp. Ctr	CONTRACT NUMBER:	Massport 1.727
TO:	Bill Palmieri, P.E. Stone & Webster 245 Summer Street Boston, MA 02210 Phone: 617-589-2509 Fax: 617-589-1008	REQUESTED BY:	Laura R. Clements, P.E. The Middlesex Corporation 30A Atlantic Ave. Woburn, MA 01801 Phone: 781-935-0779 Fax: 781-935-0383

REQUEST:

1. Spec Section 10950 Paragraph 2.01.B (Fire Extinguisher Cabinets) identifies that The Middlesex Corporation will provide cabinets of the type and capacity indicated. The Middlesex Corporation's interpretation of the information on Contract Drawings A-0 and A-1 is that a fire-rated fire extinguisher cabinet is required in the Seating/Circulation area outside the Mechanical Room (near intersection of column lines 2 and A), and that all other fire extinguisher cabinets are to be non-fire rated. Please confirm.
2. Drawing A-1 identifies that both the Mechanical Room and the Electrical Room require a wall-mounted fire extinguisher. A bracket was not selected during the shop drawing review process; The Middlesex Corporation will provide Standard Bracket 1521 unless otherwise directed (see catalog cut attached). Please confirm.

RESPONSE: SEE ATTACHED.

cc:
Chris Ambrose, Massport
Chris Kicza, BWA

Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

Rick Nobilet, TMC
Joe Phinney, TMC
Gary Doiron, TMC

BAKER/WOHL ARCHITECTS

MEMORANDUM

DATE: 12 January 2001

TO: The Middlesex Corporation

FROM: Christopher Kicza

RE: REQUEST FOR INFORMATION No. 084
WOBURN REGIONAL TRANSPORTATION CENTER

CC: Chris Ambrose Massport
Bill Palmieri Stone and Webster



1. See the fire separation drawing on sheet A-0 for the locations of fire rated walls. Fire extinguisher cabinets (shown on A-1) located in these walls are to have the same rating as the wall.
 - First floor, in wall between Seating/Circulation #106 and Mechanical #111, near column line intersection 2-A. **Cabinet to be 2 hour rated.**
 - Second floor, in wall between Conference #201 and Stair #211, near column line intersection 1G. **Cabinet to be 1 hour rated.**
 - Second floor, in wall between Vestibule #205 and crawl space, near column line intersection 2-A. **Cabinet to be 1 hour rated.**GC to review and verify.

2. Fire extinguisher bracket shown will be fine.

1-978-742-4427 TMC CONST. DEPT.
781-899-2348 Fax

820 P02 MAR 16 '00 10:09
Waltham, MA 02454-1623

Larsen's® FIRE EXTINGUISHERS



MP SERIES Multi-Purpose Dry Chemical

These units contain specially fluidized and silicized mono ammonium phosphate powder which smothers and breaks the chain reaction on Class B fires, fuses and insulates Class A fires, and is a non-conductor of electricity.

DC SERIES Regular Dry Chemical

These units contain specially fluidized sodium bicarbonate powder with free flowing and non-caking additives, suitable for fires in flammable liquids, and energized electrical equipment. Ideal for heavy industrial use, kitchens, and garages.

All multi-purpose, regular dry chemical units feature: Heavy duty DOT steel cylinders • Rugged metal valves and siphon tubes • Replaceable molded valve stem seals • Corrosion and impact resistant polyester/spoxy paint finish • Full pin-upright squeeze grip operation • Approved to -65°F • Non-toxic • Pressure Gauges • Contact factory if non-ferrous cylinders are required.

PW SERIES Pressurized Water

This unit is ideally suited for all industrial and commercial applications, where easy to use, positive on-off operation is important. Water is used as the extinguishing agent, making it highly effective on deep seated Class A fires. (See page 60)

- 304-L stainless steel cylinders
- Replacable molded valve stem seals with built welded, chrome free, corrosion resistant construction
- Easy upright squeeze grip operation
- Heavy duty brass chrome plated valve
- Safety lock pull pins
- Easy to use
- Pressure gauge

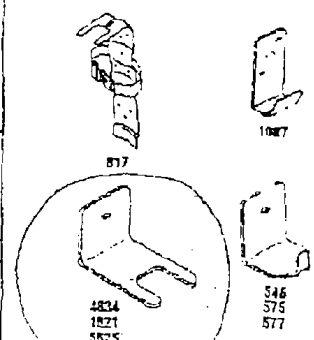
CD SERIES Carbon Dioxide

These units contain liquid carbon dioxide under pressure. It is discharged as a white cloud of "snow" which effectively smothers a fire. Carbon dioxide is a clean, non-conductor of electricity for Class B and C fires.

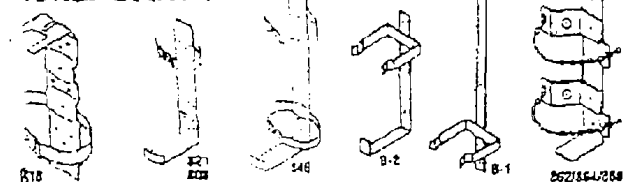
- O-ring seal, straight threaded brass valve fits all sizes
- Up to 30% lighter
- Absolutely rust free aluminum cylinders

Fire Extinguisher	Capacity (lb.)	Weight (lb.)	Height (in.)	Width (in.)	Depth (in.)	Pressure (PSI)	Operating Temp. (°F)	Discharge Time (sec.)	Approx. Weight (lb.)
MP24	2 1/2 gal.	5 1/2 lbs.	7 in.	14 1/2 in.	5 1/2 in.	1A-10BC	87	87	80
MP8	5 lbs.	9 lbs.	4 1/2 in.	5 1/2 in.	7 1/2 in.	2A-10BC	1521	8-2, 818, 821, 860	
MP5-A	5 lbs.	9 1/2 lbs.	4 1/2 in.	5 1/2 in.	7 1/2 in.	2A-10BC	1521	821, 860	
MP4	6 lbs.	12 lbs.	5 in.	16 in.	7 1/2 in.	1A-10BC	5525	808, 842	
MP10	10 lbs.	18 1/2 lbs.	5 in.	20 in.	7 1/2 in.	1A-10BC	5525	8-2, 846, 842	
MP20	20 lbs.	38 lbs.	7 in.	29 1/2 in.	10 1/2 in.	2A-10BC	5525	854	
DC24	2 1/2 gal.	5 1/2 lbs.	3 in.	14 1/2 in.	5 1/2 in.	10BC	87	80	
DC5	5 lbs.	9 1/2 lbs.	4 1/2 in.	5 1/2 in.	7 1/2 in.	10BC	1521	82, 818, 821, 860	
DC5	5 lbs.	13 lbs.	5 in.	16 in.	7 1/2 in.	10BC	1521	858, 862	
DC10	10 lbs.	16 1/2 lbs.	5 in.	20 in.	7 1/2 in.	10BC	5525	8-2, 846, 842	
DC20	20 lbs.	38 lbs.	7 in.	29 1/2 in.	10 1/2 in.	10BC	5525	854	
CD5	2 1/2 gal.	7 1/2 lbs.	7 in.	14 1/2 in.	3 in.	2A	1007	81, 854	
CD10	5 lbs.	14 lbs.	5 1/2 in.	17 1/2 in.	8 1/2 in.	5-B-C	146	862	
CD10	10 lbs.	28 1/2 lbs.	7 in.	24 in.	12 in.	10-B-C	575	864	
CD15	15 lbs.	37 1/2 lbs.	7 in.	30 in.	12 in.	10-B-C	575	864	
CD20	20 lbs.	50 1/2 lbs.	8 in.	30 in.	13 in.	10-B-C	577	864	

Standard Brackets *



Optional Brackets *



*NOTE: Standard brackets are included with all extinguishers at no additional cost. If specified, optional brackets are only available at additional cost. All of the standard and optional brackets are designed to accommodate Larsen's extinguishers. While most comparable sized extinguishers usually will function with the above brackets, Larsen's cannot assume responsibility for variations in cylinder dimensions among various extinguisher suppliers.

- CLASS A FIRES**
Paper, wood, cloth, etc. Where quenching by water or insulating by general purpose chemical is required.
- CLASS B FIRES**
Burning liquids (Gasoline, oil, cooking oils, etc.) where smothering action is required.
- CLASS C FIRES**
Fire in or on electrical equipment (Motors, switches, appliances, etc.) Where a non-conductive extinguishing agent is required.

TOTAL P.03

FROM: 978 742 4427 P.03

REQUEST FOR INFORMATION

TITLE: Passenger Assistance System **DATE:** 1/29/01

PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

As outlined in the attached RFI from City Lights, please provide the off-premise "second try" telephone number for the for the Passenger Assistance System.

RESPONSE: by Stone & Webster (confirming MBTA response) 2/14/01

1. MBTA Police require that all three passenger assistance units located on the commuter rail platform shall be grouped on a single line that rings directly to the MBTA Police dispatcher located at MBTA Police Headquarters on Southampton Street in Boston, telephone no. 617-222-1212. The MBTA dispatcher will take the call and determine how it is to be handled (i.e. by Woburn Police, the Property Manager, etc.). No secondary number is required for these units.
2. The passenger assistance unit at the bridge entrance to the Building and the units located around the site, are to ring to the Property Manager Office (or switched to the Ticket Office after normal operating hours) as specified in Section 16741 paragraph 1.06. In the event that the primary number does not answer within a specified number of rings, the call should automatically switch to ring the Woburn Police Department dispatcher as a back-up number (to be confirmed by the Woburn Police Department).

cc: Chris Ambrose, Massport

Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

Rick Noblet, TMC
Joe Phinney, TMC

Request for Information

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA 01801

RFI #: 031
 Required By: 2/8/01
 Printed on: 1/25/01

Request for Information #: 031 **Date: 1/25/01**

Submitted To	Submitted By
Rick Noblet Middlesex Corporation 30 Atlantic Avenue Woburn MA	Lisa Fera City Lights Electrical Co., Inc. Five Woodworth Street Boston MA 02122

Subject	Discipline	Co-Author	Copies To
Passenger Assistance System		SESCO	

Cost Impact	Schedule Impact	Drawing Impact

Information Requested **Date Required: 2/8/01**

Attached is a letter from SESCO regarding the leased telephone lines their systems require. I gave an advanced copy to Vic Muto of Hunneman at the progress meeting last week. I believe Vic has order the required telephone lines.

However, SESCO needs more information on the Passenger Assistance System.

The system is set to call the attendants office first and if no answer it will call off premise to a pre-determined telephone number.

SESCO needs to know the off premise telephone number so that it can be programed into the intercom stations.

I'm not sure who to ask to get this information, if its the MBTA, MPA or the Property Manager.

Response

Answered By: _____ Date Answered: _____

REQUEST FOR INFORMATION

TITLE: Sign Case **DATE:** 1/30/01

PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Contract Drawing GR-4 Details B, C, and D identify that a schedule case is constructed within the Sign Frame I. Construction of the sign frame is described in Spec Section 05500. Please identify the Spec Section where the material specification can be found (i.e. is the steel to be galvanized?), and identify where Measurement and Payment for this work is described.

RESPONSE: by Stone & Webster (W.Palmieri) 2/2/01

Contract Drawing GR-4 Details B, C, and D show that the schedule case is constructed of steel shapes and plates. Section 05500 includes all miscellaneous metals shown or required by Contract Drawings, including Drawings GR-1 through GR-5. Note 2 on Drawing GR-4 requires all steel to be galvanized unless otherwise noted.

Thus, material specifications are found in Section 05500; material is to be galvanized; and payment is made under the lump sum filed sub-bid price for Miscellaneous Metals and Ornamental Iron.

RECEIVED
FEB 03 2001

Middlesex Corp. Job 405
Woburn Regional Transp. Ctr

cc: Chris Ambrose, Massport

Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

Rick Noblet, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION**TITLE:** ~~Diffusers~~**DATE:** 2/02/01**Answer****PROJECT:** Woburn Regional Transp. Ctr**CONTRACT NO:** Massport 1.727**TO:** Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008**REQUESTED BY:** Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383**REQUEST:**

Contract Drawing M-4 Note 2 indicates that four 285 cfm diffusers will be provided and installed by the General Contractor. The only specifications for diffusers however, appear to be in Section 15855, the work of which is included in the HVAC filed sub-bidders's scope of work.

1. Please provide a spec for the four 285 cfm diffusers.
2. Please identify where Measurement and Payment describes these diffusers. Are they the filed sub-bidder's responsibility, or the General Contractor's?

RESPONSE: by Stone & Webster (S.Lucian/W.Palmieri) 2-8-01

1. The four 285 cfm wall diffusers for 12"x8" supply ducts as indicated on Drawing M-4 are to be surface mounted, rectangular louver face with double adjustable opposed blade deflection (3/4" spacing, front blades parallel to short direction, rear blades parallel to long direction), with damper, all steel construction with baked enamel finish, color white. (Similar to attached catalog cut of Titus Model 272RS.)
2. Drawing M-4 Note 2 incorrectly noted that supply and installation of the diffusers was to be by the General Contractor, and the note should be deleted. The diffusers should be furnished and installed by the HVAC Filed-Subcontractor. Submit a cost proposal if there is any additional cost due to this clarification.

cc: Chris Ambrose, MassportCyril Ezumezu, MBTA
Bill Bregoli, MBTARick Noblet, TMC
Joe Phinney, TMC
Ken Young, Hall Sheetmetal

Supply Grilles & Registers

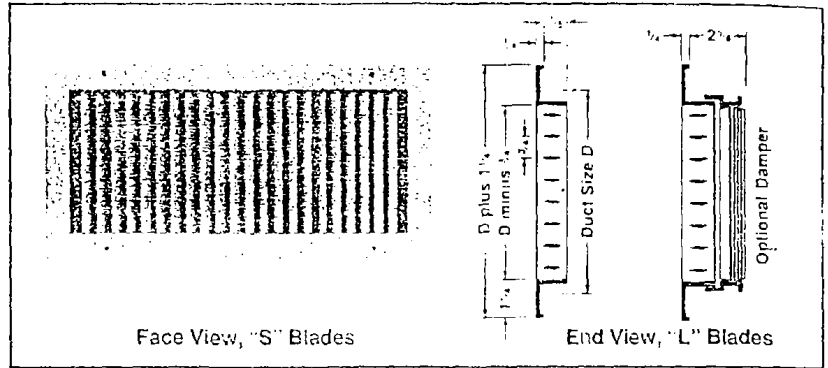
Steel Borders ■ Aluminum Airfoil Blades

3/4" Spacing ■ Single Deflection

Model 271RL. One set of blades parallel to long dimension. Blades individually adjustable. Optional Model AG-35 (steel) or AG-35-AA (aluminum) opposed blade damper.

Model 271RS. Same as 271RL except blades parallel to short dimension.

Available border styles:
Surface mount



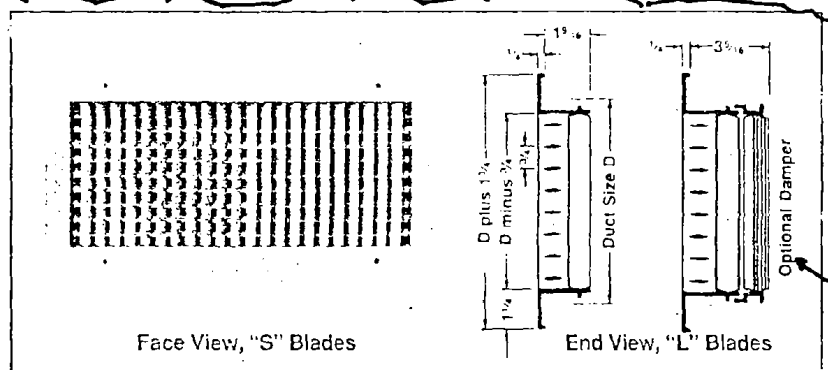
AeroBlade Series E28

3/4" Spacing ■ Double Deflection

Model 272RL. Front blades parallel to long dimension. Rear blades parallel to short dimension. All blades individually adjustable. Optional Model AG-35 (steel) or AG-35-AA (aluminum) opposed blade damper.

Model 272RS. Same as 272RL except front blades parallel to short dimension, rear blades parallel to long dimension.

Available border styles:
Surface mount

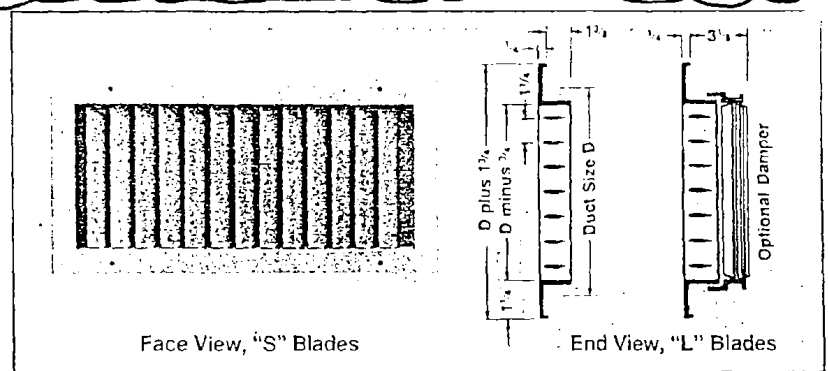


1 1/4" Spacing ■ Single Deflection. For Commercial/Industrial Use

Model 111RL. One set of blades parallel to long dimension. Blades individually adjustable. Optional Model AG-35 (steel) or AG-35-AA (aluminum) opposed blade damper.

Model 111RS. Same as 111RL except blades parallel to short dimension.

Available border styles:
Surface mount

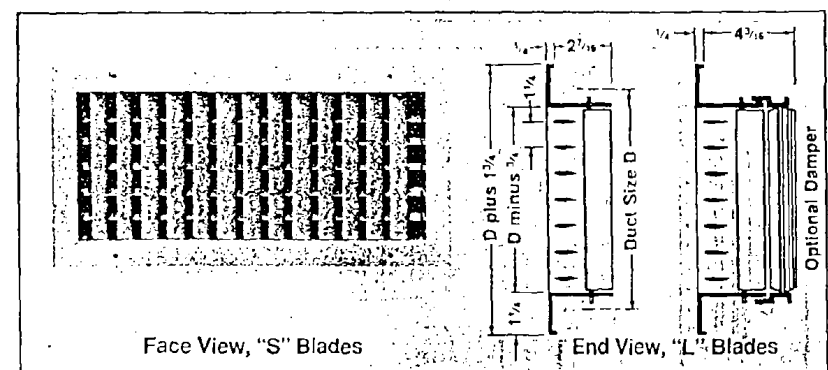


1 1/4" Spacing ■ Double Deflection For Commercial/Industrial Use

Model 112RL. Front blades parallel to long dimension. Rear blades parallel to short dimension. All blades individually adjustable. Optional Model AG-35 (steel) or AG-35-AA (aluminum) opposed blade damper.

Model 112RS. Same as 112RL except front blades parallel to short dimension, rear blades parallel to long dimension.

Available border styles:
Surface mount



For additional options, see pages E45-E47.

All dimensions are in inches.

REQUEST FOR INFORMATION

1 of 2

TITLE: Sign Layout Drawing Review

DATE:

2/02/01

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

I received the sign layout drawings back from the MBTA on 2/6/01 that I had forwarded on 1/18/01 for approval (submittal 10400-001-002). Bill Bregoli indicated that Barbara Boylan had reviewed the drawings. Please be advised that the following items must be addressed before the signs can be put into production:

1. We request that the word "Approved" and the initials of an MBTA representative be written on each layout drawing, signifying approval of the layout as shown or as marked-up.
2. Bill Bregoli indicated that Barbara Boylan would like more time to review the commuter rail map, but the package provided to me that day included the map with an "OK" hand-written on it. Is the map as shown approved?
3. Please note that although Contract Drawing GR-6 has the word "direction" to indicate the direction of the train to either Lowell or Boston, the reviewer has changed the word from "direction" to "inbound" or "outbound." Please confirm this change from the Contract Drawings.
4. Please note that Spec Section 10426 for Tactile Signs, paragraph 2.01B identifies that the signs shall be photo-etched aluminum. The reviewer's comments on the layout drawing for the tactile sign however, say "not photo etched alum" and "all tactile braille melamin finish." Please confirm this modification, and in the meantime I will contact Pannier Graphics and ask them to review the change.
5. Approval must be given on the change order price for the switch from "Woburn" to "Anderson". Pannier Graphics will not proceed with production of the signs until a signed copy of each of their Proposals is forwarded. A representative of The Middlesex Corporation will sign their Proposals upon a written approval that the additional cost will be paid. The change order price was provided on January 31, 2001.

RESPONSE: confirming response provided by MBTA (B.Bregoli) to TMC on 2/9/01

1. MBTA "approval" of the marked-up set was provided by B.Bregoli while at the site on 2/9/01.
2. MBTA (B.Bregoli) confirmed on 2/9/01 that the commuter rail map is approved, as noted by "OK" on the returned copy.

REQUEST FOR INFORMATION

No. 088 page 2 of 2

TITLE: Sign Layout Drawing Review**DATE:** 2/02/01**PROJECT:** Woburn Regional Transp. Ctr**CONTRACT NO:** Massport 1.727**TO:** Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008**REQUESTED BY:** Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

3. MBTA (B.Bregoli) confirmed on 2/9/01 that the word "direction" should be replaced by "inbound" and "outbound" as appropriate for the signs.
4. MBTA (B.Bregoli) clarified requirements for the tactile signs during his discussions with TMC at the site on 2/9/01. ** spec. is incorrect; melamin is the correct spec;*
5. MBTA (B.Bregoli) requested a more detailed breakdown of the additional cost requested by Pannier before it can be properly evaluated.

StW's spec for aluminum is wrong

cc: Chris Ambrose, MassportCyril Ezumezu, MBTA
Bill Bregoli, MBTARick Noblet, TMC
Joe Phinney, TMC
Cindy Cresta, Pannier Graphics

REQUEST FOR INFORMATION

Page 1 of 2

TITLE: ~~Add Elevator Patch List Item~~

DATE: 2/14/01

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Chip Langer, Field Representative for Associated Elevator was on-site yesterday and identified the following items which he feels will prevent a successful elevator inspection. Please review and provide direction on the following items:

1. Circuit #7 in panel HVACP has a shunt trip per the original Contract Documents. Chip has indicated that the shunt trip circuit breaker must have an open set of contacts so that when the breaker is on, the contact with close. This contact on the circuit breaker must be wired in series to the auxiliary contact City Lights is adding in the disconnect switch for the elevator controller. City Lights is reviewing the availability of a shunt trip circuit breaker with an open set of contacts and a route to which they can run the wire from panel HVACP to the disconnect switch. An option to adding the breaker, is to disconnect the battery lowering device - but this would mean that passengers could possibly be stuck in the elevator in the event of a fire emergency.
2. **The vent on the south wall of the elevator shaft must be 36 inches above the roof outside, per Code. It is only 6 inches above the roof. Also, the vent must be a minimum of 3 square feet and if it's mechanical, 1/3 of it must be open at all times.**
3. The fire damper between the janitor's closet (to vent the janitor's closet) and the Elevator Machine Room must be blocked off; there can be no ventilation into the Elevator Machine Room.
4. The sprinkler head in the Elevator Machine Room must be within two feet of the heat detector.
5. The sprinkler head in the Elevator Pit must be at the front of the pit, so that if for example an elevator passenger accidentally drops a lit cigarette down between the elevator and the wall, it will set off the sprinkler system.
6. The drain in the elevator pit should be capped or plugged. It is not required and if it acts a floor drain, it must drain to an oil/water separator.

REQUEST FOR INFORMATION**No. 089 page 2 of 2**

TITLE: Addt'l Elevator Punch List Items **DATE:** 2/14/01

PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

RESPONSE: by Stone & Webster (Gordon/Collins/Palmieri) and BWA (Kicza) 2/15/01

1. Replace the existing shunt trip breaker with a shunt trip breaker that has open contacts that will close when the breaker is on. Wire this contact in series with the auxiliary contact in the disconnect switch for the elevator controller. Disconnecting the elevator's battery operated lowering device will not be acceptable.
2. ~~BWA agrees with the proposal made by Associated Elevator regarding the louver size and location. As per elevator regulation section 17.02, please provide a 3 square foot louver in the hoistway within 2 feet of the top of the hoistway and at least 3 feet above the (adjacent) roof.~~
3. As per the elevator regulation section 17.02, subparagraph 8, the elevator machine room must be provided with natural or mechanical ventilation. The elevator machine room as designed is mechanically exhausted directly to the exterior. The make-up air for this exhaust is being provided from both a vent to the exterior and from the vent to the janitor's closet. The louver in the wall between the elevator machine room and the janitor's closet is provided with a fire damper, preserving the fire rating requirements of the wall. There is no specific provision prohibiting ventilation into the mechanical room. There is no prohibition on providing make-up air for the mechanical room exhaust from within the building.
4. **It is the responsibility of the fire suppression system installer to determining the location required by the governing inspection agency.**
5. The Code does not require that the sprinkler head in the pit to be located near the front of the pit. It is the responsibility of the fire suppression system installer to determining the location required by the governing inspection agency.
6. Since an oil water separator is not provided, we concur that the drain in the elevator pit should be capped.

cc: Chris Ambrose, Massport Cyril Ezumezu, MBTA Rick Noblet, TMC
Chris Kicza, Baker-Wohl Assoc. Bill Bregoli, MBTA Joe Phinney, TMC
Brad McClay, Associated Elev.

REQUEST FOR INFORMATION**No. 090 page 1 of 4**

TITLE: Accessibility Evaluation with Mike Festa **DATE:** 3/12/01

PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Desiree Patrice
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

At the March 8th, 2001 meeting TMC was handed a memorandum with concerns about handicap accessibility. However, before these concerns are addressed, TMC would like clarification and directives on the following:

1. The Pay Boxes are not in TMC's contract; therefore if work is to be done by TMC directive is needed.
2. Accessible symbols are requested for signs on East side of parking lot. Looking at Contract Drawings C-15, which shows locations and GR-7 for signs, it is unclear which signs are referenced in the memo. Are the signs in question SS-2 and SS-4? Can stick-on decal be used on the already installed signs or should new signs be fabricated? Please provide specific direction on which signs need to be modified, and what color and size should the accessible symbol be.
3. In the short term (45 minutes) parking facility, there is concern that a vehicle parking in the accessible space closest to the ticketing facility will partially block the accessible curb. Fay, Spofford & Thorndike (FST) have redesigned the pavement markings and sign location. Unless otherwise directed, TMC will perform work accordingly. (Sketch is attached)
4. In the ticketing facility public restrooms, a request is made to insulate the sink drains to prevent burning. Ferris and Mahoney have suggested the installation of a "Trubro" kit on one sink in each bathroom, similar to the insulation in the second floor bathroom. Is that acceptable?
5. An accessible sticker is to be added to the sign "To Trains" on the second floor, is the referenced sign # 55 at the doorway leading to pedestrian bridge one? TMC proposes a black text on white approximately five (5) inches high. Please confirm this size and color of sticker.
- 6&7. Which of the following passenger assistance boxes and/or emergency call boxes, and to what height(48" or 54")

<u>Call Box</u>	<u>Location</u>	<u>Height</u>
ECB 1, ECB 2, ECB 6	On platform	?
ECBC 1	Pedestrian bridge 1	?
ECBC 2	Pay station at stair 1B	?
ECBC 3	Pay station at stair 2B	?
ECB 4	Pay station at vanpool	?
ECB 3	at light pole # 70	?
ECB 5	at parking gates	?

REQUEST FOR INFORMATION

No. 090 page 2 of 4

TITLE: Accessibility Evaluation with Mike Festa **DATE:** 3/12/01

PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Desiree Patrice
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST: (cont.)

8. Protection is needed at Stair 1A, and Stair 2A to prevent injury to a blind person; AMTRAK has stated that they will construct a sandbox for installation under Stair 1A. These boxes will not occupy the entire space and side access at Stair 1A will still be possible. What must be put in place for side protection? At Stair 2A the newly installed East and West platform guardrail sections from the north end of the platform will be moved to the base of the stairs. Is that acceptable?
9. Between the two stainless steel handrails located on the platform below the accessible ramp, AMTRAK proposes the installation of sandboxes between the east and west guardrails. Is any additional work required by TMC?
10. Is a sign required to give direction to accessible spaces in the long-term facility? If so, what are the size, color and height of lettering and/or accessible symbols on the new sign? Is the attachment to the light pole detail similar to the detail on contract drawing GR-7?
11. Additional Item: There was discussion about the R.O.W call box enclosures being labeled "EMERGENCY" and the site call box enclosure labeled "PASSENGER ASSISTANCE", please clarify. If the wording has to be changed, do we need new enclosures or are overlay stickers acceptable?
12. Additional Item: As per AMTRAK request, 18" will be cut off all four (4) platform guardrail sections (N & S) for additional train clearance. Is this modification acceptable?

PAYMENT ISSUE

Due to the limited time available for implementation of additional accessibility work, The Middlesex Corporation will proceed with all work directed, with payment requested on Time and Materials basis, (with the exception of item 3, which will be performed at no additional cost to the owner).

REQUEST FOR INFORMATION

No. 090 page 3 of 4

TITLE: Accessibility Evaluation with
Mike Festa**DATE:** 3/12/01**PROJECT:** Woburn Regional Transp. Ctr**CONTRACT NO:** Massport 1.727**TO:** Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008**REQUESTED BY:** Desiree Patrice
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383**RECEIVED**
MAR 29 2001Middlesex Corp. Job 405
Woburn Regional Transp. Ctr.**RESPONSE:** by Stone & Webster (W.Palmieri) confirming responses given at meetings on 03/14/01 and 03/22/01

1. Adjusting the height of pay-on-foot boxes at site pay stations is the responsibility of the Property Manager.
2. The signs being referred to in the MBTA memo are SS-4 and SS-6 (shown on GR-7). Locations are shown on drawings C-15 (SS-4) and C-16 (SS-6). The use of stick-on decals attached to existing signs will be acceptable. Symbol should be white text on green (or clear) field, sized to match existing text.
3. Pavement markings and sign locations provided on FST sketch will be acceptable.
4. The use of a Trubro kit on the drain-pipe of one sink in each restroom, similar to the insulation used in the second floor restroom, will be acceptable.
5. The sign referred to in the MBTA memo is the sign on the second floor directing traffic to the door exiting to bridge no. 1. Size and color of sticker noted by TMC is acceptable.
- 6.
7. ECB-1, ECB-2, ECB-6 located on the platform, to have push button of call box mounted 54" a.f.f.
ECBC-1 located on pedestrian bridge no.1, to have push button of call box mounted 54" a.f.f.
ECBC-2 located at pay-station near stair 1B, to have push button of call box mounted 48" a.f.f.
ECBC-3 located at pay-station near stair 2B, to have push button of call box mounted 48" a.f.f.
ECB-4 located at pay-station near vanpool, to have push button of call box mounted 48" a.f.f.
ECB-3 mounted on light pole #70, to have push button of call box mounted 48" a.f.f.
ECB-5 mounted on light pole #15 (parking gates), to have push button of call box mounted 48" a.f.f.
8. Side access under stair 1A is to be prevented by the addition of 2-rail handrail sections similar to that used under the ramp.
Access under stair 2A is to be prevented by relocation of end-of-platform guardrail sections to a location near the foot of the stairs, as noted in TMC request above.
9. Amtrak installation of sandbox (at platform line 17) extending between two handrails under ramp, will be acceptable. Additional work by TMC will not be necessary.
10. A small (approximately 6"x12") aluminum panel with black-on-white access symbol and arrow pointing right, attached to the lightpole with metal band, will be acceptable.

REQUEST FOR INFORMATION

No. 090 page 4 of 4

TITLE: Accessibility Evaluation with
Mike Festa

DATE: 3/12/01

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
100 Technology Center Drive
Stoughton, MA 02072
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Desiree Patrice
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

RESPONSE: (cont.)

11. Call boxes on the ROW platform should be labeled "MBTA Police" on the front of the box. Overlay stickers or new stenciling will be acceptable. The existing "Emergency" stenciled on the side of these boxes can remain.
Call boxes on the site and on Bridge #1 should be labeled "Passenger Assistance" or "Assistance" as space permits. Overlay stickers or new stenciling will be acceptable. The existing "Emergency" stenciled on the side of these boxes should be covered over with a stick-on or painted out.
12. MBTA Commuter Rail Operations has requested that the guardrails at both ends of the platform be cut back to provide approximately 18" clearance from the side edge of platform. The modification is acceptable as discussed in the field.
13. Payment Issue: Considering the need to implement this work prior to opening for service, TMC is to proceed with performing the work (excluding items 1, 3 and 9) on a time and material basis, with costs verified by the Resident Engineers.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Laura R. Clements, TMC
Joe Phinney, TMC

Fay Sp.



FAY, SPOFFORD & THORNDIKE, INC.
5 Burlington Woods • Burlington, Massachusetts 01803

FAX TRANSMISSION FORM

ATTENTION: Chris Ambrose DATE: 3-12-04

COMPANY: MASSPORT

CITY, STATE: Woburn PROJECT #: QW017

FAX#: 721 0373 ORIGINALS MAILED

SUBJECT: parking

COMMENTS: Chris, I moved the ramp and
the struts, total parking spaces
in this row is still 28. Please
review and see if this is workable.

FROM: Fay, Spofford & Thorndike, Inc. FAX#: (781) 221-5907

BY: ds

TOTAL NUMBER OF PAGES INCLUDING THIS FORM: 3

IF THERE ARE ANY PROBLEMS, PLEASE CONTACT: _____
AT (781) 221-1000



Massachusetts Bay Transportation Authority

Argeo Paul Cellucci
Governor

Jane Swift
Lieutenant Governor

Kevin J. Sullivan
Secretary & MBTA Chairman

Robert H. Prince, Jr.
General Manager

MEMORANDUM

To: File

From: William H. Bregoli
Project Manager *WKBregoli*

Date: March 13, 2001

Re: Review of Accessibility Issues with Mike Festa
Answers to Questions Raised at March 8, 2001 Job Meeting

RECEIVED
MAR 15 2001

Massachusetts Dept. of Transportation
Regional Trans. Ctr.

As a result of a meeting with Mike Festa of the MBTA, the following decisions have been made relative to accessibility issues with the Anderson Regional Transportation Center.

Pay Stations for Parking

- 1) Since there is an accessible "Pay Box" located inside the building entrance located near the Handicapped drop-off area, the "Pay Boxes" at the North of the building are accepted as installed. However a sign with a symbol of accessibility must be installed at these boxes directing persons with disabilities to the accessible box inside the station.
- 2) The center "Pay Box" at the van pool area must be lowered to 54" high.

Call Boxes

- 1) All call boxes must be accessible except the one in the daily parking lot near the entrance to Presidential Way and the unit associated with the pay station at the north end of the platform.
- 2) Call boxes on the platform must be labeled so that the caller is aware that they are emergency boxes and they will call the MBTA.

All other call boxes will be of the passenger assistance type and should not have any reference to emergency or police. The word "assistance" would satisfy the labeling of these boxes.

Braille & Raised Letters

Braille is to be Grade 2 and raised letters are to be 5/8" high and raised 1/32" (upper case and san serif font).

Braille and raised letters must be used:

- 1) On one of the high pay boxes at the van pool area, the pay area outside the north entrance to the ticketing facility and on the pay station inside the ticketing facility.
- 2) At all emergency and assistance call boxes except the call box in the daily lot near the entrance to Presidential Way and the call box associated with the pay station at the north end of the platform.

Braille and raised letters are to be located to the left of the item it is describing. If it will not fit on the left, place it above the item being described and no higher than 60".

Please call me at 222-5365 if you have any questions.

WHB/vle

Cc: K. Johnson – Massport
K. Adams - Massport
W. Palmieri – Stone & Webster
C. Ambrose
C. Ezumezu
M. Festa

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 5/31/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Spec Section 02451-3 identifies requirements for concrete-filled 6-inch and 10-inch bollards that are shown on Contract Drawings C-21 and C-24, and listed for payment in the Contract under items 02451.685 and 02451.686. Spec Section 05500 page 11 Products item "L" outlines a material spec for steel-capped bollards, not shown on the Contract Drawings. Please confirm that the bollards are to be constructed in accordance with Section 02451, as shown on Drawings C-21 and C-24, and that there are no steel-capped bollards in the Contract.

RESPONSE: By Stone & Webster (6/6/00 confirming previous conversation with TMC)

1. This confirms that bollards are to be furnished under Section 02451 and installed in accordance with details as shown on drawings C-21 and C-24. There are no steel-capped bollards in the Contract.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC

RECEIVED
JUN 09 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

REQUEST FOR INFORMATION

TITLE: [REDACTED] Radio System

DATE: 6/1/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

As outlined on the attached RFI's from City Lights Electrical Co., please provide the following:

1. Confirmation that the parking gate control conduits will be installed by the parking gate control contractor (or the building manager, whichever is appropriate).
2. Please provide detail on electric connections for the radio equipment.

RESPONSE: By Stone & Webster and Massport (confirming response given at site meeting 6/15/00)

City Lights RFI-013:

1. Since exact location of parking control equipment was not available at time of site conduit installation, conduits were installed to the island location without stub-up. Stub-up is to be provided by this Contract to allow placement of sidewalk. Contractor to coordinate with Property Manager for location of equipment.

City Lights RFI-014:

1. Radio equipment is being relocated from existing Mishawum Station. City Lights to field verify connections required, select conduit routes to required locations.
2. Detail for conduit to penetrate roof is described in specifications. (BWA to provide detail if necessary.)

RECEIVED
JUN 29 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Lisa Fera, City Lights Electrical

Request for Information

City Lights Electrical Co., Inc.
Woburn Regional Transportation Center
MPA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA

RFI #: 013
Required By: 6/ 8/00
Printed on: 5/25/00

Request for Information #: 013

Date: 5/25/00

Submitted To

Rick Noblet
Middlesex Corporation
30 Atlantic Avenue
Woburn MA

Submitted By

Lisa Fera
City Lights Electrical Co., Inc.
Five Woodworth Street
Boston MA 02122

Subject	Discipline	Co-Author	Copies To
Parking gate control conduit detail			

Cost Impact	Schedule Impact	Drawing Impact

Information Requested

Date Required: 6/8/00

We are writing this RFI to confirm our discussions with Chris Ambros of MPA after the progress meeting today.

Since the exact location for the parking gate control conduits is not available at this time, we discussed installing the conduits into the islands of the parking gate without stubbing up through the island. The conduits will be stubbed up at a later date by the parking gate control contractor who will have the required information.

Please confirm this is acceptable to all parties involved.

Response

Answered By: _____

Date Answered: _____

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 6/1/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

1. Utility Support Plates and Typical Bay Detail on Drawing S-109 indicates that LED signs will be installed under the platform canopies, supported by C-5 channels. Drawing GR-1 however, indicates that the VMS signs are mounted on light poles. Please clarify.
2. If VMS signs are to be mounted to light pole, please provide mounting detail.

RESPONSE: By Stone & Webster (6/6/00)

1. VMS signs are to be located as shown on drawing E-7 (same locations as GR-1).
2. Electrical contractor to provide details for attachment of VMS brackets, signage, etc. to light poles. based on light poles provided. (See drawing E-7 Note 3.)

RECEIVED
JUN 09 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Lisa Fera, City Lights Electrical

REQUEST FOR INFORMATION

TITLE: ██████████

DATE: 6/5/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

As outlined on the enclosed RFI from City Lights, please confirm that 10-foot lengths of schedule 80 PVC are acceptable as an alternate to 20-foot lengths.

RESPONSE: By Stone & Webster (6/7/00 - confirming previous discussion on 6/5/00)

This confirms discussion between Stone & Webster (H.Gordon) and City Lights on 6/5/00 that, due to problems with availability, the use of 10' lengths of schedule 80 PVC conduit instead of 20' lengths is acceptable to S&W.

RECEIVED
JUN 09 2000

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Lisa Fera, City Lights Electrical

Middlesex Corp. Job 40
Woburn Regional Trans. C

Request for Information

City Lights Electrical Co., Inc.

Woburn Regional Transportation Center
MPA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA

RFI #: 015

Required By: 6/19/00

Printed on: 6/ 5/00

Request for Information #: 015

Date: 6/ 5/00

Submitted By	Submitted By
Rick Noblet Middlesex Corporation 30 Atlantic Avenue Woburn MA	Lisa Fera City Lights Electrical Co., Inc. Five Woodworth Street Boston MA 02122

Item	Quantity	Unit	Notes
Sched.80 PVC conduit			

Comments:

We are presently experiencing difficulty getting the remaining schedule 80 PVC conduit in 20 foot lengths in a timely fashion.

This RFI is to confirm our phone conversation with Harold Gordon of S&W earlier to day. We requested to use 10 foot lengths of schedule 80 PVC conduit inlieu of 20 foot due to availabilty since the 10 foot lengths are readily available.. Harold stated he did not foresee any problems with this request.

Response:

Answered By: _____ Date Answered: _____

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 6/19/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

The Middlesex Corporation has elected to have all L2x2 shop-welded (see Dwgs. S-112, S-113: used to support wire mesh on platform bridges, ramps, etc). As outlined on the attached FAX from Bayshore Steel Detailing however, this will impact the sequence of construction of the stairs. Please review the attached FAX, and reply as to whether option 1 or 2 is required. As outlined on the FAX, The Middlesex Corporation's preference is for option 1.

Please review and respond as soon as possible; we are trying to complete the balance of platform steel shop drawings, so the steel can be reviewed/approved and put in for fabrication in July and August.

RESPONSE: by Stone & Webster 6/22/00 (confirming discussion at project site on 6/22/00)

Option 1 is acceptable to Stone & Webster.

RECEIVED
JUN 29 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Chris Sprague, Bayshore Steel Detailing

REQUEST FOR INFORMATION

TO: Middlesex

From: Bayshore Steel Detailing

Date: 6-19-00

Project: Regional Transportation Center
Woburn, Massachusetts

ERECTION PROBLEM:

We have an erection problem with all four stairs.

The pans cannot be placed between the stringers once the stringers are in place because of the L2x2x1/4 used for the bottom support of the screen wall. We have two options to fix this problem:

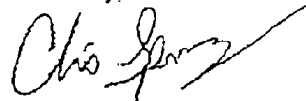
1. Have the pan made in two halves. Field weld them in the middle on the center stringer support.
2. Field weld the L2x2x1/4 bottom support for screen wall to top of both stringers.

Comments:

We feel that option 1 would be the best and easiest "fix" to this erection problem. Because everything is galvanized, the only visible weld to be seen would be the front center of the stairs. (with proper welding & grinding, this would be virtually invisible.

Option 2 would take a lot of field welding, very visible along the entire length of both stringers, and would take a lot of touch up to cover. Also, the bottom leg of the angle is notched to receive the pans. This would make field welding more difficult.

Sincerely,



Chris Sprague

REQUEST FOR INFORMATION**TITLE:** [REDACTED]**DATE:** 6/20/00 [REDACTED]**PROJECT:** Woburn Regional Transp. Ctr**CONTRACT NO:** Massport 1.727**TO:** Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008**REQUESTED BY:** Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383**REQUEST:**

Contract Drawings TR-7, TR-8, and TR-9 show that a 6-ft fence is installed on the west side of the ROW. Spec Section 02444 requires that vinyl coated chain link fence be installed. For safety reasons, it makes sense to put in the new chain link fence prior to Amtrak's utilizing the newly constructed Bypass Track; the vinyl coated chain link fence however has a 4-week lead time. The Middlesex Corporation proposes that for the ROW fence, an aluminum-coated 9-gauge fence fabric be utilized (with corresponding posts and accessories), so that the fence can be installed next week. For this change in fabric, a credit of \$1.20 per linear foot is offered. Is this substitution acceptable?

RESPONSE: by Stone & Webster (confirming previous discussions at site meetings)

Based on discussions at the site progress meetings on June 22, and June 29, 2000 it was understood that temporary fence would be installed by TMC to assure public safety.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 6/22/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

As outlined on the attached RFI's from City Lights, please provide the following:

1. Mounting details of light fixtures, VMS signs, conduit, etc. for the lighting and communications system in the pedestrian bridges.
2. Mounting height for the Fire Alarm Master Box.
3. Review/approval of 4-1/2 inch diam. Type GG Pole instead of 4-inch diameter pole.
(Note by S&W: Pole is Type G5 not GG.)

RESPONSE: by Stone & Webster (7/07/00)

1. Mounting Details on Pedestrian Bridges 1 and 2 (City Lights RFI-016):
 - a. C5 light fixtures: center in bridge bays; mount upturned on top of bracing members (TS6x4) of top chord framing.
 - b. VMS signs: center on walkway, hang from underside of lateral beam (TS6x4) of top chord framing, mounting height to bottom of sign shall be 8'-0" above bridge floor level (TMC to coordinate length of hanger to suit mounting height).
 - c. Conduits: run power and communications conduits exposed above top chord framing and along bracing/beams to light/sign locations; liquid-tight flex conduit connection into light, or tube hanger for sign.
2. Mounting Height of Fire Alarm Master Box (City Lights RFI-017): Pull handle of fire alarm Master Box shall be mounted 54" above finish grade.
3. Type G5 Light Pole Diameter (City Lights RFI-019): Use of 4-1/2" diameter pole instead of 4" diameter as specified is acceptable for Type G5 pole. Substitution (submittal 16500-002-1), was submitted for review by TMC-083 dated 6/29/00, and returned approved by swtmc-179 dated 7/07/00.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: ~~Rick Noblet~~, TMC
Joe Phinney, TMC
Lisa Fera, City Lights Electrical

Request for Information

City Lights Electrical Co., Inc.
Woburn Regional Transportation Center
MPA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA

RFI #: 016
Required By: 7/5/00
Printed on: 6/21/00

Request for Information #: 016

Date: 6/21/00

Submitted To

Rick Noblet
Middlesex Corporation
30 Atlantic Avenue
Woburn MA

Submitted By

Lisa Fera
City Lights Electrical Co., Inc.
Five Woodworth Street
Boston MA 02122

Subject	Discipline	Co-Author	Copies To
Pedestrian Bridges 1 & 2	Electrical		
Cost Impact	Schedule Impact	Drawing Impact	

Information Requested

Date Required: 7/5/00

Please provide mounting details of light fixtures, VMS signs, conduit, etc. that are located along the pedestrian bridges.

Response

Answered By: _____

Date Answered: _____

Request for Information

City Lights Electrical Co., Inc.
Woburn Regional Transportation Center
MPA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA

RFI #: 017
Required By: 7/5/00
Printed on: 6/21/00

Request for Information #: 017 **Date: 6/21/00**

Submitted To: Rick Noblet Middlesex Corporation 30 Atlantic Avenue Woburn MA	Submitted By: Lisa Fera City Lights Electrical Co., Inc. Five Woodworth Street Boston MA 02122
---	---

Subject	Discipline	Co-Author	Copies To
Fire Alarm Master Box	Electrical		

Cost Impact	Schedule Impact	Drawing Impact

Information Requested **Date Required: 7/5/00**

Please provide mounting heigh for the Fire Alarm Master Box.

Response

Answered By: _____ Date Answered: _____

Request for Information

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA

RFI #: 019
 Required By: 7/5/00
 Printed on: 6/21/00

Request for Information #: 019

Date: 6/21/00

Submitted To	Submitted By
Rick Noblet Middlesex Corporation 30 Atlantic Avenue Woburn MA	Lisa Fera City Lights Electrical Co., Inc. Five Woodworth Street Boston MA 02122

Subject	Discipline	Co-Author	Copies To
Type GG Light Pole Diameter	Electrical	GE Supply	

Cost Impact	Schedule Impact	Drawing Impact

Information Requested **Date Required: 7/5/00**

We have receive the attached fax from our light fixture supplier.

It appears that the Type GG pole is not available with a 4inch diameter in a steel version. The manufacture has indicated that a 4.5 inch diameter pole must be ordered.

GE Supply confirmed that the bolt circle diameter will still be 7 3/4 inches per contract drawings.

Please advise if the 4.5 inch diameter is acceptable.

Response

Answered By: _____ Date Answered: _____


##141546 Woburn

Subject: ##141546 Woburn
Date: Mon, 19 Jun 2000 10:43:27 -0400
From: "Alfaro, Alise"
To: "Beth (E-mail)" <Beth@shepbrownassociates.com>

Dear Beth:

The pole diameter for this order needs to be 4.5" in regards to this order. The 4" diameter pole is not available to us in a steel version! I apologize for the misunderstanding, and hope we can agree on the 4.5" diameter pole! Call me with any other questions!

Alise

*Per phone conversation w/Robyn @ GE on 6/20/00 11:45am
The bolt circle diameter will still be 7 3/4" *

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 6/26/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

RECEIVED
JUN 29 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

REQUEST:

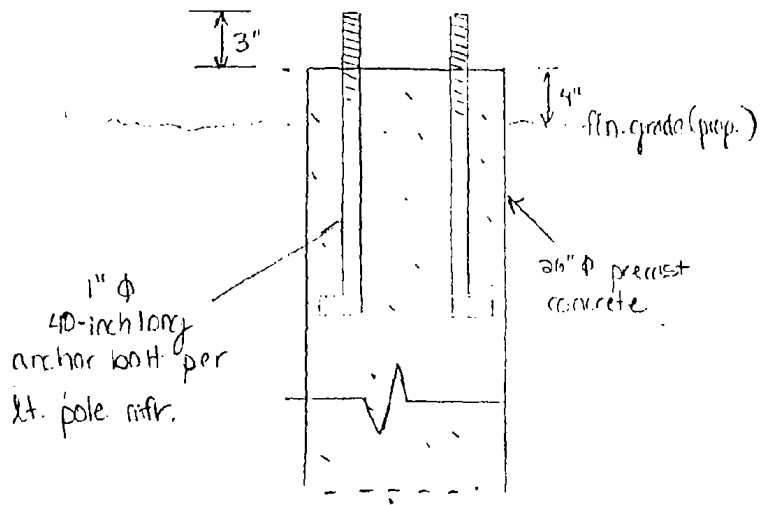
- 1) Contract Drawing E-21 identifies that light poles 10 and 11 are to be installed in the parking area just south of the Station Building. The light pole bases have been installed in accordance with Note 2 on Drawing E-24, which states that the base projects 4 inches above finish grade. Should bases 10 and 11 have 3-ft clearance like the light pole bases in the short term and long term parking lots, to prevent damage by vehicles? If so, we propose the following method of raising the light pole base (see sketch also):
 - a) Thread an extension coupling on the bolts projecting from the top of the light pole base, and attach a galvanized 1-inch diameter threaded rod.
 - b) Form and place concrete to extend 26-inch diameter light pole base to required grade.
- 2) As discussed at the weekly project meeting on June 15, 2000, a truck damaged the anchor bolts on light pole base 12. We propose to repair the anchor bolts in a similar manner:
 - a) Chip the concrete from the top of the light pole base as needed; cut the bent portion off the anchor bolts; clean the exposed anchor bolt threads and install an extension coupling and galvanized 1-inch diameter threaded rod.
 - b) Form and place concrete to the previous elevation of the top of the base.

RESPONSE: by Stone & Webster (6/26/00)

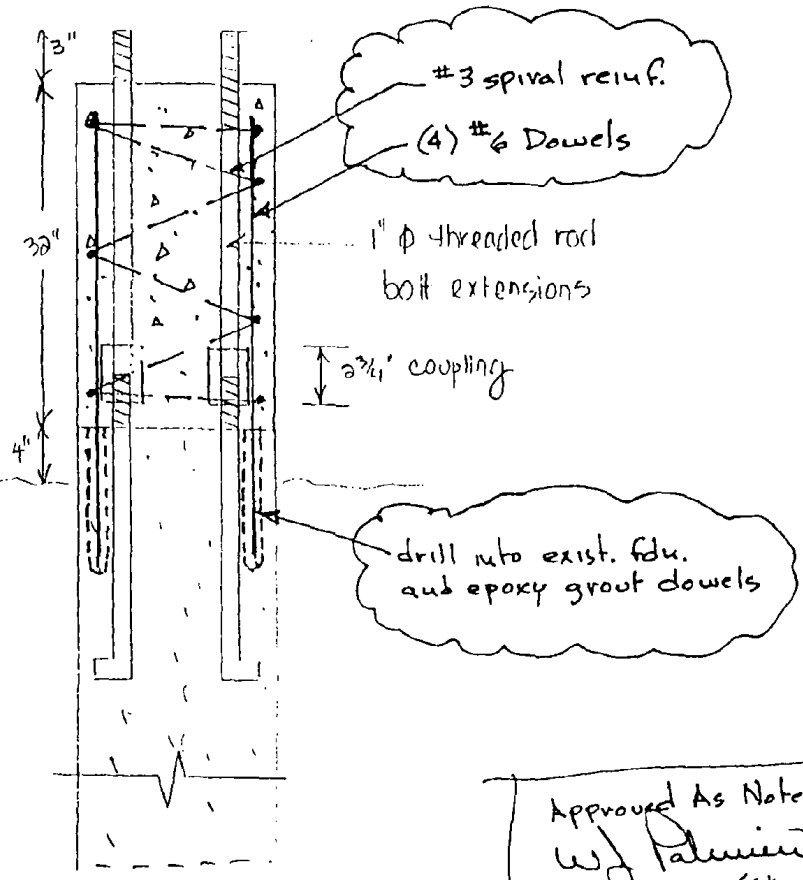
- 1) Bases for light poles no. 10 and 11 shall be extended to a height of 3'-0" above finish grade, as directed at the Site Progress Meeting held 6/15/00. The detail as described above and shown on the attached sketch is acceptable, except as follows:
 - a) In addition to the method described above, drill and epoxy grout four (4) #6 dowels into the existing precast foundation, and contain dowels with #3 spiral reinforcement (see attached mark-up of sketch).
- 2) The detail described above for repair of damaged anchor bolts in base for light pole no. 12 is acceptable.

cc: Chris Ambrose, Massport
Cyril Ezumazu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC
Lisa Fera, City Lights Electrical



Newly Inst. LP 10 # 11



Proposed LP 10 # 11

Approved As Noted
 W. Palmer
 6/27/00 (S&W)

L.R. - The Middlesex Corp.
 6/26/00

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 6/22/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Contract Drawing TR-7 identifies that the cable tray transitions to a PVC conduit duct bank at approximately station 664+30. Please provide a detail of this transition.

RESPONSE: by Stone & Webster (confirming discussions at site on 6/22/00)

Based on discussions at the site on 6/22/00, as an alternative to providing end plates from the trench manufacturer, it was decided that conduit transitions will be allowed as follows:

1. Amtrak power conduit will not enter the trench but will be run outside the trench as per previous request by Amtrak. The remaining Amtrak signal conduits will be extended approximately one foot into the cable trench. Conduits entering the trench will be concrete encased from one foot outside the end of the trench, to the end of conduits one foot inside the end of the trench. Encasement inside the trench should be full depth of the trench to the underside of cover.

RECEIVED
JUN 29 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Lisa Fera, City Lights Electrical

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 6/27/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

RECEIVED
JUN 29 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

REQUEST:

As outlined on the attached letter from Dependable Masonry, clarification is needed regarding the intent of the Contract Documents as they relate to the following:

Connection of CMU walls to tube steel, wide flange steel, and bond beams shown on Contract Drawing S-9, along with Note #3 on S-9, indicate that all items are to be furnished and installed by the Section 04200 filed sub-bidder. Spec. Section 04200 however, does not clearly support this. Specifically, Section 1.02 C1 items 1 and 2 indicate that some of these materials are installed by but not furnished by 04200. Furthermore, masons do not normally employ certified welders and no appropriate welding specification is referred to in Section 04200. Please clarify the trade or vendor responsible for furnishing and installing the material required to secure the CMU walls to the structural steel framing. Time is of the utmost importance and we would appreciate an answer before 11 am today, to avoid any project delays or delay claims.

RESPONSE: by Stone & Webster (6/27/00) (response faxed 6/27/00 per TMC request)

In response to your request for clarification of responsibility, it is clear that the Masonry Filed Sub-Bidder is responsible for furnishing and installing material required to secure CMU walls to structural steel framing.

- a. Contract Specification Section 04200 "Unit Masonry" (filed sub-bid required), Paragraph 3.01.O.1.b specifically requires the mason to "Anchor reinforced masonry work to supporting structure as indicated on drawings."
- b. Section 04200, Paragraph 1.01.B clearly lists Drawing S-9 as showing work included under the filed sub-bid. Drawing S-9 "Station Building Masonry Details", Note 3 states that "Masonry wall reinforcement, metal ties, anchors and connections to structural framing shall be furnished and installed by the Masonry Filed Sub (Section 04200." Typical Details on S-9 clearly indicate the work to be performed.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Theodore E. Van Lingen, Dependable Masonry

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 6/28/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

- 1) Attached are four RFI's from City Lights; please provide clarification as needed on
 - a) Type C4 Light Fixtures
 - b) Emergency Call Boxes at Pay Stations
 - c) Duress System Details
 - d) Access to Door #21 Details
- 2) In addition, please provide the wind load that the light poles on the platform must be designed for. The light pole manufacturer and City Lights Electric are working on a detail for the connection of the VMS to the light pole(s).

RESPONSE: by Stone & Webster (7-07-00)

1) a) Type C4 Light Fixtures (City Lights RFI-020)

1. C4 fixture on G-line: mount on masonry wall (move toward 3-line as necessary to miss wall register); height on masonry wall as close to 12' a.f.f. as allowed by mounting plate detail.
C4 fixture on I-line: mirror horizontal and vertical locations set by G-line.
2. Remote ballast for fixture located in an accessible location (either in Electric Room, or above accessible ceiling panels if no ballast noise).

b) Emergency Call Box at Pay Stations (City Lights RFI-021)

1. Prefer call box installation integral with Pay Station (being provided by Property Manager) per SESCO shop drawing PAS-WD-WB. Mount call box at 54" above grade. Mount strobe directly on top of Pay Station.

c) Duress System Details (City Lights RFI-022)

1. Duress signal initiated at ticket office goes to communication console; direct dial to local police.
2. Locate duress buttons on side walls under counter drawers at each ticket window.

d) Access to Door #21 Details (City Lights RFI-023)

1. One industrial grade buzzer shall be installed adjacent to the customer assistance call box near door 21 on the pedestrian bridge. The function of the buzzer is to alert the ticket office attendant during off-hours.
2. Voice communication will be accomplished using the call box. Call box pull handle shall be mounted 54" above finish floor.

- 2) Wind for design of platform light poles in accordance with Massachusetts State Building Code.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC
Lisa Fera, City Lights Electric

Request for Information

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA

RFI #: 020
 Required By: 7/11/00
 Printed on: 6/27/00

Request for Information #: 020 **Date: 6/27/00**

Submitted To	Submitted By
Middlesex Corporation 30 Atlantic Avenue Woburn MA	Lisa Fera City Lights Electrical Co., Inc. Five Woodworth Street Boston MA 02122

Subject	Discipline	Co-Author	Copies To
Type C4 Light Fixture- mounting height & remote ballast locations			

Cost Impact	Schedule Impact	Drawing Impact

Information Requested	Date Required: 7/11/00
<ol style="list-style-type: none"> 1. Drawing E-6 shows a type C4 fixture on G line centered between 3 & 4 line at a height 12 feet above the ground. The 2nd level elevation is 12 feet. Please confirm the mounting height of this C4 fixture. There is a C4 fixture located at this same location except it is on I line this fixture will have to be mounted at the same elevation. 2. The C4 fixture has a remote ballast. Please indicate where the ballasts should be located. 	

Response
Answered By: _____ Date Answered: _____

Request for Information

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA

RFI #: 021
 Required By: 7/11/00
 Printed on: 6/27/00

Request for Information #: 021 **Date: 6/27/00**

Submitted To:	Submitted By:
Rick Noblet Middlesex Corporation 30 Atlantic Avenue Woburn MA	City Lights Electrical Co., Inc. Five Woodworth Street Boston MA 02122

Subject:	Discipline:	Co-Author:	Copies To:
Emergency Call Box at Pay Stations		SESCO	

Cost Impact:	Schedule Impact:	Drawing Impact:

Information Requested	Date Required: 7/11/00
<p>SESCO has requested information regarding the emergency call boxes at the pay stations. They need locations and mounting heights of the call box and blue strobe lights.</p> <p>Drawing GR-3 shows foundation and shelter details for the pay machines, which only indicate electrical conduit stub ups. Please provide locations and heights for the emergency call boxes and strobes.</p>	

Response
<p>Answered By: _____ Date Answered: _____</p>

Request for Information

City Lights Electrical Co., Inc.

Woburn Regional Transportation Center
MPA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA

RFI #: 022

Required By: 7/11/00

Printed on: 6/27/00

Request for Information #: 022

Date: 6/27/00

Submitted To

Rick Noblet
Middlesex Corporation
30 Atlantic Avenue
Woburn MA

Submitted By

Lisa Fera
City Lights Electrical Co., Inc.
Five Woodworth Street
Boston MA 02122

Subject	Discipline	Co-Author	Copies To
Duress System Details			

Cost Impact	Schedule Impact	Drawing Impact

Information Requested

Date Required: 7/11/00

Drawing E-12 shows the wiring diagram for 3 duress stations located in the ticket station at windows 1-3 and they are wired back to a duress alarm station in the security/comm room.

Please provide the specifications of the duress stations and alarm station and the intent of operation.

Additionally, where should the 3 duress stations in the ticket station be located?

Response

Answered By: _____

Date Answered: _____

Request for Information

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA

RFI #: 023
 Required By: 7/11/00
 Printed on: 6/27/00

Request for Information #: 023

Date: 6/27/00

Submitted To	Submitted By
Rick Noblet Middlesex Corporation 30 Atlantic Avenue Woburn MA	Lisa Fera City Lights Electrical Co., Inc. Five Woodworth Street Boston MA 02122

Subject	Discipline	Co-Author	Copies To
Access to Door #21 details			

Cost Impact	Schedule Impact	Drawing Impact

Information Requested	Date Required: 7/11/00
<p>Drawing E-4 Note #5 states 'Access to door #21 is controlled by MPA & MBTA ticket office on ground floor. Provide buzzer and customer assistance call box adjacent to door on bridge.'</p> <p>Please provide wiring diagram, device requirements and intent of operation for the access to door #21.</p> <p>Per previous conversation with Stone & Webster, we are mounting a buzzer on the call box which will be mounted on the diagonal steel beam. However, S&W is to confirm mounting height of call box.</p>	

Response
<p>Answered By: _____</p> <p style="text-align: right;">Date Answered: _____</p>

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 6/28/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Please review the attached two sketches. Are the connections for columns A-1, I-1, and I-4 as proposed on the sketches, acceptable?

RESPONSE: by Stone & Webster (6/28/00)

1. The proposed hip roof connections for columns A-1, I-1, and I-4 as shown on the attached sketch are acceptable to Stone & Webster.
2. The proposed connection of eave canopy brace to framing members at column B-4 as shown on the attached sketch is acceptable to Stone & Webster.

RECEIVED
JUN 29 2000

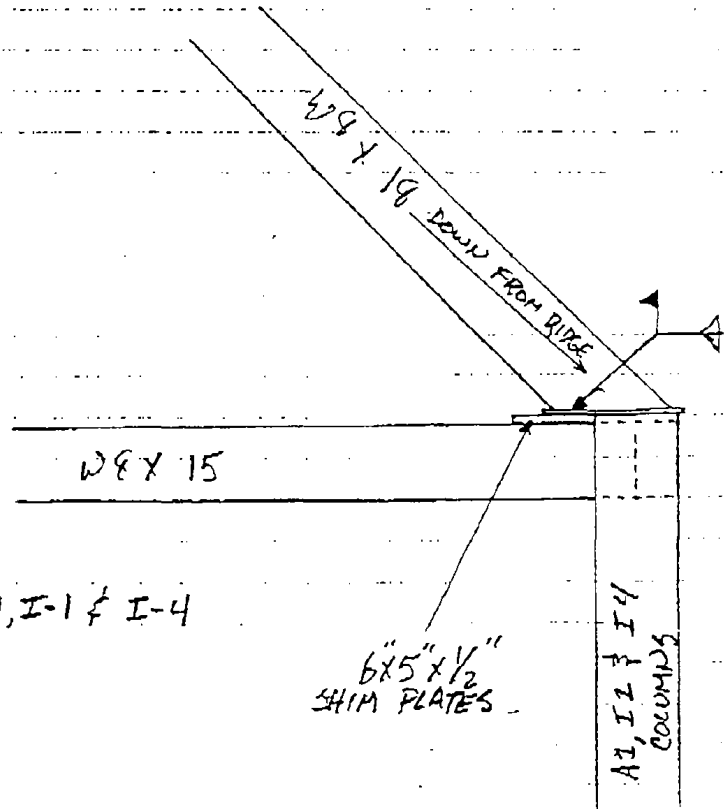
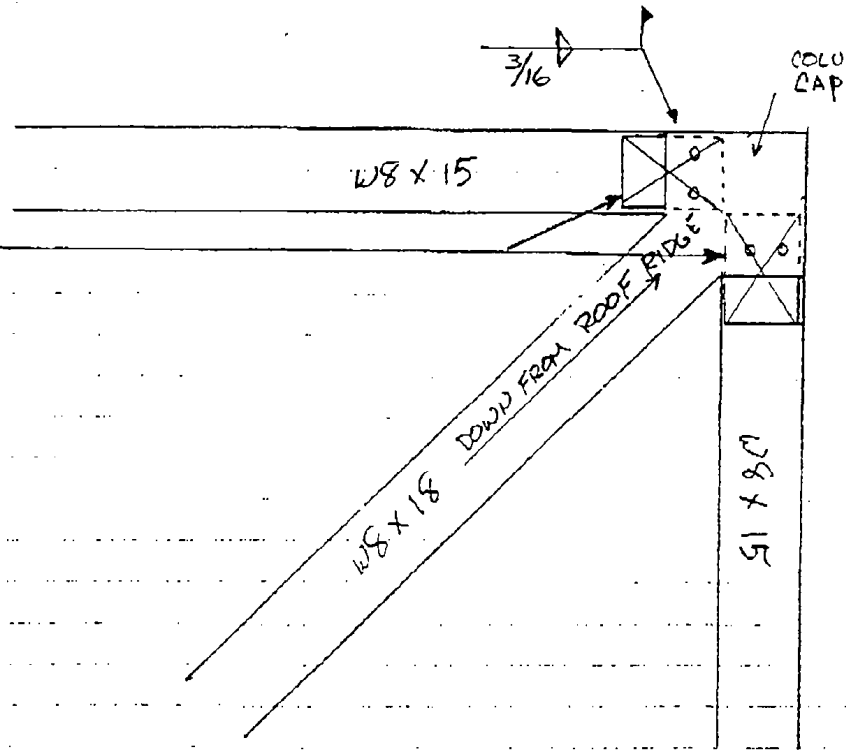
Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC

PROPOSED HIP ROOF CONNECTIONS FOR COLUMNS:
A-1, I-1 & I-4

2/6"x5"x 1/2" SHIM
PLATES TO BE WELDED
TO TOP OF W8X15 &
BOTTOM OF BASE PLATE
OF W8X18.



NOTES:

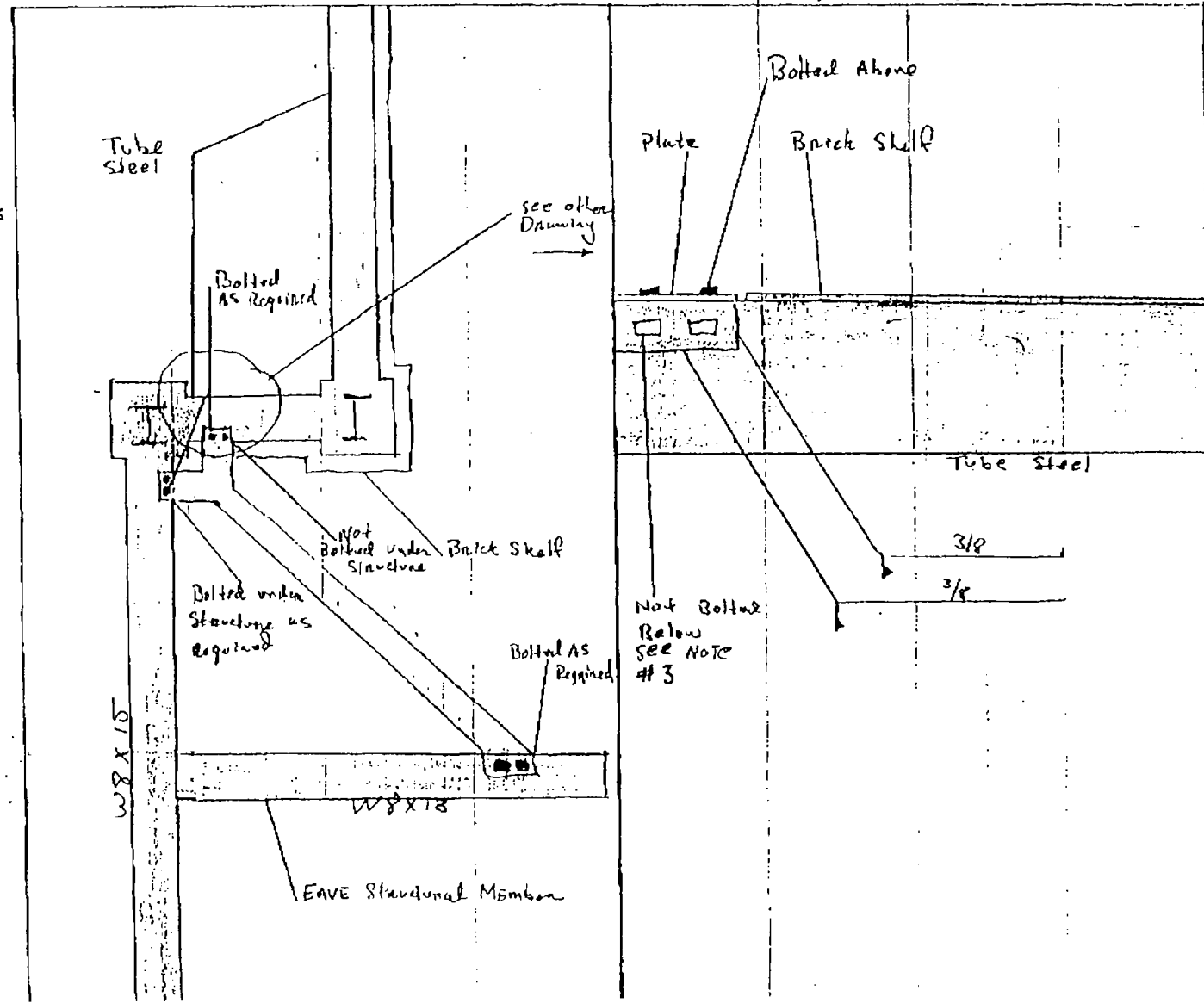
- 1 TYPICAL FOR ALL CONNECTIONS AT INTERSECTIONS OF LINES A-1, I-1 & I-4
- 2 NOT TO SCALE

MS
FOR
OWNER
BRAC

Overhead View Section 4-4.1/B

Sectional of welding to tube steel

AS BUILTS FOR EAVE OVERHANG CROSS BRACING



- NOTES
- ① not to scale
 - ② All other corner MADE IN around with Shop Draw
 - ③ Cannot Bolt from Below because Bracket Skirt is

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 7/11/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Please review the attached RFI from City Lights, and provide clarification on the color coding of conductors at your earliest convenience.

RESPONSE: by Stone & Webster (7/13/00)

1. Color Coding of Conductors (City Lights RFI-024)

- a. The color coding to be used for the project shall be as specified in Section 16040 paragraphs 3.01, L.1 and L.2.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 7/17/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Per conversations on July 14, 2000, please confirm that the diagonal bracing for the pedestrian ramp roof at the storage area, as shown on Contract Drawing S-112, "Plan - Top Chord" detail, can be constructed out of TS6x4, instead of TS4x4 per the Contract Drawings (this is as shown on IMS fabrication/shop drawing 95A).

RESPONSE: by Stone & Webster 7/17/00

1. Confirming discussions by Bill Palmieri (S&W) with Chris Sprague (IMS) and Laura Robinson (TMC) on 7/14/00, the substitution (as requested by IMS for fabrication reasons) of TS4x6x3/16 in place of TS4x4x3/8 diagonal bracing shown on drawing S-112 "Plan - Top Chord" is acceptable to S&W.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Chris Sprague, Bayshore Detailing

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 7/17/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Contract Drawing P-3, Electric Hot Water Heater Detail Note 2 identifies that the sheet metal drip pan under each hot water heater drains to the nearest floor drain. Please clarify:

1. In the second floor toilet room (Drawing P-2), there is no floor drain. Please identify how the drip pan should be drained.
2. In the Janitor's Room (Drawing P-2) can the drip pan be drained to the slop sink?
3. In the Men's and Women's Toilet Rooms on the first floor (Drawing P-2), should the drip pan be drained to the floor drains? The floor drains are in the middle of each room.

RESPONSE: by Stone & Webster (N.Cook) 7/19/00

1. Install trap on drip pan and connect drain to the 3" sanitary vent.
2. Yes, drip pan can be drained to the slop sink.
3. Run drain to Janitor's Room slop sink.

As an alternative, items 2 and 3 can be run down the wall in the Janitor's Room and terminated 3 or 4 inches above the finished floor, as close as possible to the floor drain.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc:
Rick Noblet, TMC
Joe Phinney, TMC
Steve Farrell, Ferris & Mahoney

REQUEST FOR INFORMATION**TITLE:** [REDACTED]**DATE:** 7/20/00 [REDACTED]**PROJECT:** Woburn Regional Transp. Ctr**CONTRACT NO:** Massport 1.727**TO:** Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008**REQUESTED BY:** Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383**REQUEST:**

Contract Drawing L2 Detail 6 identifies that stainless steel dowels are to be installed at concrete sidewalk joints. It is the Middlesex Corporation's understanding that as long as subgrade is compacted adequately, the dowels can be eliminated. The Middlesex Corporation will offer a credit of \$7000 to eliminate the dowels. Prefomed joint filler, backer rod, and pourable sealant will still be installed per the Detail. Is this acceptable?

RESPONSE: by Stone & Webster 7/24/00

Stone & Webster has reviewed the request to eliminate stainless steel dowels from the concrete sidewalk expansion joints (as shown on Drawing L2 Detail 6), and from a technical standpoint, concurs that the dowels can be eliminated where the subgrade is sufficiently compacted to preclude differential settlement across the joint. It is understood that preformed joint filler, backer rod and pourable sealant will be installed in expansion joints as indicated on the Detail.

However, we believe that if the stainless steel dowels are eliminated, the amount of credit due should be in excess of \$7,000.

cc:
Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA**cc:**
Rick Noblet, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 7/31/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Please review the attached RFI's from City Lights Electric, and provide the following:

1. Information on police automatic ring down telephones on platform.
2. Number of conduits from the signal junction box to the canopy.

RESPONSE: by Stone & Webster (G. Seibert) 8-1-00

1. Police Automatic Ring Down Telephones (City Lights RFI-025)

Police automatic ring down telephones TELR-1 and TELR-2 shown on drawing E-7 are for use by the train crew, and are intended to ring the Cobble Hill Commuter Rail Center. City Lights is to install conduit and telephone cable and telephone jacks at locations indicated on the plans. The PBX switchboard with automatic ringdown features will be provided by the Property Manager. Also, the telephone instruments will be furnished by the Property Manager. City Lights should install a locking weatherproof enclosure for the installation of the telephone instrument and jack at each of the two locations.

2. 1 inch conduits installed in light poles and false down spouts (City Lights RFI-026)

City Lights should review their requirements for cables to be installed in each false drain, and to determine the best way to feed lighting, communications, and signs under canopies. (Note: S&W had previously allowed the use of flex in these false drains.)

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: ~~Rick Nobles, TMC~~
Joe Phinney, TMC
Lisa Fera, City Lights

Request for Information

City Lights Electrical Co., Inc.
Woburn Regional Transportation Center
M/PA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA

RFI #: 026
Required By: 8/8/00
Printed on: 7/25/00

Request for Information #: 026

Date: 7/25/00

Submitted To	Submitted By
Rick Noblet Middlesex Corporation 30 Atlantic Avenue Woburn MA	Lisa Fera City Lights Electrical Co., Inc. Five Woodworth Street Boston MA 02122

Subject	Discipline	Co-Author	Copies To
1 inch Conduits installed in Light poles and False Down Spouts			

Cost Impact	Schedule Impact	Drawing Impact

Information Requested **Date Required: 8/8/00**

There seems to be a conflict between Note 5 on dwg. E-14 and the details shown on dwg. E-16.

Note 5 indicates there are 2-1 inch conduits from the signal JB and 4-1 inch from the electric JB up the to the canopy wire ways.

Dwg. E-16 details and plan views indicate 1- 1 inch conduit from the signal JB and 1 from the electric JB to the canopy.

Please advise what is required, however, the false down spouts are not large enough to install 6- 1 inch conduits.

Response

City Lights should review their requirements for cables to be installed in each false drain and to determine the best way to feed lighting, communications, and signs under canopies. Note S&W has previously allowed the use of flex in these false drains.

Answered By: George Seibert Date Answered: 8/1/2000

Request for Information

City Lights Electrical Co., Inc.
 Woburn Regional Transportation Center
 MPA Project No. 1.727 Job. No. 00-14
 30 Atlantic Avenue
 Woburn, MA

RFI #: 025
 Required By: 8/ 8/00
 Printed on: 7/25/00

Request for Information #: 025 Date: 7/25/00

Submitted To	Submitted By
Rick Noblet Middlesex Corporation 30 Atlantic Avenue Woburn MA	Lisa Fera City Lights Electrical Co., Inc. Five Woodworth Street Boston MA 02122

Subject	Discipline	Co-Author	Copies To
Police Automatic Ring Down Telephones			

Cost Impact	Schedule Impact	Drawing Impact

Information Requested	Date Required: 8/ 8/00
<p>Drawing E-7 shows 2 police automatic ring down telephones (TELR-1 and 2), however there is no specification for these telephones or the intent of operation.</p> <p>Are these phones to be used by employees or passengers? Where are the lines tied to, the security/comm. room or the Woburn police</p> <p>Please advise.</p>	

Response
<p>These automatic ringdown telephones are for use by the train crew and are intended to ring the Cobble Hill Commuter rail center. City Lights is to install conduit and telephone cable and telephone jacks at locations indicated on the plans. The PBX switchboard with automatic ringdown features will be provided by the Property Manager. Also, the telephone instruments will be furnished by the Property Manager. City Lights should install a locking weatherproof enclosure for the installation of the telephone instrument and jack at each of two locations.</p> <p>Answered By: <u>George Seibert</u> Date Answered: <u>8/1/2000</u></p>

REQUEST FOR INFORMATION

TITLE: [REDACTED] Repair Piping

DATE: 7/31/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Please review Ferris & Mahoney's letter attached (dated 7/28/00) regarding the responses to RFI046 and clarify the responses to items 1) and 3). Please note that Ferris & Mahoney is indicating that there will be additional cost associated with the solution they suggest.

RESPONSE: by Stone & Webster (N.Cook) 8-1-00

Question No. 1: Drainage for HW heater drip pan in second floor toilet room.

Ferris & Mahoney response:

"We are not allowed to tie the waste into a vent."

Stone & Webster reply: (As further elaboration of original S&W response.)

Install an open 1-1/2 inch or 2 inch "P" trap on the sanitary vent; then run the water heater pan drain to the open "P" trap (no direct connection to the sanitary vent).

Question No. 3: Drainage for HW heater drip pan in Men's/Women's toilet rooms.

Ferris & Mahoney response:

"... will require 14" of pitch (56' at 1/4") and the drain will be in conflict with ceiling heights."

Stone & Webster reply:

Pitch pan drain line as much as possible (it does not have to be pitched 1/4" per foot) to provide positive drainage. As long as the line is not trapped, it is acceptable.

(Note: The line is normally empty. If water heater or T&P relief valves do leak, they should be fixed promptly anyway.)

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC
Steve Farrell, Ferris & Mahoney

FERRIS & MAHONEY CO., INC.

Plumbing and Gas Piping Contractors

TEL 617-325-1260

FAX 617-327-5811

73 MT. CALVARY RD. ROSLINDALE, MASS. 02131

July 28, 2000

Middlesex Corporation
Field Office Job 405
30A Atlantic Avenue
Woburn, Ma. 01801

Re: Reference to RFI # 046

Attn: Ms. Laura Robinson

Ms Robinson:

Listed below are response to RFI # 046.

1. The response to question # 1 is inappropriate. We are not allowed to tie the waste into a vent. We are governed by the Massachusetts State Plumbing Code.
2. This response is fine.
3. This response is a problem, it will require 14" of pitch (56' at 1/4") and the drain will be in conflict with ceiling heights.

As an alternate method of draining the "safe" pans for # 1 & 3, I submit the following for your approval:

Cut into the existing waste and vent system and install a new stand pipe to receive overflow and also install a trap primer to maintain liquid levels in the trap. The approximate added cost of \$ 742.00 per unit.

If you have other question please contact me at this office.

Sincerely;

FERRIS & MAHONEY COMPANY, INC.



Stephen F. Farrell

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 8/2/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

During survey layout for ROW platform construction, a 2-inch difference was noted between the centerline of Pedestrian Bridge #1 relative to the Station Building and relative to the ROW Baseline. The platform was laid out to tie into the Building. However, the Type 6 and 7 foundations for Pedestrian Bridge #2 and Stair 2B were already constructed before the 2-inch difference was identified, and the anchor bolts are 2-inches South of where they should be. To correct this difference, we propose that the column supports at the referenced foundations be offset on the base plates, 2 inches to the North. Please see attached sketches for the specific base plate and column dimensions. Is this solution acceptable?

RESPONSE: by Stone & Webster (W.Palmieri) 8-4-00

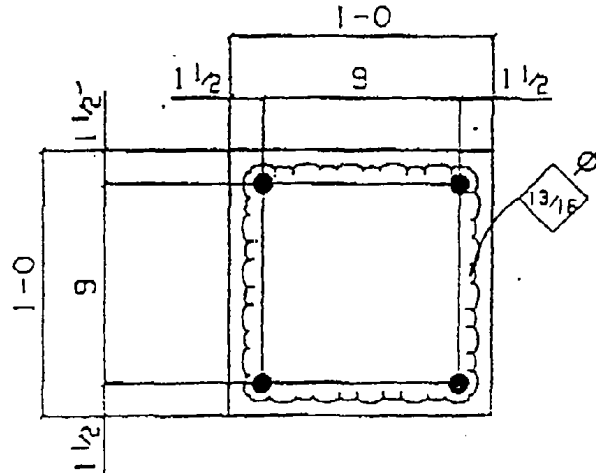
TMC's proposal for correcting the 2-inch layout discrepancy at foundations for Pedestrian Bridge #2 and Stair 2B, is to offset columns 183C1, 184C1, 157C4 and 158C4 by 2-inches to the north on their respective base plates as shown on the attached TMC sketches (with corrections by S&W as noted on the sketches).

Although this solution will allow anchor bolts that have already been cast-in to be used and leveling plates and base plates to remain concentric with the supporting piers, the columns being offset will introduce eccentricity onto both the base plates and reinforced concrete piers. However, our review of the design indicates that the structures are adequate to accept the eccentricities. ~~Therefore, S&W will allow the column offsets to be made in~~ accordance with the TMC proposal, as corrected by S&W on the attached marked-up sketches.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

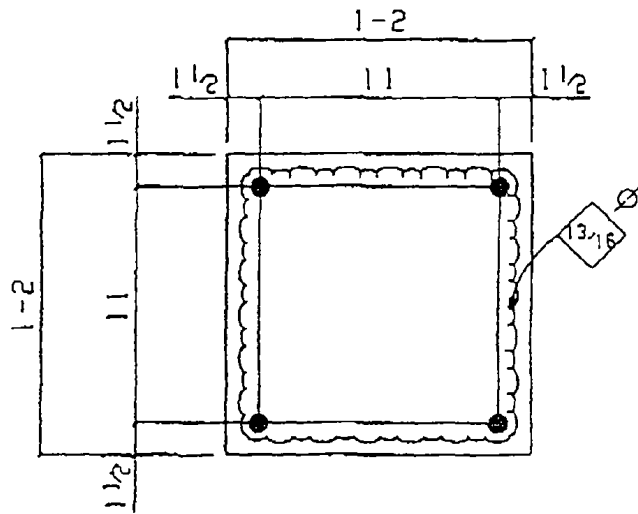
cc: ~~Rick Noblet, TMC~~
Joe Phinney, TMC
Chris Sprague, Bayshore

3/4



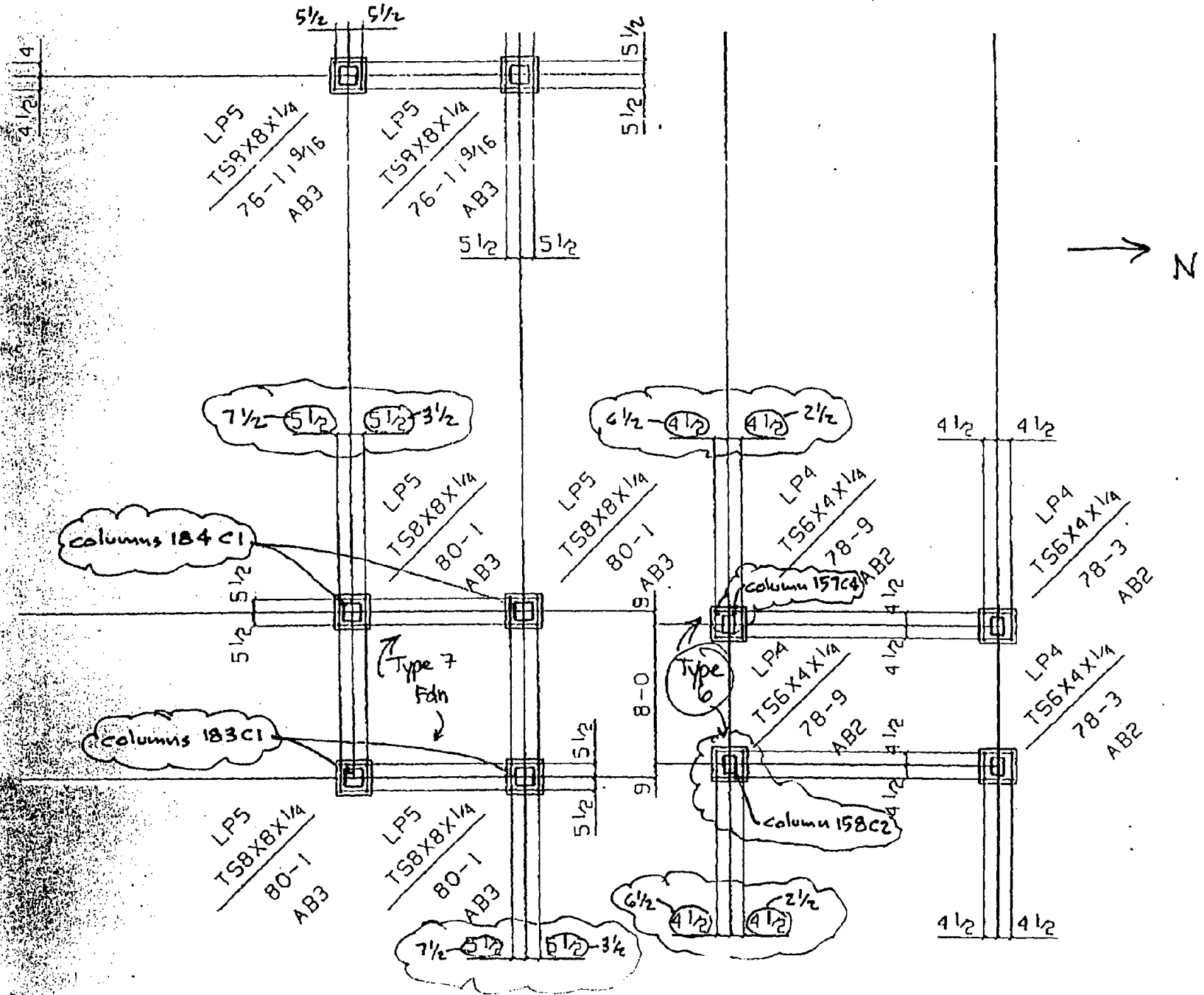
Type G Fdn
 12 PL 1/4 x 12 x 1-0 LP4

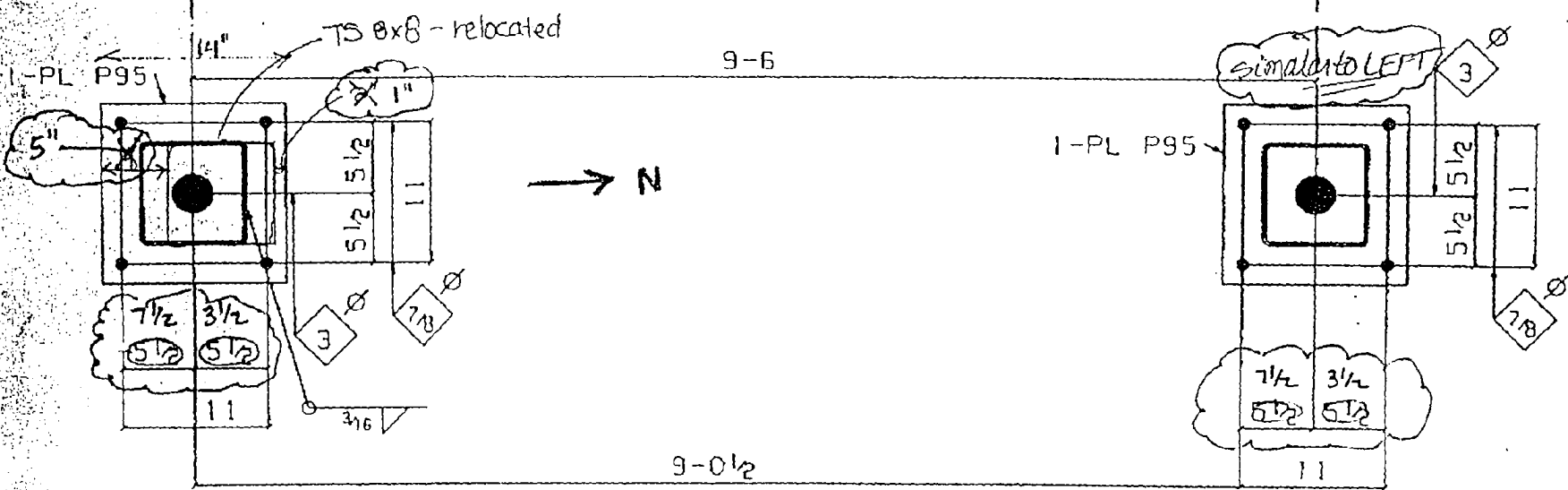
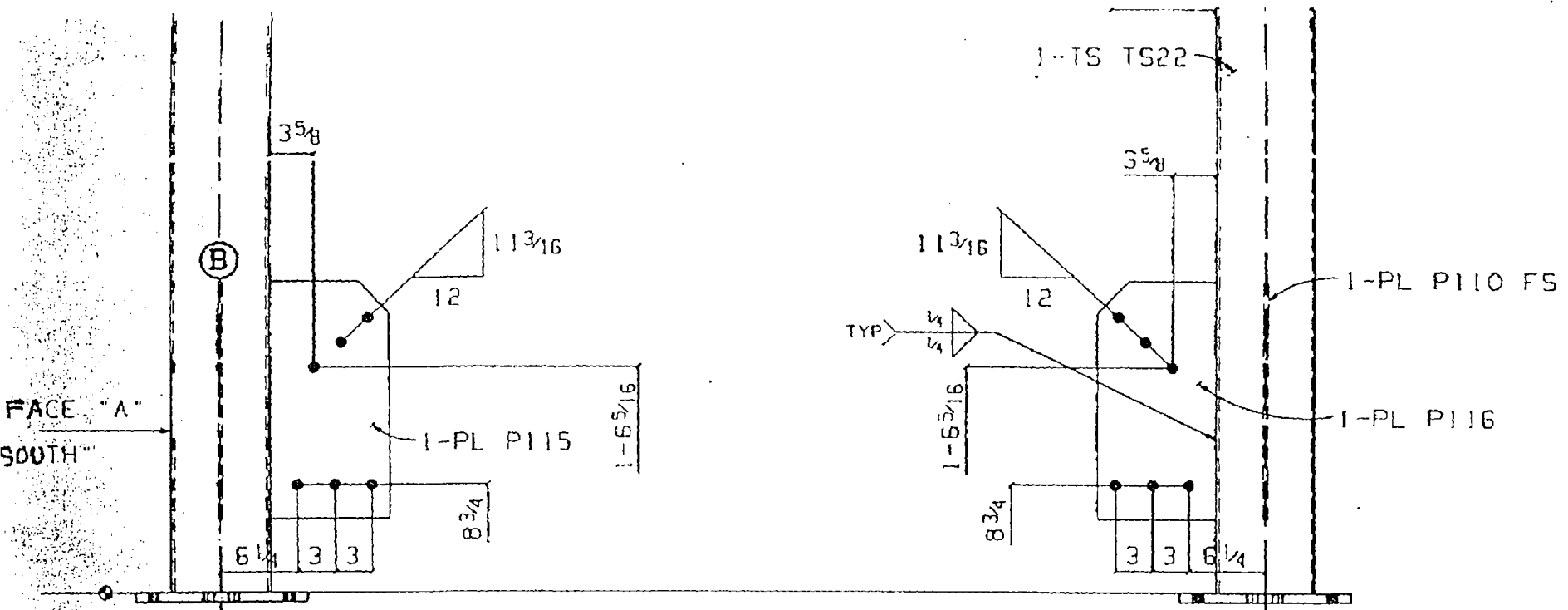
GRADE: A36



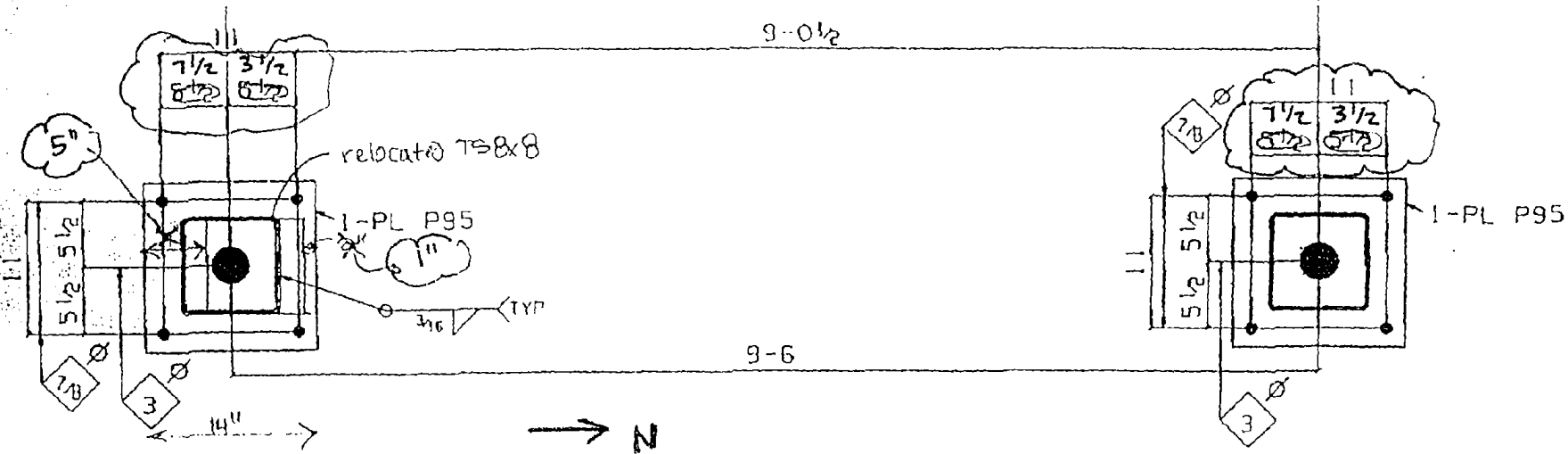
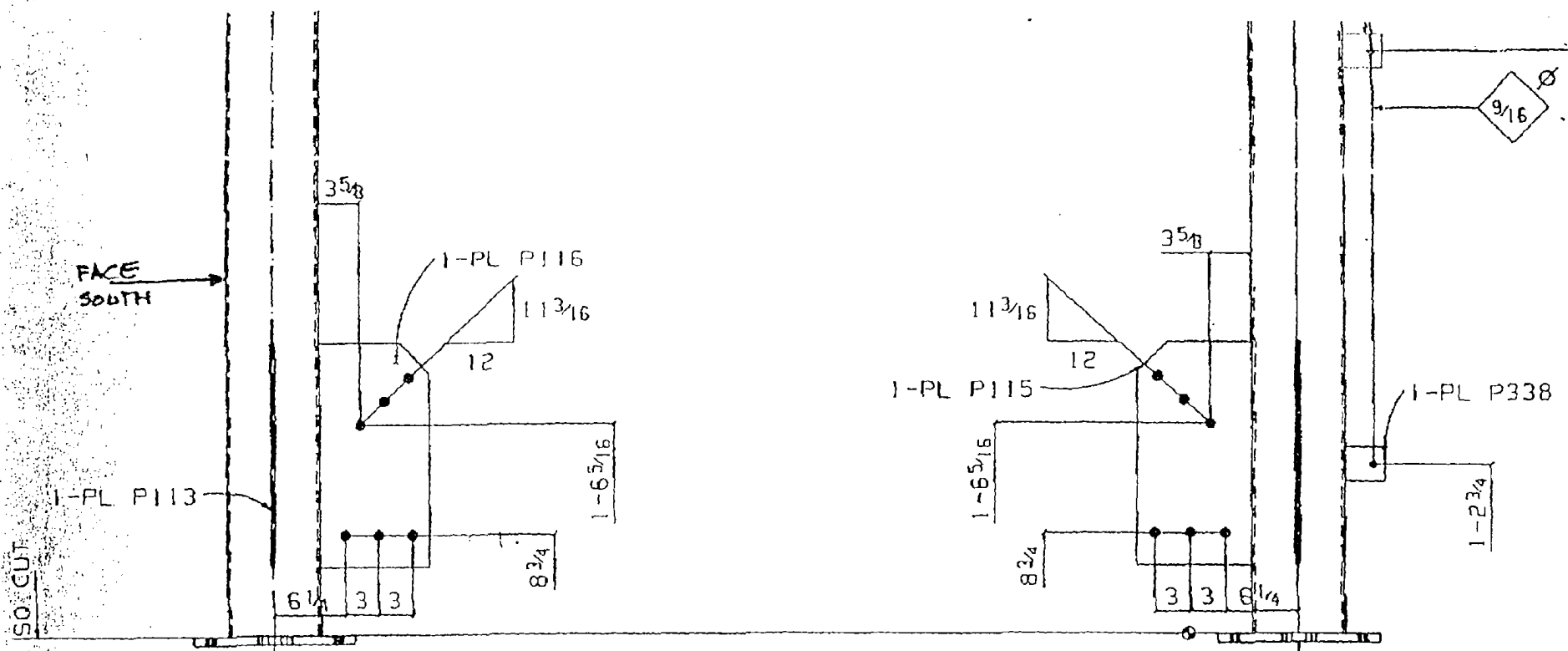
Type F Fdn
 8 PL 1/4 x 14 x 1-2 LP5

GRADE: A36





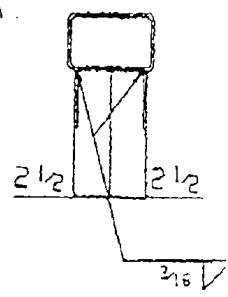
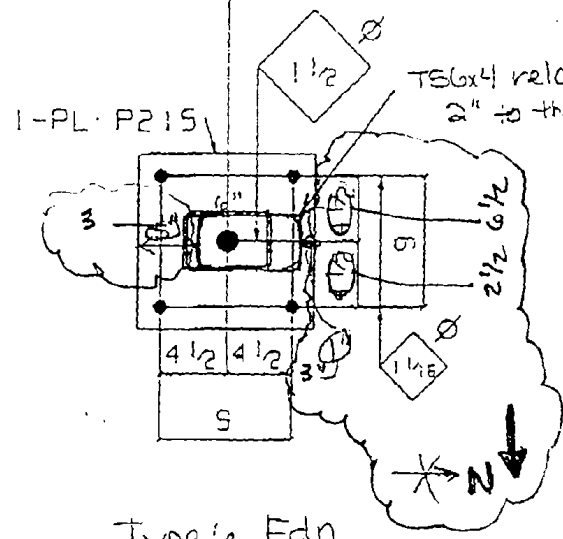
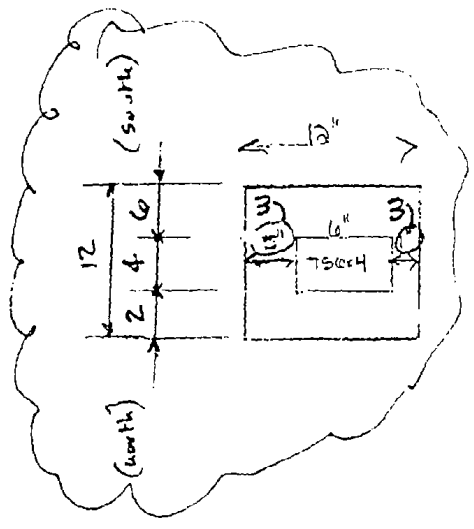
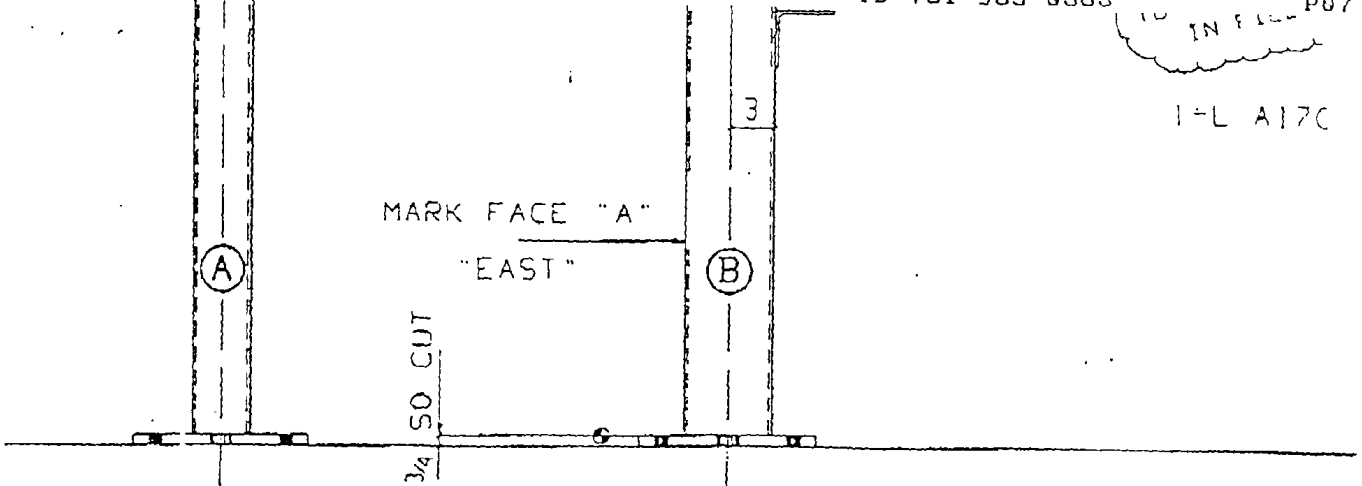
Type 7 Foundation
ONE COLUMN 18301



→ N
 Type 7 Foundation
 ONE COLUMN 19401

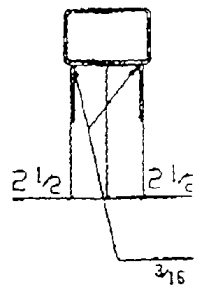
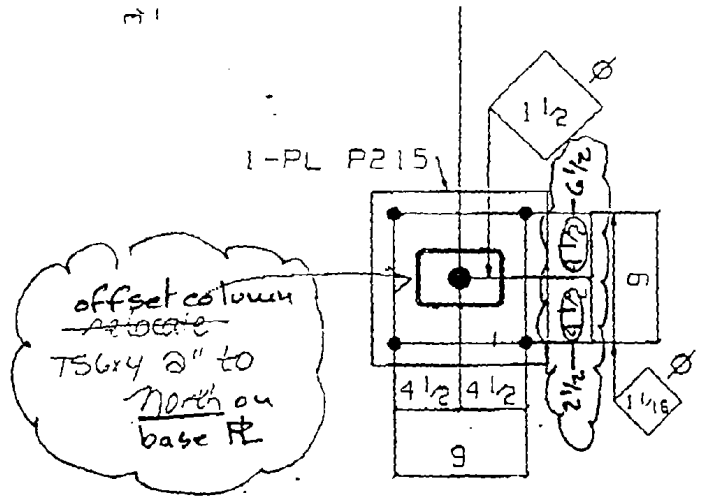
IN FILE P07

1-L A17C



Section A-

Type 6 Fdn
ONE COLUMN 158C2



Section A

Type 6 Fdn
ONE COLUMN 157C4

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 8/2/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
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REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Detail 6 on Drawing L-2 identifies that backer rod and a pourable sealant are placed at the surface for all concrete sidewalk joints. The Middlesex Corporation proposes that the 1/2-inch G-Seal PVC joint seal be installed in place of the backer rod and pourable sealant. Attached is product literature from Greenstreak, the manufacturer of G-Seal. Is this an acceptable alternate?

RESPONSE: by Stone & Webster (W.Palmieri) and Brown & Rowe (A.Richardson) 8-9-00

TMC proposes to substitute a modified PVC (polyvinyl chloride) joint seal strip (1/2-inch G-Seal type 624, as manufactured by Greenstreak, Inc.) to be installed in concrete sidewalk expansion joints in place of backer rod with pourable sealant as shown on Drawing L-2 Detail 6.

S&W and B&R have reviewed the product data and sample of Greenstreak G-Seal joint seal strip that were submitted with the proposal, and finds the product to be acceptable for use in concrete sidewalk expansion joints as a substitute for backer rod and pourable sealant that is shown on Drawing L2, Detail 6. It is understood that sidewalk expansion joints will continue to use preformed joint filler, in a manner consistent with installation procedures required for the joint seal strip.

Please make formal submittal of product data and samples for formal approval and record distribution.

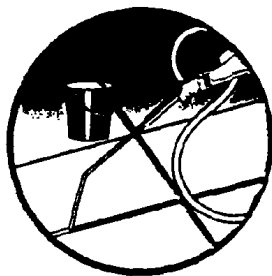
cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Nable, TMC
Joe Phinney, TMC

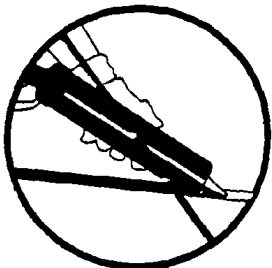
G-SEAL

BY GREENSTREAK PATENT NO. 5,375,386

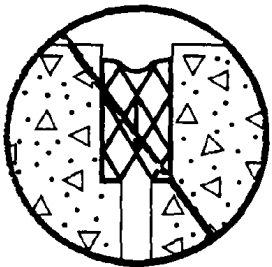
SAY "NO"
to
**traditional
joint sealing
products**



Hot Poured

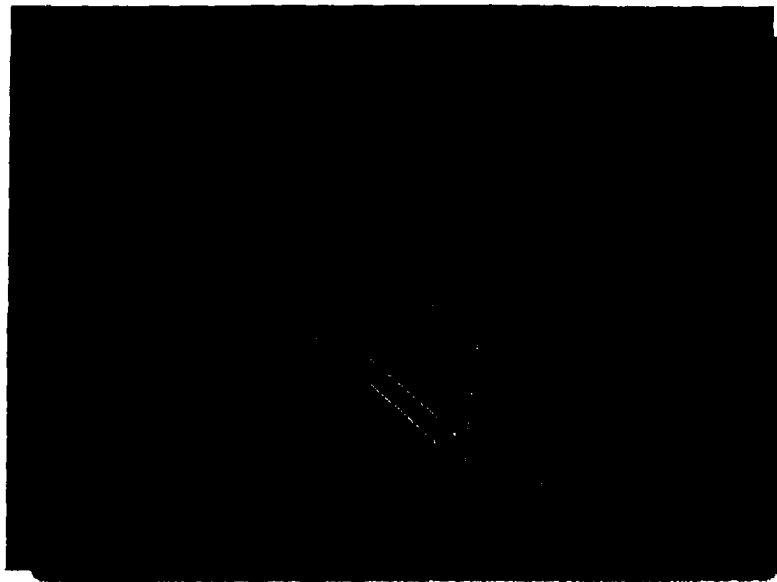


Cold Poured

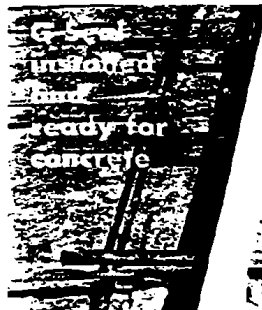


**Compression
Seal**

**And say "YES" to G-SEAL
wherever you place concrete**



- Cost effective alternative to joint sealants
- Maintenance free, long lasting joint seal
- Accommodates joint movement without failure
- Installs easily at any temperature or climate



3400 Tree Court Industrial Blvd. St. Louis, MO 63122

Phone (800) 325-9504 or (314) 225-9400

Fax (800) 551-5145 or (314) 225-2049

Web Site www.greenstreak.com • E-mail info@greenstreak.com

GREENSTREAK

G-SEAL

BY GREENSTREAK PATENT NO. 5,375,386

COST BENEFITS

- Requires no mobilization
- Installation schedule is predictable
- Requires no return visit after concrete finishing
- Competitively priced with traditional joint sealing products
- Durability reduces maintenance cost

DURABILITY AND APPEARANCE

- Acts similar to a waterstop
- Will not work free from joint
- Formulated for resistance to normally encountered fuels and chemicals (consult Greenstreak for special formulations)
- Excellent abrasion resistance
- Available in a variety of colors for decorative concrete

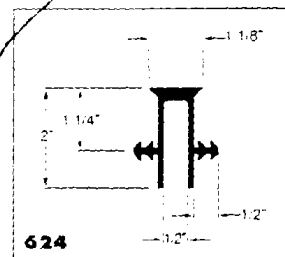
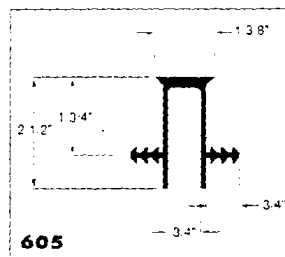
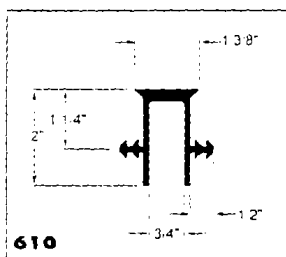
PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	REQUIREMENTS	TYPICAL PROPERTIES OF G-SEAL
Tensile Strength	ASTM D412-92	2350 psi	2470 psi
Elongation	ASTM D412-92	375% min.	410%
Hardness	ASTM D2240-95	81 +/- 3 Shore A	81 Shore A
Oil Swell ASTM#3 Oil, 70 hrs. @ 212°F Change in Volume/Weight	ASTM D471-95	+/-3 % by volume +/-1.5% by weight	1.74% by volume -10.1 by weight
Abrasion Resistance (10 500 cycles, 1000 gram load)	ASTM D3884	Material loss - 0.35 gms. max	Material loss - 0.26 gms.
Ozone Resistance (20% strain, 300pphm, 70 hrs @ 104°F)	ASTM D518-91	No Cracking	No Cracking
Adhesive Bond Strength	ASTM D412-92	1000 psi min.	1098 psi
Results after Heat Aging (24hrs. @ 70°C)	ASTM D573	Tensile Strength Retained - 90% Elongation Retained - 90% Hardness change in points +/- 3	Tensile Strength Retained - 99% Elongation Retained 98% Hardness change in points 0

G-SEAL

PRODUCT PROFILES

(NOMINAL DIMENSIONS)



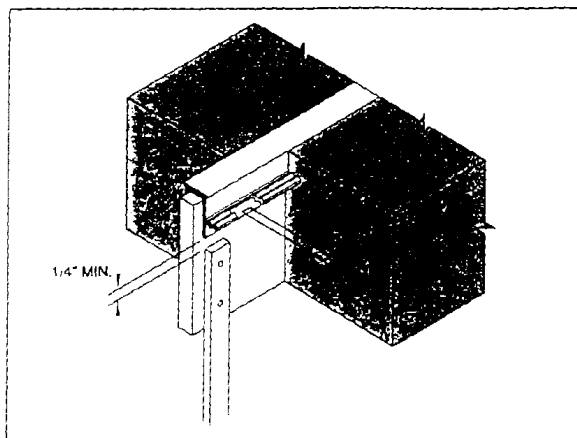
CALL GREENSTREAK'S TECHNICAL SERVICE DEPARTMENT FOR ASSISTANCE WITH MATERIAL

G-SEAL

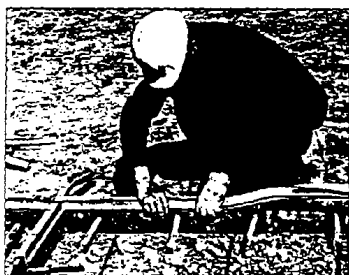
By GREENSTREAK PATENT NO. 5,675,386

INSTALLATION BENEFITS

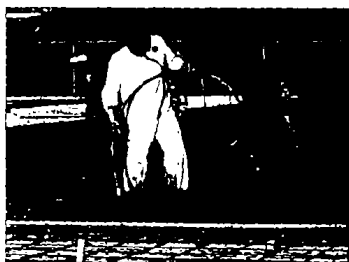
- Creates an aesthetically pleasing concrete joint
- Compatible with all types of expansion boards
- Requires no special tools or equipment
- Installs easily prior to placement of concrete
- Allows for uninterrupted concrete placement
- Requires no tooling of joint
- Installs at any temperature and climatic condition
- Factory fabrications simplify intersections and transitions
- Offers flexibility for radius joint positioning
- Installs safely and is non-toxic
- Creates maintenance free, long lasting joint seal



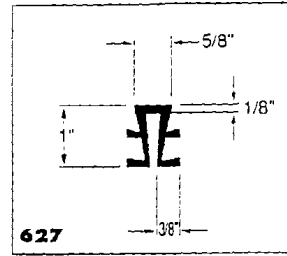
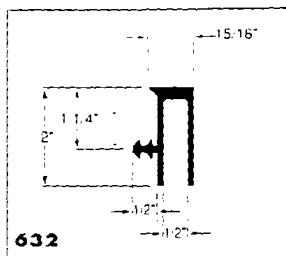
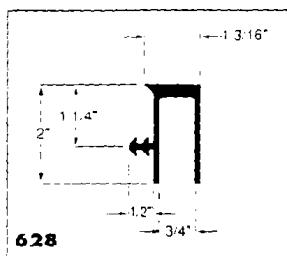
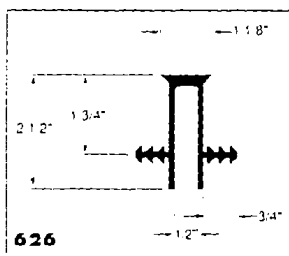
INSTALLATION



- Leave a 1/4" minimum clearance from the top of the stake to the bottom edge of **G-SEAL**.
- Place **G-SEAL** over the expansion board and secure with staples or nails along the lower flange.
- Place concrete using normal practices and screed evenly with the top of **G-SEAL**.
- Bullfloat concrete using normal practices.



- Apply **G-SEAL ADHESIVE** when making straight splices.
- Install Factory Fabricated **G-SEAL** Ells, Tees and Crosses at intersections and transitions.
- Install **G-SEAL RETRO-FIT** in areas with existing concrete.
- Install **G-SEAL SCREED CAP** over metal screed in longitudinal joints.



TYPE AND DESIGN SELECTION (800) 325-9504

GREENSTREAK®

G-SEAL

© GREENSTREAK PATENT NO. 5,375,386

PACKAGING

All G-SEAL profiles are manufactured in standard lengths of 10 feet. Consult Greenstreak for applications requiring special lengths.

SPECIFICATION

1) MATERIALS

- A. Provide flexible, modified PVC (polyvinyl chloride) "G-SEAL" as manufactured by Greenstreak, profile style number (fill in profile style number).
- B. The modified PVC paving cap seal shall be extruded from an elastomeric plastic material of which the basic resins are prime virgin materials. The compound shall not contain any scrapped or reclaimed material whatsoever.
- C. Performance Requirements shall follow those listed in the table on page two of this product catalog.
- D. The specific profile style chosen shall weigh a minimum of 0.50 pounds per lineal foot.
- E. The profile shall have a minimum of two fins on the embedded legs for the purpose of anchorage and creating a waterstop.



2) ACCESSORIES

- A. Provide factory made fabrications for all changes of direction, intersections, and transitions leaving only straight butt joint splices for field assembly.
- B. Provide Greenstreak "G-SEAL" Adhesive for sealing of all butt splices.

3) INSTALLATION

- A. Field butt splices shall be sealed using Greenstreak G-SEAL Adhesive.
- B. G-SEAL shall be attached to expansion board prior to concrete placement, using staples or nails driven through bottom flange area of G-SEAL profile.

CALL GREENSTREAK FOR CSI FORMATTED MASTER SPECIFICATION ON DISK

LIMITED WARRANTY GREENSTREAK warrants to the Buyer that this product will be free of defects and will perform as represented, in so far as it is subject to the following (2) conditions: First, the application of the product and the complete construction practices used; and, secondly, the compliance with GREENSTREAK'S recommendations.

Second, the Buyer has selected the proper product for the job and application. Neither GREENSTREAK, its agents, nor its representatives, nor the selection of a particular **TRADE NAME** product. Product selection is the Buyer's responsibility and decision. The suitability of any material for a job and application, including field resistance is best determined by field testing for the application. GREENSTREAK urges the Buyer to conduct its own testing.

Any information supplied by GREENSTREAK with respect to its products is believed to be correct. GREENSTREAK makes no representations or warranties, express or implied, as to the accuracy or completeness of such information or the use of such information for a particular purpose. GREENSTREAK has not performed any tests. Any test data has been prepared by independent commercial laboratories.

Because GREENSTREAK has no control over either the application or the selection of its products, GREENSTREAK'S Limited Warranty is as follows:

The exclusive remedies of the Buyer and the limit of the liability of GREENSTREAK, from any and all losses or damages resulting from the use of this product (including claims based on contract, negligence, strict liability, or otherwise) shall be either the full refund of the purchase price to Buyer of this product or the replacement of the quantity of product purchased by the Buyer. At the election of GREENSTREAK, it in no event shall GREENSTREAK be liable for any and all consequential damages. The Buyer and all users of this product are deemed to have accepted the terms of this limited warranty, which may not be varied in any way by any verbal or written agreement.

GREENSTREAK, INC.

3400 Tree Court Industrial Blvd. St. Louis, MO 63122

Phone (800) 325-9504 or (314) 225-9400 Fax (800) 551-5145 or (314) 225-2049

Web Site www.greenstreak.com

E-mail info@greenstreak.com

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 8/4/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

The foundation walls on column lines 11, 12, & 13 (contract DWG. # S-100 & S-101) were cast with the protruding pedestals reinforcing bars in the wrong location. As a corrective measure, The Middlesex Corporation (TMC) proposes to:

1. Drill the replacement 8 - #5 bars of each pedestal into the top of the 30 inch wall. The drilled holes for the #5 bars will require a minimum development depth of 40 bar diameters or an equivalent measurement of 25 inches.
2. The drilled holes will be cleaned from residues and debris with air.
3. The replacement bars will be grouted into the corrected locations with an approved non-shrink grout and allow to set.
4. The incorrectly placed bars will be cut flush to the top of each wall.

RESPONSE: by Stone & Webster (W.Palmieri) 8-7-00

S&W understands that the dowels for platform column pier reinforcement are not properly located on platform foundation walls at column lines 11 thru 13 only. We have reviewed the method proposed by TMC to retro-fit installation of dowels into these platform foundation walls at the locations required for pier reinforcement.

S&W will allow new holes to be drilled into the foundation walls to accommodate installation of new dowels at the correct locations required for platform column piers. ~~Drilled holes shall be 1-1/2" diameter to receive #5 dowels,~~ holes cleaned with compressed air, and dowels grouted in place using an approved non-shrink grout. ~~Incorrectly placed bars shall be cut approximately 1" below the finish concrete surface and the cut patched flush with non-shrink grout.~~

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: ~~Rick Noblet, TMC~~
Joe Phinney, TMC

REQUEST FOR INFORMATION

TITLE: [REDACTED] Surface Course

DATE: 8/2/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
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Fax: 617-589-1008

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REQUEST:

As a cost engineering saving value, TMC proposes to furnish "Massachusetts State Highway Department Surface Mix" as an approved alternate to the bid item 02513.460. The mix can be furnished at a reduced rate of \$1.00 per ton for an approximate \$9,250.00 saving to the owner.

RESPONSE: by Stone & Webster/FST (D.Bakker) 8-8-00

TMC proposes to substitute MHD Surface Mix for the bituminous concrete surface course design mix specified in project Specification Section 02513-2.04. TMC proposes to furnish and install this substitute mix for a total unit price of \$25.50 per ton (i.e. \$1.00 per ton less than the unit price of \$26.50 per ton included in the Contract for item 02513.460).

FST has reviewed the TMC proposal and finds it to be technically acceptable, and the reduction of unit cost to be reasonable for the substitution being proposed.

S&W therefore recommends that the TMC proposal be accepted, provided that the installed unit price is reduced from the Contract unit price to \$25.50 per ton as proposed.

cc: Chris Ambrose, Massport
Cyril Ezumazu, MBTA
Bill Bregoli, MBTA

cc: Rick Nobile, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION

RECEIVED
SEP 28 2000

TITLE:



Middlesex Corp Job 405
Woburn Regional Transp. Ctr. DATE: 9/18/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

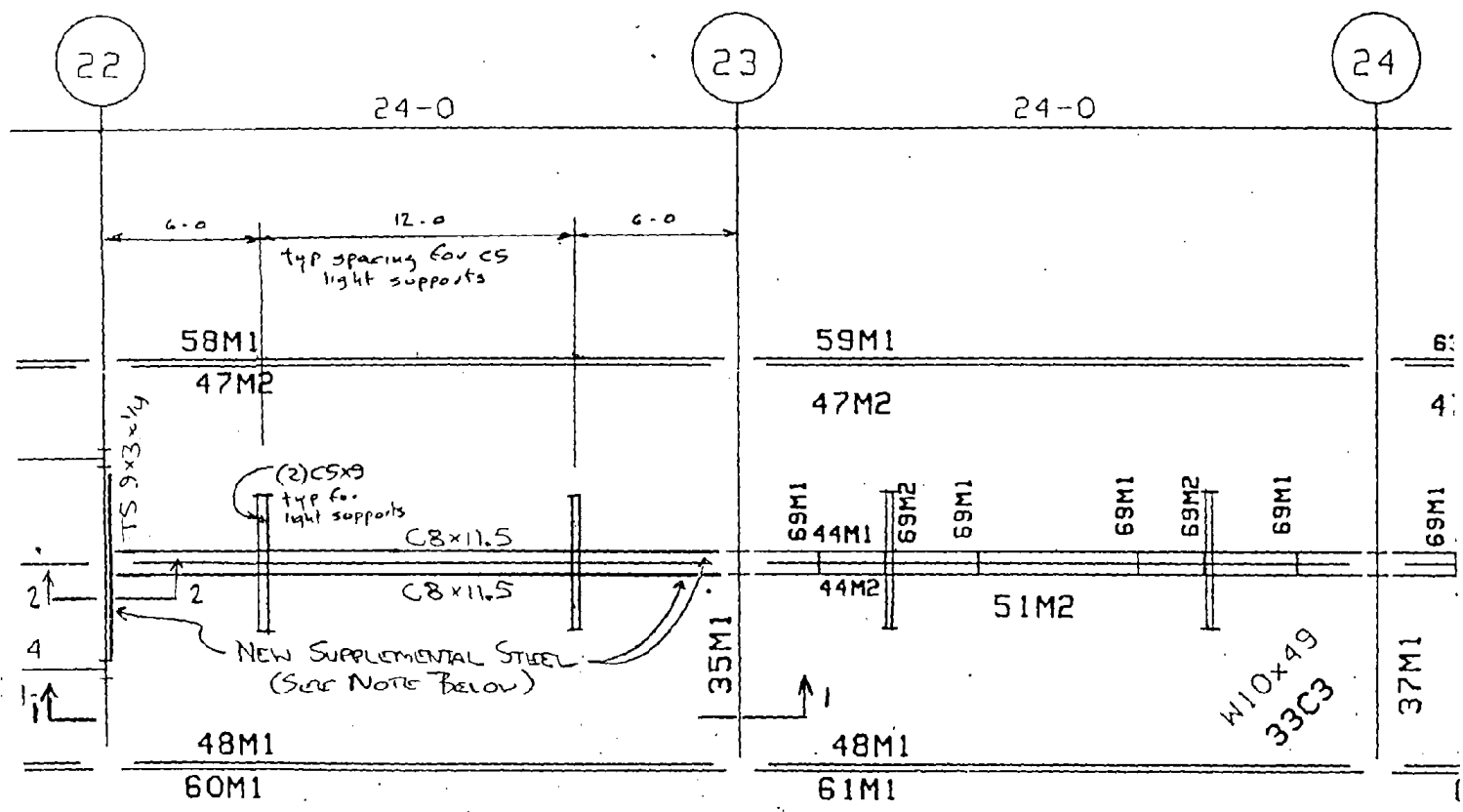
1. Attached are IMS Erection Drawings E5, E12, and E13. Contract Drawings E-7 and E-8 identify that lights and speakers are to be mounted between column lines 20-23 (Dwg E5) and in Stairs 1B and 2B (E12 and E13). Please provide sketches with details that can be utilized by both the steel fabricator and City Lights, identifying how the lights and speakers are mounted to the steel structure(s).
2. Attached is IMS Erection Drawing 106A, showing a pedestrian bridge roof truss; pedestrian ramps roof trusses have similar construction. City Lights has pointed out that there are three conduits that have to be run throughout the bridge and ramp roof trusses, to feed the lighting, speaker, and VMS systems. Each conduit needs support at approximately every 5 feet. Please identify where the conduit is to be run, and/or what supports it. Are additional members needed to support the conduit?

RESPONSE: by Stone & Webster (W.Palmieri) confirming discussions with L.Fera at site on 9/14/00

1. As discussed with City Lights in the field, supplementary steel shall be added in ramp bay 22-23 as shown on the attached sketches, which will allow support of lights and speakers to be similar to other typical canopy bays. Supplementary steel shall also be added at top chord level of stairs 1B and 2B (one-TS6x6x3/16 over each upper and lower run of each stair) for support of lights and speakers similar to support on the ramp. Lights and speakers in ramp bays 20-21 and 21-22 should be hung from the TS6x6 canopy ridge beam using braced Superstrut channels that are considered incidental to the installation.
2. As discussed with City Lights in the field, lights and speakers on the ramp and bridges can be surface mounted on the face of top chord framing members; conduits can be run along the centerline of the ramp or bridge, on top of the top chord framing. The ramp has top chord transverse members at 8'-0" o.c. which is acceptable for support of conduits. The bridges have top chord transverse members at 9'-6" and diagonals at the same elevation effectively reducing the conduit span to 4'-9" along the centerline of bridges. Any additional supports deemed necessary by City Lights will be considered incidental to the installation.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick [Redacted]
Joe Phinney, TMC
Lisa Fera, City Lights

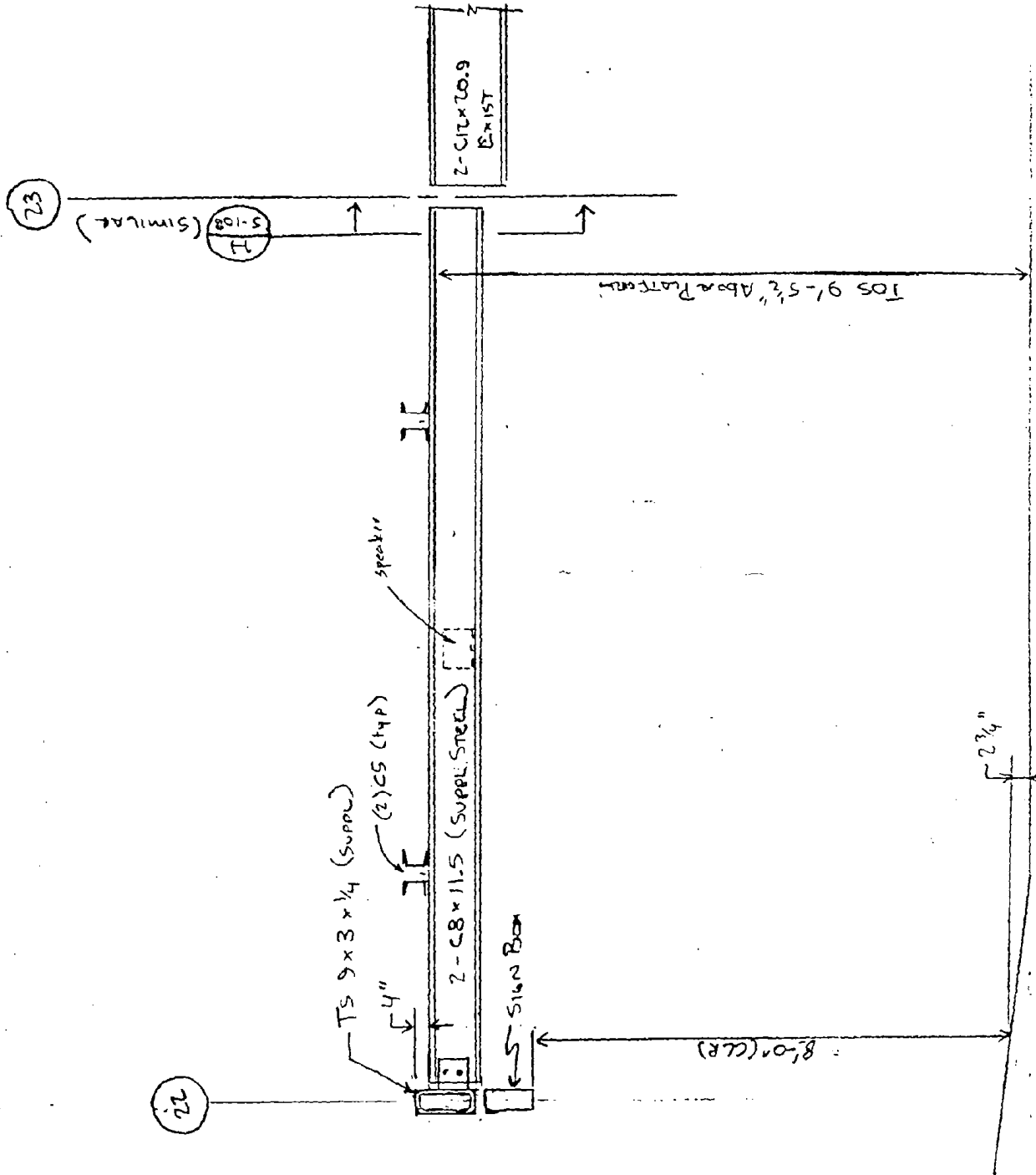


PLAN
N.T.S.

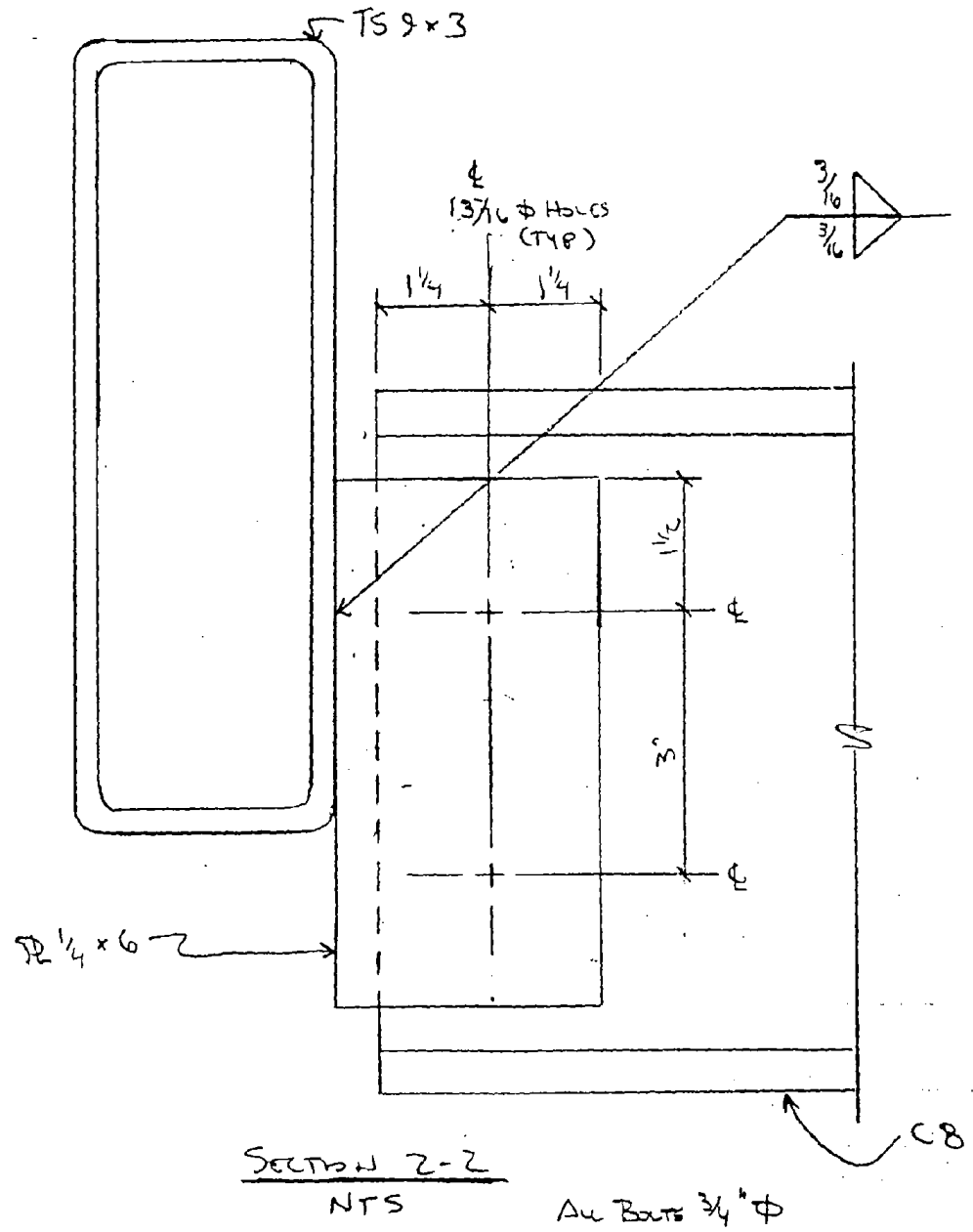
NOTES: 1 CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL MISC PLATES, SHARES AND BARS REQUIRED TO SUPPORT LIGHTS AND SPEAKERS IN A MANNER CONSISTENT WITH THE DETAILS FOR A TYPICAL PLATFORM BOX W/C/F FRAMING

DATE	REVISIONS BY	APPROVED	CHECKED	PREPARED	BY	DATE
				J.R.	J.R.	1/11/05
TITLE						
Supplemental Framing at Platform/Ramp Canopy						

CLIENT	MARCO/AMATA
PROJECT	MOBAMA ETC
J.O. NO.	06850165
ISSUED BY	WJP
DATE	1/3 SEPT 05
NUMBER	SK-RF1054-1



			TITLE					CLIENT Massport / MBTA	
			SECTION 1-1					PROJECT Woburn RTC	
PREPARED	BY	DATE	SUPPLEMENTAL FRAMING AT PLATFORM/RAMP CANOPY					J.O. NO. 0685065	
CHECKED								ISSUED BY WSP	
APPROVED								DATE 13 Sept 00	
REVISIONS BY	②	③						④	⑤	⑥	NUMBER
DATE						SK-RFI054-2			



			TITLE	SECTION 2-2			CLIENT MASSPORT/MBTA
	BY	DATE	SUPPLEMENTAL FRAMING AT PLAZA/RAMP CANOPY			PROJECT	WOBURN RTC
PREPARED	DEB	9/15/00				J.O. NO.	06850.65
CHECKED						ISSUED BY	WJP
APPROVED						DATE	13 Sept 00
REVISIONS BY	②		③	④	⑤	NUMBER	SIC-2F1054-3
DATE							

REQUEST FOR INFORMATION

TITLE: Lighting/Communications/Signage

DATE: 8/18/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

RECEIVED
SEP 28 2000

REQUEST:

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

On July 18, 2000 a meeting was held on-site to review questions/conflicts with platform construction lighting. At that meeting, we identified that as shown on Drawings GR-1, E-7, and E-8, there are conflicts at column lines 16 and 18 with signage, lighting, and communications.


- At Column line 16 west side, fiberglass sign location conflicts with speakers and lights.
- At Column line 16 east side, fiberglass sign location conflicts with lights.
- At Column line 18 west side, the VMS sign location conflicts with lights.
- At Column line 18 east side, the VMS sign location conflicts with lights and speakers.


While S&W's Meeting Minutes state that speakers can be mounted above light fixtures, the conflicts with the VMS signs and fiberglass signs are not resolved. Please clarify locations and mounting heights of these items.

RESPONSE: by Stone & Webster (W.Palmieri) confirming discussions at meeting held 7/18/00.

1. As discussed at the meeting on 7/18/00, mounting height for fiberglass and VMS signs on ramp columns is based on underside of support bracket being 9'-6" above finish floor of platform at face of column (top of W5 bracket being 9'-11" above finish floor), with 8" hanger length to top of frame for fiberglass sign or VMS boxes (reference drawing GR-2 Type F cantilever support). Frame for fiberglass sign is 12-3/4" deep, resulting in bottom of sign being 7'-9.25" above finish floor. VMS boxes are 7-5/8" high, resulting in bottom of VMS boxes being 8'-2.375" above finish floor.
2. As discussed at the meeting, lighting fixtures mounted on ramp columns should be mounted above the fiberglass and VMS signs, at a uniform height (approximately 12'-0") above finish floor of the platform.
3. As discussed at the meeting, speakers mounted on ramp columns should be mounted above the lighting fixtures, at a uniform height (approximately 16'-0") above finish floor of the platform.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA


Joe Phinney, TMC
Lisa Fera, City Lights

REQUEST FOR INFORMATION**TITLE:** Submittal 05100-018-000
[REDACTED]**DATE:** 8/18/00
*Answer***PROJECT:** Woburn Regional Transp. Ctr**CONTRACT NO:** Massport 1.727**TO:** Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008**REQUESTED BY:** Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383**REQUEST:**

Drawing E-10, E-11, 163 and 165 of the referenced submittal show Stairs 1A and 2A. Column spacing of 7'-0" and 8'-6" on the upper portion of the Stairs was designated to correspond with the Top Chord framing plan on S-118. The 7'0" and 8'6" dimensions were marked on the shop drawings to be 7'9" and 7'9". Can the 7'0" and 8'6" dimensions be adhered to for the column spacing?

RESPONSE: by Stone & Webster (G.E. Brown) 8/21/00 (confirming discussion on 8/17/00)

1. The spacing of columns on the upper portion of Stairs 1A and 2A may be at 7'-0" and 8'-6" (as shown on Drawing S-118 and the submitted stair framing shop drawings). The comments marked by S&W on the return of shop drawings, which indicated the dimensions to be two spaces at 7'-9" each, may be disregarded.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC
Chris Sprague, Bayshore

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 8/18/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

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SEP 28 2000

REQUEST:

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

Drawing S-119, Section 22-22, between column line 11/35 and 10/34 where the horizontal roof section of the canopy meets the angled roof section of the stairs, is an item labeled "Valley Plate". Please provide information on what this plate is. Do the roof canopies shown on submittal 05100-18-001 require these plates?

RESPONSE: by Stone & Webster (W. Palmieri) 9/22/00

1. Intent of the "valley plate" is to support the edges of preformed metal canopy roof panels at the intersection of different roof slopes. The plate is required for support unless the panel manufacturer (Morin) recommends otherwise. Details for valley closure, seals, flashing, necessary sub-framing members, etc., are the responsibility of Section 07400 (para. 1.02.C.2). TMC should co-ordinate support detail with manufacturer's requirements for valley closure.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC
Chris Sprague, Bayshore

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 8/18/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

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REQUEST:

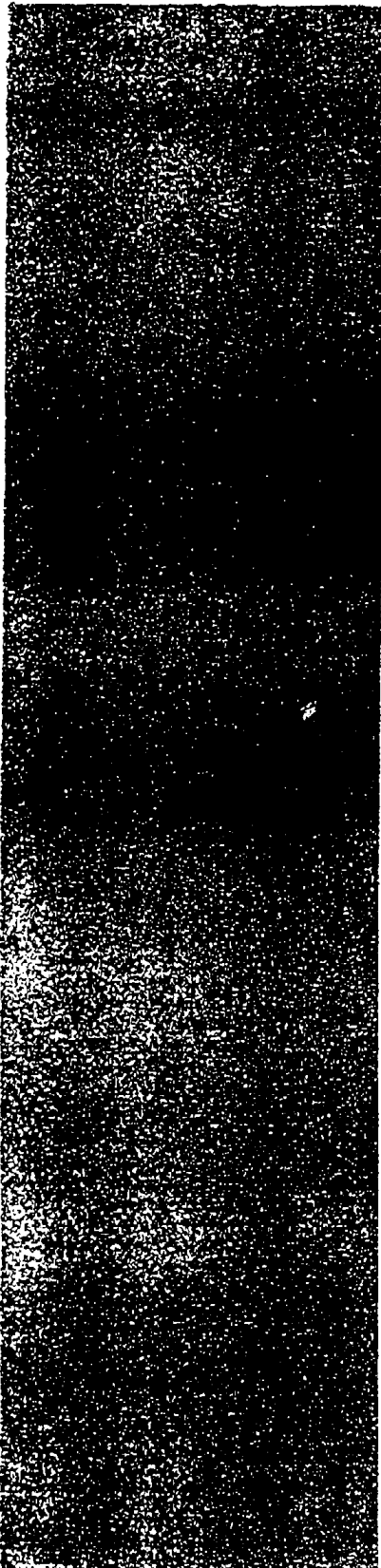
Many of the precast panels have been set at the proposed ROW platform; inconsistencies in precast production and alignment have resulted in panels that are not level after they're placed. Can Korolath [REDACTED] (1/8" and 1/4" shims) be used to adjust the panels to achieve a more uniform walking surface? Attached is a catalog cut from Korolath of New England.

RESPONSE: by Stone & Webster (W. Palmieri) 8/30/00

1. The use of Korolath multipolymer plastic shims as described in the attached product literature, will be acceptable for use in shimming precast concrete platform panels, to adjust the finished surface to the required profile.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: ~~Rick Nobles, MBTA~~
Joe Phinney, TMC



03250/KOR
BuyLine 0638

KOROLATH

KOROLATH OF NEW ENGLAND, INC.

16 KANE INDUSTRIAL DRIVE
HUDSON, MA 01749

(508) 562-7366
FAX 508-562-9618
Toll 1-800-225-9340

KOROLATH®

... the specially formulated plastic material for the construction industry

KOROLATH® is an engineered multipolymer plastic specifically formulated for use by the construction industry as a bearing material—strips, shims, spacers and accessories.

The use of KOROLATH benefits the contractors and owners because KOROLATH:

- Supports Progress.
- Supports excellence.
- Supports profits.
- Means faster erection and earlier occupancy.
- Eliminates expensive clean-ups and call-backs because it will not leach, stain or rust. It is waterproof!
- Gives permanent support — is not affected by alkali, ground chemicals, micro-organisms and rot.
- Has easier to use features — lightweight and multiple snap-off — mean less handling and lower inventories.
- Insures damage free installation.
- Allows for thermal motion without damage caused by fractures and spalling.
- Has high compressive strength — non-fibrous composition maintains uniform reliability.
- Is easy to put in place under any climatic conditions.

To Specify:

Plank will be set on "KOROLATH" plastic bearing strips manufactured by KOROLATH CORPORATION, Hudson, Massachusetts. Structural and architectural members will be levelled before grouting with "KOROLATH" plastic shims and before grout and post tensioning with "KOROLATH" Shimpaks. Vertical alignment of architectural members will be with "KOROLATH" "Horseshoe" spacers.

Hollow Core holes will be blocked off for exact depth inches of grout fill with "KOROLATH" plastic core plugs.

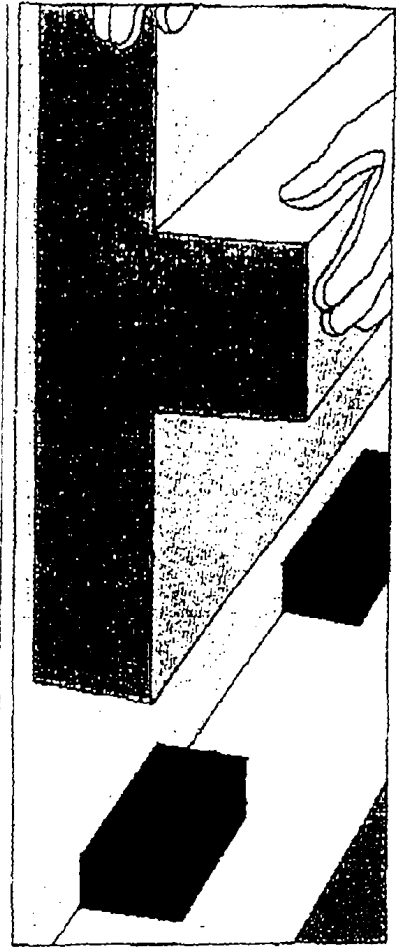
★ Trade Mark Registered/Patent Pending



BEARING STRIPS — KOROLATH®

- Designed for use with pre-stressed concrete plank between the plank and any surface such as poured or precast concrete steel or masonry.
- Absorbs projecting aggregate stress preventing plank or sill damage without effect on the load bearing characteristics of KOROLATH.
- Allows faster erection because of easier positioning.
- Non-slip surface insures positive placement.
- Permits thermal motion and joint rotation without an elastomeric layer.

Thicknesses of 1/4" and 3/8" in stock. Lengths of 40" and 48" in stock. Widths of 24", scored at 2" or 3" intervals for easy snap off and flexibility in use. Alternate sizes or scorings available on request.

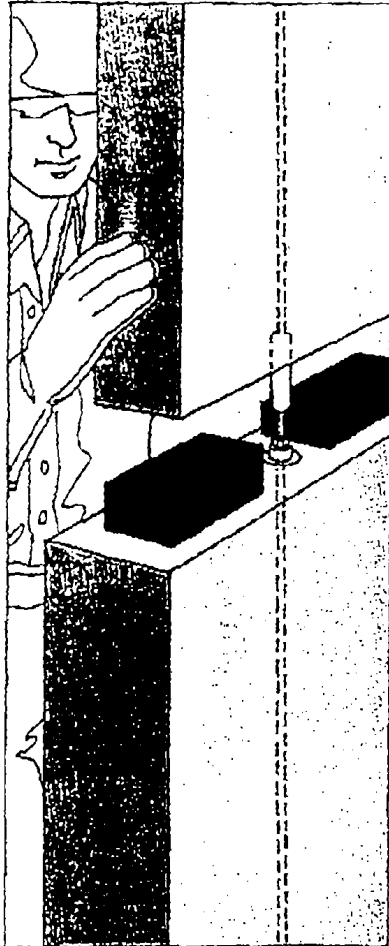


SHIM STRIPS — KOROLATH®

- Insure accurate placing and leveling of precast panels, tilt slab and other architectural and structural components because KOROLATH:
 - Is made in convenient thicknesses, lengths and widths allowing precise levelling and alignment.
 - Permits field changes in load bearing requirements with stock on hand.
 - Is less expensive and safer than steel. It has extreme stability and eliminates rust, stained concrete and spalling.
 - Sized and scored for convenience of application. Prevents waste — material can be readily picked up and stored in the open for future use.
 - Will not fracture under load.

Thicknesses of 1/4", 3/8" and 1/2" in lengths of 2", 3", 4" are available from stock. Additional sizes available on request.

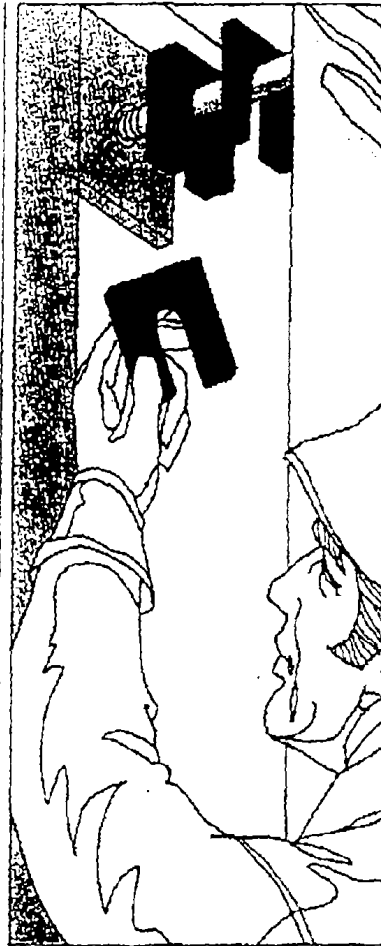
Cover Photo: Spancrete Prestressed Concrete Plank Courtesy of SAN-VEL Concrete Corporation, Littleton, Mass.



SHIMPAKS — KOROLATH*

- These pre-assembled packages of heavy duty shims are designed for large load bearing of precast units.
- Shimpaks are very advantageous in precise placing and levelling of large panels.
- Their use eliminates time consuming correction of elastomeric drift and makes alignment safer and easier.
- Shimpaks can be compressed sufficiently at post tensioning to allow load transfer to the grout.
- Popular sizes are 4" x 6" and 4" x 4" paks which are 1 1/4" thick. Korolath shimpaks are made up of Korolath Shims in the following thickness sequence: one 1/4th, three 1/8ths and two 1/16ths. Any precast component can be levelled within 1/8" by removing or adding one or more elements.
- Shimpaks are held together with a resilient band for easy removal or addition of elements.

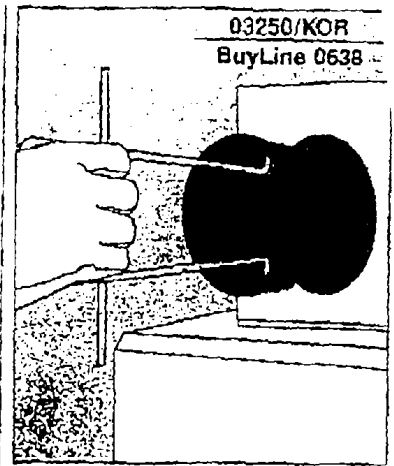
Alternate sizes available on request.



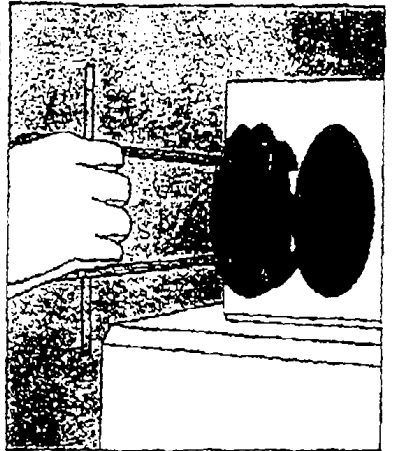
SPACERS — KOROLATH* "HORSESHOE"

- Horseshoe spacers have 13/16" slot.
- No staining, no rust, no corrosion, even with aluminum.
- Less expensive than steel — no plating required.
- Lightweight and precise — easy to handle and transport.
- Cut to size or pre-scored for easy on site snap-off.

Convenient, ready to use sizes: 2 x 3", 3 x 4" in thicknesses of 1/4", 1/2" and 3/4"—other sizes, slots and holes available on request.



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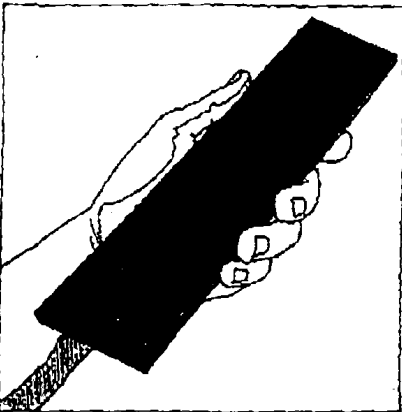
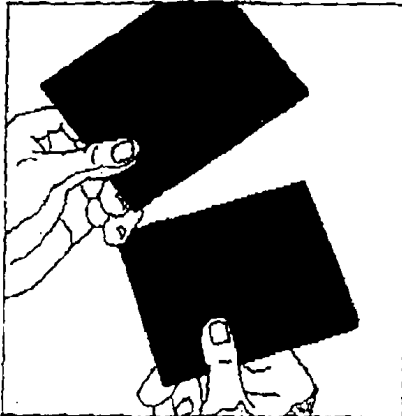


COREPLUGS — KOROLATH*

- Coreplugs are supplied to the manufacturers and erectors of pre-stressed and other hollow core planks.
- The plugs are easy to insert and effectively block off grout flow to insure solid load bearing transfer through the ends of the planks on to the sills and foundation.
- Plugs push in "hard" for tight interference fit with a positive stop bar on the pusher to insure "exact" depth fill; and savings on expensive non-shrink grout.
- Fluted wall taper design can't fall over; Air escape notches prevent "no fill" pockets.
- Units are light weight, low cost and nest for convenient storage.
- Round plugs now available are 4, 4 1/2, 6, 6 3/8, 7 1/2, 7 5/8, 8", 9" and 9 3/4" in diameter. These are for plank cores such as Flexicore, Spirrol and others; Round plugs are also used to block off the ends of spiral wound paper tubes.
- Non-round plugs are available for Spengrete and Dycore—others are being developed.

KOROLATH... the specially formulated plastic material

PHYSICAL CHARACTERISTICS



KOROLATH is impervious to liquids and ground chemicals, alkalis and micro-organisms. The continuing performance characteristics are stable and predictable.

KOROLATH will not rust, rot or leach when exposed to wet surfaces and it has no odor. KOROLATH arrives at the job site in precise thicknesses and lengths. The sheets are pre-scored in width at specified intervals (usually 2 or 3 inches), so that the erection crew in the field can snap off as many 2 or 3 inch strips or multiples as are needed. The right number of strips can be designated for a specific job with no waste. Inventories are kept to a minimum.

KOROLATH eliminates the need for saws, hand tools or cutters. A definite saving in time, labor and money is realized.

The strips are easily applied and lay flat. KOROLATH-NS has one non-skid surface which grips the sill. The top surface is smooth to allow the plank to slide easily for faster and easier placement.

Point projection of aggregate is absorbed without fracture or effect on the load-bearing characteristics of KOROLATH, decreasing damage potential to the adjacent concrete components.

Long term damage potential due to stress on the sill or plank caused by thermal motion or rotation due to camber is minimized by the sliding surface.

KOROLATH* & KOROLATH — NS (NON-SLIP) PLASTIC BEARING STRIPS, SHIMS & SPACERS

GENERAL

KOROLATH is an engineered multipolymer plastic material which provides an optimum

combination of physical properties for a bearing strip in applications where high compressive strength and load bearing is important. It facilitates the placement of prestressed and precast concrete floors, walls, structural and architectural members.

KOROLATH* SUPPORTS YOUR PROFITS:

One large erector formerly placed an average of 60 prestressed planks per day, then switched to KOROLATH and increased placement to as many as 65 planks per day.

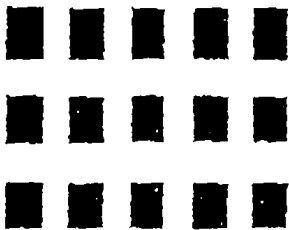
Another erector virtually eliminated repositioning by using KOROLATH-NS (non-slip) realizing substantial savings in lost time. Many other firms found that the use of KOROLATH instead of tempered hardboard eliminated the expensive clean ups resulting from brown stains.

ENGINEERING DATA:

The pertinent physical properties of KOROLATH plastic bearing strips are presented as follows:

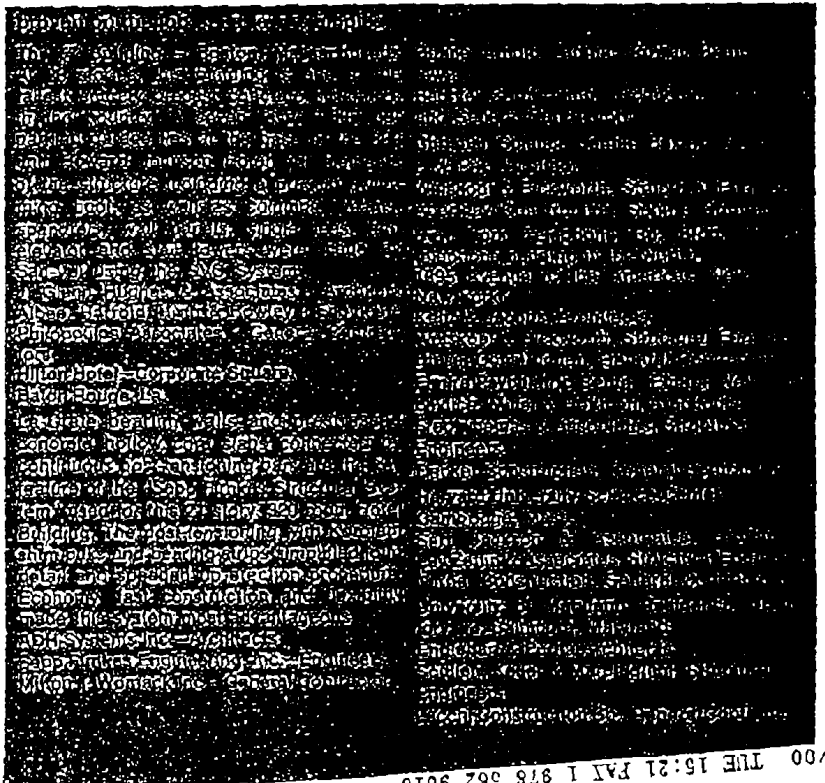
- Compressive strength of 8 to 9,000 psi with no fracture even at 26,000 psi.
- Classed as slow burning with no toxic fumes.
- Negligible cold flow characteristics: i.e., less than 1% at 1,000 psi and 73° F. for 10,000 hrs.
- Coefficient of linear expansion is 3 to 5 x 10⁻⁵ inches/inch/°C.

KOROLATH OF NEW ENGLAND, INC.



18 KANE INDUSTRIAL DRIVE
HUDSON, MA 01749

(508) 562-7366
FAX 508-562-9618
Toll 1-800-225-9340



KOROLATH OF NEW ENGLAND

TUE 15:21 PAT 1 978 562 9618

Stone & Webster

245 Summer Street, Boston, MA 02210
tel: (617) 589-2509 fax: (617) 589-1008

LETTER OF TRANSMITTAL

Date: August 30, 2000

To: The Middlesex Corp. (job site)
30A Atlantic Avenue
Woburn, MA 01801

Job No: 07473
Project: MPA Project No. 1.727
Regional Transportation Center, Woburn, MA

Attn: Rick Noblet, P.E.
Project Manager

Letter: swtmc-234
Subject: Response to RFI's

The following are transmitted attached herewith, or under separate cover via _____
as a copy of a letter / memorandum
 reproducible drawing
 computer disk specification
 other (response to RFI's)

Middlesex Transmittal No. and Date	Copies Returned	Submittal No.	Description	Action Code	Comments
RFI-058	1	-	Shims for Precast Panels		

RECEIVED
AUG 31 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

- Action Codes:
- 1 Approved (work may proceed)
 - 2 Approved as Noted (work may proceed, resubmission not required)
 - 3 Approved as Noted, Resubmission Required (work may proceed if corrected, resubmitted within 5 days)
 - 4 Rejected (work shall not proceed until resubmitted in an acceptable form)
 - 5 Noted, No Action Required

Comments:

- c: C.Ambrose - MPA RE (w/ enc)
C.Ezumezu - MBTA RE (w/ enc)
K.Johnson - MPA (w/ enc)
W.Bregoli - MBTA (w/ enc)

Bill Palmieri
William J. Palmieri, P.E.
Project Manager

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 8/18/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

1. Contract Drawing A-21, Detail 4 identifies that two fabric-covered ~~privacy panels~~ are constructed in the Ticket Room. Please provide information on the color and type of fabric, and details of privacy panel construction.
2. Please confirm that the depth of ~~cabinets~~ between H and I line shown in Detail 5 and 7 on Drawing A-21 can be downsized from 24 inches to 22 inches to eliminate clearance problems with Door 101B.
3. Drawing A-1, Detail 1 identifies that three ~~wood benches~~ are constructed in the Seating/Circulation area. Spec Section 06200-7 Paragraph 2.02 F.4. identifies that wood benches are to be similar to the benches at South Station. Are these prefabricated benches? If so, please provide vendor names. If the benches are custom-made, please provide specifications on wood type, finish, dimensions, etc.

RESPONSE: by Baker/Wohl (confirming BWA responses delivered to TMC at site meeting 9/6/00)

1. Fabric covered privacy panels are intended to be shop-built items.
 - The intended construction is 2 layers of 3/4" homosote board or similar material wrapped in fabric. The edge trim is to be 1x3 oak. Provide furring between panels as necessary to make face of fabric flush with trim.
 - Fabric to be 'Xorel' fabric line as manufactured by: Carnegie Fabrics, 110 North Center Avenue, Rockville Center, NY 11570 (516) 678-6770. Provide this or similar product. Provide manufacturer's full line of colors for selection.
 - Provide wood finish samples and shop drawings showing proposed construction and installation for review.
2. A narrower cabinet is acceptable. (Note: confirmed with Mark Bungard at site meeting on 31 August 2000.)
3. Owner to provide information regarding bench manufacturer.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC

RECEIVED
SEP 14 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 9/6/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

RECEIVED
SEP 28 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

REQUEST:

- 1) Drawing GR-2 and GR-5 indicate that for a Type B sign frame, a bent plate channel connects the sign frame to a tube steel beam. It does not appear that in the four locations shown on Drawing GR-1 where a Type B frame is to be installed, that there is a tube steel beam to connect to, particularly at the end of the pedestrian ramp at Column line 22. Please identify how the signs should attach to the structural steel.
- 2) Drawing GR-2 identifies that the Type D sign frame is supported from above; Drawing GR-1 and C-15 show the locations for the Type D sign frames but between column lines 8-9, 24-25, 32-33 and at the Logan Express canopy, there does not appear to be a support for the signs in the structural steel. Please identify how the signs should attach to the structural steel. If an additional support is required in the structural steel, please detail the member(s).
- 3) Drawing GR-2 identifies that the Type E sign frame is supported from above and behind the sign;
 - a) Drawing GR-1 identifies that this frame is installed near column line 12 on the storage area of the structural steel, but there does not appear to be a support for the signs in the structural steel. Please identify how the signs should attach to the structural steel. If an additional support is required in the structural steel, please detail the member.
 - b) Please note that Drawing E-7 shows that there is also a Public Address system horn at column 12 - are the sign and horn mounted at different heights off the platform so there is no conflict?

RESPONSE: by Stone & Webster (W.Palmieri) 9/25/00

1. Type B frames located at the lower end of platform Stairs 1A and 2A can be suspended from the TS6x6 located 7'-0" +/- south of column lines 11 and 35 respectively. The Type B frame located at the upper end of Stair 1B at Bridge No. 1 can be suspended from the TS6x6 top chord member of Bridge No. 1. The Type B frame located at the lower end of the pedestrian ramp can be suspended from a new TS 9x3 tube steel beam being added at column line 22 (refer to sketches issued with RFI-054).
2. Type D sign frames located at center of canopy bays are hung from (2)-C5x9 support channels that span over the (2)-C12 longitudinal channels and connect to the TS6x6 edge beams of the canopy (refer to dwg S-106 Reflected Ceiling Plan and Longitudinal Section, and details on dwg S-109).

REQUEST FOR INFORMATION

No. 060

TITLE: Signage Questions

DATE: 9/6/00

3. Type E sign support

- a) Type E sign, shown on drawing GR-1 near platform column line 12, is located at the bridge level and is supported by (2) T-type welded plate hanger arrangements bolted to the TS6x6 top chord member of the tower structure at that location. (Refer to drawing GR-5 Hanger 51E52 and Section 23 for hanger details; and drawing S-112 Section 41 for bridge tower steel).
Note: Hanger detail should be adjusted to clear the L-2x2 wire mesh panel support.
- b) The public address horn is located on the exterior face of the tower support column on line 12. The Type E sign panel is located inside the wire mesh side panel, and hung from the bridge top chord. There is no conflict.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noble, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION

TITLE: Sign Finish Questions

DATE: 9/6/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

RECEIVED
OCT 04 2000

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

- 1) John Williams prepared a memo on May 19, 2000 which included a sketch for additional signage in the building.
 - a) Please clarify the finish on the frames - are the sign frames to be just galvanized?
 - b) Please specify what beams the signs are to be supported from: is it the cold-rolled steel or the building steel? If specific beams can be identified, we can have Columbia install the hangers prior to placement of ceiling finish materials.
- 2) Drawing 1 of Submittal 05500-006-00 (Sign Frames) prepared by Columbia Metals identifies that the Type A sign is to be galvanized and shop primed. The reviewer noted that the shop prime must be coordinated with the finish coat. Please clarify - is the frame to be galvanized or painted? We are unaware of any finish coat going on this sign frame (see also Question 1).
- 3) Drawing 12 of the above-referenced submittal shows the Type M sign frame for the WRTC entrance sign. While the reviewer noted that the sign should be "shop painted" per Contract Drawing GR-3, please clarify - is the frame painted or galvanized, or should the frame get a colorgalv coating? If colorgalv or painting is required, please specify a color.

RESPONSE: by Stone & Webster (W. Palmieri) 9/29/00

1) Signage for Building

- a) Drawing GR-2 Note 2 requires all steel to be galvanized.

Type A sign frame for sign 55/56, Type E sign frame for sign 49/50, and Type K sign frame for sign 77 are noted on Drawings GR-2 and GR-3 to be painted. Thus, these frames are to be both galvanized and painted. Painting shall be shop primed per Section 05500-2.01.E.2.f, and field coated with high-performance coating per Section 09900-3.08.B.1.c.

Type E sign frames for signs 88/89, 90/91, 92/93, 94/95 are to be galvanized and although not specifically noted as such, should also be shop primed per Section 05500-2.01.E.3, and field painted with high-performance coating per Section 09900-3.08.B.1.c.
- b) Type A sign frame for sign 55/56 should hang from the W8 second floor level framing member located 4'-1-1/2" north of Line 2.

Type E sign frames for signs 49/50 and 88/89 should be hung from the W10 and W8 second floor level framing members located on Lines B and H respectively.

Type E sign frames for signs 90/91, 92/93 and 94/95 should be hung from the W8 canopy eave beams located 6'-8" outside main column lines I, 1 and 4 respectively.

REQUEST FOR INFORMATION**No. 061 Page 2 of 2****TITLE:** Sign Finish Questions**DATE:** 9/6/00

- 2) Type A sign frame, for sign 55/56, is noted on Drawing GR-2 to be galvanized and painted. Painting shall include shop primed per Section 05500-2.01.E.2.f, and field coated with high-performance coating per Section 09900-3.08.B.1.c.
- 3) Type M sign frame, for the Entry Sign, is noted on Drawing GR-3 to be galvanized and shop painted. Painting shall include shop primed per Section 05500-2.01.E.2.f, and field coated with high-performance coating per Section 09900-3.08.B.1.c. Finish coat color shall be as selected by the Architect.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: ~~Rick Noblet, TMC~~
Joe Phinney, TMC
Mark Bungard, TMC
Mike Davis, Columbia Metals

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 9/6/00 **REVISED:** 10/16/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

To clarify discussions at the Weekly Progress Meeting on October 12, 2000 regarding sign finish, please confirm the following:

1. Type A, E, and K sign frames (in and around the Station Building) do not need to be galvanized; they should be primed and painted using the high performance coating approved for the project (or approved equal). The approved paints are as referenced in Submittal 09900-001-003, the Primer 224 Devoe High Solids Epoxy, and (2) finish coats of 378 Devoe Semi-Gloss Urethane. The color is to match Hancock 4164-61.
2. Type M sign frame (entrance sign) should be galvanized, primed, and painted. Primer and (2) coats of finish paint are as outlined in item 1 above.

RESPONSE: by S&W (W. Palmieri) and BWA (C. Kicza) 10/18/00

1. The discussion summarized above for Type A, K and E sign frames is correct, except the color of finish coat paint is to match Hancock 4164-63.
2. The discussion summarized above for Type M entrance sign frame is correct.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA
Chris Kicza, Baker-Wohl Architects

cc: ~~Rick Noblet, TMC~~
Joe Phinney, TMC
Mark Bungard, TMC
Mike Davis, Columbia Metals

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 9/13/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

- 1) Drawing S-112 Storage Room Floor Plan identifies that the dimension of the storage room is 7'4" perpendicular to the tracks. Please be advised that there isn't enough clearance between the structural steel to allow a 7'4" room. We propose that this dimension be reduced to 7'2". Please confirm.
- 2) Drawing S-112 Section 43-43 indicates that the bond beam is constructed at elevation 82'2" but this conflicts with the W8x18 steel at the same elevation, shown on Section 40-40 and 42-42. We propose that the bond beam be constructed at elevation 82'0" to eliminate the conflict. Please confirm.
- 3) Drawing S-112 doesn't identify that lintels are required. Is a lintel required
 - a) Above the door, in the CMU wall? If so, is a T-shaped lintel adequate?
 - b) Above the door, in the brick veneer?
 - c) Around the louver in the brick veneer?
- 4) We propose that stay-in-place decking be used to cast the roof concrete. Please confirm that this is acceptable.
- 5) Section 40-40 shows that the w8's that run through the storage room. Pockets for the structural steel W8's will need to be created in the masonry; should there be flashing around the pockets and if so, should it be continuous?
- 6) Storage Room Floor Plan shows a louver on the back side of the building; be advised that the 5'6" height of the louver (provided to Middlesex during phone call on 9/13/00) puts the louver in approximately the same location as the diagonal W10x22 structural steel. Should the louver be moved horizontally or vertically?
- 7) Section 43-43 indicates that the roof of the building is flat. Please confirm that there should be a small pitch to the roof by making the center of the roof approximately 1 inch higher than the edge of the roof (achieving a "hip" style pitched roof).
- 8) Drawing E-8 identifies that lighting and receptacles are required in the Storage Room. There is no provision for getting lighting conduit through the platform to the Storage Room. City Lights Electric proposes that holes be cored in the platform as needed. Please confirm.
- 9) The Storage Room is constructed on two different precast platform panels. Should there be a special joint constructed to absorb any differential settlement, to avoid cracking the masonry? If so, please provide a detail.

REQUEST FOR INFORMATION

No. 062

TITLE: Storage Building Questions

DATE: 9/13/00

RESPONSE: by Stone & Webster (W.Palmieri) - Confirming responses given at the site on 9/14/00.

- 1) Out-to-out dimension for width of the room can be reduced from 7'4" to 7'2" to provide additional clearance to structural steel.
- 2) Locating the bond beam at elevation 82'0" (just below bottom of steel) is acceptable.
- 3) Lintels:
 - a) Not required in CMU wall above door (bond beam with reinforcing at that level is adequate).
 - b) Required in brick veneer above door; use 3x3x1/4 angle.
 - c) Not required around louver in brick veneer.
- 4) Stay-in-place decking is acceptable for use in casting roof deck.
- 5) Pockets for steel beams should be flashed; flashing does not have to be continuous.
- 6) The louver can remain behind the bracing member; does not have to be relocated.
- 7) Provide a nominal pitch from center of the roof to edges by making the center approximately 1-inch higher than the edges.
- 8) Coring of one hole through a non-rib portion of the platform slab will be acceptable.
- 9) Differential deflection of adjacent platform panels should not be a problem; special joints to avoid cracking the masonry are not necessary.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

~~cc: [REDACTED]~~
Joe Phinney, TMC
Lisa Fera, City Lights Electric

REQUEST FOR INFORMATION

TITLE: ~~Woburn Regional Transp. Ctr Wire Mesh~~ **DATE:** 9/14/00

PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Columbia Metals has detailed the wire mesh for the pedestrian ramp and bridges in the ROW. Shop Drawings are being forwarded tomorrow (at Project Meeting) for the wire mesh (submittal number 05500-011-00). Attached is a detail for one panel, showing the mesh where it attaches to the channel perimeter frame. The size of the self-tapping screw isn't provided - please clarify. Columbia is concerned that there isn't enough clearance between the mesh and the edge of the perimeter frame for a self-tapping screw to be installed without hitting the bottom return of the channel. Also, there doesn't appear to be enough room for the drill that would install the screw - the mesh is in the way. One solution would be to offset the mesh on the channel perimeter frame, allowing more room on the channel for the screw. Another option is to increase the size of the perimeter frame. Please clarify with response either to this RFI, or on the shop drawing.

RESPONSE: by Stone & Webster (W.Palmieri) 9/29/00

Use #10 hex-washer head (instead of countersunk) self-tapping screws at 12-inch on centers to secure the 1-1/4-inch C-channels to the 2x2 angles at the top and bottom of the frame. Drill holes in the C-channel for the hex-washer head screws at 5/16-inch in from the edge of the C-channels (note: drill holes do not have to be countersunk for the hex-washer head screws).

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: ~~Rick Noblet, TMC~~
Joe Phinney, TMC
Mike Davis, Columbia Metals

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 9/14/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
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245 Summer Street
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The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

RECEIVED
OCT 04 2000

REQUEST:

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

- 1) Drawing GR-4 Detail B and C identify that a homosote bulletin board and plastic glazing infill panel are constructed in the sign case. Please reference the Spec Section where the material specification can be found, and identify where Measurement and Payment for this work is described.
- 2) Frame Type T detailed on Drawing GR-5 shows two neoprene seals in the sign frame. Please reference the Spec Section where the material specification can be found, and identify where Measurement and Payment for this work is described.

RESPONSE: by Stone & Webster (W. Palmieri) 9/29/00

- 1) Schedule Cases require 1/2" thick painted Homosote bulletin board as shown on Drawing GR-4 Details B, C and D for Schedule Case Type I frames. Bulletin board panels shall be a pressed fiberboard panel (Homosote or equal) suitable for the intended use. The bulletin board panels are considered incidental to work required for construction of the Schedule Cases.
Schedule Cases require 1/2" thick plastic glazing infill panels as shown on Drawing GR-4 Details B, C and D for Schedule Case Type I frames. Panels for schedule cases shall be transparent, colorless, coated monolithic acrylic sheet conforming to ASTM D4802, Cast Category C2 (continuously cast sheet), Finish 3 (abrasion resistant coating), Type UVA. The plastic panels are considered incidental to work required for construction of the Schedule Cases.
- 2) "T" signs require 3/16" thick and 1/8" thick neoprene seals for installation of the fiberglass panels into the sign frame, as shown on Drawing GR-5 details for Type T sign frames. Neoprene shall be suitable for the intended use. The neoprene seals required for installation are considered incidental to work required for construction of the sign.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 9/14/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

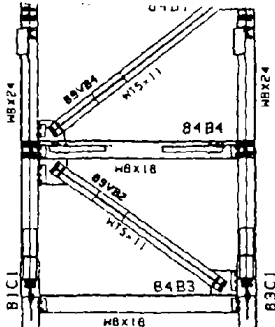
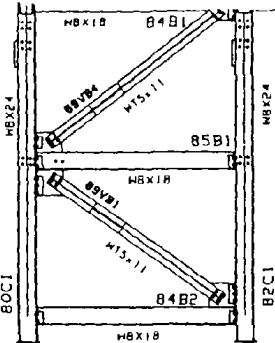
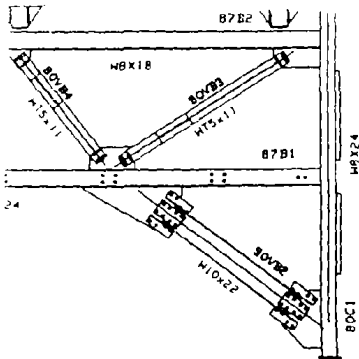
Drawing E7 of pedestrian ramp/bridge structural steel (shop drawing 05100-014-00) identifies that the bent plate at the edge of the ramp roof is continuously welded; please confirm that this can be changed to a 2-inch weld, every 2-feet on center.

RESPONSE: by S&W (W.Palmieri) 9/14/00

1. Confirming discussion at the site between S&W (Palmieri) and TMC (Phinney), the bent plate along the edge of the ramp/bridge need not be continuously welded as indicated on the referenced shop drawing. An intermitent weld 2-inch long at approximately 2-feet on centers will be acceptable.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Nobles, TMC
Joe Phinney, TMC



OF STORAGE AREA

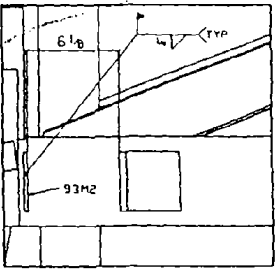
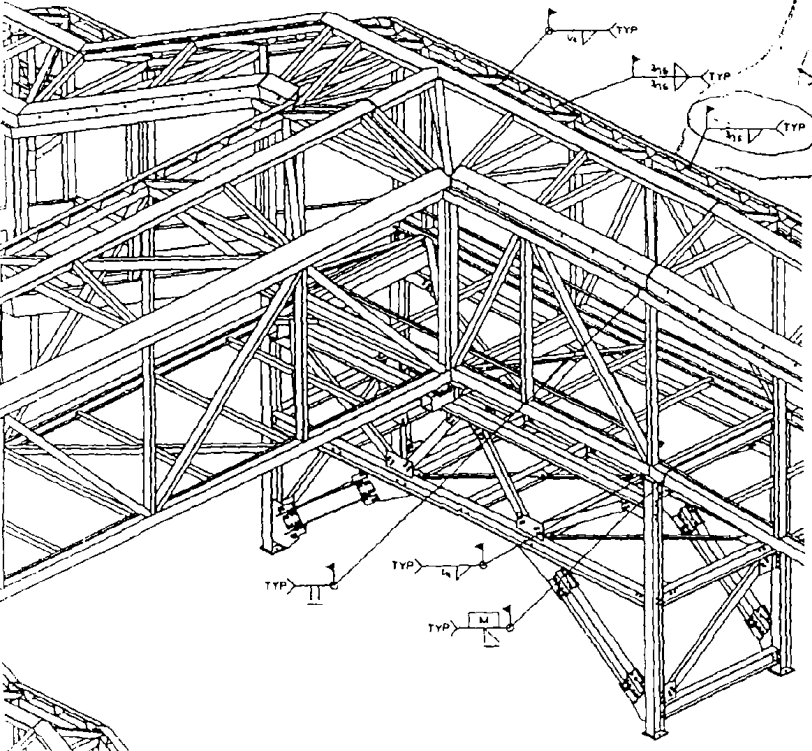
GRID 12

(LOOKING NORTH)

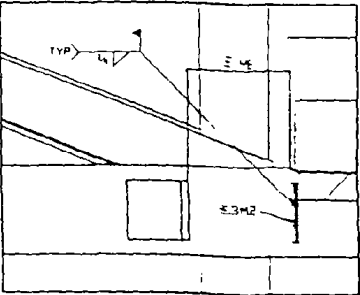
GRID 13

(LOOKING NORTH)

RFI FOR WELDING
 OF BENT PLATE ON
 ROOF - I SPOKE WITH
 BILL P.
 2" WELD
 2' O/C



VIEW A
 (WELD AFTER BRIDGE IS IN PLACE)



VIEW B
 (WELD AFTER BRIDGE IS IN PLACE)

ISOMETRIC VIEW STORAGE AREA

11:31:12

REVISIONS		PRINT RECORD		
NO.	DATE	DESCRIPTION	DATE	BY
1	5-18	REDETAILED PER ERECTOR CHANGE'S		
IMS - STEEL DIVISION 100 CUMMINGS CENTER BEVERLY, MA 01915				
MATERIAL	GALVANIZED	WELDS	1311 UNO	E70XX
PROJECT	MASSACHUSETTS PORT AUTHORITY REGIONAL TRANSPORTATION CENTER WOBURN, MASSACHUSETTS			DATE May 18 2000
DESCRIPTION	ERECTION PLAN - STORAGE AREA			SCALE 1/8" = 1'-0"
DESIGNED BY	STONE & WEBSTER			DATE 2000-05-18
CHECKED BY	THE MIDDLESEX COMPANY			DATE E7

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 9/14/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
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REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
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Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

As outlined on the attached FAX from Ferris & Mahoney, the chase for the water cooler compressor doesn't appear to be large enough. Please advise.

RESPONSE: by BWA (C. Kicza) 9/19/00

1. Recess to be provided in block wall to accommodate plumbing items.
2. GC can fur out wall to provide chase for compressor. Minimize water cooler projection beyond the face of the pilaster (wall enclosing column at 3-C).
3. Call with questions.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Nobler, TMC
Joe Phinney, TMC

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 9/22/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura Robinson, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Submittal 05500-008-00 was prepared by Columbia Metals for stainless steel railings and stair pans in the pedestrian bridges and ramp. The reviewed submittal was returned to Columbia, and Columbia has asked the following questions:

1. On Drawing E13, the reviewer noted that where the rail meets the building, Columbia should use the "typical termination detail." Where is this detail?
2. Drawing 23 shows a vertical plate that the reviewer noted to attach the post to the stringer, but noted that Columbia should "confirm required plate thickness." Is a 3/8-inch plate acceptable?
3. On Drawing 24, the reviewer sketched in posts for the rail, between landings, with the note "confirm dimension required." Since the post must be centered in a stair pan, the closest increment to the center of the span would put the post 4'-6" from one landing, and 5'-6" from another. Is this location acceptable?

RESPONSE: by Stone & Webster (G.Brown) 9/22/00

1. On Columbia drawing no. 13, use termination detail similar to detail shown on drawings 23 and 24 at bottom of stairs.
2. On Columbia drawing no. 23, stiffener plate thickness of 3/8-inch will be acceptable.
3. On Columbia shop drawing no. 24, posts located 4'-6" and 5'-6" from consecutive landings will be acceptable.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Natta, TMC
Joe Phinney, TMC
Mike Davis, Columbia Metals

REQUEST FOR INFORMATION

Page 1 of 3

TITLE: [REDACTED]

DATE: 9/28/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

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RECEIVED
OCT 04 2000

REQUEST:

As outlined in the attached three letters from Tibur Landscaping (irrigation subcontractor), the following questions have come up regarding the irrigation system:

1. The narrow island identified as Zone 11 on Plan L-3, calls for rotary heads. The rotary heads have a spray radius of 20 feet or more, which will shower the pavement more than the landscaping. Tibur suggests that pop-up spray heads be utilized, but this will require that two branch lines are run in the island instead of one as shown. Tibur has quoted a price of \$1000 for this work. A catalog cut of the spray heads is attached for your review. Should the spray heads be utilized?
2. Paragraph 3.03 E.1 on Specifications page 02813-7 indicates that underground branches and offsets may be run with plastic piping "made for this application." Please confirm that this means polyethylene pipe may be used instead of PVC. A catalog cut of the poly pipe is attached for review. As outlined in Tibur's letter dated 9/20/00, the appropriate fittings will be used to attach the heads to the poly pipe.
3. Paragraph 2.07 A and B on Specifications page 02813-5 and -6 respectively, identify that a water regulator (pressure regulator) and hammer arrester are to be part of the irrigation system. Note 12 on Drawing L-3 indicates that controllers are to be mounted in the mechanical room of the building. Please confirm that the regulator and hammer arrester are to be mounted in the mechanical room (see sketch attached also).
4. Paragraph 3.02 E on Specifications page 02813-7 indicates that drain pockets should be constructed at the low points of the system. Please note that this specification typically applies to irrigation systems in climates where freezing isn't a concern; the WRTC system should be drained to prevent winter freezing (as outlined in Paragraph F). Also, per Paragraph F the sleeves are installed two feet below pavement and as such may be the low point of the system - not an optimum place for a drain pocket. Can the requirements for drain pockets be eliminated?
5. On submittal 02813-001-01 for irrigation system equipment, the Filter Sentry feature was selected for a valve. Please note that a filter is typically used only on systems that utilize "dirty" water (i.e. well water), not "clean" treated drinking water. Can the filter be eliminated on the valve?
6. Paragraph 3.04 A & B on Specifications page 02813-8 denote aboveground and underground shutoff valves for the irrigation system, but the location of the valves is unclear. Attached is a sketch of the proposed location of valves and controls located inside the mechanical room. Outside, each zone can be isolated with a ball valve. Is this valve system acceptable?

REQUEST FOR INFORMATION**No. 068 Page 2 of 3****TITLE:** Irrigation Questions**DATE:** 9/28/00

7. Contract Drawings identify that for a typical irrigation zone, the secondary branch piping is run parallel to the main, and the rotary heads are fed from that. In order to minimize the piping closest to the root balls of trees etc., Tibur has proposed that the secondary piping is run closer to the outside edge of the island. There is no additional cost for this change. Is this acceptable?

RESPONSE: by Stone & Webster (W. Palmieri) 10/2/00

1. (Reference attached Tibur letter 9/20/00 with data attached for Irritrol Systems spray heads.)

The use of Irritrol HS Series pop-up spray heads instead of Hunter I-20 rotary heads will be acceptable for use on the 13' wide island located between the taxi-way and the short-term parking area. Although a schematic sketch was submitted with the request, a more complete layout of the island showing the proposed type/model and location of heads, and type and location of piping, is required. Please make a formal submittal for approval and record purposes.

However, S&W does not agree that there is \$1,000 of extra cost for this change, especially considering responses to other requests contained in this RFI.
2. (Reference attached Tibur letter 9/20/00 with data attached for Charter Plastics polyethylene pipe.)

The drawings require the use of PVC pipe. However, the proposal to use 100 psi SDR-15 polyethylene pipe will be acceptable for use as 1" and 1-1/2" zone piping. Product data, including appropriate fittings, is required. Please make a formal submittal for approval and record purposes. It is understood that this substitution will not result in any extra cost (in fact credit would offset any additional cost of other responses).
3. (Reference attached Tibur letter 9/26/00 item 1 and sketch attached showing proposed layout for irrigation controls in the Mechanical Room.)

Note 12 on drawing L-3 refers to the zone timing controller, not water pressure regulator or water hammer arrester. However, installation of these items within the Mechanical Room as shown on the attached sketch will be acceptable, provided space is available.
4. (Reference attached Tibur letter 9/26/00 item 2.)

Plans and specs require that pipes be sloped to drain, drain valves be located at low points, and that each zone be isolated from the main supply line by a valve. This allows any zone to be drained by gravity while the remainder of the system remains functional. Although other means (such as blowing-out with pressurized air) are commonly used to evacuate systems during the fall season, the gravity drainage and valving system specified provides more flexibility. If you propose to change the system, please provide a description of how the system will be drained and identify provisions made in the piping system to accommodate operation and maintenance.
5. (Reference attached Tibur letter 9/26/00 item 3, and submittal 02813-001-01.)

Use of Hunter control valve ICV-201G (without optional "Filter Sentry System") will be acceptable instead of Hunter control valve ICV-201G-FS (with optional system) noted on submittal action.
6. (Reference attached Tibur letter 9/26/00 item 4.)

Drawing L-3 Note 9 requires underground shut-off valves that isolate each zone from the main supply line. These valves are in addition to the shut-off valves provided by the Plumbing sub-contractor in the Mechanical Room. In addition, ball valves with drain are required at each low point to allow for drainage of the system. (Refer to item 4 above.)

REQUEST FOR INFORMATION**No. 068 Page 3 of 3****TITLE:** Irrigation Questions**DATE:** 9/28/00

7. (Reference attached Tibur letter 9/26/00 first paragraph.)

The Tibur proposal to run secondary (zone) polyethylene piping along the curb lines, thereby able to connect heads with appropriate fittings, is acceptable. However, a revised layout showing location of pipes, heads and details of connections, is required. Please make a formal submittal for approval and record purposes.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC
Joe Tibur, Tibur Landscaping

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 9/22/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

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OCT 04 2000

REQUEST:

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

1. Contract Drawing S-103 indicates that the Bottom of Base Plate Elevation at column line 20 should be 77.8567 (as amended by RFI#008). The two concrete pedestals for canopy columns were built to this grade, but it is approximately 4 inches too high, to accept the structural steel. The structural steel detailer confirmed that this elevation should have been 77.5. As discussed, The Middlesex Corporation proposes that the concrete should be chipped down to just below the proper elevation, so a layer of grout can be placed to provide a level surface for the column baseplates. The stainless steel column covers will also be cut and removed to the corrected grade. The existing anchor bolts would have only 3 - 4 inches embedment left, so we propose to remove the anchor bolts, and use stainless steel wedge anchors instead (3/4-inch diameter, 10 inches long). Attached is a catalog cut showing the capacity of proposed wedge anchors. Is this acceptable?

RESPONSE: by Stone & Webster (W. Palmieri) 9/29/00

1. Stone & Webster agrees that the elevation of the two piers on Column Line 20 should be lowered to the corrected grade of 77.50. This will involve cutting the stainless steel cover plate, chipping concrete down to allow grout to be installed under the leveling plate at the correct elevation. Due to the reduced embedment of existing anchor bolts, S&W agrees that the bolts should be removed and replaced. The use of 3/4-inch diameter, 10-inch long stainless steel wedge anchors as detailed in the attached catalog cut will be acceptable.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

[REDACTED]
Joe Phinney, TMC

Fastenal® Stud Anchors

Fastenal® Stud Anchors *continued*

Fastenal® Stud Anchors Selection Guide

Zinc Part #	Stainless Steel Part #	Dia. (in)	Length (in)	Min. Thread Length (in)	Min. Embedment (in)
52200	50251	1/4	1-3/4	3/4	1-1/8
52201	50252		2-1/4	1-1/4	
52202	50253		3-1/4	2-1/4	
52203	50254	3/8	2-1/4	1-1/8	1-5/8
52204	50255		2-3/4	1-1/2	
52227	50284		3	1-3/4	
52205	50256		3-3/4	2-1/2	
52206	50257		5	3-1/2	
52207	50258	1/2	2-3/4	1-1/2	2-1/4
52208	50259		3-3/4	2-1/4	
52228	50285		4-1/4	2-3/4	
52209	50260		5-1/2	3-1/4	
52210	50261		7	4	
52211	50262	5/8	3-1/2	1-1/2	2-7/8
52212	50263		4-1/2	2-1/2	
52213	50264		5	3	
52214	50265		6	4	
52215	50266		7	4	
52216	50267		8-1/2	1-1/2	
52217	50268	3/4	4-1/4	2	3-3/8
52218	50269		4-3/4	2-1/2	
52219	50270		5-1/2	3-1/4	
52220	50271		6-1/4	4	
52221	50272		7	4	
52222	50273		8-1/2	1-1/2	
52223	50274		10	1-1/2	
52230		7/8	6	2-1/4	4
52231			8	2-1/4	
52232			10	2-1/4	
52224	50279	1	8	2-1/4	4-1/2
52225	50280		9	2-1/4	
52228	50281		12	2-1/4	



Stainless Steel Ultimate Tensile and Shear Capacities

Anchor & Hole Size	Embedment (lbs.)	4000 psi Concrete	
		Tension (lbs.)	Shear (lbs.)
1/4	1-1/8	1700	2750
3/8	1-11/16	4817	4666
1/2	2-1/4	5517	8134
5/8	2-3/4	5450	12833
3/4	3-1/4	10184	17533

Stainless Steel Allowable Tensile and Shear Capacities Based on 4:1 Safety Factor

Anchor & Hole Size	Embedment (lbs.)	4000 psi Concrete	
		Tension (lbs.)	Shear (lbs.)
1/4	1-1/8	425	688
3/8	1-11/16	1204	1157
1/2	2-1/4	1379	2034
5/8	2-3/4	1353	3208
3/4	3-1/4	2546	4383

Maximum Tensile and Shear Capacities for Static Loads

Anchor & Hole Size	Embedment (in.)	Concrete Compressive Strength							
		2250 psi		3000 psi		4000 psi		5000 psi	
		Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/4	1-1/8	2459	1500	2710	1742	3059	2493	3407	3245
	2			3304	1829	3766	2618	4228	3407
	2-3/4			3898	1918	4473	2743	5048	3589
3/8	1-5/8	2397	2776	3534	3086	4264	6913	4994	8740
	3			4119	3240	5090	8209	6081	9177
	4-1/4			4704	3395	5918	8505	7129	9614
1/2	2-1/4	5298	5230	6836	6232	7704	10234	8572	14236
	4-1/8			7704	6543	8897	10746	10089	14947
	6			8572	6855	10089	11257	11607	15659
5/8	2-7/8	8100	7724	8007	7540	10307	13005	12608	17775
	5			9238	8646	10812	13655	15022	18665
	7			10470	9056	11317	14305	17435	19554
3/4	3-3/8	9970	11157	11338	12138	15405	16728	19472	21317
	5-3/4			15509	12745	19460	17564	23610	22383
	8			19280	13351	23514	18400	27748	23448
1	4-1/2					23000			

Allowable Tensile and Shear Capacities for Static Loads Based on 4:1 Safety Factor

Anchor & Hole Size	Embedment (in.)	Concrete Compressive Strength							
		2250 psi		3000 psi		4000 psi		5000 psi	
		Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)	Tension (lbs.)	Shear (lbs.)
1/4	1-1/8	614	375	678	436	765	623	852	811
	2			826	457	942	655	1057	852
	2-3/4			975	479	1118	688	1252	892
3/8	1-5/8	746	694	884	772	1086	1478	1249	2186
	3			1030	810	1273	1552	1515	2294
	4-1/4			1176	849	1479	1626	1782	2404
1/2	2-1/4	1574	1307	1709	1558	1928	2559	2143	3559
	4-1/8			1928	1636	2224	2587	2522	3737
	6			2143	1714	2522	2814	2902	3916
5/8	2-7/8	1925	1931	2002	1885	2577	3257	3152	4444
	5			2310	2161	2703	3414	3756	4668
	7			2618	2264	2829	3576	4359	4889
3/4	3-3/8	2492	2789	2835	3035	3851	4182	4668	5329
	5-3/4			3827	3186	4865	4391	5903	5596
	8			4920	3338	5879	4600	6937	5862
1	4-1/2					5750			

Notes

- Information provided only for use by qualified engineers. Use of technical data by persons not qualified could cause serious damage or injury.
- Ultimate values shown. The allowable load chart is determined using a 4:1 safety factor as shown in the chart above.
- Shear and tensile values shown are for anchors installed in limestone or stone aggregate concrete having the designated compressive strength at the time of installation.
- Tested to ASTM E488 Test Standard.
- Use only ANSI B21.15 drill bit dimensions.
- Minimum edge distance and spacing requirements met. Spacing and edge distance may be reduced to six-diameter spacing and three-diameter edge distance, provided the values are reduced 50%. Linear interpolation may be used for intermediate spacing and edge margins.

Sources (available upon request):

Techmar, Inc., Long Beach, CA #FR195
ICBO Report #2350

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 10/2/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

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REQUEST:

Contract Drawing L-3 (Irrigation) shows that there are rotary spray heads on the south side of an ornamental fence in Zones 1 through 4. The irrigation subcontractor has noted that this will result in the irrigation water spraying the fence which will prevent even distribution of the water through the fence pickets. In addition, the irrigation water will contribute to the deterioration of the fence finish. The irrigation subcontractor has suggested that the rotary heads be placed on the north side of the fence, and that the area between the fence and the south side of the island be surfaced with mulch instead of grass. The rotary heads can be set so that the fence isn't showered. Please advise.

RESPONSE: by Stone & Webster (W. Palmieri) 10/2/00

S&W agrees with the modified layout of rotary spray heads along the ornamental fence, as noted above and illustrated on the attached sketch by TMC dated 10/1/00. In sprinkler zones 1 through 4, locate the southerly row of rotary spray heads to be on the north side of the ornamental fence and adjust the spray pattern to avoid the fence. Surface the area between the south face of fence and sloped granite curb of the long-term lot with mulch instead of grass. It is understood that there is no additional cost due to this adjustment.

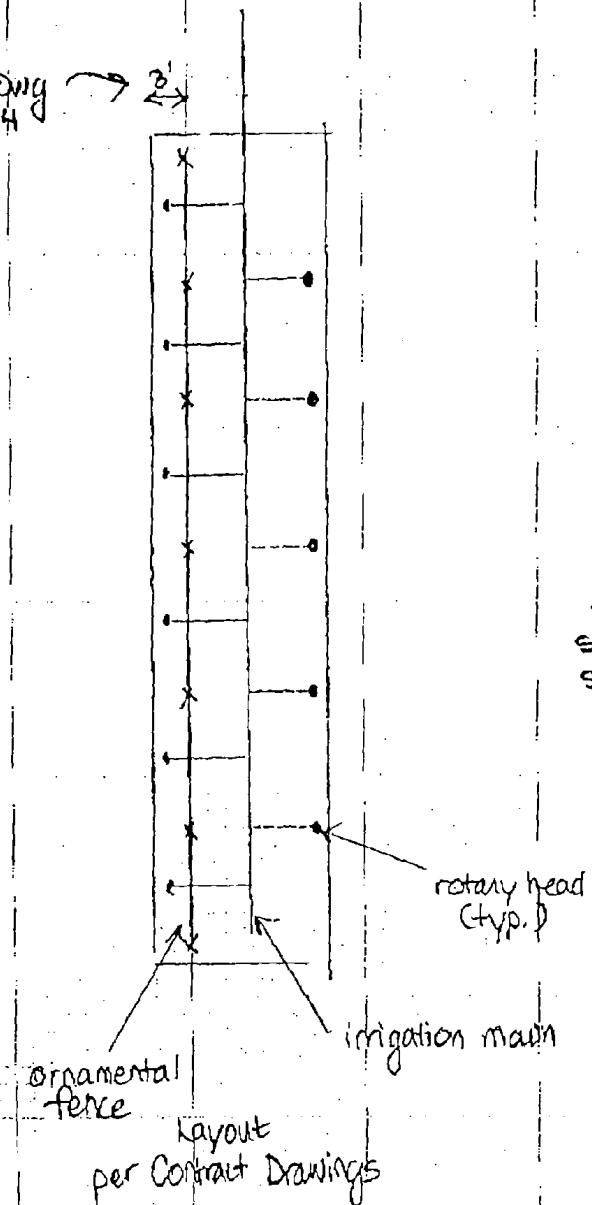
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OCT 04 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

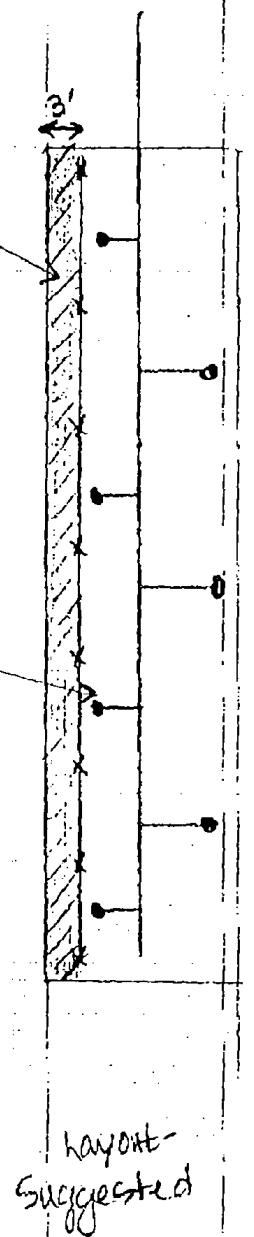
cc: Rick Noble, TMC
Joe Phinney, TMC
Joe Tibur, Tibur Landscaping

per Dwg
C-48 → 20'



mulch

set rotary head so it doesn't spray fence



→ NORTH

Irrigation layouts
 Zones 1 thru 4
 Woburn RTC
 1 Ordway - Middlew

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 10/3/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
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REQUEST:

Contract Drawing S-101 Section 3-3 notes that the pedestal for the Type 5 foundation for Pedestrian Bridge #1 is reduced from 3'-11-1/2" to 2'-2". During layout of the pedestal concrete, BSC mistakenly used the 3'-11-1/2" dimension. In order to minimize the time to correct this error, can the column height be reduced by 1'-9-1/2"? Attached is a detail from IMS Drawing 98 which shows the column fabricated for the Type 5 foundation. The column base plates can be cut off the 10x10 tube steel columns, and the overall height of the 10x10 columns can be reduced by 1'-9-1/2". The base plate would be welded back to the bottom of the 10x10 columns, and the lower ear for downspout stability will also be relocated on the shortened columns. Is this acceptable?

RESPONSE: by Stone & Webster (W. Palmieri) 10/3/00

S&W has reviewed the column design and confirms that the columns can be shortened. The tube steel columns should be cut square to the column for the adjusted length (with allowance for grinding) using a process that minimizes heat distortion, and the contact surfaces ground smooth and true in preparation for welding. Similarly, the base plate should be cut from the column and ground smooth and true in preparation for welding. The base plates should be re-welded to the shortened columns using continuous fillet weld, and the galvanized surfaces touched up after welding. Quality control and workmanship is a concern for field cutting columns and re-welding base plates onto the shortened columns. Therefore, we require that the welding inspectors (Summit) be on-site and closely monitor the cutting, preparation, welding and touch-up procedures.

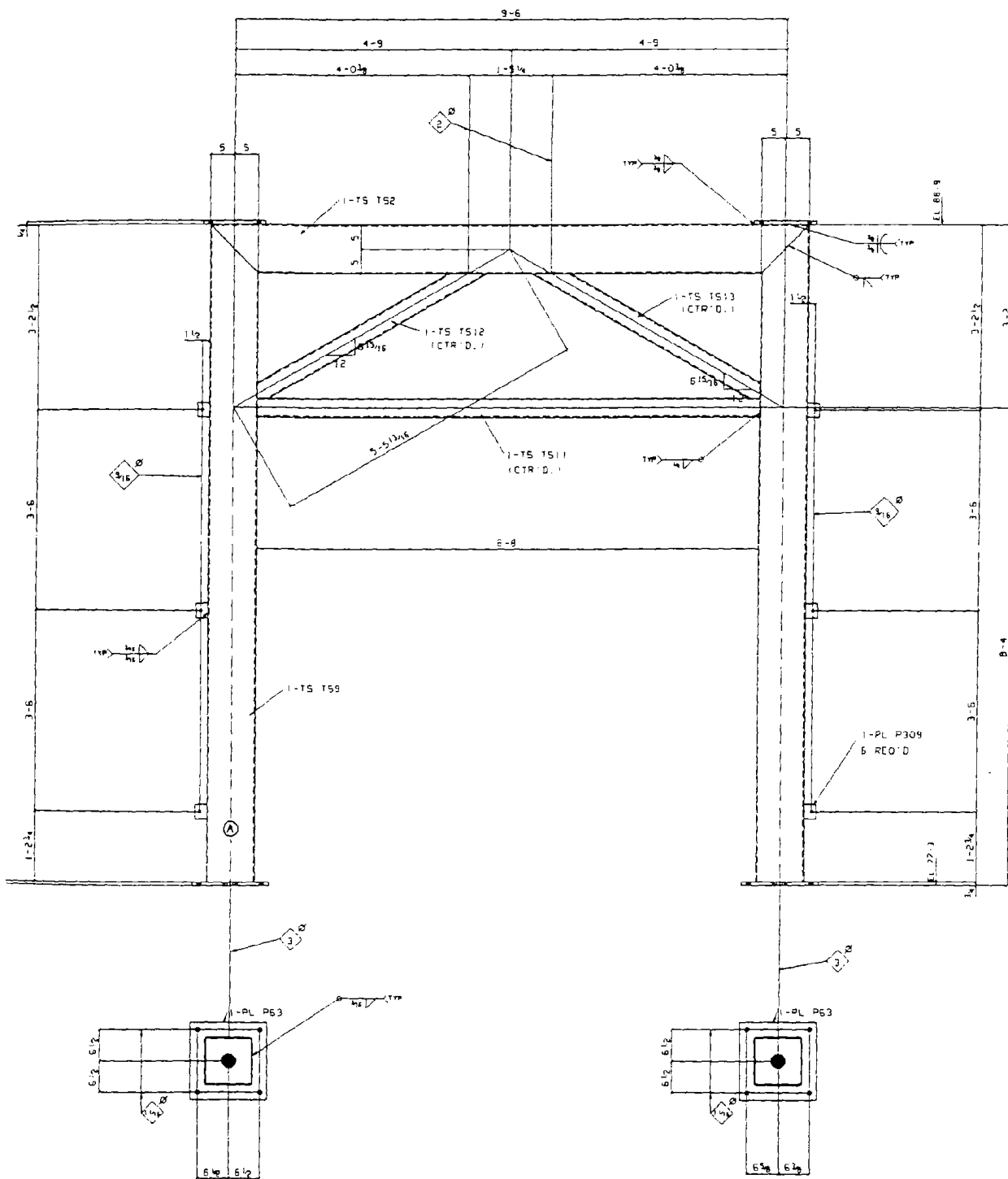
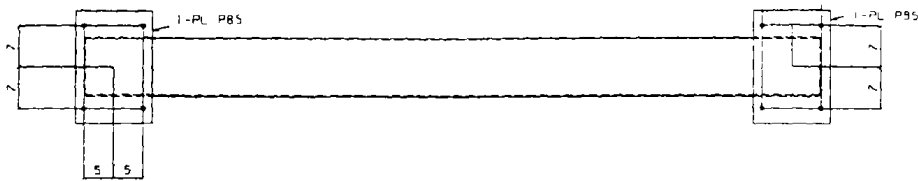
S&W has also reviewed the pier design for the extended length beyond that required by the drawings and concludes that the pier and reinforcement design is adequate for the increased length of pier. We have been assured by the field that adjustments to the length and laps of pier reinforcement were made during the setting of bars, to provide anchorage and development lengths required by Code. Thus, the foundation piers should be acceptable.

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OCT 04 2000

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.



ONE COLUMN 98C1

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 10/20/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

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REQUEST:

As discussed at the Weekly Site Meeting on 10/19/00, there is a conflict between the gutters on the east side of the Pedestrian Bridge #1, and the Clock Tower. Although the gutters have been eliminated, there does not appear to be a conflict with the preformed roofing panel in this area. The elevation where the roofing abuts the clock tower however, is the same elevation as the louver on the south side of the clock tower. Once the roofing is installed, there may be situations during the winter weather when snow accumulates against the louver. Please advise if additional work needs to be done in this area because of this conflict.

RESPONSE: by Baker Wohl (C. Kicza) 10/23/00

The bridge roof gutter is to be stopped at the corner of the clock tower, letting the section of roof without a gutter drain off into the gap between the bridge and the tower. The brick wall of the tower should be protected with a water-based protective coating in this area.

The potential of snow blocking the adjacent louver in the elevator shaft wall is not a concern. No additional work is required in this area.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noble, TMC
Joe Phinney, TMC

Mark B.

REQUEST FOR INFORMATION

TITLE: Roof Closure Piece at Pedestrian Bridge #1 **DATE:** 10/23/00

PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727

TO: Bill Palmieri, P.E.
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REQUESTED BY: Laura Robinson Clements, P.E.
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REQUEST:

As shown on Isometric views of the attached ROW Structural Steel Erection shop drawings, a roof closure plate is used at the ends of canopies, and at the east and west ends of Pedestrian Bridge #2. Should a closure plate be added to the east end of Pedestrian Bridge #1, where it meets the Station Building? There is a 3-1/2" gap currently between the bridge and the building, which would allow a C-channel to be inserted and welded to the end of the bridge. A section of preformed roofing panel can be left off Pedestrian Bridge #1 so that if a closure plate is added, it can wrap around and over the edge of the roofing panel.

RESPONSE: by Stone & Webster (W.Palmieri) confirming verbal response given to TMC 10-24-00

A closure plate is not required at the east end of Pedestrian Bridge No. 1 where it meets the Station Building. The gap between the end of bridge and building is intentionally left to accommodate any movement between the structures. The gap will be closed off as shown on drawing A-17 Section 1, using elastomeric flashing attached by termination bars to both the building and bridge structures.

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Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: [REDACTED]
Joe Phinney, TMC
Lisa Fera, City Lights Electric

REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 11/3/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

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REQUESTED BY: Laura Robinson Clements,
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REQUEST:

On Thursday, October 26, 2000 a representative from Columbia Metals attended the Weekly Site Progress Meeting and explained that the pipe used for the pedestrian bridge and ramp handrails is typically denoted by its' inside diameter (ID). Please confirm that as noted in the follow-up notation made in the Minutes of the Meeting from 10/26/00, the pipe required for the handrails should be 1-1/4" diameter schedule 40 pipe (1.625 OD, nominal "1-1/2" OD).

RESPONSE: by Stone & Webster (W.Palmieri) 11/03/00

Pipe required for handrails should be 1-1/2" OD (nominal) pipe. Therefore, 1-1/4" diameter schedule 40 pipe (1.625" OD) is acceptable, as noted in the Notes of Meeting 10/26/00.

RECEIVED
NOV 09 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

[REDACTED]
Joe Phinney, TMC
Mike Davis, Columbia Metals
Chris Keogh, Columbia Metals

REQUEST FOR INFORMATION

DATE: 11/3/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

On Thursday, October 26, 2000 a representative from Columbia Metals attended the Weekly Site Progress Meeting and proposed the use of an L 1-1/4x1-1/4x1/8 angle in place of the C 1-1/4x5/8x1/8 channel. As discussed that day, Columbia has had a structural analysis performed to review this substitution, the results of which are outlined in the attached letter from Plymouth Engineering Inc. Is this substitution acceptable? If so, should the details and shop drawings for the wire mesh frames be revised and resubmitted for review and approval?

RESPONSE: by Stone & Webster (W.Palmieri) 11/7/00

The substitution proposed by Columbia Metals to use L 1-1/4x1-1/4x1/8 angles as a substitution for the 1-1/4x5/8x1/8 C-channels for wire mesh panel frames will be acceptable.

Columbia should submit a formal proposal for the substitution, including revised drawings for the wire mesh panel frames, showing the details for connecting panels to the structure, to adjacent frames, etc. The proposal should also include product data and warranties for the 2-coat high-end epoxy coating system proposed as a substitution for galvanizing for both the frames and the mesh.

RECEIVED
NOV 09 2000

Middlesex Corp. Job 405
Woburn Regional Transp. Ctr.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: [REDACTED]
Joe Phinney, TMC
Mike Davis, Columbia Metals
Chris Keogh, Columbia Metals



Plymouth Engineering, Inc.

P.O. Box 46 • Detroit Road
Plymouth, Maine 04969
pc7000@tcplus.net
tel. (207) 257-2071 fax: (207) 257-2130

November 1, 2000

Mr. Michael Davis
Columbia Metal Service

RE: Woburn Reg. Trans. Ctr.
Wire Mesh Panel Detail

Dear Mr. Davis,

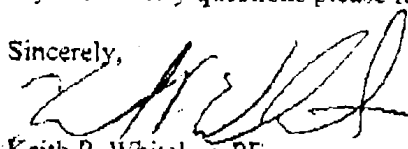
At your request we have reviewed the drawings for the proposed substitute wire mesh panel for the above referenced project. The specifications provided no guidance as to the standards by which these should be designed, so it is difficult to determine the adequacy of the proposed change. We have reviewed the sectional properties of the frames for both the original and proposed change and found them to be similar as summarized below.

	Original Design	Proposed Substitution
Section	C 1 1/4 x 5/8 x 1/8	L 1 1/4 x 1 1/4 x 1/8
A	0.3047	0.2938
Ix	0.0123	0.0415
Iy	0.0649	0.0415

The proposed frame will provide for greater resistance to bending about the x axis (in the plane of the mesh) if a load is imposed upon the wire mesh. It would be slightly weaker about the y axis if the frame is required to transmit loading in this direction. Assuming the wire mesh is attached in a similar manor to the original and the adequacy of the original design, this proposal may be reasonable. A review by the engineer of record should be made to determine the appropriateness of the substitution and its adequacy in regards to the design loads of the project.

If you have any questions please feel free to contact me.

Sincerely,


Keith P. Whitaker, PE
Structural Engineer



REQUEST FOR INFORMATION

TITLE: [REDACTED]

DATE: 11/29/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

1. Contract Drawing A-2, rooms 116 and 118 (lavatories) show a trough light. Both the electrical and framing subcontractors need details for this and need a height off the ceiling to mount the reflective lights. Please advise.
2. In the Mechanical Room, shown on Drawing M-4 column line B-1, the location for the fan control panel (24"x36"x9") is not available. HVAC subcontractor (Hall Sheetmetal) has asked for a location to place the control panel. Hall has also asked about an alternate location for EUH-3 room heater. The heater is shown to be located in front of open louvers. Please advise.
3. In the Electrical Room, shown on Drawing E-5 column line E-1, the EUH-2, intake air vent, and open louver locations need clarification. Hall Sheetmetal has questioned the location of the intake air vent with a damper next to an open louver and in front of room heater. Please advise.
4. Contract Drawing A-1, identifies that near column line A-1, a fire extinguisher is to be located under the stairwell. Be advised that this location doesn't provide the required 36 inches from finish floor to bottom of cabinet. Please advise.

RESPONSE: by Stone & Webster (Gordon/Lucian/Palmieri) and BWA (Kicza)

1. Confirming discussion at site meeting 12/14 and direction given on 12/15/00, the **lights over lavatory sinks** in rooms 116 and 118 can be wall mounted, direct wall-wash fluorescent lighting fixtures with finished steel housing. Mounting below the ceiling, above the mirror will be acceptable (need not be trough built into ceiling). Exposed housing with white matte finish will be acceptable (separate valance will not be necessary). Refer to attached catalog cut for LiteControl fixture that will be acceptable to S&W.
2. a. **Fan control panel** shall be wall mounted on B-Line wall, in the clear space near the interior door.
b. Electric unit heater EUH-3 shall remain located as shown on drawing M-4.
3. a. **Intake air louver** with motor operated damper as shown on drawing M-4 is located in the easterly panel of the window system as shown on drawing A-5.
b. Louver located in the westerly panel of window system (next to the door) was changed to have a blank panel when exhaust fan was relocated into the removable transom of the door.
c. Electric unit heater EUH-2 shall remain located as shown on drawing M-4.
4. There are no minimum mounting height requirements for the **fire extinguisher cabinets**. Cabinet located in the wall below Stair #113 should be installed so that it does not intrude into the wood base. Locate at point in wall below stair stringer to allow for maximum mounting height.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: ~~Rick Noblet, TMC~~
Joe Phinney, TMC
Lisa Fera, City Lights Electric
Don Stork, Hall Sheetmetal
Tom Burnell, Burnell Controls

REQUEST FOR INFORMATION

TITLE: [REDACTED] **DATE:** 11/8/00
PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727
TO: Bill Palmieri, P.E. **REQUESTED BY:** Laura R. Clements, P.E.
Stone & Webster The Middlesex Corporation
245 Summer Street 30A Atlantic Ave.
Boston, MA 02210 Woburn, MA 01801
Phone: 617-589-2509 **Phone:** 781-935-0779
Fax: 617-589-1008 **Fax:** 781-935-0383

REQUEST:

Please clarify whether the doors and drawers are to be flush overlay or inset:

The cabinet doors and drawers identified on Drawing A-28 details 1 & 2 show inset for both. According to spec section 06200 paragraph 2.02.C1, flush overlay doors and drawers are required. According to Baker-Wohl Architects Submittal Review Comments (submittal 06200) item 1, doors and drawers are to be flush overlay. According to conversations between Mark Bungard and Chris Kicza however, BWA would like the doors and drawers inset, flush with face frame of cabinet. The sample cabinet that was reviewed by BWA had flush overlay doors and drawers, and was approved.

Attached are two catalog cuts for hinges; please select either the Full Overlay or Inset hinge and clarify whether the doors and drawers are to be flush overlay or inset.

RESPONSE: by Baker/Wohl (C.Kicza) 11/8/00

RECEIVED
NOV 09 2000

Look at item #2 from the comment sheet:

Middlesex Corp. Job 405
Woburn Regional Transp. Ctr.

2. Please provide shop drawing of section and elevation of cash drawers at ticket stations. It is not clear how this issue will be resolved.

Please provide this information. If this item is provided it will resolve the question in RFI.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: Rick Noblet, TMC
Joe Phinney, TMC
Mark Bungard, TMC
Jason Howe, Howe Associates.

REQUEST FOR INFORMATION

TITLE: [REDACTED] **DATE:** 11/10/00 [REDACTED]

PROJECT: Woburn Regional Transp. Ctr **CONTRACT NO:** Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

As outlined on the attached RFI from City Lights Electrical Co., Inc. please identify what the emergency call box is mounted to and who is providing it.

RESPONSE: by Stone & Webster (W.Palmieri) confirming verbal response given to site on 11/15/00

Drawing E-21 requires an emergency call box to be located in the long-term parking lot at the south end of the west island along the parking gate entrance driveway.

It is S&W's understanding that underground conduits have already been run to this location to facilitate paving of the driveway. The field has suggested the use of a galvanized TS4x4 steel tube (that is available on-site) embedded in concrete to a depth approximately 3-feet below grade, and high enough above grade to allow the required mounting height for the call box.

This solution is acceptable to S&W.

RECEIVED
NOV 17 2000
Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: ~~Rick Noble, TMC~~
Joe Phinney, TMC
Lisa Fera, City Lights Electric

Request for Information

City Lights Electrical Co., Inc.
Woburn Regional Transportation Center
MPA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA 01801

RFI #: 028
Required By: 11/24/00
Printed on: 11/10/00

Request for Information #: 028 Date: 11/10/00

Rick Noblet
Middlesex Corporation
30 Atlantic Avenue
Woburn MA

Lisa Fera
City Lights Electrical Co., Inc.
Five Woodworth Street
Boston MA 02122

Emergency Call Box			

We are finishing our layout for the parking gates and we have noticed that on drawing E-21 there is an emergency call box just before the parking gates. There are no paystations nor steel columns at this location to mount it to. Please advise what the call box is mounted to and who is providing it.

Empty response area for the request.

Answered By: _____

Date Answered: _____

REQUEST FOR INFORMATION

TITLE: Clock Circuits, Lighting
Contactors, Heaters

DATE: 12/7/00

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NO: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

Please review and respond to the attached two RFI's from City Lights (City Lights' RFI's 029 and 030) regarding questions on circuit breaker conflicts, lighting contactors, and electric unit heaters.

RESPONSE: by Stone & Webster (H.Gordon/L.Cartier) confirming verbal response given 12/13/00

City Lights RFI-029 (Circuit Breaker Conflicts)

1. Clock Circuits:

- a. Clocks cannot be fed from SBPP circuits 36 and 37 as shown in plan (drawing E-5) as these are used to feed first floor receptacles as shown in both plan (drawing E-5) and SBPP Schedule (drawing E-3). Use spare spaces in SBBP and install (3) single pole 20 amp breakers for the clocks.
- b. Time clock/photo cell controls for the clocks can be fed from SBPP using spare spaces for additional single phase 20 amp breakers as required.

2. Lighting Contactors:

- a. Platform lighting contactor cannot be fed from SBPP circuit 1 as shown in plan (drawing E-13) as this is used to feed elevator lighting as shown in both plan (drawing E-6) and SBPP Schedule (drawing E-3). Use spare spaces in SBBP to feed the platform lighting contactor.
- b. Similarly, use spare spaces in SBBP to feed the site lighting contactor.

City Lights RFI-030 (Electric Unit Heaters)

1. Electric unit heaters EUH-1, 2 and 3 were provided without a built-in service switch. Provide a separate 30A, 600V AC industrial - HD AC manual motor controller switch for each heater.

cc: Chris Ambrose, Massport
Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

cc: ~~Rick Nobile, TMC~~
Joe Phinney, TMC
Lisa Fera, City Lights Electric

Request for Information

City Lights Electrical Co., Inc.
Woburn Regional Transportation Center
MPA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA 01801

RFI #: 029
Required By: 12/21/00
Printed on: 12/7/00

Request for Information #: 029

Date: 12/7/00

Rick Noblet
Middlesex Corporation
30 Atlantic Avenue
Woburn MA

Lisa Fera
City Lights Electrical Co., Inc.
Five Woodworth Street
Boston MA 02122

Circuit breaker conflicts			

Clock circuits
Dwg. E-5 shows 2- clock power ckts. SBPP-36 & 37.
Dwg. E-3 SBPP panel schedule shows ckts. 36 & 37 feeding the 1st floor receptacles as shown on dwg. E-5.

Please advise which circuits are to feed the 2 clocks. Additionally, the clocks are to have a time clock/photo control for control. Do these controls require a separate circuit or can 1 of the clock circuits be use to feed them?

Lighting Contactors
Dwg. E-13 shows ckt. SBPP-1 feeding the selector sw to the platform lgtg. contactor. Dwg. E-3 SBPP panel schedule indicates ckt. 1 feeds the elevator lighting as shown on dwg. E-6.

Please advise what circuit should feed the platform lighting contactor.

Additionally, E-28 shows a 120V power feed to the site lighting contactor, but it does not show which panel or circuit is.

Please indicate which panel and ckt. no. will feed the site lighting contactor.

Answered By: _____

Date Answered: _____

Request for Information

City Lights Electrical Co., Inc.
Woburn Regional Transportation Center
MPA Project No. 1.727 Job. No. 00-14
30 Atlantic Avenue
Woburn, MA 01801

RFI #: 030
Required By: 12/21/00
Printed on: 12/7/00

Request for Information #: 030 **Date: 1**

Rick Noblet
Middlesex Corporation
30 Atlantic Avenue
Woburn MA

Lisa Fera
City Lights Electrical Co., Inc.
Five Woodworth Street
Boston MA 02122

Electric Unit Heaters			

Drawing E-5 shows feeds to EUH 1,2 and 3 without a service switch. These electrical unit heaters (FBO) are presently on site and they do not have a shut off on them.
Please advise what type of service switch is required and who is to provide them.

Answered By: _____ Date Answered: _____

REQUEST FOR INFORMATION

TITLE: Changes to Ticket Office and Cash Room

DATE: 1/3/01

PROJECT: Woburn Regional Transp. Ctr

CONTRACT NUMBER: Massport 1.727

TO: Bill Palmieri, P.E.
Stone & Webster
245 Summer Street
Boston, MA 02210
Phone: 617-589-2509
Fax: 617-589-1008

REQUESTED BY: Laura R. Clements, P.E.
The Middlesex Corporation
30A Atlantic Ave.
Woburn, MA 01801
Phone: 781-935-0779
Fax: 781-935-0383

REQUEST:

The Middlesex Corporation understands that the Property Manager requested the following changes, which Massport has directed The Middlesex Corporation to make. Please confirm that:

1. The two privacy panels shown on Detail 5 (Enlarged Floor Plan) on Plan A-21 have been deleted.
2. The three wire grommets on Detail 5 (Enlarged Floor Plan) on Plan A-21 will be 3 inches in diameter. The center of the grommet will be 2-1/2 inches from the back of the granite countertops (leaving 1 inch of granite from the edge of the grommet to the back of the countertop).
3. Detail 5 (Enlarged Floor Plan) on Plan A-21 shows one wire grommet on the laminated countertop near the southeast corner of the building (intersection of column lines 1 and D). Two additional wire grommets are to be added, equally spaced, on the laminated countertop along the south/column line 1 wall.
4. The two cabinets in the Cash Room per Detail 1 (Room 101 West Elevation) on Plan A-21 have been eliminated.
5. The ticket storage shelves on Detail 2 (Detail Section at Ticket Counter) on Plan A-28 have been deleted.
6. The width of the granite deal tray on Detail 2 (Detail Section at Ticket Counter) on Plan A-28 has been reduced to make room for the equipment that will be on the granite countertop as follows: the 9-inch dimension from the hollow to the radius bullnose edge on the inside of the Ticket Room should be reduced to 4 inches (to match the 4-inch dimension from the hollow to the radius bullnose edge on the outside of the Ticket Room).

RESPONSE:

SEE ENCLOSED MEMO.

RECEIVED
JAN 09 2001

Middlesex Corp. Job 405
Woburn Regional Transp. Ctr.

cc:

Chris Ambrose, Massport
Gerry Nolan, Massport
Chris Kicza, BWA

Cyril Ezumezu, MBTA
Bill Bregoli, MBTA

Rick Noblet, TMC
Joe Phinney, TMC
Gary Doiron, TMC

1.1.3

1.1.3 Summary of Work Performed by the Middlesex Corporation

(List of all subcontractors and what their activities included) **Note: Only subcontractors who did groundwork are listed here**

Company Name	Contact Person - Phone Number	Item Description
Agregate Industries / Bardon Trimount	Bob Anderson - (781) 941-7200	Bituminous concrete pavement
Algar Construction	Victor Guerriero - (508) 583-3500	Concrete - building footings and floor slabs
City Lights Electrical Co., Inc.	Alan Lunn - (617) 822-3300	Under ground conduit for lights and signs
Commonwealth Guardrail	Allen Rosner - (413) 789-9837	Guardrails and fencing
Ferris & Mahoney Co., Inc.	Steve Farrell - (617) 325-1260	Underground plumbing
Fletcher Granite Co.	Doug Ineson - (978) 251-4031	Granite curb and entrance sign
Folan Waterproofing & Construction	Frank Gagliardi - (508) 238-6550	Joints in sidewalk
Hall Sheetmetal Works, Inc.	Don Stork - (781) 245-7235	HVAC piping
K. M. DaPonte	Kevin DaPonte - (508) 677-9538	Sidewalk and curb installation
Liddell Brothers	Mark Liddell - (800) 870-1111	Project in ground signs and parking lot lines
Scituate Ray Precast	Don Lash - (781) 837-1747	Furnish light & sign bases (TMC installed)
The Turfmaster Corporation	Joe Barrasso - (978) 251-1505	Landscape loam, bark mulch, plants, and trees
Tibur Landscaping	Joe Tibur - (781) 935-1702	Underground site irrigation

APPENDIX L – BITUMINOUS AND CEMENT CONCRETE MIX DESIGNS AND USAGE

SUMMARY OF BITUMINOUS AND CEMENT CONCRETE MIX DESIGNS AND USAGE
for construction of
ANDERSON REGIONAL TRANSPORTATION CENTER

Contract Item Number	Contract Item Description	Concrete Mix Designs Utilized	Use on the RTC Project for Cement Concrete or Bituminous Concrete
2510.701	CEMENT CONCRETE SIDEWALK	4000 3/4" with fibers and Daracem 55	Sidewalks around Station Building and Site
2513.42	BIT CONCRETE PAVEMENT-BASE COURSE	Bituminous Concrete Base Course	Parking Lots: Base Course
2513.46	BIT CONCRETE PAVEMENT-SURF COURSE	Bituminous Concrete Surface Course	Parking Lots: Surface Course
2513.463	BIT CONC PAVEMENT-UNDERTRACKS IN ROW	Bituminous Concrete Base Course	Underlayment for New Track Construction
2513.476	CEMENT CONCRETE PAVEMENT	5000 1-1/2" w/HWR	Cement Concrete Roadway (Busway paving)
3300.201	CONCRETE 2,000 PSI 1 1/2" AGGR	2000 1-1/2" 3000 3/8"	Concrete Fill around "Clean Sleeves" for Intrusive Work and Foundation Installation
3300.401	CONCRETE 4,000 PSI 3/4" AGGR	4000 3/4" 5000 3/4"	Retaining Walls, Platform Foundations, Station Building Foundation, Station Building Slabs, Misc. CIP Foundations (i.e. signs, light poles)
3300.903	CONCRETE 3,000 PSI 1 1/2" AGGR	3000 1-1/2" 3000 3/8"	Thrust Blocks
3300.913	CONCRETE 3,000 PSI 3/8" AGGR	5000 3/8"	Electrical and Communications Duct Banks

Stone & Webster

245 Summer Street, Boston, MA 02210
tel: (617) 589-2509 fax: (617) 589-1008

LETTER OF TRANSMITTAL

Date: March 13, 2000

To: The Middlesex Corp. (job site)
30A Atlantic Avenue
Woburn, MA 01801

Job No: 07473
Project: MPA Project No. 1.727
Regional Transportation Center, Woburn, MA

Attn: Rick Noblet, P.E.
Project Manager

Letter: swtmc-0017
Subject: TMC Transmittal No. 0017

The following are transmitted attached herewith, or under separate cover via _____
as a copy of a letter / memorandum
 reproducible drawing
 computer disk specification
 other (return of shop drawing submittal)

Middlesex Transmittal No. and Date	Copies Returned	Submittal No.	Description	Action Code	Comments
0017 03-03-00	2	02510-001-0 02510-2.04	Sidewalk Concrete: Wakefield Ready Mixed Conc. 1. exterior sidewalk mix w/ fibers and Daracem 55 (4000 psi, 3/4" aggregate)	- 1	

- Action Codes:
- 1 Approved (work may proceed)
 - 2 Approved as Noted (work may proceed, resubmission not required)
 - 3 Approved as Noted, Resubmission Required (work may proceed if corrected, resubmitted within 5 days)
 - 4 Rejected (work shall not proceed until resubmitted in an acceptable form)
 - 5 Noted, No Action Required

Comments:

- 1. This is a partial return of TMC submittal 0017. The remainder of the submittal was returned by swtmc012 dated 3-8-00.

RECEIVED
MAR 13 2000

Middlesex Corp. Job 405
Woburn Regional Trans. Ctr.

- c: C.Ambrose - MPA RE (w/ enc)
- C.Ezumezu - MBTA RE (w/ enc)
- K.Johnson - MPA (trans only)
- W.Bregoli - MBTA (trans only)

Bill Palmieri
William J. Palmieri, P.E.
Project Manager

The Middlesex Corporation

TRANSMITTAL
No. 0017

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

PROJECT: Woburn Regional Transportation Ctr

DATE: 03/06/2000

TO: Stone & Webster
245 Summer Street
Boston, MA 02210

REF: Submittals


ATTN: Bill Palmieri

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input type="checkbox"/> Shop Drawings	<input checked="" type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	SENT VIA:	<input type="checkbox"/> Returned
<input type="checkbox"/> Specifications	<input checked="" type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input checked="" type="checkbox"/> Other: Made from Submittal	<input type="checkbox"/> Separate Cover Via: Mail	<input type="checkbox"/> Due Date:

	ITEM	PACKAGE	SUBMITTAL	DRAWING	REV.	ITEM NO.	COPIES	DATE	DESCRIPTION	STATUS
FST	SUB	02510	001		000		6	03/06/2000	Title: Concrete Mix Designs Desc: Sidewalk Mix w/Fibers	NEW
sw	SUB	03300	005		000		6	03/06/2000	Title: Add'l Mix Designs Desc: 2000 1-1/2" Mix Design	NEW

Remarks:

CC: Chris Ambrose, w/ copy
Cyril Ezumezu, transmittal only

Signed: 
Laura Robinson

Exterior Sidewalk Mix with Fibers and Daracem 55

<u>CLASS CONCRETE</u>	<u>4000 psi3/4"</u> <u>@28 days</u>
Cement Factor (sacks)	6.50
W/C Ratio (by weight)	0.45
Slump (inches)	2-4"
Entrained Air (percent)	5-7%
Cement (lb)	428
Slag Cement (lb)	183
Sand (lb)	1180
Stone (lb)	1800
Water (gal)	33.0
Daracem 55 (oz)	42.8
Darex II (oz)	3.0
Fibermesh (lb)	1.5

Middlesex Transportation Center Woburn 3/6/00

03-06-00 09:04 TO:MIDDLESEX CORP. - WOBURN

MASSPORT PROJECT NO. 1.727	
WOBURN REGIONAL TRANSPORTATION CENTER	
MIDDLESEX SUBMITTAL NO. <u>02510-001-00</u>	(0017) <u>3-6-00</u>
<input checked="" type="checkbox"/> APPROVED	for conformance with
APPROVED BY: _____	of the Project
DATE: _____	specifications.
	all
	part
	work of all
	Contract Documents.
STONE & WILSON	Job No: 07473 File No: <u>02510</u>
Reviewed by: <u>Dick Bakker</u>	Date: <u>3-13-00</u>
FROM: <u>FST</u>	P/S

THE MIDDLESEX CORPORATION
 Regional Transportation Center - Woburn, MA
 MPA Project No. 1.727
 This shop drawing has been thoroughly checked and complies with the Contract Documents and field measurements and the item fits with adjoining work except as noted.
 SUBMITTAL # 02510-cb1-000 para 2.04
 BY: DP DATE: 3/6/00

SPEC DATA
 This Spec-Data sheet conforms to editorial style prescribed by The Construction Specifications Institute. The manufacturer is responsible for technical accuracy.

CONCRETE REINFORCEMENT
 Polypropylene Fibers

3

August 1991
 (Supersedes August 1988)



1. PROJECT NAME

Cellular Reinforced Polypropylene Fiber FIBERMESH

2. MANUFACTURER

Fibermesh Company
 4019 Highway Drive
 Chattanooga, TN 37416
 Phone: (615) 892-7243
 FAX: (615) 892-3506

3. PRODUCT DESCRIPTION

FIBERMESH fiber is an engineered fiber for concrete, manufactured to an optimum gradation from 100% virgin polypropylene. FIBERMESH provides protection against non-structural cracks in concrete, increases abrasion, adds impact and shatter resistance while reducing permeability, imparts toughness to hardened concrete and is an alternate system to welded wire fabric when used for crack control in non-structural concrete.

FIBERMESH applications include, but are not limited to, slabs on grade, elevated slabs, precast concrete products, pavements, bridge decks, overlays, toppings, barrier walls, concrete tanks, pools, ditches, stone walls, stucco, shotcrete and granite applications.

FIBERMESH fibers work without affecting the chemical hydration of the cement. Their action is purely mechanical and is compatible with all concrete mixes and admixtures.

FIBERMESH fibers cannot rust or stain; they are non-corrosive and alkali-proof.

FIBERMESH fibers are easy to handle. They are packaged in convenient 50 lb. measured units. The typical addition rate for 1 cu. yd. of concrete is 7.5 lbs. (0.1% by volume).

The information contained herein has been reproduced from Publication C-112, August 1988, by CSI, 1985, 1986, 1987, and used by permission of The Construction Specifications Institute, Chicago, IL 60611, 1988.

4. TECHNICAL DATA

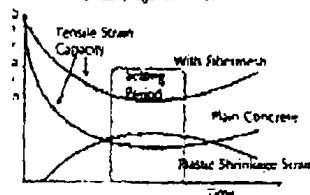
FIBERMESH fibers inhibit concrete plastic cracking, provide abrasion, impact and shatter resistance while lowering permeability and imparting toughness. These benefits have been proved by numerous field documentations, lab tests and engineering studies.

FIBERMESH Effect on Concrete Shrinkage Cracking: Tests run at San Jose State University and the University of California, Berkeley show without exception that FIBERMESH fiber concrete typically inhibits cracking in the range of 90% to 100% compared to the non-fiber control specimen.

Relative Effect of FIBERMESH Fibers on Early Age Plastic Shrinkage Cracking of Plastic Concrete: Tests by Webster Engineering and Associates, Inc. have shown that the addition of FIBERMESH fibers to plastic concrete substantially increases the resistance of the concrete to early age plastic shrinkage-cracking and cracking in response to settlement of vibration at early ages.

The addition of 1.5 lbs. per cu. yd. of FIBERMESH polypropylene fibers increases the strain capacity (ability to resist strain without developing cracking) of the immature concrete.

Principle of Tensile Strain and Tensile Strain Capacity of Early Age Concrete



Static Load Test of FIBERMESH Fibers Versus Welded Wire Fabric: The study was conducted in the laboratories of Wiss, Janney, Elstner & Associates, Inc., Consulting and Research Engineers by registered professional engineers. Re-

sults apply only to FIBERMESH fibers. The results of the study indicate that substituting FIBERMESH fibers in place of welded wire fabric at a rate of 1.5 lbs. per cu. yd. of concrete yields an equivalent flexural strength capacity of the slab and equivalent load-deflection relationship.

The flexural capacity of the slab containing FIBERMESH fibers was 2% higher than the slab containing welded wire fabric, and 8% higher than the plain concrete slab.



Reading strain gauges on sample slab.

Engineers Conclusion: The load-deflection data indicate that with respect to flexural response characteristics, FIBERMESH fibers can be used as a practical alternate to welded wire fabric, commonly used for shrinkage crack control purposes in essentially unreinforced concrete.

Relative Effect of FIBERMESH Fibers on Concrete Abrasion Resistance: A test program designed to evaluate relative abrasion resistance was developed to measure the effect of FIBERMESH fibers in concrete when exposed to excessive wear. The Army Corps of Engineers' "Method of Test for Resistance of Concrete or Mortar Surfaces to Abrasion" (Rotating Cutter Method CRD-C52-54) was used.

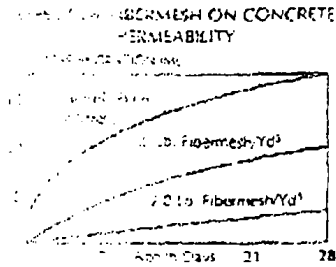
Test results indicate that the use of FIBERMESH fibers will increase the abrasion resistance by 105%.



FROM THE CONSTRUCTION SPECIFICATIONS INSTITUTE
 August 1991
 (Supersedes August 1988)

3

CONCRETE REINFORCEMENT
 Polypropylene Fibers



as high as 70% at 2 lbs. per cu. yd.

Toughness of FIBERMESH Reinforced Hardened Concrete: Toughness is the measure of fibrous concrete's ability to sustain load after the first crack. Toughness index can be used as a measure of the reinforcing fiber's ability to hold cracks together under load.

To meet ASTM C-1116 requirements for fiber reinforcement, a fiber should preferably be made from polypropylene and have been tested to score 3.0 or better on an ASTM C-1018 "Standard Test Method for Flexural Toughness and First-Crack Strength of Fiber-Reinforced Concrete (Using Beam with Third-Point Loading)."

FIBERMESH fibrillated, graded fiber, when used at a ratio of 1.5 lbs. per cu. yd. (0.1% by volume), meets both the material recommendations and performance requirements of ASTM C-1116 and C-1018 Toughness Index I_t .

Fire Test of FIBERMESH Concrete Versus Welded Wire Fabric in Concrete: A series of fire tests was conducted by Underwriters' Laboratories and Omega Point Laboratories using standard ASTM Test Method E-119 (UL263) on various metal deck assemblies.

Underwriters' Laboratories concluded that, based upon the full-scale fire test data developed with the use of FIBERMESH fibers in a protected concrete-steel form and assembly, FIBERMESH fibers would be a suitable alternate to welded wire fabric in similar type constructions—D700 Series or D800 Series designs. Omega Point Laboratories has issued a blanket recognition for FIBERMESH fibers as a substitute for welded wire mesh in concrete walls, floor/ceiling and roof/ceiling assemblies.

Fibermesh 2

Load Test of FIBERMESH Fibers

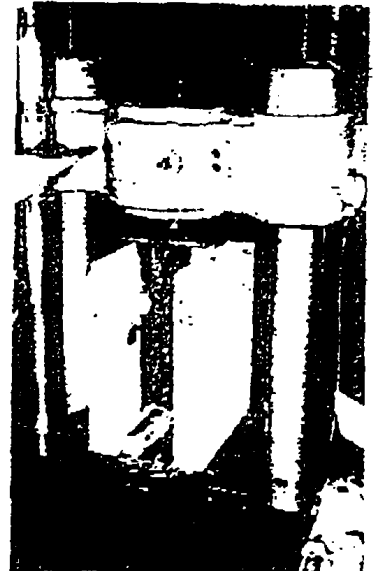
Versus Welded Wire Fabric in Composite Deck Systems: Load tests conducted using the FIBERMESH fiber reinforced concrete were equal to or better than the welded wire fabric reinforced concrete tests, thus indicating an equivalency for structural performance in composite slabs as well as the diaphragm behavior. As a follow-up to the load tests, a test program was conducted on the strengths of headed stud shear connectors in concrete comparing the use of FIBERMESH micro-reinforcing system to the use of welded wire fabric.

The results of the Pushout Tests show that the strength and ductility of shear connectors in steel mesh and FIBERMESH reinforced concrete are comparable. The use of FIBERMESH fibers also eliminates the construction problems experienced with welded wire fabric in metal decking and provides a consistent solution to the problems concerning the amount and location of the reinforcement.

Code Certification: FIBERMESH fibers comply with the BOCA (Basic National Building Code) and Supplements, the Standard Building Code and the Uniform Building Code as reported by the Council of American Building Officials, National Evaluation Service Committee—Report No. NER-284. FIBERMESH fibers are accepted by various State Departments of Transportation.

5. INSTALLATION

FIBERMESH is packaged in pre-measured plastic bags and disintegrative FAS-PAKS. FAS-PAKS are conveniently added to the concrete mixer anytime before or during the batching operation. FIBERMESH fibers are evenly distributed throughout the concrete when



Load Test of FIBERMESH Fibers versus Welded Wire Fabric in Composite Deck Systems.

blended at the concrete mixer's rated speed and time. Overmixing will not alter the FIBERMESH fiber's reinforcing performance.

6. AVAILABILITY AND COST

Availability: FIBERMESH can be purchased throughout the free world. There are technically qualified field sales personnel in most major cities for service.

Cost: General estimating should be based at \$.02 per sq. ft. per in. of concrete thickness. Price can vary based on volume and location.

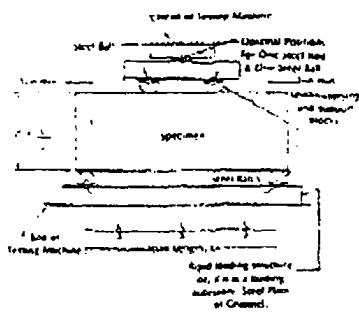
7. WARRANTY

Fibermesh Company has no control over the design, manufacture or testing of the concrete products which incorporate our materials. Therefore, Fibermesh Company assumes no responsibility for the end products or use of our materials. The manufacturer or processor is responsible for testing its products to establish the physical properties thereof. It is the manufacturer's or processor's responsibility to certify compliance of its product, including any formulation which may include our materials, with applicable design and physical testing standards or requirements.

8. MAINTENANCE

Not applicable.

ASTM C-78





These accelerated test photos show a comparison between control and fibers at 24 hours. The cracking in the control is in situ at fiber starts at 2 1/2 hours. Same size and crushing pattern was developed at 6 hours.



At 28 days and even after 28 days, the FIBERMESH reinforced concrete shows no cracking.

thereby doubling the serviceable life of concrete exposed to similar wear conditions.

Tests were also run in cooperation with the Norwegian Highway's Laboratories on Norcem Cement's studded-tire abrasion test machine. At 42 MPH, utilizing steel studded tires and 10 ton axle loads, the equipment accurately demonstrates the effects of 10 years of highway wear at the rate of 15,000 vehicles per day.

The FIBERMESH reinforced C-75 specimen exhibited a 52% increase in abrasion resistance by sustaining 34.4% less material loss than the control specimen without fibers. Significantly, the C-50 FIBERMESH reinforced specimen, containing less cement, exhibited a 20% increase in abrasion resistance over the C-75 control specimen by sustaining 17.2% less material loss. (The C-50 concrete has a base design strength of 7,252 psi, while the C-75 concrete has a design strength equivalent to 10,878 psi.)

Relative Effect of FIBERMESH Fibers on Concrete Impact Resistance: Tests conducted at the University of British Columbia, utilizing an instrumented impact machine indicated the foot pounds of energy to fracture beams with and without reinforcing bars, as indicated in Tables 1 and 2.

The addition of FIBERMESH fibers inhibits further crack growth by bridging the cracks that develop. The fibers also enhance the bond between the concrete and the reinforcing bars by inhibiting

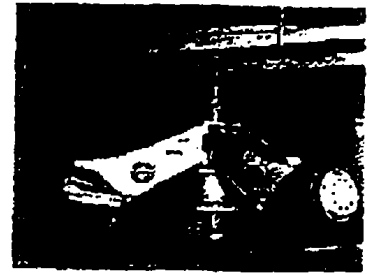


Photo COURTESY Norcem Cement AS

cracking of the concrete under bearing stresses in the vicinity of the bar deformations.

Shatter Resistance Under Compressive Loading of FIBERMESH Concrete Versus Plain Concrete: This test program evaluated the shatter resistance of FIBERMESH concrete and plain concrete when exposed to crushing loads.

Results show that FIBERMESH concrete will sustain itself and not shatter even after 10% more compression than plain concrete, which shattered completely



Research engineer removes FIBERMESH specimen after test. Column was compressed 10% and still remained intact.

TABLE 1

Impact Fracture Energy Fibermesh FRC Beams Without Rebar

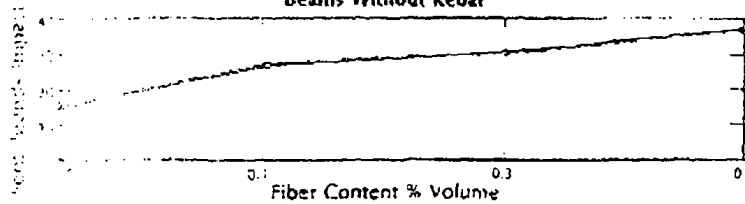
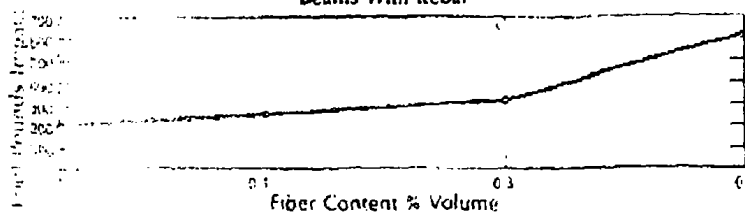


TABLE 2

Impact Fracture Energy Fibermesh FRC Beams With Rebar



shortly after the first crack. This characteristic of FIBERMESH concrete is important for applications where there are impact or seismic concerns towards safety to life and property, and relates directly to the added toughness factor of FIBERMESH reinforced concrete.

Water Migration/Permeability of FIBERMESH Concrete: The Von Test method was used to make this comparison at San Jose State University.

Migration of water rates indicated reduction in concrete permeability of 33%-44% at 1 lb. of FIBERMESH fibers per cu. yd., and

Figure 3

APPLICATION GUIDELINES

Do specify FIBERMESH for:

- The reduction of concrete cracking as a result of intrinsic shrinkage.
- A superior method and cost-effective alternate to welded wire fabric for secondary reinforcement.
- A reduction in the permeability of concrete.
- Greater impact, abrasion and surface resistance in concrete.
- Greater support and cohesiveness in concrete on steep inclines and in sloped placements.
- Greater fatigue resistance.
- Improved durability.
- Locations where all materials must be non-metallic.
- Areas requiring materials that are both alkali proof and chemical resistant.

Don't specify FIBERMESH for:

- The control of cracking as a result of external stresses.
- Increasing the structural number of PC concrete in pavement or slabs on grade.
- Higher structural strength development.
- The elimination or reduction in curling and/or creep.
- The justification for a reduction in the size of the support columns.
- The replacement of any moment or structural steel reinforcement.
- Increasing of ACI and/or PCA control joint guidelines.
- The thinning-out of bonded or unbonded overlay sections.
- Decreasing the thickness of slabs on grade.

9. TECHNICAL SERVICES

Fibermesh Company conducts the industry's most extensive and comprehensive R&D program. Technical backup is unequalled. FIBERMESH engineering reports are readily available. The field staff is technically trained for job service assistance.

10. FILING SYSTEMS

Electronic SPEC-DATA⁺
SPEC-DATA[®] II -
Sweet's Catalog, BuyLine 2007



FIBERMESH CO.

Division of Synthetic Industries, Inc.
Worldwide Headquarters
4019 Industry Drive
Chattanooga TN 37416 - USA
(615) 892-7243
FAX (615) 892-8080

8-91-2577

Fibermesh 4

Stone & Webster
 245 Summer Street, Boston, MA 02210
 tel: (617) 589-2509 fax: (617) 589-1008

LETTER OF TRANSMITTAL

Date: April 7, 2000

To: The Middlesex Corp. (job site)
 30A Atlantic Avenue
 Woburn, MA 01801

Job No: 07473
Project: MPA Project No. 1.727
 Regional Transportation Center, Woburn, MA

Attn: Rick Noblet, P.E.
 Project Manager

Letter: swtmc-056
Subject: TMC Transmittal No. 0026 (partial)

The following are transmitted attached herewith, or under separate cover via _____
 as a copy of a letter / memorandum
 reproducible drawing
 computer disk specification
 other (return of shop drawing submittal)

Middlesex Transmittal No. and Date	Copies Returned	Submittal No.	Description	Action Code	Comments
(part) 0026 03-21-00	2	02513-001-0 02513	Bituminous Concrete: 1. Middlesex Materials, Chelmsford - job mix formulas for surface and base course mixes 2. Bardon Trimount, Saugus - job mix formulas for surface and base course mixes	1 1	

- Action Codes:
- 1 Approved (work may proceed)
 - 2 Approved as Noted (work may proceed, resubmission not required)
 - 3 Approved as Noted, Resubmission Required (work may proceed if corrected, resubmitted within 5 days)
 - 4 Rejected (work shall not proceed until resubmitted in an acceptable form)
 - 5 Noted, No Action Required

Comments:

- 1. This is a partial return of TMC transmittal 0026. The remainder of items in the transmittal have been returned previously.

RECEIVED
 APR 10 2000

Middlesex Corp. Job 405
 Woburn, MA

- c: C.Ambrose - MPA RE (w/ enc)
 C.Ezumezu - MBTA RE (w/ enc)
 K.Johnson - MPA (trans only)
 W.Bregoli - MBTA (trans only)
 D. Bakker - FST (trans only)

Bill Palmieri

 William J. Palmieri, P.E.
 Project Manager

The Middlesex Corporation

TRANSMITTAL
No. 002

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

PROJECT: Woburn Regional Transportation Ctr

DATE: 03/21/2000

file 0747

TO: Stone & Webster
245 Summer Street
Boston, MA 02210

REF: Submittals

02513
04200
05100
07100
08800

ATTN: Bill Palmieri

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input checked="" type="checkbox"/> Shop Drawings	<input checked="" type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	SENT VIA:	<input type="checkbox"/> Returned
<input type="checkbox"/> Specifications	<input checked="" type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input checked="" type="checkbox"/> Other: Made from Submittal	<input type="checkbox"/> Separate Cover Via: Mail	<input type="checkbox"/> Due Date:

ITEM	PACKAGE	SUBMITTAL	DRAWING	REV.	ITEM NO.	COPIES	DATE	DESCRIPTION	STATUS
<i>FST</i>	SUB	✓ 02513	001	00		6	03/21/2000	Title: Bit. Concrete Mix Designs Desc: Mix Designs	NEW
<i>BWA</i>	SUB	✓ 04200	003	00		6	03/21/2000	Title: Brick Test Results Desc: Glen-Gery 53DD Brick Test Results	NEW
<i>SW</i>	SUB	✓ 05100	005	00		6	03/21/2000	Title: Primer for Building Steel Desc: Tnemec Typoxy paint	NEW
<i>BWA</i>	SUB	✓ 07100	001	00		3	03/21/2000	Title: Sealants, B Rod, Dampproofing Desc: Samples: Breaker Tape, Tremflex 834	NEW
<i>BWA</i>	SUB	✓ 07100	001	00		3	03/21/2000	Title: Sealants, B Rod, Dampproofing Desc: Samples: Karnak 220, Dymonic Sealant, Backer Rod	NEW
<i>BWA</i>	SUB	✓ 08800	001	00		6	03/21/2000	Title: Glass Product Data & Samples Desc: Product Data; (1) sample	NEW

Remarks: 1. Two additional glass samples are being forwarded by the glass subcontractor.
2. Primer paint for approval is per our discussion - we'd just like approval of it so it doesn't appear that it was an oversight on the part of the building steel supplier.
3. Sealant samples go along with previously approved submittals for Section 07100.
4. A copy of the brick test results was FAX'd today directly to Baker-Wohl; it is our understanding that the Glen-Gery brick will be approved, pending review/approval of these tests. Please notify us as soon as possible of brick approval, so the brick can be ordered (lead time as discussed at the PreConstruction Meeting is of concern).

CC: Chris Ambrose, Massport (w/copy)
Cyril Ezumezu, MBTA (transmittal only)

Signed:

Laura Robinson
Laura Robinson

Bardon Trimount

1831 Broadway
Saugus, Ma.
01906

Materials and Research

Tel:(781) 231-4312

Fax:(781) 231-3970

3/17/00

Middlesex Materials
80 Ayer Road
Littleton, MA
01460

<input checked="" type="checkbox"/>	REVIEWED FOR GENERAL CONSISTENCY WITH THE SPECIFICATIONS AND SPECIFICATIONS.
<input type="checkbox"/>	REVIEWED FOR GENERAL CONSISTENCY COMMENTS NOTED.
<input type="checkbox"/>	REVISE AND RESUBMIT.
FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS	
By: <u>Dirk Bakker</u> DATE: <u>03-06-00</u>	
<small>Shop drawings have been reviewed to ascertain that they conform to the contract documents. It is not to be construed as a guarantee of accuracy or completeness. The engineer's responsibility is limited to the design and construction of the work shown on the drawings and the responsibility of the contractor is to construct the work in accordance with the contract documents.</small>	

Re: MPA No. 1.727 Woburn Regional Transportation Center

Attention: Mike Little

Enclosed please find our Job Mix Formulars for Bituminous Concrete. Included is the Marshall mix design data used to develop the JMF's.

These designs have been submitted for review. These are the mixes which we intend to produce for the reference project. Please note at this time Middlesex Materials will be the primary plant with Bardon Trimount Saugus being the back up plant.

Respectfully submitted,



Anthony Crupi
North Regional Manager Materials and Research

THE MIDDLESEX CORPORATION Regional Transportation Center - Woburn, MA MPA Project No. 1.727	
This shop drawing has been thoroughly checked and complies with the Contract Documents and field measurements and the item fits with adjoining work except as noted.	
SUBMITTAL #	<u>02513-00-00</u>
BY:	<u>DP</u>
DATE:	<u>3/21/00</u>

Bardon Trimount

1831 Broadway
Saugus, Ma.
01906

Materials and Research

Tel:(781) 231-4312
Fax:(781) 231-3970

3/17/00

Middlesex Materials
80 Ayer Road
Littleton, MA
01460

Re: MPA No. 1.727 Woburn Regional Transportation Center
Section 2513-1, par. 2.02 Bituminous material

Attention: Mike Little

Please be advised that the viscosity graded asphalt cements called for in the reference specification are no longer available. The grading and designation system has been changed to Performance Graded Asphalt Binder (PGAB). The enclosed waiver statement from the Massachusetts Highway Department details the substitutions of PG's for AC grades. Based on weather conditions in the project area PG 64 -28 should be used, this PGAB is reccommand for pavement temperatures between 147.2⁰ F and -18⁰ F.

Respectfully submitted,



Anthony Crupi
North Regional Manager Materials and Research

Bardon Trimount

1831 Broadway
 Saugus, Ma.
 01906

Materials and Research

Tel:(781) 231-4312
 Fax:(781) 231-3970

Gradation and Specifications

For Middlesex Materials, Chelmsford, MA

Project:	Woburn Regional Transportation Center	Design Date:	1/14/00
Project #:	MPA No. 1.727	Type of Mix:	Surface Course

<u>Sieve</u>		<u>JMF</u>	<u>Tolerance +/-</u>
50mm	2"	100	0
37.5mm	1 1/2"	100	0
25mm	1"	100	0
19mm	3/4"	100	7
12.5mm	1/2"	93	7
9.5mm	3/8"	77	7
4.75mm	# 4	55	7
2.36mm	# 8	38	6
1.18mm	# 16	25	6
0.6mm	# 30	18	5
0.3mm	# 50	13	5
0.15mm	#100	9	3
0.075mm	#200	4	3
% PG 64 -28		5.6	0.45

	Design Criteria	Acceptance Criteria
HMA Mixing Temperature Range:	280 - 320	-
HMA Discharge Temperature:	280 - 320	-
Voids in Mineral Aggregates:	15 Minimum	
Marshall Compaction Temperature:	290 ^o F +/-5 ^o	
Marshall Blows:	75 Blows each side	
Voids:	2 - 5	-
Stability:	1800 Minimum	
Flow:	8 - 16	-

Bardon Trimount

1831 Broadway
Saugus, Ma.
01906

Materials and Research

Tel:(781) 231-4312
Fax:(781) 231-3970

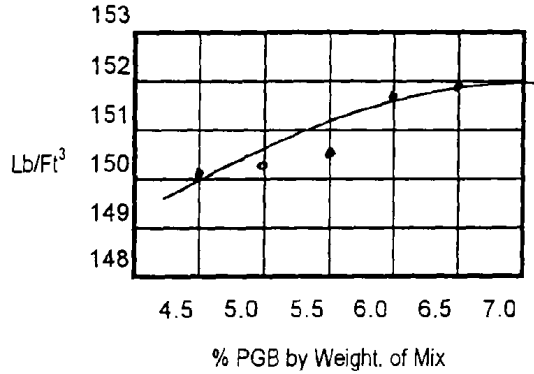
Project:	Woburn Regional Transportation Center	Design Date:	1/14/00
Project #:	MPA No. 1.727	Type of Mix:	Surface Course

Marshall Test Results of Trial Mixes

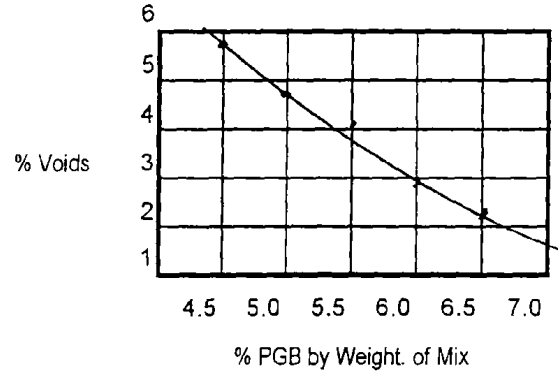
Percent PG Binder (Pb):	4.5	5.0	5.5	6.0	6.5
Bulk Specific Gravity (Gmb):	2.405	2.408	2.412	2.432	2.435
Max. Theoretical Specific Gravity (Gmm):	2.553	2.531	2.513	2.506	2.489
Percent Air Voids (Pa):	5.80	4.86	4.02	2.95	2.17
Voids in Mineral Aggregates (VMA):	16.3	16.5	16.9	17.1	17.5
Voids Filled with Asphalt (VFA):	64.4	70.6	76.2	82.8	87.6
Unit Weight:	150.1	150.3	150.5	151.8	151.9
Stability, Pounds:	2790	2890	2910	3040	2860
Flow, 0.01 Inch:	8.0	9.0	11.5	13.5	15.5

Marshall Curves

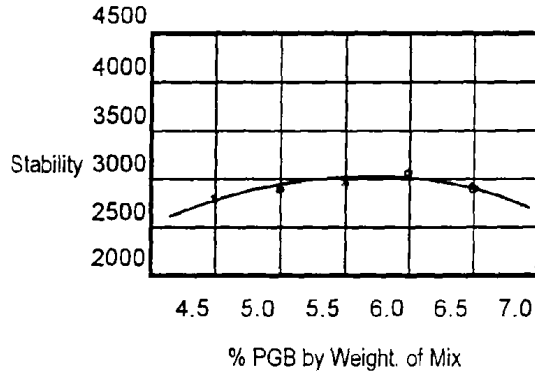
Unit Weight - Lb/Ft³



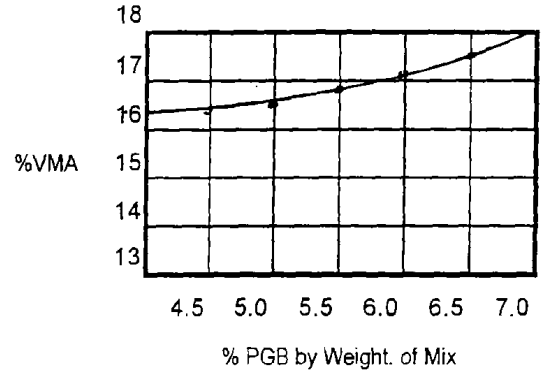
% Air Voids



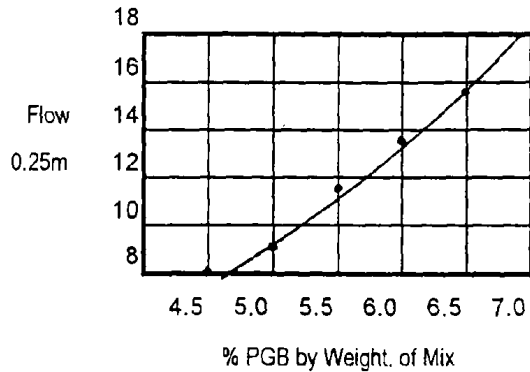
Marshall Stability - Lb.



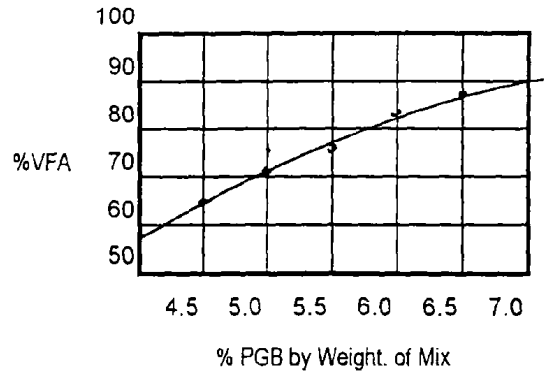
% VMA



Flow 0.25mm



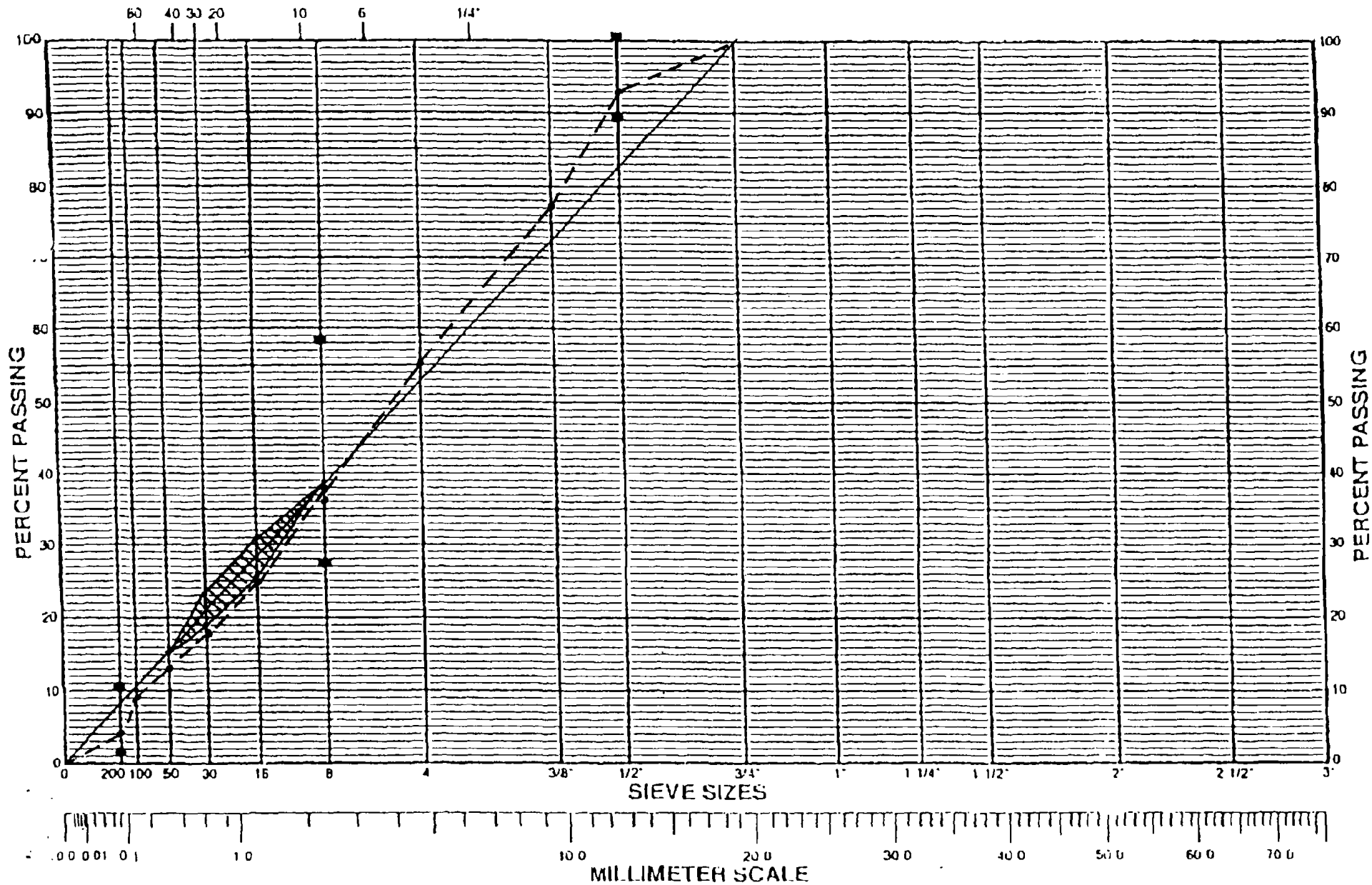
% VFA



Date:	1/14/00	Optimum % PG Binder:	5.6	Mix:	Surface Course (Mod. Top)
		Stability	Unit Wt.	% Total Voids	% VMA
Property		3000	150.7	3.5	16.8
					Flow
					11.8

GRADATION CHART

SIEVE SIZES RAISED TO 0.45 POWER



()

()

()

Bardon Trimount
 1831 Broadway
 Saugus, MA
 01906

Materials and Research
 Ron Tardiff, Manager
 Tel: (617) 231-4300
 Fax: (617) 231-3970

Surface Course or State Mod. Top
 Middlesex
 Mix By: AC
 Product 23

MATERIAL GRADATIONS

Date	Feeder	Material	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
2/8	Feed	1 1/2"	70.4	20.9	2.0	1.4	0.8	0.3	0.2	0.1	0.1	0.1	0.1
1/5	Feed	3/4"	100.0	97.5	17.9	3.6	1.4	1.0	0.8	0.5	0.3	0.2	0.1
1/5	Feed	1/2"	100.0	100.0	95.7	39.6	6.3	3.3	2.2	0.5	0.1	0.1	0.1
1/5	Feed	3/8"	100.0	100.0	99.8	97.4	36.4	8.5	3.6	0.9	0.8	0.4	0.2
1/5	Feed	Stone San	100.0	100.0	100.0	100.0	99.9	84.6	56.6	36.3	21.3	9.9	3.7
1/5	Feed	Dust	100.0	100.0	100.0	100.0	99.0	86.1	64.8	48.2	34.6	24.8	18.2
1/5	Feed	Stone San	100.0	100.0	100.0	100.0	99.8	82.0	51.3	34.2	22.3	12.1	6.0
9/29	Feed	3/8"	100.0	100.0	100.0	95.4	24.4	5.4	2.9	0.5	0.1	0.1	0.1
11/23	Stock	C. Dust	100.0	100.0	100.0	100.0	99.1	77.5	51.8	36.0	25.0	17.6	13.0
1/5	Stock	RAP Top	100.0	100.0	99.0	87.0	59.0	44.0	35.0	27.0	17.0	10.0	5.4
1/5	Stock	RAP Bin	100.0	99.0	59.0	48.0	34.0	27.0	22.0	17.0	11.0	6.0	3.7

No AC

DRY STONE BLEND

Conversi	Material	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
	1 1/2"											
	3/4"											
0.310	1/2"	31.0	31.0	29.7	12.3	2.0	1.0	0.7	0.2	0.0	0.0	0.0
0.270	3/8"	27.0	27.0	26.9	26.3	9.8	2.3	1.0	0.2	0.2	0.1	0.1
0.290	Stone San	29.0	29.0	29.0	29.0	29.0	24.5	16.4	10.5	6.2	2.9	1.1
0.130	Dust	13.0	13.0	13.0	13.0	12.9	11.2	8.4	6.3	4.5	3.2	2.4
	Stone San											
	3/8"											
	C. Dust											
	RAP Top											
	RAP Bin											

1.000	TOTAL	100.0	100.0	98.6	80.6	53.6	39.0	26.5	17.2	10.9	6.2	3.5
	JMF	100.0	100.0	93.0	77.0	55.0	38.0	25.0	18.0	13.0	9.0	4.0
	VARIANCE			5.6	3.6	-1.4	1.0	1.5	-0.8	-2.1	-2.8	-0.5
	Tolerance +/-			7	7	7	4	4	4	4	4	2.0
OK	JMF LOW	100	100	86	70	48	34	21	14	9	5	2
OK	JMF HIGH	100	100	100	84	62	42	29	22	17	13	6
OK	MR LOW	100	100	79	68	48	33	20	14	9	6	3
OK	MR HIGH	100	100	99	88	68	53	40	30	21	16	6

ce Course or State Mod. Top

PLANT PERCENTAGES

Material	Feeder	Moist	AC	PLANT PERCENTAGES				RAP Correction		JMF
1 1/2"	Feed									
3/4"	Feed									
0.310	1/2"	Feed		29.5	29.3	29.1	29.3		29.2	29.2
0.270	3/8"	Feed		25.7	25.5	25.4	25.5		25.5	25.5
0.290	Stone San	Feed	0.2	27.6	27.4	27.3	27.4		27.3	27.3
0.130	Dust	Feed	0.3	12.4	12.3	12.2	12.3	AC	12.3	12.3
	Stone San	Feed	0.2					Correct		
	3/8"	Feed	2.9							
	C. Dust	Stock	2.0							
	RAP Top	Stock	2.3	5.4						
	RAP Bin	Stock	1.0	4.1						
	Asphalt			5.0	5.5	6.0	5.6		5.7	5.7
	TOTAL			100.2	100.0	100.0	100.1		100.0	100.0

3/17/00
 9:00 AM

Project:	Woburn Regional Transportation Center	Design Date:	1/14/00
Project #:	MPA No. 1.727	Type of Mix:	Surface Course

Aggregate Qualifications

Coarse Aggregates, Middlesex Materials Quarry

TEST:	Result:
Los Angeles Abrasion, % Loss:	22.2
Sodium Sulfate Soundness, % Loss:	2.90
Two Fractured Faces, %:	100
One Fractured Faces, %:	100
Flat Pieces, %:	4.8
Elongated Pieces, %:	0.0
Specific Gravity:	2.685
% Absorption:	0.50

Fine Aggregates, Middlesex Materials Quarry

TEST:	
Plastic Index:	Non Plastic
Liquid Limit:	Non Plastic
% Absorption:	0.80
ASTM D2419 Sand Equivalent, SE:	84
Percent Natural Sand:	0%

All aggregates consist of clean, sound, durable, angular particles produced by crushing stone, and are free coatings of clay, silt, or other objectionable matter and contain no clay balls.

Bardon Trimount

1831 Broadway
 Saugus, Ma.
 01906

Materials and Research

Tel:(781) 231-4312
 Fax:(781) 231-3970

Gradation and Specifications

For Middlesex Materials, Chelmsford, MA

Project:	Woburn Regional Transportation Center	Design Date:	1/13/00
Project #:	MPA No. 1.727	Type of Mix:	Base Course

<u>Sieve</u>	<u>JMF</u>	<u>Tolerance +/-</u>
50mm 2"	100	0
37.5mm 1 1/2"	100	0
25mm 1"	98	7
19mm 3/4"	93	7
12.5mm 1/2"	72	7
9.5mm 3/8"	49	7
4.75mm # 4	40	7
2.36mm # 8	31	6
1.18mm # 16	22	6
0.6mm # 30	16	5
0.3mm # 50	11	5
0.15mm #100	6	3
0.075mm #200	3	3
% PG 64 -28	4.9	0.45

HMA Mixing Temperature Range:

HMA Discharge Temperature:

Voids in Mineral Aggregates:

Marshall Compaction Temperature:

Marshall Blows:

Voids:

Stability:

Flow:

Design Criteria	Acceptance Criteria
280 - 320	-
280 - 320	-
13 Minimum	
290 ⁰ F +/-5 ⁰	
75 Blows each side	
2 - 5	-
1800 Minimum	
8 - 16	-

Bardon Trimount
 1831 Broadway
 Saugus, Ma.
 01906

Materials and Research
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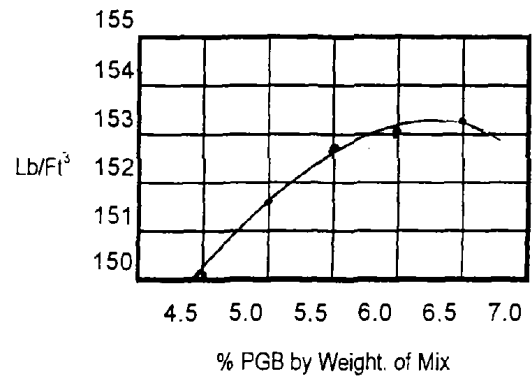
Project:	Woburn Regional Transportation Center	Design Date:	1/13/00
Project #:	MPA No. 1.727	Type of Mix:	Base Course

Marshall Test Results of Trial Mixes

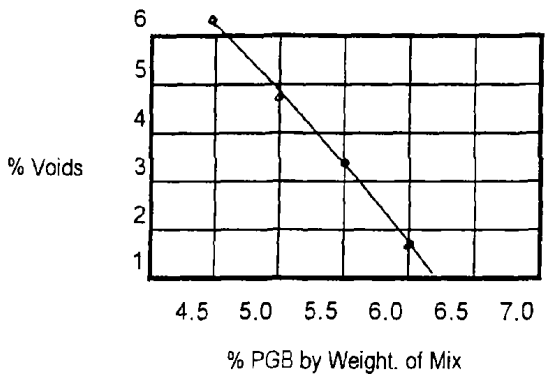
Percent PG Binder (Pb):	4.0	4.5	5.0	5.5	6.0
Bulk Specific Gravity (Gmb):	2.404	2.430	2.448	2.452	2.455
Max. Theoretical Specific Gravity (Gmm):	2.565	2.551	2.533	2.507	2.495
Percent Air Voids (Pa):	6.28	4.74	3.36	2.19	1.60
Voids in Mineral Aggregates (VMA):	15.6	15.4	15.2	15.3	15.9
Voids Filled with Asphalt (VFA):	59.8	69.1	78.0	85.6	89.9
Unit Weight:	150.0	151.6	152.8	153.0	153.2
Stability, Pounds:	3400	3390	2990	2575	2310
Flow, 0.01 Inch:	8.5	9.0	11.0	12.0	14.5

Marshall Curves

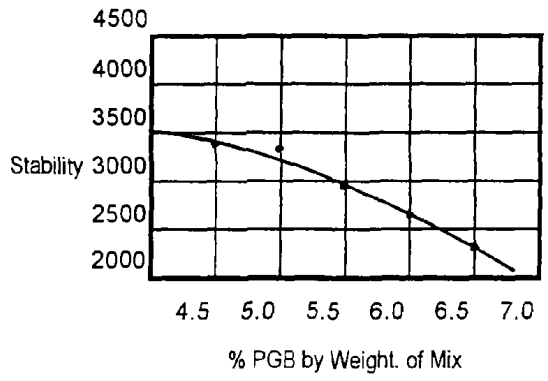
Unit Weight - Lb/Ft³



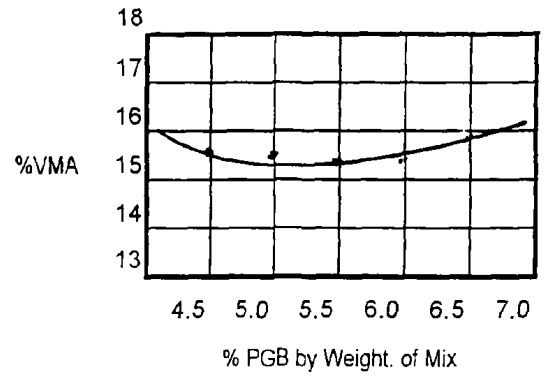
% Air Voids



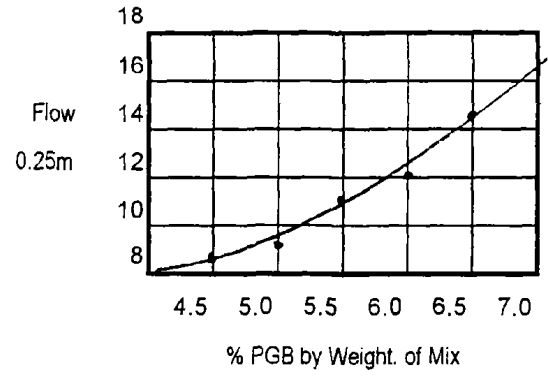
Marshall Stability - Lb.



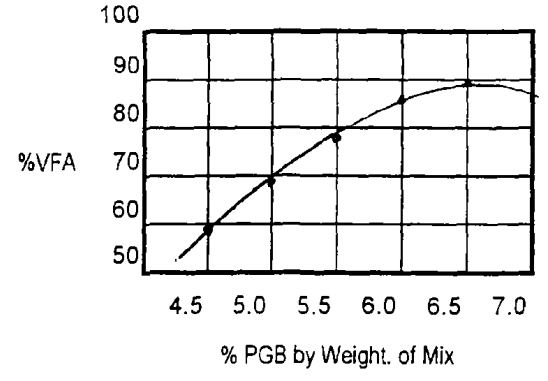
% VMA



Flow 0.25mm

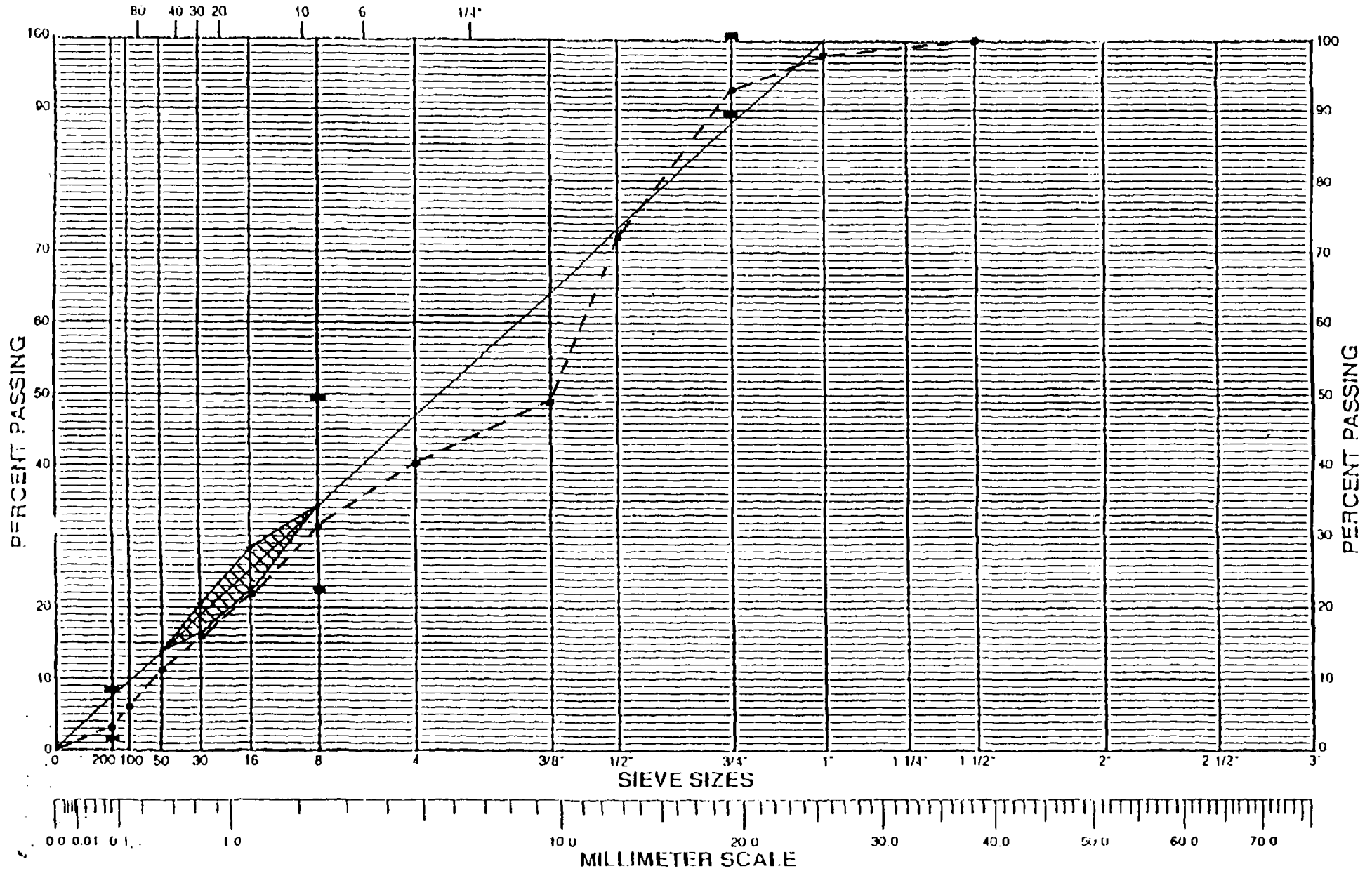


% VFA



Date: 1/13/00	Optimum % PG Binder: 4.9	Mix: State Binder			
	Stability	Unit Wt.	% Total Voids	% VMA	Flow
Property	3010	152.5	3.5	15.3	10.9

NATIONAL CENTER FOR ASPHALT TECHNOLOGY (NCAT)
GRADATION CHART
 SIEVE SIZES RAISED TO 0.45 POWER



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Bardon Trimount
 1831 Broadway
 Saugus, MA
 01906

Materials and Research
 Ron Tardiff, Manager
 Tel:(781) 231-4300
 Fax:(781) 231-3970

Base Course or State Binder
 Middlesex
 Mix By: AC
 Product 2

MATERIAL GRADATIONS

Date	Feeder	Material	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
2/8	Feed	1 1/2"	70.4	20.9	2.0	1.4	0.8	0.3	0.2	0.1	0.1	0.1	0.1
1/5	Feed	3/4"	100.0	97.5	17.9	3.6	1.4	1.0	0.8	0.5	0.3	0.2	0.1
1/5	Feed	1/2"	100.0	100.0	95.7	39.6	6.3	3.3	2.2	0.5	0.1	0.1	0.1
1/5	Feed	3/8"	100.0	100.0	99.8	97.4	36.4	8.5	3.6	0.9	0.8	0.4	0.2
1/5	Feed	Stone San	100.0	100.0	100.0	100.0	99.9	84.6	56.6	36.3	21.3	9.9	3.7
1/5	Feed	Dust	100.0	100.0	100.0	100.0	99.0	86.1	64.8	48.2	34.6	24.8	18.2
1/5	Feed	Stone San	100.0	100.0	100.0	100.0	99.8	82.0	51.3	34.2	22.3	12.1	6.0
9/29	Feed	3/8"	100.0	100.0	100.0	95.4	24.4	5.4	2.9	0.5	0.1	0.1	0.1
11/23	Stock	C. Dust	100.0	100.0	100.0	100.0	99.1	77.5	51.8	36.0	25.0	17.6	13.0
1/5	Stock	RAP Top	100.0	100.0	99.0	87.0	59.0	44.0	35.0	27.0	17.0	10.0	5.4
1/5	Stock	RAP Bin	100.0	99.0	59.0	48.0	34.0	27.0	22.0	17.0	11.0	6.0	3.7

No AC

DRY STONE BLEND

Conversi	Material	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
	1 1/2"											
0.350	3/4"	35.0	34.1	6.3	1.3	0.5	0.4	0.3	0.2	0.1	0.1	0.0
0.290	1/2"	29.0	29.0	27.8	11.5	1.8	1.0	0.6	0.1	0.0	0.0	0.0
	3/8"											
0.240	Stone San	24.0	24.0	24.0	24.0	24.0	20.3	13.6	8.7	5.1	2.4	0.9
0.120	Dust	12.0	12.0	12.0	12.0	11.9	10.3	7.8	5.8	4.2	3.0	2.2
	Stone San											
	3/8"											
	C. Dust											
	RAP Top											
	RAP Bin											

1.000	TOTAL	100.0	99.1	70.0	48.7	38.2	31.9	22.3	14.8	9.4	5.5	3.1
	JMF	98.0	93.0	72.0	49.0	40.0	31.0	22.0	16.0	11.0	6.0	3.0
	VARIANCE	7.0	6.1	-2.0	-0.3	-1.8	0.9	0.3	-1.2	-1.6	-0.5	0.1
	Tolerance +/-	7	7	7	7	7	6	6	5	5	3	3.0
OK	JMF LOW	86	86	65		33	25		11	6		
OK	JMF HIGH	100	100	79		47	37		21	16		6
OK	MR LOW	100	80	55		28	20		8	5		
OK	MR HIGH	100	100	75		50	38		22	15		5

Base Course or State Binder

PLANT PERCENTAGES

Material	Feeder	Moist	AC	PLANT PERCENTAGES				RAP Correction		JMF
	1 1/2"	Feed								
0.350	3/4"	Feed			33.4	33.3	33.1	33.3		33.3
0.290	1/2"	Feed			27.7	27.6	27.4	27.6		27.6
	3/8"	Feed								
0.240	Stone San	Feed	0.2		22.9	22.8	22.7	22.8		22.8
0.120	Dust	Feed	0.3		11.5	11.4	11.3	11.4		11.4
	Stone San	Feed	0.2						AC	
	3/8"	Feed	2.9						Correct	
	C. Dust	Stock	2.0							
	RAP Top	Stock	2.3	5.4						
	RAP Bin	Stock	1.0	4.1						
	Asphalt				4.5	5.0	5.5	4.9		5.0
	TOTAL				100.0	100.1	100.0	100.0		100.1

Bardon Trimount

1831 Broadway
 Saugus, Ma.
 01906

Materials and Research

Tel: (781) 231-4312
 Fax: (781) 231-3970

Gradation and Specifications

For Bardon Trimount, Saugus, MA

Project:	Woburn Regional Transportation Center	Design Date:	1/26/00
Project #:	MPA No. 1.727	Type of Mix:	Surface Course

<u>Sieve</u>		<u>JMF</u>	<u>Tolerance</u>
50mm	2"	100	
37.5mm	1 1/2"	100	
25mm	1"	100	
19mm	3/4"	100	
12.5mm	1/2"	94	7
9.5mm	3/8"	77	7
4.75mm	# 4	55	7
2.36mm	# 8	38	6
1.18mm	# 16	25	6
0.6mm	# 30	18	5
0.3mm	# 50	13	5
0.15mm	#100	9	3
0.075mm	#200	4	3
% PG 64 -28		5.5	0.45

HMA Mixing Temperature Range:

HMA Discharge Temperature:

Voids in Mineral Aggregates:

Marshall Compaction Temperature:

Marshall Blows:

Voids:

Stability:

Flow:

Design Criteria	Acceptance Criteria
280 - 320	-
280 - 320	-
15 Minimum	
285 ⁰ F +/-5 ⁰	
75 Blows each side	
2 - 5	-
1500 Minimum	
8 - 16	-

Bardon Trimount

1831 Broadway
Saugus, Ma.
01906

Materials and Research

Tel:(781) 231-4312
Fax:(781) 231-3970

Project:	Woburn Regional Transportation Center	Design Date:	1/26/00
Project #:	MPA No. 1.727	Type of Mix:	Surface Course

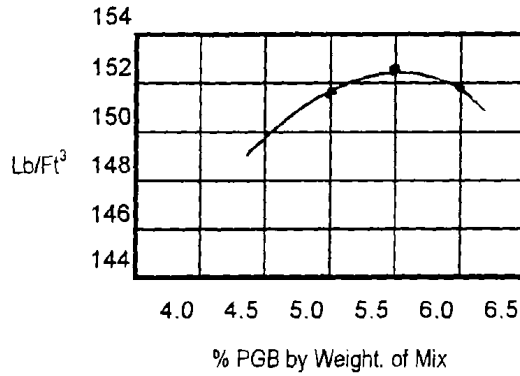
Marshall Test Results of Trial Mixes

Percent PG Binder (Pb):	5.0	5.5	6.0
Bulk Specific Gravity (Gmb):	2.432	2.440	2.435
Max. Theoretical Specific Gravity (Gmm):	2.554	2.528	2.503
Percent Air Voids (Pa):	4.78	3.48	2.72
Voids in Mineral Aggregates (VMA):	16.6	16.5	16.9
Voids Filled with Asphalt (VFA):	71.2	78.9	83.9
Unit Weight:	151.8	152.3	151.9
Stability, Pounds:	2680	2500	2280
Flow, 0.01 Inch:	11.0	11.5	13.5

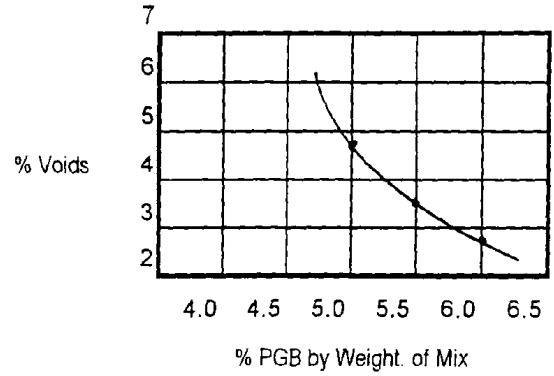
Tensile Strength Ratio (TSR) at 5.5% PG Binder = 92.63 (75% min.)
(Specimens compacted at 275⁰F, 40 blows per side, to achieve 7 +/- 1%
air voids, actual average per set was 6.25%). Since the TSR exceeds the
minimum, no antistrip agent is required.

Marshall Curves

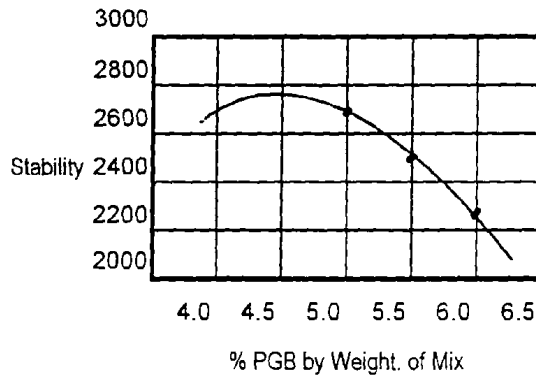
Unit Weight - Lb/Ft³



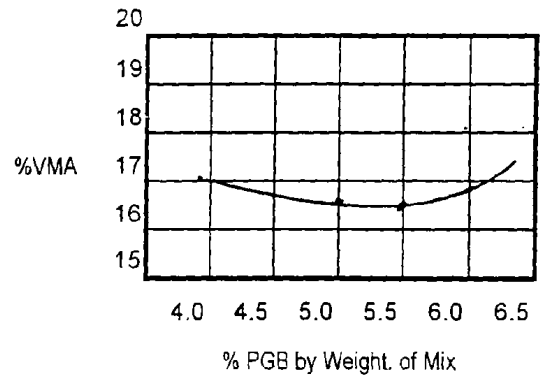
% Air Voids



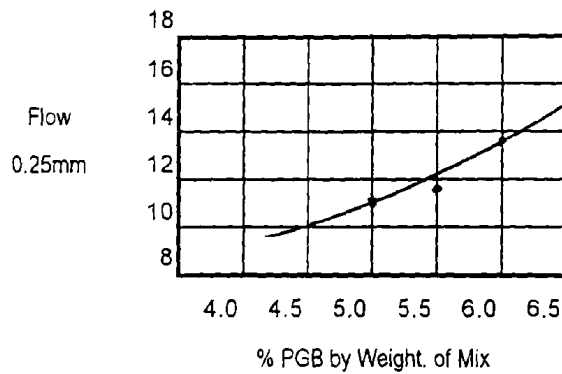
Marshall Stability - Lb.



% VMA



Flow 0.25mm



Date:	1/26/00	Optimum % PG Binder:	5.5	Mix:	Boston Mod. Top
Property	Stability	Unit Wt.	% Total Voids	% VMA	Flow
	2500	152.3	3.5	16.5	11.5

Bardon Trimount

1831 Broadway
Saugus, MA
01906

Materials and Research
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Surface Course or Mod. Top
Saugus Drum Plant (Plant #4)

Mix By: AC

Product 23

MATERIAL GRADATIONS

Date	Feeder	Material	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
11/22	Feed	1 1/2"	55.1	12.6	3.1	2.3	1.8	0.3	0.2	0.1	0.1	0.1	0.1
1/26	Feed	3/4"	100.0	97.8	20.2	6.3	1.0	0.6	0.5	0.4	0.3	0.2	0.1
1/26	Feed	1/2"	100.0	100.0	88.5	30.0	5.8	2.9	1.1	0.5	0.1	0.1	0.1
1/26	Feed	3/8"	100.0	100.0	99.8	90.0	25.3	3.4	2.6	0.9	0.8	0.4	0.2
1/26	Feed	Stone San	100.0	100.0	100.0	100.0	99.8	77.8	50.0	39.0	26.8	10.6	4.1
1/26	Feed	Sreenings	100.0	100.0	100.0	100.0	97.0	68.3	40.9	25.7	16.0	10.3	7.2
11/22	Feed	S. Dust	100.0	100.0	100.0	100.0	98.8	70.6	42.0	26.9	17.3	11.4	8.1
9/29	Feed	3/8"	100.0	100.0	100.0	95.4	24.4	5.4	2.9	0.5	0.1	0.1	0.1
11/23	Stock	C. Dust	100.0	100.0	100.0	100.0	99.1	77.5	51.8	36.0	25.0	17.6	13.0
12/9	Stock	RAP Top	100.0	100.0	98.5	92.6	70.0	53.5	41.1	30.6	20.9	11.1	6.4
11/22	Stock	RAP Bin	100.0	91.7	71.4	55.8	34.4	26.6	20.9	16.2	10.5	5.6	3.1

No AC

DRY STONE BLEND

Conversi	Material	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
	1 1/2"											
	3/4"											
0.300	1/2"	30.0	30.0	26.6	9.0	1.7	0.9	0.3	0.2	0.0	0.0	0.0
0.200	3/8"	20.0	20.0	20.0	18.0	5.1	0.7	0.5	0.2	0.2	0.1	0.0
0.250	Stone San	25.0	25.0	25.0	25.0	25.0	19.5	12.5	9.8	6.7	2.7	1.0
0.250	Sreenings	25.0	25.0	25.0	25.0	24.3	17.1	10.2	6.4	4.0	2.6	1.8
	S. Dust											
	3/8"											
	C. Dust											
	RAP Top											
	RAP Bin											
1.000	TOTAL	100.0	100.0	96.5	77.0	56.0	38.1	23.6	16.5	10.9	5.3	2.9
	JMF	100.0	100.0	94.0	77.0	55.0	38.0	25.0	18.0	13.0	9.0	4.0
	VARIANCE			2.5	1.0	0.1	-1.4	-1.5	-2.1	-3.7	-1.1	
	Tolerance +/-			7	7	4	4	4	4	4	4	2.0
OK	JMF LOW	100	100	87	70	48	34	21	14	9	5	2
OK	JMF HIGH	100	100	101	84	62	42	29	22	17	13	6
Coars	MR LOW	100	100	79	68	48	33	20	14	9	6	3
OK	MR HIGH	100	100	99	88	68	53	40	30	21	16	6

Surface Course or Mod. Top

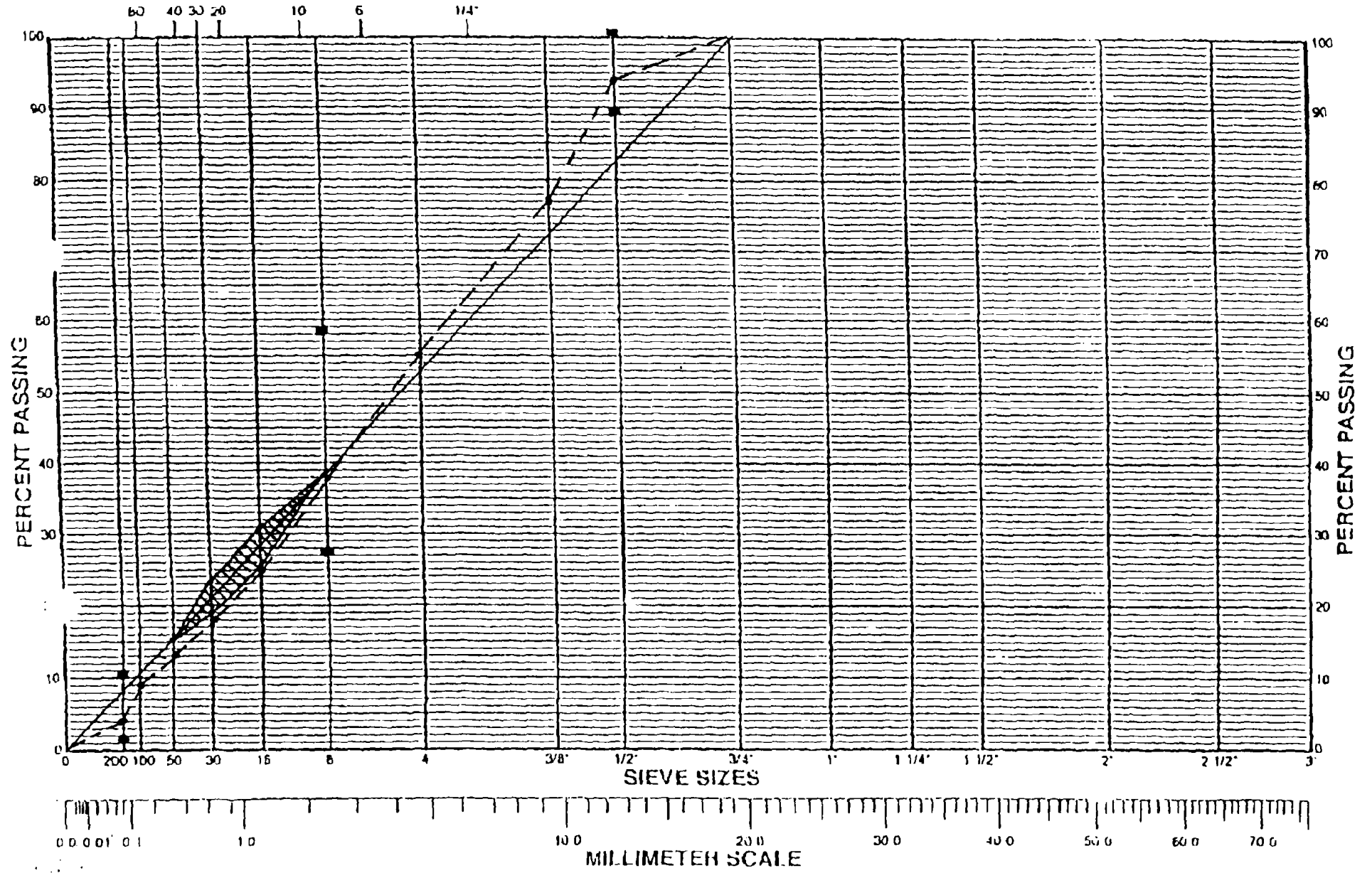
PLANT PERCENTAGES

Material	Feeder	Moist	AC					RAP Correction		JMF
	1 1/2"	Feed								
	3/4"	Feed								
0.300	1/2"	Feed			28.5	28.4	28.2	28.4		28.3
0.200	3/8"	Feed			19.0	18.9	18.8	18.9		18.9
0.250	Stone San	Feed	5.1		23.8	23.6	23.5	23.6		23.6
0.250	Sreenings	Feed	2.2		23.8	23.6	23.5	23.6	AC	23.6
	S. Dust	Feed	3.7						Correct	
	3/8"	Feed	2.9							
	C. Dust	Stock	2.0							
	RAP Top	Stock	2.5	5.8						
	RAP Bin	Stock	1.0	3.8						
	Asphalt				5.0	5.5	6.0	5.5		5.7
	TOTAL				100.1	100.0	100.0	100.0		100.1

3/17/00
10:46 AM

GRADATION CHART

SIEVE SIZES RAISED TO 0.45 POWER



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Bardon Trimount1831 Broadway
Saugus, Ma.
01906**Materials and Research**Tel:(781) 231-4312
Fax:(781) 231-3970

Project:	Woburn Regional Transportation Center	Design Date:	1/26/00
Project #:	MPA No. 1.727	Type of Mix:	Surface Course

Aggregate Qualifications**Coarse Aggregates, Bardon Saugus Quarry**

TEST:	Result:
Los Angeles Abrasion, % Loss:	14.1
Sodium Sulfate Soundness, % Loss:	0.57
Two Fractured Faces, %:	100
One Fractured Faces, %:	100
Flat Pieces, %:	3.9
Elongated Pieces, %:	0.0
Specific Gravity:	2.669
% Absorption:	0.66

Fine Aggregates, Bardon Saugus, and Swampscott Quarries

TEST:	
Plastic Index:	Non Plastic
Liquid Limit:	Non Plastic
% Absorption:	1.10
ASTM D2419 Sand Equivalent, SE:	85
Percent Natural Sand:	0%

All aggregates consist of clean, sound, durable, angular particles produced by crushing stone, and are free coatings of clay, silt, or other objectionable matter and contain no clay balls.

Gradation and Specifications

For Bardon Trimount, Saugus, MA

Project:	Woburn Regional Transportation Center	Design Date:	1/26/00
Project #:	MPA 1.727	Type of Mix:	Base Course

<u>Sieve</u>		<u>JMF</u>	<u>Tolerance</u>
50mm	2"	100	
37.5mm	1 1/2"	100	
25mm	1"	98	7
19mm	3/4"	94	7
12.5mm	1/2"	68	7
9.5mm	3/8"	57	7
4.75mm	# 4	40	7
2.36mm	# 8	31	6
1.18mm	# 16	20	6
0.6mm	# 30	16	5
0.3mm	# 50	10	5
0.15mm	#100	6	3
0.075mm	#200	3	3
% PG 64 -28		4.9	0.45

HMA Mixing Temperature Range:

HMA Discharge Temperature:

Voids in Mineral Aggregates:

Marshall Compaction Temperature:

Marshall Blows:

Voids:

Stability:

Flow:

Design Criteria	Acceptance Criteria
280 - 320	-
280 - 320	-
13 Minimum	
285°F +/-5°	
75 Blows each side	
2 - 5	-
1800 Minimum	
10 - 14	-

Bardon Trimount1831 Broadway
Saugus, Ma.
01906**Materials and Research**Tel:(781) 231-4312
Fax:(781) 231-3970

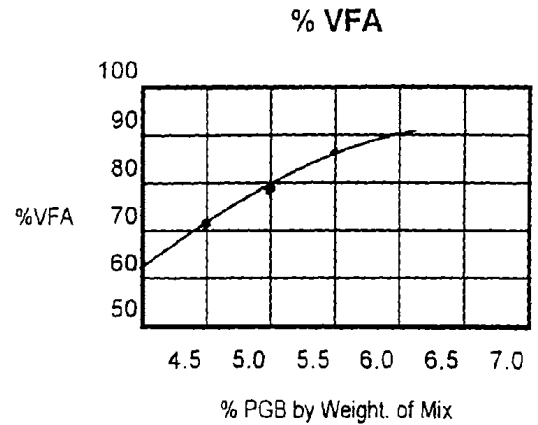
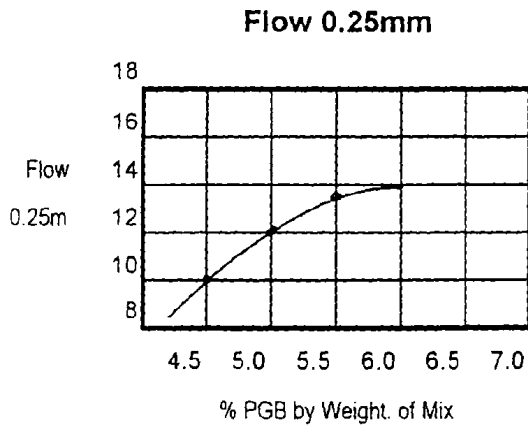
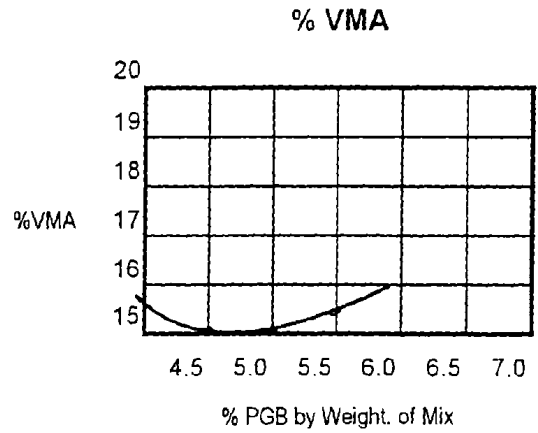
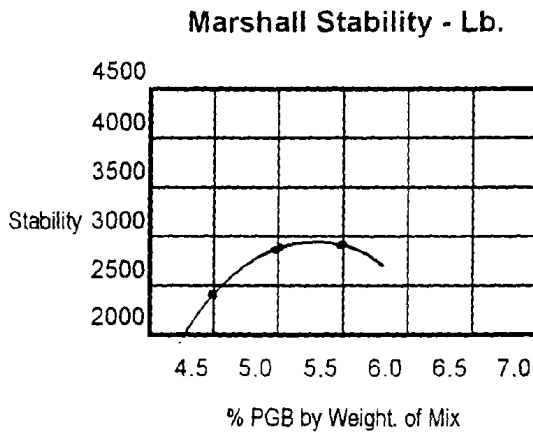
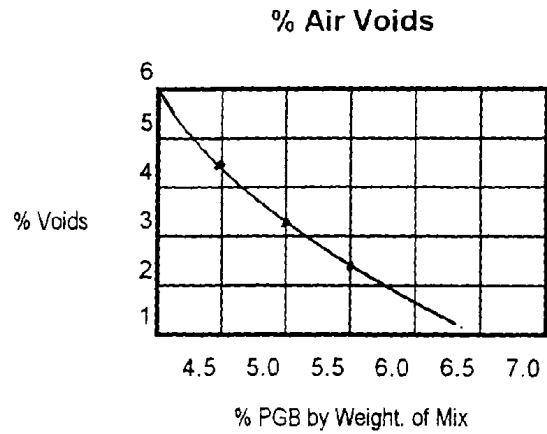
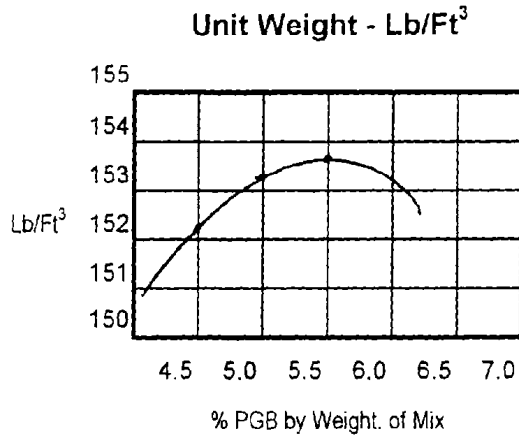
Project:	Woburn Regional Transportation Center	Design Date:	1/26/00
Project #:	MPA 1.727	Type of Mix:	Base Course

Marshall Test Results of Trial Mixes

Percent PG Binder (Pb):	4.5	5.0	5.5
Bulk Specific Gravity (Gmb):	2.440	2.456	2.463
Max. Theoretical Specific Gravity (Gmm):	2.552	2.535	2.519
Percent Air Voids (Pa):	4.39	3.12	2.22
Voids in Mineral Aggregates (VMA):	15.0	15.0	15.4
Voids Filled with Asphalt (VFA):	70.8	79.3	85.5
Unit Weight:	152.3	153.3	153.7
Stability, Pounds:	2420	2850	2860
Flow, 0.01 Inch:	10.0	12.0	13.5

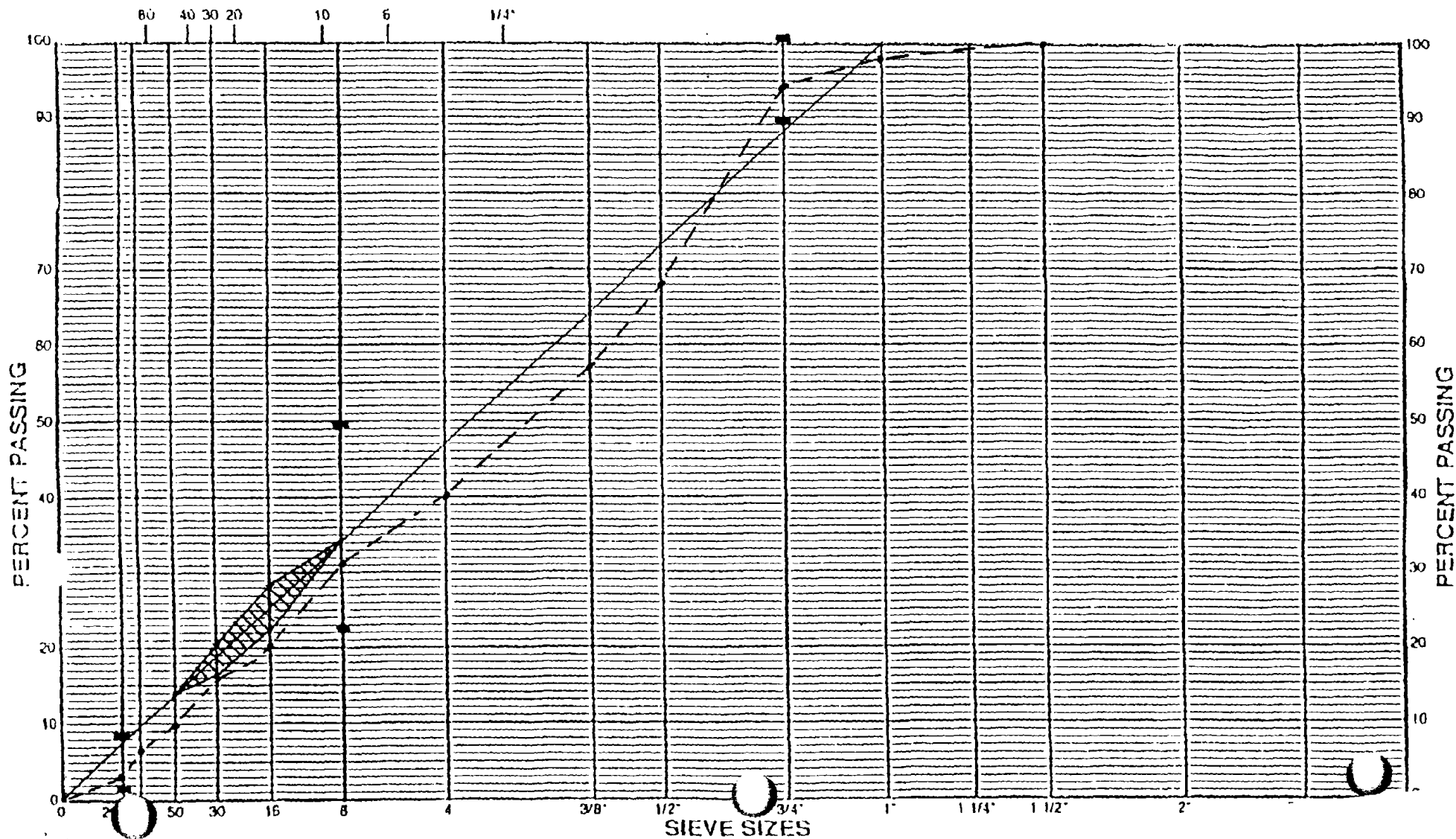
Tensile Strength Ratio (TSR) at 4.7% PG Binder = 80.13 (75% min.)
(Specimens compacted at 275⁰F, 45 blows per side, to achieve 6 +/- 1%
air voids, actual average per set was 6.11%). Since the TSR exceeds the
minimum, no antistrip agent is required.

Marshall Curves



Date:	1/26/00	Optimum % PG Binder:	4.9	Mix:	Base Course (State Binder)
		Stability	Unit Wt.	% Total Voids	% VMA
Property		2775	153.0	3.5	15.0
					Flow
					11.5

NATIONAL CENTER FOR ASPHALT TECHNOLOGY (NCAT)
GRADATION CHART
 SIEVE SIZES RAISED TO 0.45 POWER



Bardon Trimount
 1831 Broadway
 Saugus, MA
 01906

Materials and Research
 Ron Tardiff, Manager
 Tel:(617) 231-4300
 Fax:(617) 231-3970

Base Course or State Binder
Saugus Drum Plant (Plant #4)
 Mix By: AC
 Product 23

MATERIAL GRADATIONS

Date	Feeder	Material	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
11/22	Feed	1 1/2"	55.1	12.6	3.1	2.3	1.8	0.3	0.2	0.1	0.1	0.1	0.1
1/26	Feed	3/4"	100.0	97.8	20.2	6.3	1.0	0.6	0.5	0.4	0.3	0.2	0.1
1/26	Feed	1/2"	100.0	100.0	88.5	30.0	5.8	2.9	1.1	0.5	0.1	0.1	0.1
1/26	Feed	3/8"	100.0	100.0	99.8	90.0	25.3	3.4	2.6	0.9	0.8	0.4	0.2
1/26	Feed	Stone San	100.0	100.0	100.0	100.0	99.8	77.8	50.0	39.0	26.8	10.6	4.1
1/26	Feed	Sreenings	100.0	100.0	100.0	100.0	97.0	68.3	40.9	25.7	16.0	10.3	7.2
11/22	Feed	S. Dust	100.0	100.0	100.0	100.0	98.8	70.6	42.0	26.9	17.3	11.4	8.1
9/29	Feed	3/8"	100.0	100.0	100.0	95.4	24.4	5.4	2.9	0.5	0.1	0.1	0.1
11/23	Stock	C. Dust	100.0	100.0	100.0	100.0	99.1	77.5	51.8	36.0	25.0	17.6	13.0
12/9	Stock	RAP Top	100.0	100.0	98.5	92.6	70.0	53.5	41.1	30.6	20.9	11.1	6.4
11/22	Stock	RAP Bin	100.0	91.7	71.4	55.8	34.4	26.6	20.9	16.2	10.5	5.6	3.1

No AC

DRY STONE BLEND

Blend	Material	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
	1 1/2"											
0.400	3/4"	40.0	39.1	8.1	2.5	0.4	0.2	0.2	0.2	0.1	0.1	0.0
0.070	1/2"	7.0	7.0	6.2	2.1	0.4	0.2	0.1	0.0	0.0	0.0	0.0
0.150	3/8"	15.0	15.0	15.0	13.5	3.8	0.5	0.4	0.1	0.1	0.1	0.0
0.260	Stone San	26.0	26.0	26.0	26.0	25.9	20.2	13.0	10.1	7.0	2.8	1.1
0.120	Sreenings	12.0	12.0	12.0	12.0	11.6	8.2	4.9	3.1	1.9	1.2	0.9
	S. Dust											
	3/8"											
	C. Dust											
	RAP Top											
	RAP Bin											

		1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
1.000	TOTAL	100.0	99.1	67.2	56.1	42.2	29.4	18.6	13.6	9.1	4.1	2.0
	JMF	98.0	94.0	68.0	57.0	40.0	31.0	20.0	16.0	10.0	6.0	3.0
	VARIANCE	2.0	5.1	-0.8	-0.9	2.2	-1.6	-1.4	-2.4	-0.9	-1.9	-1.0
	Tolerance +/-		6	6	6	6		5		3		2
OK	JMF LOW	98	88	62	51	34		15		7		1
Dense	JMF HIGH	98	100	74	63	46		25		13		5
OK	MR LOW	100	85	58	48	33		13		5		1
OK	MR HIGH	100	103	76	66	51		28		14		7

Base Course or State Binder

PLANT PERCENTAGES

Material	Feeder	Moist	AC					RAP Correction		JMF
0.400	1 1/2" Feed									
0.070	3/4" Feed			38.2	38.0	37.8	38.0		38.0	38.0
0.150	1/2" Feed			6.7	6.7	6.6	6.7		6.6	6.6
0.150	3/8" Feed			14.3	14.3	14.2	14.3		14.2	14.2
0.260	Stone San Feed	5.1		24.8	24.7	24.6	24.7		24.7	24.7
0.120	Sreenings Feed	2.2		11.5	11.4	11.3	11.4	AC	11.4	11.4
	S. Dust Feed	3.7						Correct		
	3/8" Feed	2.9								
	C. Dust Stock	2.0								
	RAP Top Stock	2.5	5.8							
	RAP Bin Stock	1.0	3.8							
	Asphalt			4.5	5.0	5.5	4.9		5.1	5.1
	TOTAL			100.0	100.1	100.0	100.0		100	100

Stone & Webster

245 Summer Street, Boston, MA 02210
tel: (617) 589-2509 fax: (617) 589-1008

LETTER OF TRANSMITTAL

Date: October 31, 2000

To: The Middlesex Corp. (job site)
30A Atlantic Avenue
Woburn, MA 01801

Job No: 07473
Project: MPA Project No. 1.727
Regional Transportation Center, Woburn, MA

Attn: Rick Noblet, P.E.
Project Manager

Letter: swtmc-282
Subject: TMC Transmittal 119 (partial)

The following are transmitted attached herewith, or under separate cover via _____
as a copy of a letter / memorandum
 reproducible drawing
 computer disk specification
 other (return of shop drawing submittal)

Middlesex Transmittal No. and Date	Copies Returned	Submittal No.	Description	Action Code	Comments
(part) 119 10-24-00	2	02513-002-0	Concrete Design Mix: Wakefield Concrete submittal 1. 5000 psi, 1-1/2" with HRWR - for busway paving	1	See comments below

RECEIVED
NOV 02 2000

Middlesex Corp Job 405
Woburn Regional Trans. Ctr.

- Action Codes:
- 1 Approved (work may proceed)
 - 2 Approved as Noted (work may proceed, resubmission not required)
 - 3 Approved as Noted, Resubmission Required (work may proceed if corrected, resubmitted within 5 days)
 - 4 Rejected (work shall not proceed until resubmitted in an acceptable form)
 - 5 Noted, No Action Required

Comments:

- 1. This is a partial return of TMC transmittal 119. The remainder of items in the transmittal have been returned separately.
- 2. This confirms verbal approval given by FST (D.Bakker) to TMC on 10/27/00.

- c: C.Ambrose - MPA RE (w/ enc)
C.Ezumezu - MBTA RE (w/ enc)
K.Johnson - MPA (trans only)
W.Bregoli - MBTA (trans only)
D.Bakker - FST (w/ enc)

Bill Palmieri

William J. Palmieri, P.E.
Project Manager

The Middlesex Corporation

TRANSMITTAL

No. 119

30A Atlantic Ave
Woburn, MA 01801

Phone: 781-935-0779

file 07473

PROJECT: Woburn Regional Transportation Ctr

DATE: 10/24/00

02513

rec'd 10/31/00

08340

TO: Stone & Webster
245 Summer Street
Boston, MA 02210

REF: Submittals

ATTN: Bill Palmieri

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input checked="" type="checkbox"/> Shop Drawings	<input checked="" type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input checked="" type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	SENT VIA:	<input type="checkbox"/> Returned
<input type="checkbox"/> Specifications	<input checked="" type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input checked="" type="checkbox"/> Other: Made from Submittal	<input type="checkbox"/> Separate Cover Via: Mail	<input type="checkbox"/> Due Date:

ITEM	PACKAGE	SUBMITTAL	DRAWING	REV.	ITEM NO.	COPIES	DATE	DESCRIPTION	STATUS
FST SUB	02513	002		000		6	10/24/00	Title: Cement Concrete Mix Design Desc: 5000psi 1-1/2" with HRWR	NEW
BWA SUB	08340	001A		001		6	10/24/00	Title: Overhead Grille Desc: Overhead Grille Door Revision	NEW

Remarks:

CC: Chris Ambrose - MPA (w/ encl.)
Cyril Ezumezu - MBTA (trans. only)

Signed: *Desiree Patrice*
Desiree Patrice

WAKEFIELD

■ Ready Mixed Concrete Company, Inc. ■

TEL: (781) 245-2610
FAX: (781) 246-2666

March 16, 2000

Ms. Desiree Patrice
The Middlesex Corporation
80A Atlantic Avenue
Woburn, MA 01801

RE: Regional Transportation Center - Woburn, MA
5000 psi 1-1/2" with HRWR

Dear Ms. Patrice:

In accordance with your request, we respectfully submit the following concrete mix design for your use on the project referenced above. The mix design quantities are based upon the use of Blue Circle type II cement conforming to ASTM C-150 and slag cement conforming to ASTM C-989. The fine aggregate is produced by Heffron Materials and the coarse aggregate is produced by Coastal Materials Corporation, both conforming to ASTM C-33. The aggregate quantities are given in their saturated-surface-dry condition. The high range water reducing admixture is "ADVA-Flow" and the air entraining admixture is "Darex II" both manufactured by W.R. Grace and Co., Cambridge, MA and conforming to ASTM C-494 and ASTM C-260 respectively.

This mix will test at the stated slump, to a minimum of the specified design strength, twenty-eight days after placement, provided that placement, curing and testing are in accordance with the ACI Manual of Concrete Practice, Section 301.

Very truly yours,

WAKEFIELD READY MIXED CONCRETE COMPANY, INC.

William O. Hood III

William O. Hood III
Quality Control

WOH/m
Enclosures
Middlesex Transportation Center Woburn

THE MIDDLESEX CORPORATION	
Regional Transportation Center - Woburn, MA	
MPA Project No. 1.727	
This shop drawing has been thoroughly checked and complies with the Contract Documents and field measurements and the item fits with adjoining work except as noted.	
SUBMITTAL #	2513 - 002 - 000
BY: <i>RP</i>	DATE: 10/24/00

ONE NEW SALEM STREET ■ PO BOX 540 ■ WAKEFIELD, MA 01880

Concrete Mix with HRWR

<u>CLASS CONCRETE</u>	<u>5000 1-1/2"</u> <u>@28 days</u>
Cement Factor (sacks)	7.50
W/C Ratio (by weight)	0.44
Slump (inches)	4-7"
Entrained Air (percent)	4-6%
Cement (lb)	494
Slag Cement (lb)	212
Sand (lb)	1050
Stone (lb)	1800
Water (gal)	37.2
ADVA Flow (oz)	42.3
Darex II (oz)	3.0

**Compressive Strength Statistical Analysis
5000 psi 1-1/2" with HRWR
Wakefield Materials Corporation**

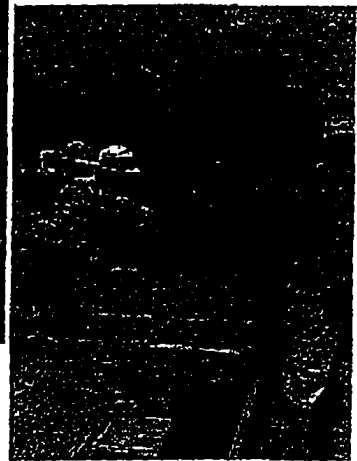
Lab #	Date Cast	Slump (inches)	Air Content (percent)	Concrete Temp. (deg F)	7 Day Strength (psi)	28 Day Strength (psi)	Moving Average 3: 28 Day Comp. (psi)	7/28 Day Ratio
387	1/21/99	6.00	6.1%	61	5090	7400		0.69
449	3/19/99	5.00	6.2%	63	4970	7700		0.65
494	4/9/99	5.50	6.5%	65	4890	6210	7103	0.79
544	5/6/99	5.75	7.2%	70	5050	6565	6825	0.77
573	5/27/99	6.00	5.5%	68	4280	5930	6235	0.74
574	5/27/99	5.50	7.5%	69	5210	6760	6418	0.77
580	6/4/99	5.25	6.9%	70	4770	6920	6537	0.69
584	6/7/99	5.50	7.0%	71	4770	6600	6760	0.72
588	6/9/99	5.25	6.0%	71	5090	6780	6767	0.75
632	7/23/99	5.50	6.3%	80	4730	6210	6530	0.76
634	7/26/99	7.00	6.8%	82	4850	6250	6413	0.78
641	7/29/99	5.00	6.8%	84	4620	5930	6130	0.73
690	8/23/99	5.50	6.2%	81	5010	6920	6367	0.72
744	9/15/99	5.50	7.0%	79	5170	6640	6497	0.78
751	9/21/99	6.50	7.5%	75	4970	6250	6603	0.80
757	9/23/99	5.75	6.8%	70	5050	6625	6505	0.76
811	10/7/99	5.50	7.4%	70	4260	5490	6122	0.78
828	10/8/99	6.25	6.4%	72	4500	6025	6047	0.75
833	10/15/99	6.00	7.4%	69	4260	5330	5615	0.80
847	10/21/99	5.00	8.9%	68	5210	7200	6185	0.72
857	10/22/99	5.00	6.0%	64	4810	7040	6523	0.68
864	11/4/99	5.50	7.4%	59	4700	6505	6915	0.72
890	11/8/99	6.00	5.9%	64	4460	5810	6452	0.77
924	2/10/00	6.00	5.2%	61	5130	7300	6538	0.70
1008	3/14/00	5.50	4.8%	67	4810	5830	6313	0.83
1039	4/11/00	5.25	7.8%	64	4580	6330	6467	0.72
1060	4/24/00	5.25	6.1%	70	3900	5690	5950	0.69
1087	5/9/00	5.00	6.8%	72	4660	6090	6037	0.77
1233	7/18/00	5.00	7.0%	86	4970	6230	6003	0.80
1237	7/25/00	6.50	6.2%	87	4730	5990	6103	0.79
Count:		30	30	30	30	30	28	30
Average:		5.64	6.65%	71.1	4787	6418	6392	0.75
Standard Deviation:		0.54	0.8%	7.59	317	578	328	0.04
C of V:		9.5%	12.5%	10.7%	6.6%	9.0%	5.1%	5.7%

Concrete

PRODUCT INFORMATION

ADVA® Flow

Superplasticizer ASTM C 494, Type F



Description

ADVA® Flow Superplasticizer is a high range water-reducing admixture. It is a liquid which has been formulated by the manufacturer for use as received. ADVA Flow Superplasticizer contains no added chloride. ADVA Flow Superplasticizer is formulated to comply with Standard Specification for Chemical Admixtures for Concrete, ASTM C 494, Type F. One liter weighs approximately 1.05 kg (8.7 lbs/gal).

Dispersion

ADVA Flow Superplasticizer is a superior dispersing admixture having a marked capacity to disperse the cement agglomerates normally found in a cement-water suspension. This capability exceeds that of normal water-reducing admixtures, resulting in lower dosages and better control.

Uses

ADVA Flow Superplasticizer produces concrete with extreme workability characteristics for high slump, flowing concrete. It also allows concrete to be produced with very low water/cement ratios at low or normal slumps.

GRACE
Construction Products

ADVA Flow Superplasticizer is ideal for use in any concrete where it is desired to keep the water/cement ratio to a minimum and still achieve the degree of workability necessary to provide easy placement and consolidation. ADVA Flow Superplasticizer will also fluidize concrete making it ideal for tremie concreting or other applications where high slumps are desired.

Advantages

1. ADVA Flow Superplasticizer is highly efficient, producing high slump concrete at very low dosage with no loss in strength.
2. ADVA Flow Superplasticizer is added to concrete mix water for rapid batching.
3. ADVA Flow Superplasticizer provides a superior combination of long slump life with near neutral set time.
4. ADVA Flow Superplasticizer concrete, even at high slump, exhibits no significant segregation in comparison to concrete without a superplasticizer at the same slump.
5. ADVA Flow Superplasticizer finishes easily without stickiness, tearing or spotty set characteristics.

Addition Rates

Addition rates of ADVA Flow Superplasticizer can vary with type of application, but will normally range from 195 to 650 mL/100 kg (3 to 10 fl oz/100 lbs) of cement. In most instances the addition of 195 to 325 mL/100 kg (3 to 5 fl oz/100 lbs) of cement will be sufficient. For best results, ADVA Flow Superplasticizer should be added to the initial mix water. At a given water/cement ratio, the slump required for placement can be controlled by varying the addition rate. Should job site conditions require using more than recommended addition rates, please consult your Grace Representative.

Compatibility

In concrete containing ADVA Flow Superplasticizer the use of an air-entraining agent (such as Daravair® 1000 or Darex® II AEA) is recommended to provide suitable air void parameters for resistance against freeze-thaw attack. Due to synergistic effects between ADVA Flow Superplasticizer and air-entraining agents, the quantity of air-entraining admixture added to concrete containing ADVA Flow Superplasticizer may be reduced. Please consult your Grace Representative for dosage guidance.

Most Type A water reducers or Type D water-reducing retarders are compatible with ADVA Flow Superplasticizer as long as they are separately added to the concrete. Caution should be exercised when using ADVA Flow Superplasticizer together with a retarder as excessive retardation can occur if the admixture dosages are too high. Pre-testing of the concrete should be performed to optimize dosages and addition times of these admixtures. The admixtures should not contact each other before they enter the concrete.

Packaging

ADVA Flow Superplasticizer is available in bulk, delivered by metered tank trucks, in 1250 L (330 gal) disposable totes, and in 208 L (55 gal) drums. ADVA Flow Superplasticizer contains no flammable ingredients.

It will begin to freeze at approximately 0°C (32°F), but will return to full strength after thawing and thorough agitation.

In storage, and for proper dispensing, ADVA Flow Superplasticizer should be maintained at temperatures above 0°C (32°F).



Visit our web site at: www.graceconstruction.com



printed on recycled paper

T.K. Grace & Co. Corp., 62 Whittemore Avenue Cambridge, MA 02140

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GRACE
Construction Products

Stone & Webster
 245 Summer Street, Boston, MA 02210
 tel: (617) 589-2509 fax: (617) 589-1008

LETTER OF TRANSMITTAL

Date: March 24, 2000

To: The Middlesex Corp. (job site)
 30A Atlantic Avenue
 Woburn, MA 01801

Job No: 07473
Project: MPA Project No. 1.727
 Regional Transportation Center, Woburn, MA

Attn: Rick Noblet, P.E.
 Project Manager

Letter: swtmc-031
Subject: TMC Transmittal No. 0028

The following are transmitted attached herewith, or under separate cover via _____
 as a copy of a letter / memorandum
 reproducible drawing
 computer disk specification
 other (return of shop drawing submittal)

Middlesex Transmittal No. and Date	Copies Returned	Submittal No.	Description	Action Code	Comments
0028 03-23-00	3	03300-006-01 03300	Cast-in-Place Concrete: 1. Wakefield Ready Mixed Concrete letter 3-16-00 with concrete mix design for 5000 psi, 3/8" agg. concrete for use in duct bank encasement in lieu of reinforcement	- 1	

RECEIVED
 MAR 24 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

- Action Codes:**
- 1 Approved (work may proceed)
 - 2 Approved as Noted (work may proceed, resubmission not required)
 - 3 Approved as Noted, Resubmission Required (work may proceed if corrected, resubmitted within 5 days)
 - 4 Rejected (work shall not proceed until resubmitted in an acceptable form)
 - 5 Noted, No Action Required

Comments:

- c: C.Ambrose - MPA RE (w/ enc)
 C.Ezumezu - MBTA RE (w/ enc)
 K.Johnson - MPA (trans only)
 W.Bregoli - MBTA (trans only)

Bill Palmieri

William J. Palmieri, P.E.
 Project Manager

The Middlesex Corporation

TRANSMITTAL
No. 02

30A Atlantic Ave
Woburn, MA 01801

Phone: 781-935-0779

PROJECT: Woburn Regional Transportation Ctr

DATE: 03/23/2000

File # 03300

rec'd 5-23-00

TO: Stone & Webster
245 Summer Street
Boston, MA 02210

REF: Submittals

03300

10/00

ATTN: Bill Palmieri

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input checked="" type="checkbox"/> Shop Drawings	<input checked="" type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input checked="" type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	SENT VIA:	<input type="checkbox"/> Returned
<input type="checkbox"/> Specifications	<input checked="" type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input checked="" type="checkbox"/> Other: Made from Submittal	<input type="checkbox"/> Separate Cover Via:	<input type="checkbox"/> Due Date:

ITEM	PACKAGE	SUBMITTAL	DRAWING	REV.	ITEM NO.	COPIES	DATE	DESCRIPTION	STATUS
SUB	03300	006		000	3	6	03/23/2000	Title: 5000-3/8" Duck bank Conc. Desc: 5000-3/8" Duct bank conc. w/ test results	NEW
SUB	05300	001		00	2	6	03/23/2000	Title: Steel Decking Desc: Decking Shop Drawings	NEW
SUB	15002	001		001	1	6	03/23/2000	Title: Genl Plumbing Desc: Plumbing -WC, Service Sink, Urinal	NEW

Remarks:

CC: Chris Ambrose - Massport w/ enclosure
Cyril Ezumezu - MBTA transmittal only

Signed: Desiree Patrice

Desiree Patrice

The Middlesex Corporation
30A Atlantic Ave
Woburn, MA 01801

Stone & Webster
245 Summer Street
Boston, MA 02210

Contract: MPA Project No. 1.727

Ref.: Submittal for 5000 psi, 3/8" aggregate for Concrete Duct bank

Please find attached a copy of the 5000 psi, 3/8" agg. concrete mix design with test results for approval. This mix design was proposed to replace the rebar reinforcement in the utility duct banks.

We would appreciate a rapid turn around of this submittal since utility work is due to begin early in the schedule.

THE MIDDLESEX CORPORATION
Regional Transportation Center - Woburn, MA
MPA Project No. 1.727
This shop drawing has been thoroughly checked and complies
with the Contract Documents and field measurements and
the item fits with adjoining work except as noted.
SUBMITTAL # 03300-000-000
BY: DP DATE: 3/23/00

WAKEFIELD

■ Ready Mixed Concrete Company, Inc. ■

TEL: (781) 245-2610
FAX: (781) 246-2666

March 16, 2000

Ms. Desiree Patrice
The Middlesex Corporation
30A Atlantic Avenue
Woburn, MA 01801

RE: Regional Transportation Center - Woburn, MA
5000 psi 3/8" for Duct Bank Encasement

Dear Ms. Patrice:

In accordance with your request, we respectfully submit the following concrete mix design for your use on the project referenced above. The mix design quantities are based upon the use of Blue Circle type II cement conforming to ASTM C-150 and slag cement conforming to ASTM C-989. The fine aggregate is produced by Heffron Materials and the coarse aggregate is produced by Coastal Materials Corporation, both conforming to ASTM C-33. The aggregate quantities are given in their saturated-surface-dry condition. The water reducing admixture is "WRDA-Hycol" and the air entraining admixture is "Darex II" both manufactured by W.R. Grace and Co., Cambridge, MA and conforming to ASTM C-494 and ASTM C-260 respectively.

This mix will test at the stated slump, to a minimum of the specified design strength, twenty-eight days after placement, provided that placement, curing and testing are in accordance with the ACI Manual of Concrete Practice, Section 301.

Very truly yours,

WAKEFIELD READY MIXED CONCRETE COMPANY, INC.

William O. Hood III

William O. Hood III
Quality Control

WOH/m
Enclosures
Middlesex Transportation Center Woburn

THE MIDDLESEX CORPORATION
Regional Transportation Center - Woburn, MA
MPA Project No. 1.727
Shop drawing has been thoroughly checked and complies with Contract Documents and field measurements and the item fits with adjoining work except as noted.
RTA# 03300-006-000
By: DP DATE: 3/23/00

ONE NEW SALEM STREET ■ PO BOX 540 ■ WAKEFIELD, MA 01880

MASSPORT PROJECT NO. 1.727

WOBURN REGIONAL TRANSPORTATION CENTER

MIDDLESEX SUBMITTAL NO. 03300-006-0 (0028 3-23-00)

<input checked="" type="checkbox"/>	APPROVED	Reviewed only for conformance with the design concept of the Project and compliance with the International Building Code requirements. Contractor is responsible for all details, materials and performance requirements to be confirmed and executed at the job site, for all information that pertains solely to the fabrication process or to techniques of construction; for all coordination of the work of all trades; and for assuring consistency with the Contract Documents.
<input type="checkbox"/>	APPROVED AS NOTED Resubmission Required	
<input type="checkbox"/>	APPROVED AS NOTED Resubmission Required	
<input type="checkbox"/>	REJECTED	
<input type="checkbox"/>	NOTED - No Action Required	

STONE & WEBSTER Job No: 07473 File No: 03300
Reviewed by: W.J. Peterson Date: 3-24-00

Concrete Mix for Duct Bank Encasement

<u>CLASS CONCRETE</u>	<u>5000 psi 3/8"</u> <u>@28 days</u>
Cement Factor (sacks)	8.09
W/C Ratio (by weight)	0.40
Slump (inches)	3-5"
Entrained Air (percent)	6-8%
Cement (lb)	456
Slag Cement (lb)	304
Sand (lb)	1070
Stone (lb)	1700
Water (gal)	36.5
WRDA-Hycol (oz)	22.8
Darex II (oz)	6.0

Compressive Strength Statistical Analysis
5000 psi 3/8" Wakefield Materials Corporation

Sample Date	Slump in	Air	Con	7 day	28 day	Moving	7/28
		Temp deg F	Temp deg F	Comp psi	Comp psi	Avg: 3 28 day Comp psi	Ratio %
9/10/99	4.50	74	81	4810	5803	-	0.83
9/10/99	4.75	77	82	4680	5663	-	0.83
9/10/99	4.50	78	84	4060	5537	5668	0.73
9/10/99	4.50	76	84	4870	6090	5763	0.80
9/23/99	4.75	60	78	4100	5363	5653	0.76
9/23/99	4.75	60	78	4100	5477	5643	0.75
9/23/99	4.25	62	79	5090	6323	5721	0.80
9/23/99	4.25	65	79	4240	6357	6052	0.67
9/23/99	4.25	69	79	4810	5897	6192	0.82
9/23/99	5.00	71	81	4400	5870	6041	0.75
9/23/99	4.25	72	79	4910	6447	6071	0.76
9/23/99	4.50	73	81	5090	6283	6200	0.81
9/23/99	4.00	71	80	5290	7033	6588	0.75
9/23/99	4.25	70	79	5330	6747	6688	0.79
9/29/99	4.25	50	75	5530	6383	6721	0.87
9/29/99	4.50	52	74	4060	5457	6136	0.74
9/29/99	4.25	53	76	4540	6323	6054	0.72
9/29/99	4.50	58	76	4040	6163	5981	0.66
9/29/99	4.00	63	79	4100	6503	6330	0.63
9/29/99	4.50	69	79	4400	6097	6254	0.72
9/29/99	4.00	75	80	3960	5690	6097	0.70
9/29/99	4.75	79	81	3660	5510	5766	0.66
Count	22	22	22	22	22	20	22
Average	4.34	67	79	4549	6046	6085	0.75
Standard Deviation	0.67	9	3	522	455	328	0.06
Range	4.00	50	74	3660	5363	5643	0.63
	6.50	79	84	5530	7033	6721	0.87
Coefficient of Variation	14.46	13.01	3.21	11.47	7.52	5.39	8.38

The Middlesex Corporation
30A Atlantic Ave
Woburn, MA 01801

Stone & Webster
245 Summer Street
Boston, MA 02210

Contract: **MPA Project No. 1.727**

Ref.: **Submittal for 5000 psi, 3/8" aggregate for Concrete Duct bank**

Please find attached a copy of the 5000 psi, 3/8" agg. concrete mix design with test results for approval. This mix design was proposed to replace the rebar reinforcement in the utility duct banks.

We would appreciate a rapid turn around of this submittal since utility work is due to begin early in the schedule.

THE MIDDLESEX CORPORATION
Regional Transportation Center - Woburn, MA
MPA Project No. 1.727
This shop drawing has been thoroughly checked and complies
with the Contract Documents and field measurements and
the item fits with adjoining work except as noted.
SUBMITTAL # 03300-000-000
BY: DP DATE: 3/23/00

WAKEFIELD

■ Ready Mixed Concrete Company, Inc. ■

TEL: (781) 245-2610
FAX: (781) 246-2666

March 16, 2000

Ms. Desiree Patrice
The Middlesex Corporation
30A Atlantic Avenue
Woburn, MA 01801

RE: Regional Transportation Center - Woburn, MA
5000 psi 3/8" for Duct Bank Encasement

Dear Ms. Patrice:

In accordance with your request, we respectfully submit the following concrete mix design for your use on the project referenced above. The mix design quantities are based upon the use of Blue Circle type II cement conforming to ASTM C-150 and slag cement conforming to ASTM C-989. The fine aggregate is produced by Heffron Materials and the coarse aggregate is produced by Coastal Materials Corporation, both conforming to ASTM C-33. The aggregate quantities are given in their saturated-surface-dry condition. The water reducing admixture is "WRDA-Hycol" and the air entraining admixture is "Darex II" both manufactured by W.R. Grace and Co., Cambridge, MA and conforming to ASTM C-494 and ASTM C-260 respectively.

This mix will test at the stated slump, to a minimum of the specified design strength, twenty-eight days after placement, provided that placement, curing and testing are in accordance with the ACI Manual of Concrete Practice, Section 301.

Very truly yours,

WAKEFIELD READY MIXED CONCRETE COMPANY, INC.

William O. Hood III

William O. Hood III
Quality Control

WOH/m
Enclosures
Middlesex Transportation Center Woburn

THE MIDDLESEX CORPORATION
Regional Transportation Center - Woburn, MA
MPA Project No. 1.727
Shop drawing has been thoroughly checked and complies with Contract Documents and field measurements and the item fits with adjoining work except as noted.
Draw # 03300-006-000
By: DP DATE: 3/23/00

ONE NEW SALEM STREET ■ PO BOX 540 ■ WAKEFIELD, MA 01880

MASSPORT PROJECT NO. 1.727
WOBURN REGIONAL TRANSPORTATION CENTER

MIDDLESEX SUBMITTAL NO. 03300-006-0 (002B)
3-24-00

<input checked="" type="checkbox"/> APPROVED	Reviewed only for conformance with the design concept of the Project and responsibility for the information shown in the Contract Documents. Contractor is responsible for all conditions, quantities and performance requirements to be confirmed and verified at the job site; for all information that pertains solely to the fabrication process or to techniques of construction; for all coordination of the work of all trades; and for assuring consistency with the Contract Documents.
APPROVED AS NOTED Resubmission Not Required	
APPROVED AS NOTED Resubmission Required	
REJECTED	
NOTED - No Action Required	

STONE & WEBSTER Job No: 07473 File No: 03300
Reviewed by: WJ Palmer Date: 3-24-00

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Concrete Mix for Duct Bank Encasement

<u>CLASS CONCRETE</u>	<u>5000 psi 3/8"</u> <u>@28 days</u>
Cement Factor (sacks)	8.09
W/C Ratio (by weight)	0.40
Slump (inches)	3-5"
Entrained Air (percent)	6-8%
Cement (lb)	456
Slag Cement (lb)	304
Sand (lb)	1070
Stone (lb)	1700
Water (gal)	36.5
WRDA-Hycol (oz)	22.8
Darex II (oz)	6.0

Compressive Strength Statistical Analysis
 5000 psi 3/8" Wakefield Materials Corporation

Sample Date	Slump in	Air Tmp deg F	Con Tmp deg F	7 day Comp psi	28 day Comp psi	Moving Avg: 3 28 day Comp psi	7/28 Ratio %
9/10/99	4.50	74	81	4810	5803	-	0.83
9/10/99	4.75	77	82	4680	5663	-	0.83
9/10/99	4.50	78	84	4060	5537	5666	0.73
9/10/99	4.50	76	84	4870	6090	5763	0.80
9/23/99	4.75	60	78	4100	5363	5663	0.76
9/23/99	4.75	60	78	4100	5477	5643	0.75
9/23/99	4.25	62	79	5090	6323	5721	0.80
9/23/99	4.25	65	79	4240	6357	6052	0.67
9/23/99	4.25	69	79	4810	5897	6192	0.82
9/23/99	5.00	71	81	4400	5870	6041	0.75
9/23/99	4.25	72	79	4910	6447	6071	0.76
9/23/99	4.50	73	81	5090	6283	6200	0.81
9/23/99	4.00	71	80	5290	7033	6588	0.75
9/23/99	4.25	70	79	5330	6747	6686	0.79
9/29/99	4.25	50	75	5530	6383	6721	0.87
9/29/99	4.50	52	74	4060	5457	6196	0.74
9/29/99	4.25	53	76	4540	6323	6054	0.72
9/29/99	4.50	58	76	4040	6163	5981	0.66
9/29/99	4.00	63	79	4100	6503	6330	0.63
9/29/99	4.50	69	79	4400	6097	6254	0.72
9/29/99	4.00	75	80	3960	5690	6097	0.70
9/29/99	4.75	79	81	3660	5510	5766	0.66
Count	22	22	22	22	22	20	22
Average	4.34	67	79	4549	6046	6085	0.75
Standard Deviation	0.67	9	3	522	455	328	0.06
Range	4.00	50	74	3660	5363	5643	0.63
	6.50	79	84	5530	7033	6721	0.87
Coefficient of Variation	14.46	13.01	3.21	11.47	7.52	5.39	8.38

Sione & Webster,
 245 Summer Street, Boston, MA 02210
 tel: (617) 589-2509 fax: (617) 589-1008

LETTER OF TRANSMITTAL

Date: June 23, 2000

To: The Middlesex Corp. (job site)
 30A Atlantic Avenue
 Woburn, MA 01801

Job No: 07473
 Project: MPA Project No. 1.727
 Regional Transportation Center, Woburn, MA

Attn: Rick Nohet, P.E.
 Project Manager

Letter: swtmc-164
 Subject: TMC Transmittal No. 079 (partial)

The following are transmitted attached herewith, or under separate cover via _____
 as a copy of a letter / memorandum
 reproducible drawing
 computer disk specification
 other (return of shop drawing submittal)

Middlesex Transmittal No. and Date	Copies Returned	Submittal No.	Description	Action Code	Comments
(part) 079 06-19-00	3	03300-010-0	Cast in-Place Concrete ; Wakefield Ready Mixed submit 1. Design mix - 5000 psi 3/4" aggregate	1	

- Action Codes:
- 1 Approved (work may proceed)
 - 2 Approved as Noted (work may proceed, resubmission not required)
 - 3 Approved as Noted, Resubmission Required (work may proceed if corrected, resubmitted within 5 days)
 - 4 Rejected (work shall not proceed until resubmitted in an acceptable form)
 - 5 Noted, No Action Required

Comments:

- 1. This is a partial return of TMC transmittal 079. The remainder of items in the transmittal are still in review and will be returned upon completion.

RECEIVED
 JUN 27 2000

Middlesex Corp. Job 405
 Woburn Regional Trans. Ctr.

- c: C.Ambrose - MPA RE (w/ enc)
 C.Ezumezu - MBTA RE (w/ enc)
 K.Johnson - MPA (trans only)
 W.Bregoli - MBTA (trans only)

Bill Palmieri

 William J. Palmieri, P.E.
 Project Manager

The Middlesex Corporation

TRANSMITT
No. 0

30A Atlantic Ave
Woburn, MA 01801

Phone: 781-935-0779

File 07473

PROJECT: Woburn Regional Transportation Center

DATE: 6/19/00
rec'd 6/22/00

02444
03300
05500
10440
13916
16190
16721

TO: Stone & Webster
245 Summer Street
Boston, MA 02210

REF: Submittals

ATTN: Bill Palmieri

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input checked="" type="checkbox"/> Shop Drawings	<input checked="" type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input checked="" type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	SENT VIA:	<input type="checkbox"/> Returned
<input type="checkbox"/> Specifications	<input checked="" type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input checked="" type="checkbox"/> Other: Made from Submittal	<input type="checkbox"/> Separate Cover Via: Mail	<input type="checkbox"/> Due Date:

ITEM	PACKAGE	SUBMITTAL	DRAWING	REV.	ITEM NO.	COPIES	DATE	DESCRIPTION	STATUS
SUB	02444	001		001		6	6/22/00	Title: Fence Shop Drawings Desc: Chain Link Fence	NEW
SUB	02444	002		000		1	6/22/00	Title: Fence Product Desc: P.V.C Coated Chain Link Fence - Sample pole, Mesh	NEW
SUB	03300	010		000		0	6/20/00	Title: Add'l Concrete Mix Design Desc: 5000 3/4" Mix Design	NEW
SUB	05500	002		001		6	6/19/00	Title: Lintels, Nosing, Exp. Joints Desc: Emseal TCR400 Compressible Expansion Joints	NEW
SUB	10440	001A		001		1	6/19/00	Title: Product Data Desc: Sample - 12" x 12" Reflective Aluminum Panel	NEW
SUB	13916	002		000		6	6/22/00	Title: Sprinkler Piping Drawings Desc: Fire Suppression - Piping Dwgs	NEW
SUB	16190	002		000		7	6/22/00	Title: Supporting Devices Desc: Supporting Devices - Caddy Fasteners	NEW
SUB	16721	001		002		7	6/19/00	Title: -Fire Alarm & Detect. System Desc: SESCO -Fire Alarm & Detect. System	NEW

Remarks:

CC: Chris Ambrose - MPA (w/ encl.)
Cyril Ezumezu - MBTA (trans. only)

Signed: *Desiree Patrice*
Desiree Patrice

WAKEFIELD

■ Ready Mixed Concrete Company, Inc. ■

TEL: (781) 245-2610
FAX: (781) 246-2666

June 19, 2000

Ms. Laura Robinson
The Middlesex Corporation
30A Atlantic Avenue
Woburn, MA 01801

RE: Regional Transportation Center - Woburn, MA
Concrete Mix Design

Gentlemen:

In accordance with your request, we respectfully submit the following concrete mix design for your use on the project referenced above. The mix design quantities are based upon the use of Blue Circle type II cement conforming to ASTM C-150 and slag cement conforming to ASTM C-989. The fine aggregate is produced by Heffron Materials and the coarse aggregate is produced by Coastal Materials Corporation, both conforming to ASTM C-33. The aggregate quantities are given in their saturated-surface-dry condition. The mid range water reducing admixture is "Daracem 55", conforming to ASTM C-494. The air entraining admixture is "Darex II" conforming to ASTM C-260. Both admixtures are manufactured by W.R. Grace and Co., Cambridge, MA.

This mix will test at the stated slump, to a minimum of the specified design strength, twenty-eight days after placement, provided that placement, curing and testing are in accordance with the ACI Manual of Concrete Practice, Section 301.

Very truly yours,

WAKEFIELD READY MIXED CONCRETE COMPANY, INC.

William O. Hood III

William O. Hood III
Quality Control

WOH/m
Enclosures
Middlesex Transportation Center Woburn

for use @ platform foundations

THE MIDDLESEX CORPORATION
Regional Transportation Center - Woburn, MA
MPA Project No. 1.727

This shop drawing has been thoroughly checked and complies with the Contract Documents and field measurements and the item fits with adjoining work except as noted.

SUBMITTAL # 03300-010-00
DATE: 6/20/00

ONE NEW SALEM STREET ■ PO BOX 540 ■ WAKEFIELD, MA 01880

Concrete Mix with Daracem 55

<u>CLASS CONCRETE</u>	<u>5000 psi 3/4"</u> <u>@28 days</u>
Cement Factor (sacks)	7.50
W/C Ratio (by weight)	0.45
Slump (inches)	2-4"
Entrained Air (percent)	4-6%
Cement (lb)	494
Slag Cement (lb)	212
Sand (lb)	1030
Stone (lb)	1800
Water (gal)	38.1
Daracem 100 (oz)	42.3
Darex II (oz)	3.0

Middlesex Transportation Center Woburn 6/19/00

MASSPORT PROJECT NO. 1.727	
WOBURN REGIONAL TRANSPORTATION CENTER	
MIDDLESEX SUBMITTAL NO. <u>03300-010-0</u> (<u>079</u> <u>6-19-00</u>)	
<input checked="" type="checkbox"/> APPROVED	Reviewed only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor shall be responsible for all dimensions, quantities and performance requirements to be confirmed and correlated at the job site; for all information that pertains solely to the fabrication process or to techniques of construction; for all coordination of the work of all trades; and for assuring consistency with the Contract Documents.
<input type="checkbox"/> APPROVED AS NOTED Resubmission Not Required	
<input type="checkbox"/> APPROVED AS NOTED Resubmission Required	
<input type="checkbox"/> REJECTED	
<input type="checkbox"/> NOTED - No Action Required	
STONE & WEBSTER Job No: <u>07473</u> File No: <u>03300</u> Reviewed by: <u>WJ Palmer</u> Date: <u>6/23/00</u>	

Stone & Webster

245 Summer Street, Boston, MA 02210
tel: (617) 589-2509 fax: (617) 589-1008

LETTER OF TRANSMITTAL

Date: March 8, 2000

To: The Middlesex Corp. (job site)
30A Atlantic Avenue
Woburn, MA 01801

Job No: 07473
Project: MPA Project No. 1.727
Regional Transportation Center, Woburn, MA

Attn: Rick Noblet, P.E.
Project Manager

Letter: swtmc-0012
Subject: TMC Transmittal No. 0017

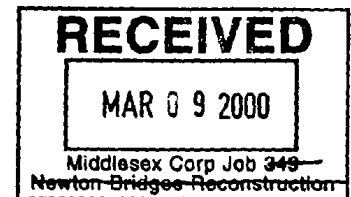
The following are transmitted attached herewith, or under separate cover via _____
as a copy of a letter / memorandum
 reproducible drawing
 computer disk specification
 other (return of shop drawing submittal)

Middlesex Transmittal No. and Date	Copies Returned	Submittal No.	Description	Action Code	Comments
(part) 0017 03-06-00	3	03300-005-0	Cast-in-Place Concrete: Wakefield Ready Mixed Conc a. mix design: 2000psi, 1-1/2" agg	- 2	- subject to test results

- Action Codes:
- 1 Approved (work may proceed)
 - 2 Approved as Noted (work may proceed, resubmission not required)
 - 3 Approved as Noted, Resubmission Required (work may proceed if corrected, resubmitted within 5 days)
 - 4 Rejected (work shall not proceed until resubmitted in an acceptable form)
 - 5 Noted, No Action Required

Comments:

- 1. This transmittal includes review of the 2000 psi (lean conc) design mix only. Concrete mix design for Sidewalk Mix with Fibers is still in review and will be returned upon completion.



- c: C.Ambrose - MPA RE (w/ enc)
- C.Ezumezu - MBTA RE (w/ enc)
- K.Johnson - MPA (trans only)
- W.Bregoli - MBTA (trans only)

Bill Palmieri
William J. Palmieri, P.E.
Project Manager

The Middlesex Corporation

TRANSMITTAL

No. 0017

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

PROJECT: Woburn Regional Transportation Ctr

DATE: 03/06/2000

File 07473

TO: Stone & Webster
245 Summer Street
Boston, MA 02210

REF: Submittals

R15.2

ATTN: Bill Palmieri

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input type="checkbox"/> Shop Drawings	<input checked="" type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	SENT VIA:	<input type="checkbox"/> Returned
<input type="checkbox"/> Specifications	<input checked="" type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input checked="" type="checkbox"/> Other: Made from Submittal	<input type="checkbox"/> Separate Cover Via: Mail	<input type="checkbox"/> Due Date:

ITEM	PACKAGE	SUBMITTAL	DRAWING	REV.	ITEM NO.	COPIES	DATE	DESCRIPTION	STATUS
4	SUB	02510	001	000		6	03/06/2000	Title: Concrete Mix Designs Desc: Sidewalk Mix w/Fibers	NEW
5	SUB	03300	005	000		6	03/06/2000	Title: Addtl Mix Designs Desc: 2000 1-1/2" Mix Design	NEW

Remarks:

CC: Chris Ambrose, w/ copy
Cyril Ezumezu, transmittal only

Signed: 
Laura Robinson

THE MIDDLESEX CORPORATION
 Regional Transportation Center - Woburn, MA
 MPA Project No. 1.727
 This shop drawing has been thoroughly checked and complies
 with the Contract Documents and field measurements and
 the item fits with adjoining work except as noted.
 SUBMITTAL # 03300-005-000 para 2.05C
 BY: DP DATE: 3/6/00

CLASS CONCRETE 2000 psi 1-1/2"
 @28 days

Cement Factor (sacks)	6.50
W/C Ratio (by weight)	0.50
Slump (inches)	2-4"
Entrained Air (percent)	4-6%
Cement (lb)	428
Slag Cement (lb)	183
Sand (lb)	1042
Stone (lb)	1900
Water (gal)	36.7
WRDA-Hycol (oz)	18.3
Darex II (oz)	3.0

subject to test results

Middlesex Transportation Center Woburn 3/6/00

MASSPORT PROJECT NO. 1.727	
WOBURN REGIONAL TRANSPORTATION CENTER	
MIDDLESEX SUBMITTAL NO. <u>03300-005-00</u> (<u>0017</u> <u>3-6-00</u>)	
APPROVED	Reviewed and approved for conformance with the Contract Documents and field measurements.
<input checked="" type="checkbox"/> APPROVED	Reviewed and approved for conformance with the Contract Documents and field measurements. This approval is subject to the performance of all tests and inspections required for this work.
REJECTED	Not approved for conformance with the Contract Documents and field measurements. The contractor shall correct the work and resubmit for approval.
NOTED - No Action Required	
STONE & WEBSTER	Job No: <u>07423</u> File No: <u>03300</u>
Reviewed BY: <u>WJ Palmer</u>	Date: <u>3-1-00</u>

Stone & Webster245 Summer Street, Boston, MA 02210
tel: (617) 589-2509 fax: (617) 589-1008LETTER OF TRANSMITTAL**Date:** March 8, 2000**To:** The Middlesex Corp. (job site)
30A Atlantic Avenue
Woburn, MA 01801**Job No:** 07473
Project: MPA Project No. 1.727
Regional Transportation Center, Woburn, MA**Attn:** Rick Noblet, P.E.
Project Manager**Letter:** swtmc-0011
Subject: TMC Transmittal No. 0013

The following are transmitted attached herewith, or under separate cover via _____

as a copy of a letter / memorandum

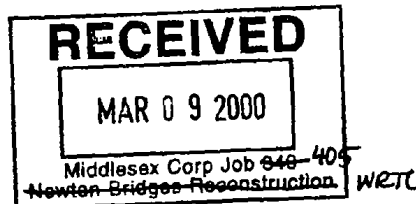
reproducible drawing

computer disk specification

other (return of shop drawing submittal)

Middlesex Transmittal No. and Date	Copies Returned	Submittal No.	Description	Action Code	Comments
0013 03-02-00	3	03300-003-0	Cast-in-Place Concrete: Wakefield Ready Mixed Conc a. letter 2-18-00 for basis of mix design b. mix design: 2000psi, 1-1/2" agg c. mix design: 3000 psi, 1-1/2" agg. d. mix design: 3000 psi, 3/8" agg. e. mix design: 4000 psi, 3/4" agg. f. mix design: 4000 psi, 1-1/2" agg. g. mix design: 5000 psi, 1-1/2" agg. h. Blue Circle Cement: Type II test data i. Coastal Materials: aggregate annalysis j. VATC aggregate test results k. Grace: Darex II AEA air-entraining admixture l. Grace: WRDA w/ Hycol water reducing admixture m. Grace: Daracem-55 mid-range water reducing admix	- - - 2 2 2 5 5 - - - - - -	- - not rec'd this trans. subject to test results subject to test results subject to test results not required not required

Action Codes: 1 Approved (work may proceed)
2 Approved as Noted (work may proceed, resubmission not required)
3 Approved as Noted, Resubmission Required (work may proceed if corrected, resubmitted within 5 days)
4 Rejected (work shall not proceed until resubmitted in an acceptable form)
5 Noted, No Action Required

Comments:

c: C.Ambrose - MPA RE (w/ enc)
C.Ezumezu - MBTA RE (w/ enc)
K.Johnson - MPA (trans only)
W.Bregoli - MBTA (trans only)

Bill Palmieri
William J. Palmieri, P.E.
Project Manager

The Middlesex Corporation

TRANSMITTAL
No. 0013

30A Atlantic Ave.
Woburn, MA 01801

Phone: 781-935-0779
Fax: 781-935-0383

PROJECT: Woburn Regional Transportation Ctr

DATE: 03/02/2000

File 0773
R15.2

TO: Stone & Webster
245 Summer Street
Boston, MA 02210

REF: Submittals

ATTN: Bill Palmieri

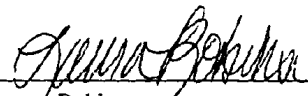
WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
<input checked="" type="checkbox"/> Shop Drawings	<input checked="" type="checkbox"/> Approval	<input type="checkbox"/> Approved as Submitted
<input type="checkbox"/> Letter	<input type="checkbox"/> Your Use	<input type="checkbox"/> Approved as Noted
<input type="checkbox"/> Prints	<input type="checkbox"/> As Requested	<input type="checkbox"/> Returned After Loan
<input type="checkbox"/> Change Order	<input type="checkbox"/> Review and Comment	<input type="checkbox"/> Resubmit
<input type="checkbox"/> Plans		<input type="checkbox"/> Submit
<input type="checkbox"/> Samples	SENT VIA:	<input type="checkbox"/> Returned
<input type="checkbox"/> Specifications	<input checked="" type="checkbox"/> Attached	<input type="checkbox"/> Returned for Corrections
<input checked="" type="checkbox"/> Other: Made from Submittal	<input type="checkbox"/> Separate Cover Via: Mail	<input type="checkbox"/> Due Date:

ITEM	PACKAGE	SUBMITTAL	DRAWING	REV.	ITEM NO.	COPIES	DATE	DESCRIPTION	STATUS
SUB	03300	003		000		6	03/02/2000	Title: Mix Designs Desc: Concrete Mix Designs	NEW

Remarks:

CC: Chris Ambrose, w/ copy
Cyril Ezumezu, transmittal only

Signed:


Laura Robinson

The Middlesex Corporation
 Contract #: 1.727
 Regional Transportation Center
 Woburn, MA

Please find attached the following Concrete material Submittal prepared by Wakefield Concrete Company:

<u># of Pages</u>	<u>Related Spec. Sect. #</u>	<u>Description of Submittal</u>	<u>Uses</u>	<u>Spec. Title</u>
1	03300 - 2.03	* Concrete Mix Design - 2000 psi, 1-1/2" agg.	Lean Conc.	Cast - In - Place - Concrete
1	03300 - 2.03	Concrete Mix Design - 3000 psi, 1-1/2" agg.	Cement Masonry(for thrust blocks)	Cast - In - Place - Concrete
1	03300 - 2.03	Concrete Mix Design - 3000 psi, 3/8" agg.	Cement Masonry(for conduit encasement)	Cast - In - Place - Concrete
1	03300 - 2.03	Concrete Mix Design - 4000 psi, 3/4" agg.	Slabs, walls, foundation	Cast - In - Place - Concrete
2	03300 - 2.03	Blue Circle Cement - Test Data sheet		Cast - In - Place - Concrete
1	03300 - 2.03	Coastal Material - Aggregate		Cast - In - Place - Concrete
1	03300 - 2.03	Aggregate - Laboratory Test Results		Cast - In - Place - Concrete
1	03300 - 2.03	Darex II AEA - Air-Entraining Admixture		Cast - In - Place - Concrete
1	03300 - 2.03	WRDA w/Hycol - Water Reducing Admixture		Cast - In - Place - Concrete
1	03300 - 2.03	Daracem -55 - Water Reducing Admixture		Cast - In - Place - Concrete
1		Concrete Mix Design - 5000 psi, 1-1/2" agg.	For TMC record purposes	Cast - In - Place - Concrete
1		Concrete Mix Design - 4000 psi, 1-1/2" agg.	For TMC record purposes	Cast - In - Place - Concrete

NOTE:

* 2000 psi, 1-1/2" aggregate, Concrete mix design , will be submitted at a later date. Also scheduled for later submittal - 4000psi, 3/4" aggregate, with fiber bundles

WAKEFIELD

■ Ready Mixed Concrete Company, Inc. ■

TEL: (781) 245-2610
FAX: (781) 246-2666

February 18, 2000

Mr. John Reddy
The Middlesex Corporation
1 Spectacle Pond Road
Littleton, MA 01460

RE: Regional Transportation Center - Woburn, MA
Concrete Mix Designs

Gentlemen:

In accordance with your request, we respectfully submit the following concrete mix designs for your use on the project referenced above. The mix design quantities are based upon the use of Blue Circle type II cement conforming to ASTM C-150 and slag cement conforming to ASTM C-989. The fine aggregate is produced by Heffron Materials and the coarse aggregate is produced by Coastal Materials Corporation, both conforming to ASTM C-33. The aggregate quantities are given in their saturated-surface-dry condition. The water reducing admixture is "WRDA-Hycol" and the mid range water reducing admixture is "Daracem 55", both conforming to ASTM C-494. The air entraining admixture is "Darex II" conforming to ASTM C-260. All admixtures are manufactured by W.R. Grace and Co., Cambridge, MA.

These mixes will test at the stated slump, to a minimum of the specified design strength, twenty-eight days after placement, provided that placement, curing and testing are in accordance with the ACI Manual of Concrete Practice, Section 301.

Very truly yours,

WAKEFIELD READY MIXED CONCRETE COMPANY, INC.

William O. Hood III

William O. Hood III
Quality Control

WOH/m
Enclosures
Middlesex Transportation Center Woburn

ONE NEW SALEM STREET ■ PO BOX 540 ■ WAKEFIELD, MA 01880

<u>CLASS CONCRETE</u>	<u>3000 1-1/2"</u> <u>@28 days</u>
Cement Factor (sacks)	5.50
W/C Ratio (by weight)	0.58
Slump (inches)	2-4"
Entrained Air (percent)	4-6%
Cement (lb)	362
Slag Cement (lb)	155
Sand (lb)	1140
Stone (lb)	1900
Water (gal)	36.0
WRDA-Hycol (oz)	15.5
Darex II (oz)	3.0

subject to test results

Middlesex Transportation Center Woburn 222/00

MASSPORT PROJECT NO. 1.727 WOBURN REGIONAL TRANSPORTATION CENTER	
MIDDLESEX SUBMITTAL NO.	03300-003-00 (0013 3-2-00)
APPROVED	Reviewed only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents.
<input checked="" type="checkbox"/> APPROVED AS NOTED Resubmission Not Required	Contractor shall be responsible for all dimensions, quantities and performance requirements to be confirmed and controlled at the job site; for all information that pertains solely to the fabrication process or to techniques of construction; for all coordination of the work of all trades; and for assuring consistency with the Contract Documents.
APPROVED AS NOTED Resubmission Required	
REJECTED	
NOTED - No Action Required	
STONE & WEBSTER	Job No: 07473 File No: 03300
Reviewed by: <i>WJ Palmer</i>	Date: 3-7-00

CLASS CONCRETE **3000 psi 3/8"**
@28 days

Cement Factor (sacks)	6.00
W/C Ratio (by weight)	0.55
Slump (inches)	2-4"
Entrained Air (percent)	4-6%
Cement (lb)	395
Slag Cement (lb)	169
Sand (lb)	1230
Stone (lb)	1650
Water (gal)	37.2
WRDA-Hycol (oz)	16.9
Darex II (oz)	3.0

subject to test results

Middlesex Transportation Center Woburn 2/22/00

MASSPORT PROJECT NO. 1.727		
WOBURN REGIONAL TRANSPORTATION CENTER		
MIDDLESEX SUBMITTAL NO. <u>03300-003-00</u> (0013 3-2-00)		
	APPROVED	Reviewed only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor shall be responsible for all dimensions, quantities and performance requirements to be confirmed and coordinated at the job site; for all information that pertains solely to the fabrication process or to techniques of construction; for all coordination of the work of all trades; and for assuring consistency with the Contract Documents.
<input checked="" type="checkbox"/>	APPROVED AS NOTED Resubmission Not Required	
<input type="checkbox"/>	APPROVED AS NOTED Resubmission Required	
<input type="checkbox"/>	REJECTED	
<input type="checkbox"/>	NOTED - No Action Required	
STONE & WEBSTER Job No: 07473 File No: <u>03300</u>		
Reviewed by: <u>WJ Palmer</u> Date: <u>2-7-00</u>		

Concrete Mix with Daracem 55

**CLASS CONCRETE 4000 psi^{3/4}"
@28 days**

Cement Factor (sacks)	6.50
W/C Ratio (by weight)	0.45
Slump (inches)	2-4"
Entrained Air (percent)	4-6%
Cement (lb)	428
Slag Cement (lb)	183
Sand (lb)	1180
Stone (lb)	1800
Water (gal)	33.0
Daracem 55 (oz)	42.8
Darex II (oz)	3.0

subject to test results

Middlesex Transportation Center Woburn 2/22/00

MASSPORT PROJECT NO. 1.727	
WOBURN REGIONAL TRANSPORTATION CENTER	
MIDDLESEX SUBMITTAL NO. <u>03300-003-00</u> ⁽⁰⁰¹³⁾ ₃₋₂₋₀₀	
APPROVED	Reviewed only for conformance with the design concept of the Project and completed with the information provided in the submittal documents. Contractor is responsible for all construction methods and performance. Review was to be completed at the job site to verify that what remains to be done in the construction process or to be in proper coordination; for all trades and for ensuring consistency with the project documents.
X APPROVED AS NOTED Resubmission Not Required	
APPROVED AS NOTED Resubmission Required	
REJECTED	
NOTED - No Action Required	
STONE & WEBSTER Reviewed by: <u>WJ Palmer</u> Date: <u>3-7-00</u>	



Blue Circle Cement

285 Medford St.

Boston, MA 02129-0055

LABORATORY TEST REPORT

TO: _____ Carrier: _____
 _____ Date Shipped: _____
 _____ Loaded From: _____

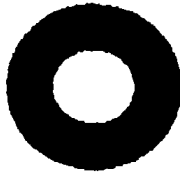
TEST DATA ON STOCK FROM WHICH SHIPMENT WAS MADE:
 CHEMICAL PHYSICAL

SiO ₂	20.8 %	Fineness, Blaine	372 m ² /kg
Al ₂ O ₃ (AASHTO M-85) and (ASTM C-150).....	4.9 %	+325.m	6.9 %
Fe ₂ O ₃	3.3 %	Wagner	m ² /kg
CaO	62.0 %	Soundness, Autoclave expansion	0.10 %
MgO	3.6 %	Time of Setting, (Vicat) Initial	150 Minutes
SO ₃	3.1 %	Final	270 Minutes
Na ₂ O Equiv	0.55 %	Air Content	6.2 %
Ignition Loss	1.3 %	Compression Strength,	
Insoluble Residue	0.21 %	1 Day	psi MPa
Potential Compounds		3 Days	3310 psi 22.8 MPa
C ₃ S (AASHTO M-85).....	46 %	7 Days	4740 psi 32.7 MPa
(ASTM C-150).....	48 %	28 Days	psi MPa
C ₂ A (AASHTO M-85).....	8 %	Optimum SO ₃ (ASTM C-563)	2.8%
(ASTM C-150).....	7 %	Expansion in Water (ASTM C-1038).....	0.010%

Blue Circle Cement certifies that this Cement complies with the current Specifications of the chemical and physical requirements of ASTM C-150, Federal SS-C-1960/3 and AASHTO M-85, Type II

Adelaide 03-00-1032
 January 19,2000


 Ronald S. Peck - Chemist



Blue Circle Cement

Sparrows Point Plant
2001 Wharf Road
Baltimore, MD 21219
Telephone 410-388-1177
Fax 410-388-1206

LABORATORY TEST REPORT - NewCem

To: _____

Carrier: _____

Date Shipped: _____

Loaded From: _____

CHEMICAL

Sulfide Sulfur (S), % 0.94

Sulfate Ion (as SO₃), % 0.13

PHYSICAL

Slag Activity Index, %:
7 Day 108.6

28 Day _____

Fineness:
Blaine
cm²/g 5,580

325 Sieve
% retain 1.2

Air Content, %: 4.1

Compressive Strength: Mpa ; psi

7 Day 34.39 4,987

28 Day _____

Sample Identification

Voyage: Adelaide
2-00-1031

Date: 10-Jan-00

Terminal: Boston

This ground granulated blast furnace slag complies with the current specification of the chemical and physical requirements of ASTM C-989, AASHTO M-302; Grade 120 and ASTM C-595M, AASHTO M-240 Type IS, when blended with Portland cement, conforming to ASTM C-150, at the prescribed proportions.

Thomas R. Griffiths
Quality Control Manager

1/21/00
Date

COASTAL MATERIALS CORPORATION

TECHNICAL DATA ON

RAYMOND STONE PRODUCTS

CRUSHED GRANITE

CHESTER ROAD, RT. 102 — RAYMOND, NH 03077

603-895-0132

Typical Sieve Analysis—% Passing Basis							
PRIMARY SIZES							
SIEVE	1½"	¾"	½"	⅜"	STONE SAND	1½" CRUSHER RUN	¾" CRUSHER RUN
2"						100	
1-½"	100					98	
1"	66	100				75	100
¾"	18	94	100			67	97
½"	2	40	98	100		61	90
⅜"	1	10	38	99	100	50	68
No. 4		2	2	25	99	42	60
No. 8			1	9	82	34	39
No. 16				1	56	27	20
No. 30					40	19	15
No. 50					24	12	10
No. 100					10	7	7
No. 200					3	3	5
Soundness 5CY Mag. Sulfate		3.63%		3.72%			
Spec. Grav., SSD	2.69	2.69	2.67	2.65	2.55		
Absorption		0.7%	0.8%	0.6%	0.6%		

Unit Weight — Pounds per cubic Foot				
Raymond Product	1½"	¾"	½"	⅜"
Dry Rodded	93	93	94	95

Los Angeles Abrasion	
ASTM C-131 'A' Grading	
100 Revolutions:	3.6 % Loss
500 Revolutions:	22.3% Loss



October 8, 1999

Report No. 1-9115-8

Mr. William Hood, III
 Wakefield Concrete
 P.O. Box 540
 Wakefield, MA 01880

Re: Aggregate Test Results

Gentlemen:

The following are test results of a sample of aggregate as delivered to this laboratory on 8/16/99.

1. Sample Description

<u>Sample No.</u>	<u>Description</u>	<u>Source</u>
C-331a	1 1/2" Stone	Coastal Materials Corp.
C-331b	#67 Stone	Coastal Materials Corp.
C-331c	Concrete Sand	Heffren Materials

2. Washed Sieve Analysis (% passing by weight)

<u>Sieve Size (mm)</u>	<u>C-331a</u>	<u>C-331b</u>	<u>C-331c</u>
2" (50.0)	100		
1 1/2 (37.5)	99		
1 (25.0)	34	100	
3/4 (19.0)	9	97	
1/2 (12.5)	3	41	
3/8 (9.5)	2	23	100
#4 (4.75)	1	5	98
8 (2.36)		1	83
16 (1.18)			59
30 (.600)			34
50 (.300)			14
100 (.150)			6
200 (.075)			2.1

3. Los Angeles Abrasion Test Results (ASTM C 131 Grading A)

<u>Sample No.</u>	<u>Result (% loss)</u>
C-331a	23.2

4. Soundness Test Results (ASTM C 88, Sodium Sulfate)

<u>Sample No.</u>	<u>Result (% loss)</u>
C-331a	4.1
C-331b	3.4
C-331c	4.8

Should you have any questions or require additional information, please do not hesitate to call.

Sincerely,

Kevin Caine
 Laboratory Manager

40 Robbie Road Unit H • Avon, MA 02322 • (508) 588-0886 • FAX (508) 588-2414
 167 Shaker Road • East Longmeadow, MA 01028 • (413) 525-5737 • FAX (413) 525-0980
 160B Larrabee Road • Westbrook, ME 04092 • (207) 854-2980 • FAX (207) 854-8694



DAREX[®] II AEA[®]

Air-Entraining Admixture
ASTM C 260



DESCRIPTION:

Darex[®] II AEA[®] is an air-entraining admixture which generates a highly stable air void system for increased protection against damage from freezing and thawing, severe weathering, or deicer chemicals. Darex II AEA is a complex mixture of organic acid salts in an aqueous solution specifically formulated for use as an air-entraining admixture for concrete and is manufactured under rigid control which provides uniform, predictable performance. It is supplied ready to use and does not require premixing with water. Darex II AEA is a dark brown liquid. 1 gal. weighs 8.7 lbs. (1 L = 1.04 kg). Darex II AEA complies to ASTM C 260 Standard Specifications for Air-Entraining Admixtures for Concrete.

USES:

Darex II AEA is used in ready mix, block, and concrete products plants to improve air entrainment stability. It is particularly effective in maintaining air content during longer haul times. Darex II AEA performs well in conventional concrete and is effective in plasticizing mixes and with slag, lightweight, or manufactured aggregates which tend to produce harsh concrete.

Darex II AEA entrains air effectively with microsilica concrete and with fly ash concrete.

AIR ENTRAINING ACTION:

By agitation of concrete mixers, Darex II AEA disperses and generates millions of discrete semi-microscopic bubbles throughout the concrete composite. Once thoroughly mixed, the concrete contains a stable network of bubbles which act much like ball bearings increasing mobility, or plasticity, of the concrete. This aids workability to the mix and permits a reduction of water with no loss of slump. Placeability is improved. Bleeding, segregation, and green shrinkage are minimized.

Through the purposeful entrainment of air, Darex II AEA markedly increases the durability of concrete to all exposures.

COMPATIBILITY WITH OTHER ADMIXTURES:

Darex II AEA is fully effective and compatible in concrete with other admixtures and may be used with water-reducing admixtures, accelerators, and initial set retarders such as WRDA with H₂COL[®], WRDA[®], Daraset[®] and Daratard[®]. Darex II AEA also effectively entrains air with microsilica admixtures such as Force 10,000[®] and calcium nitrite admixtures such as DCI[®].

Each admixture should be added separately to the concrete.

ADDITION RATES:

There is no standard addition rate for Darex II AEA. The amount to be used will depend upon the amount of air required under job conditions, usually in the range of 4 to 7%. Typical factors which might influence the amount of air entrained are temperature, cement, sand gradation, and use of extra fine materials such as fly ash. Typical Darex II AEA addition rates generally range from 1/2 to 5 fluid ounces per 100 lbs. of cement (30 - 310 mL/100 kg).

The air-entraining efficiency of Darex II AEA becomes even greater when used with water-reducing and set-retarding agents. This may allow a reduction of up to 2/3 in the amount of Darex II AEA required for the specified air content.

MIX ADJUSTMENT:

Entrained air results in increased yields with a consequent decrease in the cement content of the placed concrete. This condition calls for a mix adjustment, usually accomplished by reducing the fine aggregate content. This is in addition to the reduction in water content brought about by the increase in plasticity.

DISPENSING EQUIPMENT:

A complete line of accurate dispensing equipment is available. These dispensers can be located to discharge into the water line, the mixer, or on the sand.

PACKAGING:

Darex II AEA is available in bulk, delivered by metered tank trucks and in 55 gal. (210 L) drums. Darex II AEA contains no flammable ingredients. Darex II AEA WILL FREEZE AT ABOUT 30 F (-1 C), BUT ITS AIR-ENTRAINING PROPERTIES ARE COMPLETELY RESTORED BY THAWING AND THOROUGH MECHANICAL AGITATION.

ARCHITECTS' SPECIFICATION FOR CONCRETE AIR-ENTRAINING ADMIXTURE:

Concrete shall be air entrained concrete, containing 4 to 7% entrained air. The air contents in the concrete shall be determined by the pressure method (ASTM Designation C 231), gravimetric method (ASTM Designation C 138), or volume metric method (ASTM Designation C 173). The air-entraining admixture shall be Darex II AEA as manufactured by Grace Construction Products, or equal. The air-entraining admixture shall be added at the concrete mixer or batching plant at approximately 1/2 to 5 fluid ounces per 100 lbs. (30 - 310 mL/100 kg) of cement, or in such quantities as to give the specified air contents.

Copyright 1993 W.R. Grace & Co.-Conn.

We hope the information given here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the user's consideration, investigation and verification but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. Grace Construction Products, W.R. Grace & Co.-Conn., 62 Whittemore Avenue, Cambridge, MA 02142.

GRACE
Construction Products

GRACE · CONCRETE ADMIXTURES



DESCRIPTION:

WRDA[®] with HYCOL[™] admixture is an aqueous solution of complex organic compounds, one of which is HYCOL[™], a patented portland cement hydration control agent. WRDA with HYCOL is a ready-to-use low viscosity liquid which is factory premixed in exact proportions to minimize handling, eliminate mistakes and guesswork.

WRDA with HYCOL contains no calcium chloride. One gallon weighs approximately 9.6 lbs.

USES:

WRDA with HYCOL produces a concrete with lower water content (typically 8 to 10% reduction), greater plasticity and higher strength. It is used in ready-mix plants, block and concrete products plants, in lightweight and prestressed work . . . wherever concrete is produced. It is also used by contractors in field equipment such as job-site plants and pavers.

ADVANTAGES:

Most calcium-chloride-free water reducing admixtures on the market today produce some significant degree of set retardation. Minimal extension of setting time has been experienced in field concrete containing WRDA with HYCOL. Under closely controlled laboratory conditions, the retardation observed with the addition of 3 fluid ounces of WRDA with HYCOL per 100 pounds of cement is in the range of 15 to 20 minutes, well within the limit of the accuracy of the method of test. It is through the action of the patented Hydration Control (HYCOL) agent in the admixture that its effect on the setting time of concrete is reduced to an insignificant degree.

The use of WRDA with HYCOL produces a plastic concrete that is more workable, easier to place, more pumpable, and has better finishability than plain or other admixed concrete. In the hardened state, WRDA with HYCOL concrete has higher compressive and flexural strengths at all ages than untreated or conventionally admixed concrete.

The greater degree of plasticity achieved, compared with conventional water reducing admixtures, allows improved finishability.

HYDRATION CONTROL:

HYCOL acts to optimize the rate and degree of hydration of the portland cement in the concrete. This optimization gives concrete strength advantages at all ages without appreciably altering its setting time.

WRDA with HYCOL also acts as a dispersing agent and lessens the natural interparticle attraction between cement grains in water. This reduces their tendency to clump together, making the mix more workable, placeable and finishable with less water.

The combination of water reduction and controlled hydration by HYCOL optimizes the rate of formation of the gel, the paste or binder that "glues" the concrete aggregates together. This controlled rate of gel formation adds to the water retention and internal cohesiveness of the mix, reducing the bleeding and segregation while increasing or improving the workability, placeability and finishability of concrete.

FINISHABILITY:

Finishers have stated that the cement paste, or mortar, in WRDA with HYCOL admixed concrete has improved trowelability. The influence of WRDA with HYCOL on the finishability of lean mixes has been particularly noticeable. Floating and troweling, by machine or hand, easily imparts a smooth, close tolerance surface with less machine time and labor.

ADDITION RATE:

Excellent results are obtained using an addition rate of 3 fluid ounces of WRDA with HYCOL per 100 pounds of cement. In some cases it may be necessary to slightly modify the addition rate due to variations in cement, aggregate or other job conditions.

DISPENSING EQUIPMENT:

A complete line of accurate dispensing equipment is available. WRDA with HYCOL may be introduced to the mix on the sand or in the water.

COMPATIBILITY WITH OTHER ADMIXTURES:

WRDA with HYCOL is compatible in concrete with all air entraining admixtures such as DAREX AEA[®]. Due to a synergistic effect of WRDA with HYCOL, the quantity of DAREX AEA admixture in concrete may be reduced by about 25%. By combining the separate effects of air entrainment and dispersion, the water requirement of concrete may be reduced up to 15%. EACH ADMIXTURE SHOULD BE ADDED SEPARATELY. While WRDA with HYCOL contains no calcium chloride, it is compatible with calcium chloride in concrete mixes. Again, each should be added separately.

PACKAGING:

WRDA with HYCOL is available in bulk, delivered by metered tank trucks, and 55-gallon drums. WRDA with HYCOL contains no flammable ingredients. IT WILL FREEZE AT ABOUT 28°F, BUT WILL RETURN TO FULL STRENGTH AFTER THAWING AND THOROUGH AGITATION.

ARCHITECTS' SPECIFICATION FOR CONCRETE WATER REDUCING ADMIXTURE:

Concrete shall be designed in accordance with ACI Standard Recommended Practice for Selecting Proportions for Concrete (ACI 211.1-74).

The water reducing admixture shall be WRDA with HYCOL, as manufactured by the Construction Products Division of W. R. Grace & Co., or equal. The admixture shall not contain calcium chloride. It shall be used in strict accordance with the manufacturer's recommendations. The admixture shall comply with ASTM Designation C494, Type A water reducing admixtures. Certification of compliance shall be made available upon request.

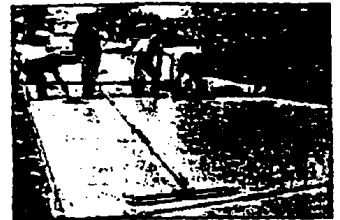
The admixture shall be considered as part of the total water. The admixture shall be delivered as a ready-to-use liquid product and shall require no mixing at the batching plant or job site.

We hope the information given here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the user's consideration, investigation and verification but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. Construction Products Division, W. R. Grace & Co., 62 Whittemore Ave., Cambridge, Mass. 02140.

GRACE
Construction Products

DARACEM[®]-55

Mid-Range
Water Reducing Admixture (ASTM C494)



DESCRIPTION:

DARACEM-55 is a mid-range water-reducer specifically formulated to produce concretes with dramatically enhanced finishing characteristics and normal setting times. Effective through a wide addition rate range, DARACEM-55 combines the benefits of normal and high range water reducers allowing for the ultimate control of the concretes placing and finishing properties.

DARACEM-55 is an aqueous solution of complex organic compounds, each of which contributes uniquely to the concretes final properties. It contains both patented dispersing and patented finishability agents that provide performance superior to conventional water reducing products. DARACEM-55 is also formulated with a catalyst which promotes more complete hydration of portland cement to assure superior strength performance. It is manufactured under rigid controls which provide uniform, predictable performance. DARACEM-55 contains no calcium chloride. Supplied as a dark brown, low viscosity liquid, one gallon weighs approximately 10.7 pounds.

USES:

DARACEM-55 produces a concrete with lower water content, improved placement properties, and enhanced finishability. It yields a less permeable and more durable concrete. DARACEM-55 is used in ready mix, job site, and concrete paving plants for normal and lightweight concrete, in block and pre-cast. It imparts a "slickness" to the surface of the concrete making it most appropriate for concrete flatwork as well as slip form work. DARACEM-55 is also particularly effective in lean or flyash and slag compensated mixes.

ADVANTAGES:

DARACEM-55 offers significant advantages over conventional water reducers. Laboratory and field work has consistently demonstrated:

- ultimate workability and finishability
The exceptional water reducing capabilities allow for concrete production at higher slumps with better water retention and internal cohesiveness, providing a less "sticky" concrete with improved placement properties. Formulated with proven finishing enhancing components, DARACEM-55 controls bleeding while bringing the mortar to the surface. Finishers have stated that the concrete has improved trowelability. The influence of DARACEM-55 on the finishability of lean mixes has been particularly noticeable. Floating and troweling, by machine or by hand, easily imparts a smooth, close tolerance surface with less machine time and labor.
- neutral setting times
Formulated with a set control agent, DARACEM-55 provides normal setting characteristics throughout its addition rate range. This allows for increased water reduction and increased slump without significantly extended setting times. It also allows the flexibility to vary addition based on specific job and weather requirements.

- superior strength performance

The water reduction properties, up to 12%, and dispersion characteristics allow the production of lower water to cement ratio concretes and more complete hydration. The combined effect is increased compressive and flexural strengths at all ages.

ADDITION RATE:

The addition rate range of DARACEM-55 is 3 to 9 fluid ounces per 100 pounds of cement. Typically excellent results are achieved between 5 and 7 fluid ounces. Optimum addition depends on the other concrete mixture components, job conditions, and desired performance characteristics.

COMPATIBILITY WITH OTHER ADMIXTURES:

DARACEM-55 is compatible with all air entraining admixtures such as DAREX-AEA[®] and DARAVAIR[®]. Due to a synergistic effect of DARACEM-55, the amount of air entraining may be reduced by 25-50% when added to concrete with DARACEM-55. By combining the separate effects of air entrainment and dispersion, the water requirement of concrete may be reduced up to 15%. Each admixture should be added to the concrete separately.

DISPENSING EQUIPMENT:

A complete line of accurate, automatic dispensing equipment is available. DARACEM-55 may be added to the concrete mix on the sand or in the batch water.

PACKAGING:

DARACEM-55 is available in bulk, delivered in metered tank trucks, and 55 gallon drums. DARACEM-55 contains no flammable ingredients.

ARCHITECT'S SPECIFICATIONS:

Concrete shall be designed in accordance with Standard Recommended Practice for Selecting Proportions for Concrete, ACI 211.

The water reducing admixture shall be a mid-range water reducing admixture such as DARACEM-55 as manufactured by the Construction Products Division, W. R. Grace & Co., Conn., or its equivalent. The admixture shall not contain calcium chloride. It shall meet the requirements of Specification for Chemical Admixtures for Concrete ASTM Designation C 494 as a Type A admixture. Certification of compliance shall be made available on request. The admixture shall be considered part of the total mixing water.

The admixture shall be delivered as a ready-to-use liquid product and shall require no mixing at the batching plant or job site.

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GRACE
Concrete Products

CLASS CONCRETE

4000 psi 1-1/2"
@28 days

flint mix not req'd

Cement Factor (sacks)	6.50
W/C Ratio (by weight)	<u>0.48</u>
Slump (inches)	2-4"
Entrained Air (percent)	4-6%
Cement (lb)	428
Slag Cement (lb)	183
Sand (lb)	1070
Stone (lb)	1900
Water (gal)	35.2
WRDA-Hycol (oz)	18.3
Darex II (oz)	3.0

should be 0.45 max

Middlesex Transportation Center Woburn 2/22/00

MASSPORT PROJECT NO. 1.727 WOBURN REGIONAL TRANSPORTATION CENTER	
MIDDLESEX SUBMITTAL NO. <u>03300-003-00</u> (0013 3-2-00)	
APPROVED	Reviewed only for conformance with the design concept of the Project and conformance with the information given in the Contract Documents. Contractor shall be responsible for all dimensions, quantities and performance requirements to be performed and installed at the job site, for coordination that pertains solely to the installation process or to techniques of construction; for all coordination of the work of all trades; and for assuring consistency with the Contract Documents.
APPROVED AS NOTED Resubmission Not Required	
APPROVED AS NOTED Resubmission Required	
REJECTED	
<input checked="" type="checkbox"/> NOTED - No Action Required	
STONE & WEBSTER Job No: 07473 File No: <u>03300</u> Reviewed by: <u>WJ Pelicci</u> Date: <u>3-7-00</u>	

flint mix not req'd

CLASS CONCRETE

5000 1-1/2"
@28 days

Cement Factor (sacks)	7.50
W/C Ratio (by weight)	0.44
Slump (inches)	2-4"
Entrained Air (percent)	4-6%
Cement (lb)	494
Slag Cement (lb)	212
Sand (lb)	950
Stone (lb)	1900
Water (gal)	37.2
WRDA-Hycol (oz)	21.2
Darex II (oz)	3.0

Middlesex Transportation Center Woburn 2/22/00

MASSPORT PROJECT NO. 1.727	
WOBURN REGIONAL TRANSPORTATION CENTER	
MIDDLESEX SUBMITTAL NO. <u>03300-003-00</u> (0013) <u>3-2-00</u>	
APPROVED	By _____
APPROVED AS NOTED	By _____
APPROVED WITH RESERVATIONS	By _____
REJECTED	By _____
<input checked="" type="checkbox"/> NO ACTION REQUIRED	By _____
REVISIONS REQUESTED	By _____
DATE	DATE
BY	BY
<i>W. J. Palmer</i>	<i>03300</i>
	<i>3-7-00</i>

APPENDIX M- AS-BUILT DRAWINGS

INDUSTRI-PLEX SITE WOBURN, MASSACHUSETTS

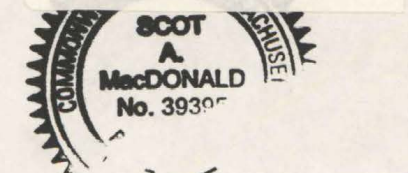
R.T.C. COVER MODIFICATIONS RECORD DRAWINGS APPENDIX M

JULY 13, 2001

PREPARED BY:
THE BSC GROUP, INC.

76 Industri-plex 00-1
Industrial Center
ASBUILT RECORDS FOR
ANDERSON REGIONAL
TRANSPORTATION CENTER 7-13-01

SIMS DOCID 257986



PROFESSIONAL LAND SURVEYOR DATE

SITE: Industri-plex
BREAK: 76
OTHER: 257986

ANDERSON
REGIONAL
TRANSPORTATION
CENTER

MASSPORT CONTRACT #1.727

100 ATLANTIC AVENUE
IN
WOBURN
MASSACHUSETTS
01801
(MIDDLESEX COUNTY)

COVER SHEET

JULY 13, 2001

REVISIONS:
NO. DATE DESC.

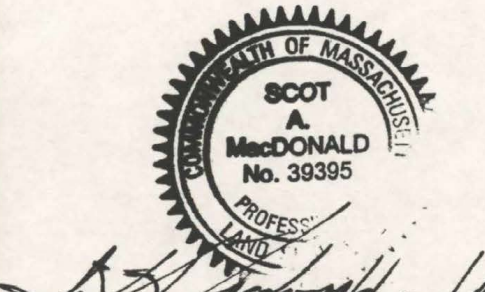
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PREPARED FOR:
THE MIDDLESEX CORPORATION
1 SPECTACLE POND ROAD
LITTLETON, MA
01460

BSC GROUP
384 Washington Street
Norwell, Massachusetts
02061
781 659 7981

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FIELD: JD/SJ
CALC./DESIGN: EJC
DRAWN: EJC/LLT
CHECK: SAM/EJC
FILE: M-A-COVER.DWG
DWG. NO: 4354-06
JOB. NO: 4-5862.00
SHEET 1 OF 23



PROFESSIONAL LAND SURVEYOR DATE

ANDERSON REGIONAL TRANSPORTATION CENTER

100 ATLANTIC AVENUE

IN
WOBURN
MASSACHUSETTS
01801
(MIDDLESEX COUNTY)

SITE BOUNDARY AND GEOTEXTILE LIMIT

JULY 13, 2001

REVISIONS:
NO. DATE DESC.

NO.	DATE	DESC.

PREPARED FOR:
THE MIDDLESEX CORPORATION
ONE SPECTACLE POND ROAD
LITTLETON, MA
01460

BSC GROUP

384 Washington Street
Norwell, Massachusetts
02061

781 659 7981

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SCALE: 1" = 100'
0 12.5 25 50 100 200 feet
0 50 100 200 meters

PROJ. MGR.: SAM
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 CALC./DESIGN: EJC
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 FILE: M-3.DWG
 DWG. NO: 4354-06
 JOB. NO: 4-5862.00 SHEET 2 OF 2





ANDERSON REGIONAL TRANSPORTATION CENTER
 MASSPORT CONTRACT #1.727
 100 ATLANTIC AVENUE
 IN
 WOBURN MASSACHUSETTS
 01801 (MIDDLESEX COUNTY)
 DRAINAGE AS-BUILT

JULY 13, 2001

REVISIONS:

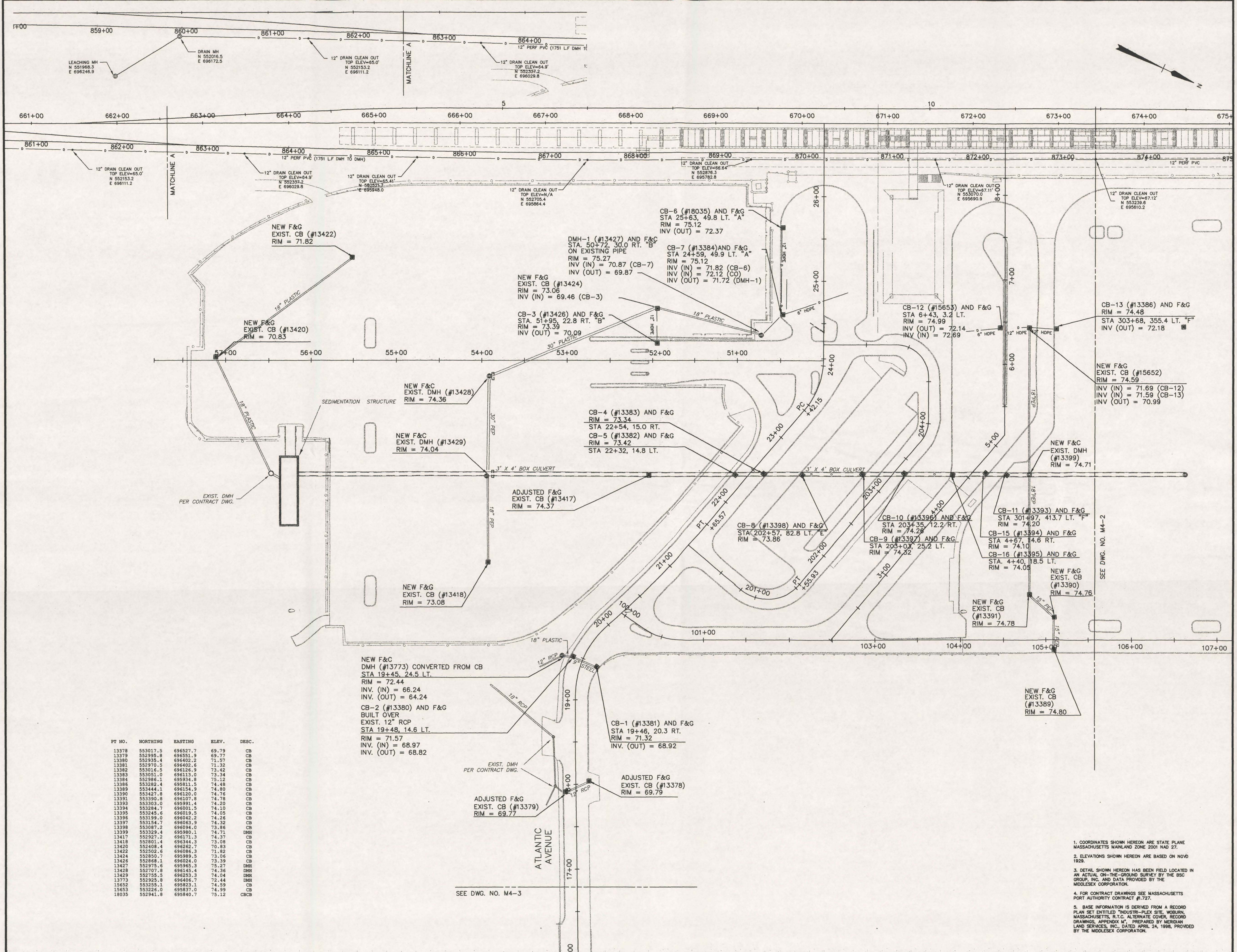
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PREPARED FOR:
 THE MIDDLESEX CORPORATION
 1 SPECTACLE POND ROAD
 LITTLETON, MA
 01460

BSC GROUP
 384 Washington Street
 Norwell, Massachusetts
 02061
 781 659 7981

1. COORDINATES SHOWN HEREON ARE STATE PLANE MASSACHUSETTS MAINLAND ZONE 2001 NAD 27.
 2. ELEVATIONS SHOWN HEREON ARE BASED ON NGVD 1929.
 3. DETAIL SHOWN HEREON HAS BEEN FIELD LOCATED IN AN ACTUAL ON-THE-GROUND SURVEY BY THE BSC GROUP, INC. AND DATA PROVIDED BY THE MIDDLESEX CORPORATION.
 4. FOR CONTRACT DRAWINGS SEE MASSACHUSETTS PORT AUTHORITY CONTRACT #1.727.
 5. BASE INFORMATION IS DERIVED FROM A RECORD PLAN SET ENTITLED "INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS, R.T.C. ALTERNATE COVER, RECORD DRAWINGS, APPENDIX M", PREPARED BY MERIDIAN LAND SERVICES, INC., DATED APRIL 24, 1998, PROVIDED BY THE MIDDLESEX CORPORATION.

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 DRAWN: EJC/LLT
 CHECK: SAM/EJC
 FILE: M4-1.DWG
 DWG. NO: 4354-06
 JOB. NO: 4-5862.00 SHEET 3 OF 23



PT. NO.	NORTHING	EASTING	ELEV.	DESC.
13378	553017.5	696227.7	69.79	CB
13379	552995.8	696551.9	69.77	CB
13380	552935.4	696402.2	71.57	CB
13381	552970.5	696402.6	71.32	CB
13382	553016.5	696326.9	73.42	CB
13383	553051.0	696113.0	73.34	CB
13384	552996.1	695934.9	75.12	CB
13386	552882.4	695911.5	74.48	CB
13389	553444.1	696154.9	74.80	CB
13390	553427.8	696120.0	74.76	CB
13391	553390.8	696107.8	74.78	CB
13393	553303.0	695991.4	74.20	CB
13394	553284.7	696001.5	74.10	CB
13395	553245.6	696019.5	74.05	CB
13396	553199.0	696022.2	74.26	CB
13397	553154.7	696063.9	74.32	CB
13398	553087.2	696094.0	73.86	CB
13399	553129.4	695980.1	74.71	DMH
13417	552927.2	696171.3	74.37	CB
13418	552801.4	696344.3	73.08	CB
13420	552408.4	696262.7	70.83	CB
13422	552502.6	696086.3	71.82	CB
13424	552850.7	695989.5	73.06	CB
13426	552868.1	696024.0	73.39	CB
13427	552975.6	695965.3	75.27	DMH
13428	552707.8	696145.4	74.36	DMH
13429	552755.5	696233.3	74.04	DMH
13773	552925.8	696406.7	72.44	DMH
15652	553259.1	695823.1	74.59	CB
15653	553226.0	695837.0	74.99	CB
18035	552941.8	695840.7	75.12	CB/CB



PROFESSIONAL LAND SURVEYOR DATE

ANDERSON REGIONAL TRANSPORTATION CENTER

MASSPORT CONTRACT #1.727

100 ATLANTIC AVENUE
IN
WOBURN MASSACHUSETTS
01801
(MIDDLESEX COUNTY)
DRAINAGE AS-BUILT

JULY 13, 2001

REVISIONS:

NO.	DATE	DESC.

PREPARED FOR:
THE MIDDLESEX CORPORATION
1 SPECTACLE POND ROAD
LITTLETON, MA
01460

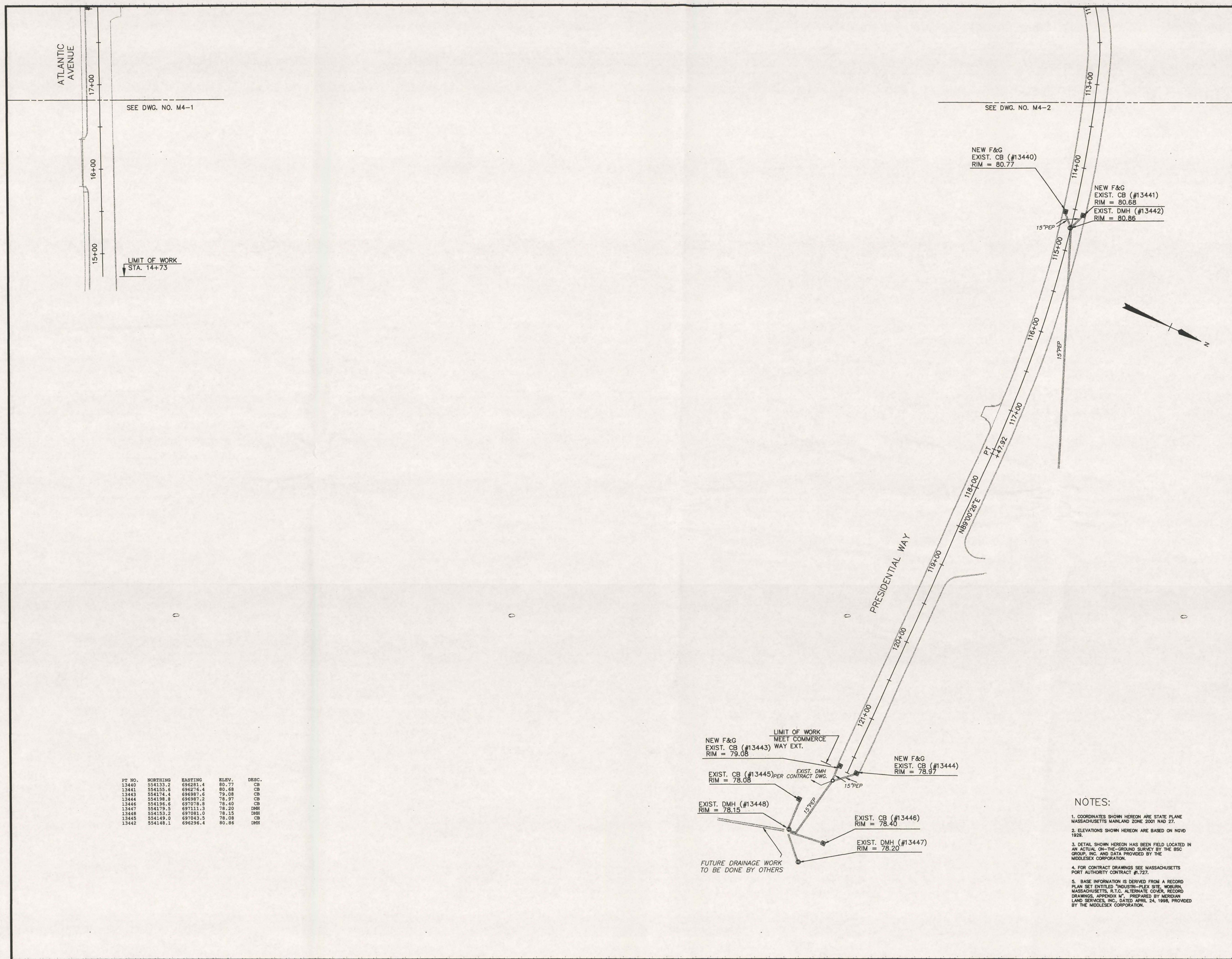
BSC GROUP
384 Washington Street
Norwell, Massachusetts
02061
781 659 7981

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SCALE: 1" = 40'

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FIELD:	JD/SJ
CALC./DESIGN:	EJC
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CHECK:	SAM/EJC
FILE:	M4-3.DWG
DWG. NO.:	4354-08
JOB. NO.:	4-5862.00

SHEET 5 OF 23



PT. NO.	NORTHING	EASTING	ELEV.	DESC.
13440	554133.2	696281.4	80.77	CB
13441	554155.6	696276.4	80.68	CB
13443	554174.4	696987.6	79.08	CB
13444	554198.8	696987.2	78.97	CB
13446	554196.6	697078.8	78.40	CB
13447	554179.5	697111.3	78.20	DMH
13448	554153.2	697081.0	78.15	DMH
13445	554149.0	697043.5	78.08	CB
13442	554148.1	696296.4	80.86	DMH

- NOTES:
- COORDINATES SHOWN HEREON ARE STATE PLANE MASSACHUSETTS MAINLAND ZONE 2001 MAD 27.
 - ELEVATIONS SHOWN HEREON ARE BASED ON NGVD 1929.
 - DETAIL SHOWN HEREON HAS BEEN FIELD LOCATED IN AN ACTUAL ON-THE-GROUND SURVEY BY THE BSC GROUP, INC. AND DATA PROVIDED BY THE MIDDLESEX CORPORATION.
 - FOR CONTRACT DRAWINGS SEE MASSACHUSETTS PORT AUTHORITY CONTRACT #1.727.
 - BASE INFORMATION IS DERIVED FROM A RECORD PLAN SET ENTITLED "INDUSTRI-PLEX SITE, WOBBURN, MASSACHUSETTS, R.T.C. ALTERNATE COVER, RECORD DRAWINGS, APPENDIX M", PREPARED BY MERIDIAN LAND SERVICES, INC., DATED APRIL 24, 1998, PROVIDED BY THE MIDDLESEX CORPORATION.



PROFESSIONAL LAND SURVEYOR DATE

ANDERSON REGIONAL TRANSPORTATION CENTER

MASSPORT CONTRACT #1.727

100 ATLANTIC AVENUE
IN
WOBURN MASSACHUSETTS
01801
(MIDDLESEX COUNTY)
SITE SUBGRADE

JULY 13, 2001

REVISIONS:

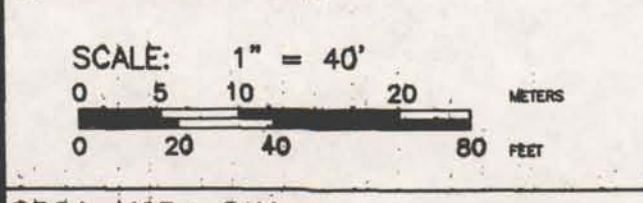
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LITTLETON, MA
01460

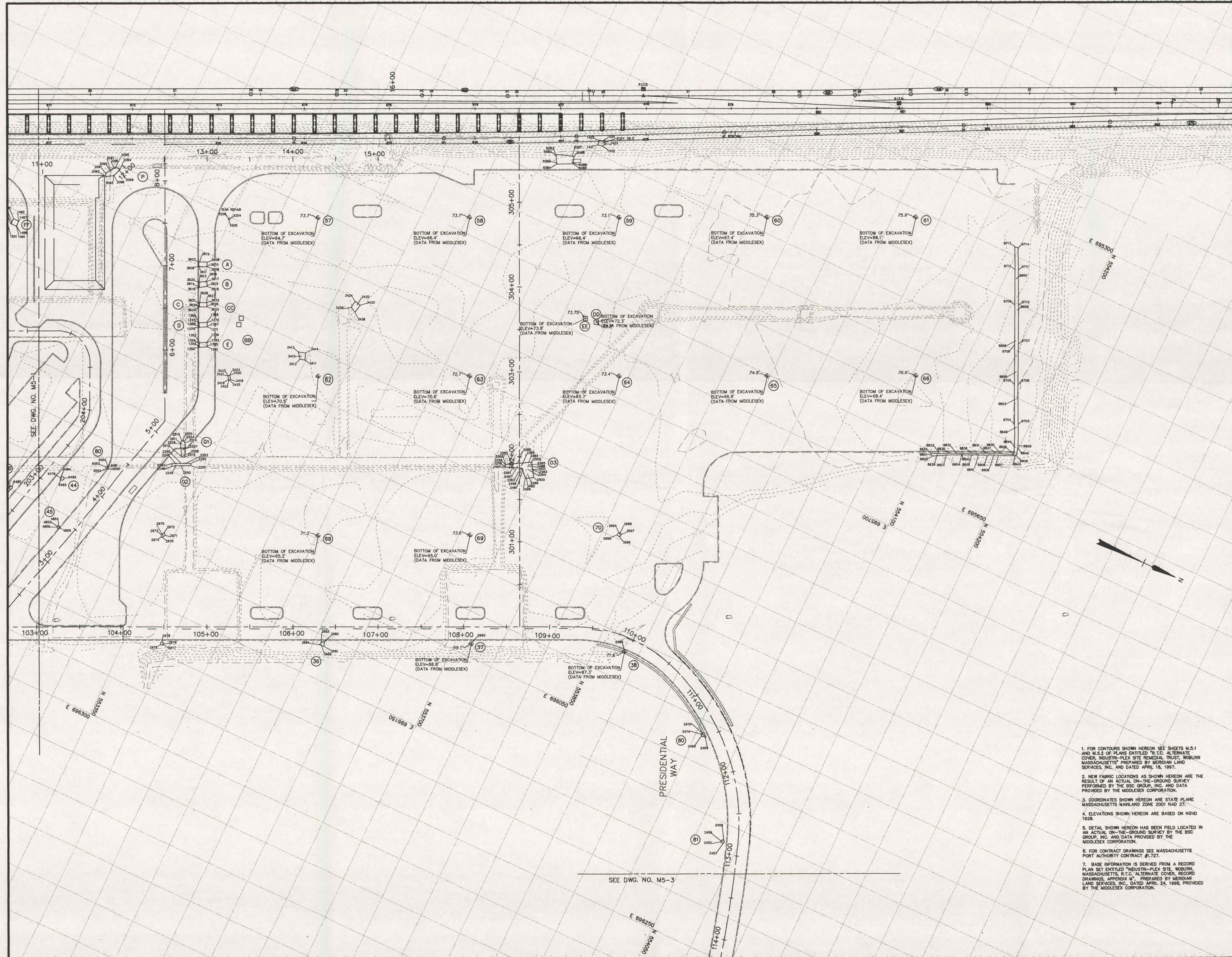


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CHECK:	SAM/EJC
FILE:	M5-2.DWG
DWG. NO.:	4354-06
JOB. NO.:	4-5862.00
SHEET:	7 OF 23





**ANDERSON
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TRANSPORTATION
CENTER**

MASSPORT CONTRACT #1.727

100 ATLANTIC AVENUE
IN
WOBURN
MASSACHUSETTS
01801
(MIDDLESEX COUNTY)
SITE SUBGRADE

JULY 13, 2001

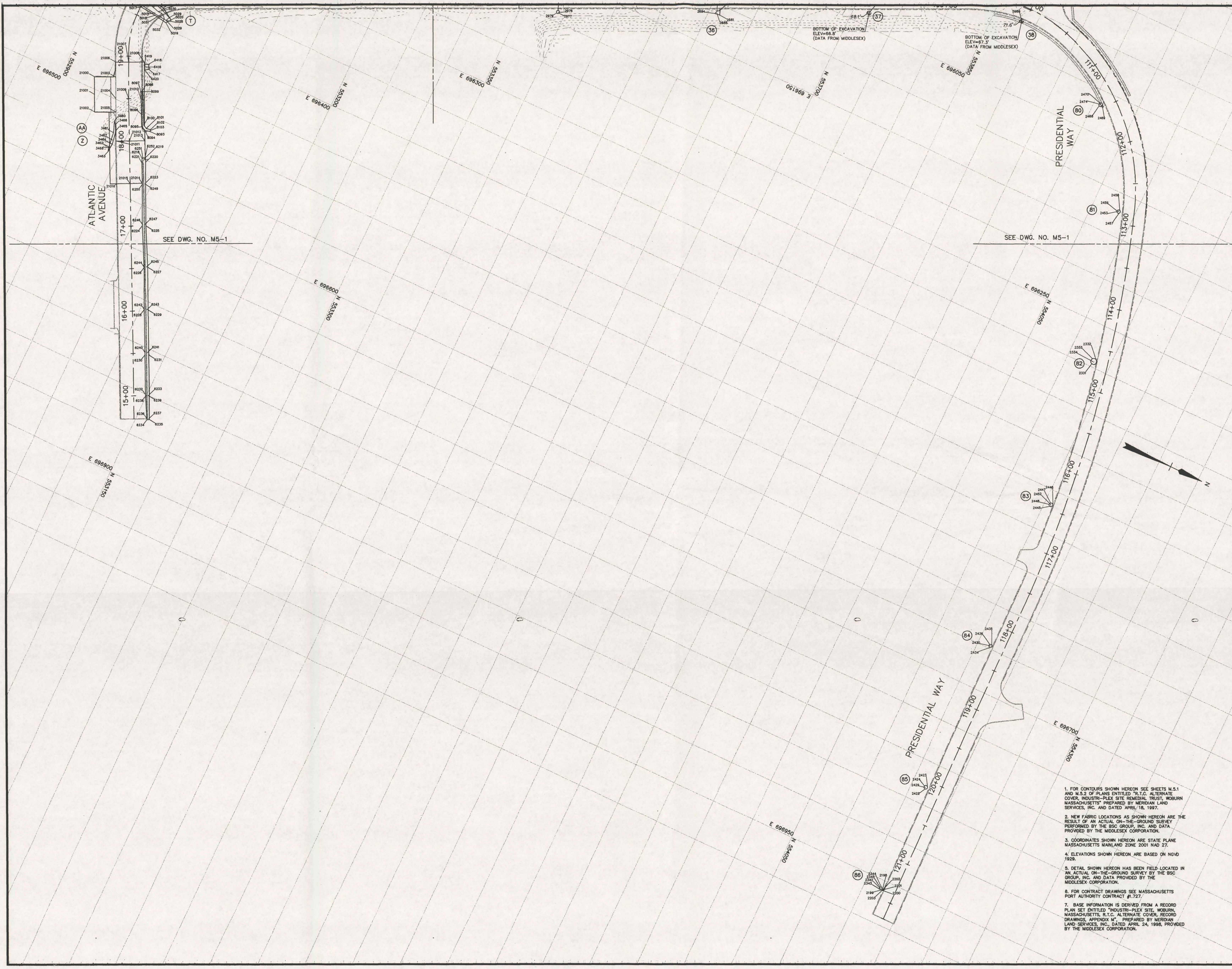
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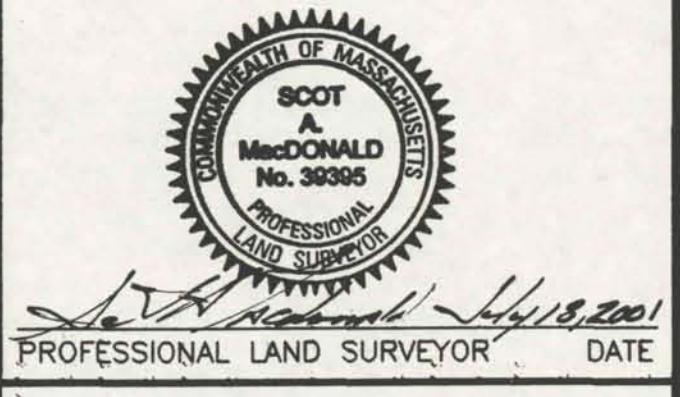
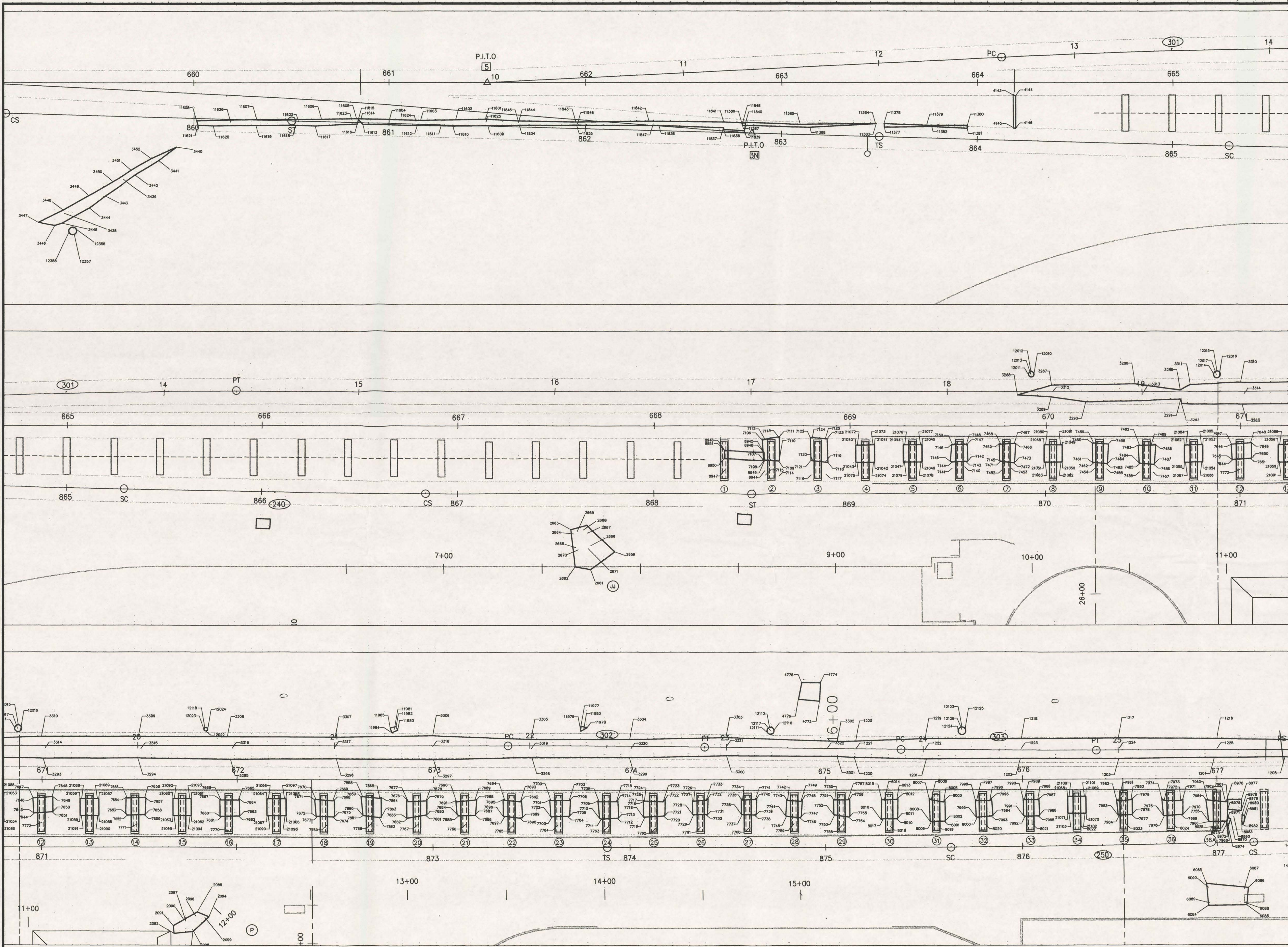
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LITTLETON, MA
01460

BSC GROUP
384 Washington Street
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02061
781 659 7981

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SCALE: 1" = 40'
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PROJ. MGR.: SAM
FIELD: JD/SJ
CALC./DESIGN: EJC
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FILE: M5-3.DWG
DWG. NO: 4354-06
JOB. NO: 4-5862.00





**ANDERSON
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TRANSPORTATION
CENTER**

MASSPORT CONTRACT #1.727

100 ATLANTIC AVENUE
IN
WOBURN
MASSACHUSETTS
01801
(MIDDLESEX COUNTY)

TRACK INTRUSIVE WORK

JULY 13, 2001

REVISIONS:

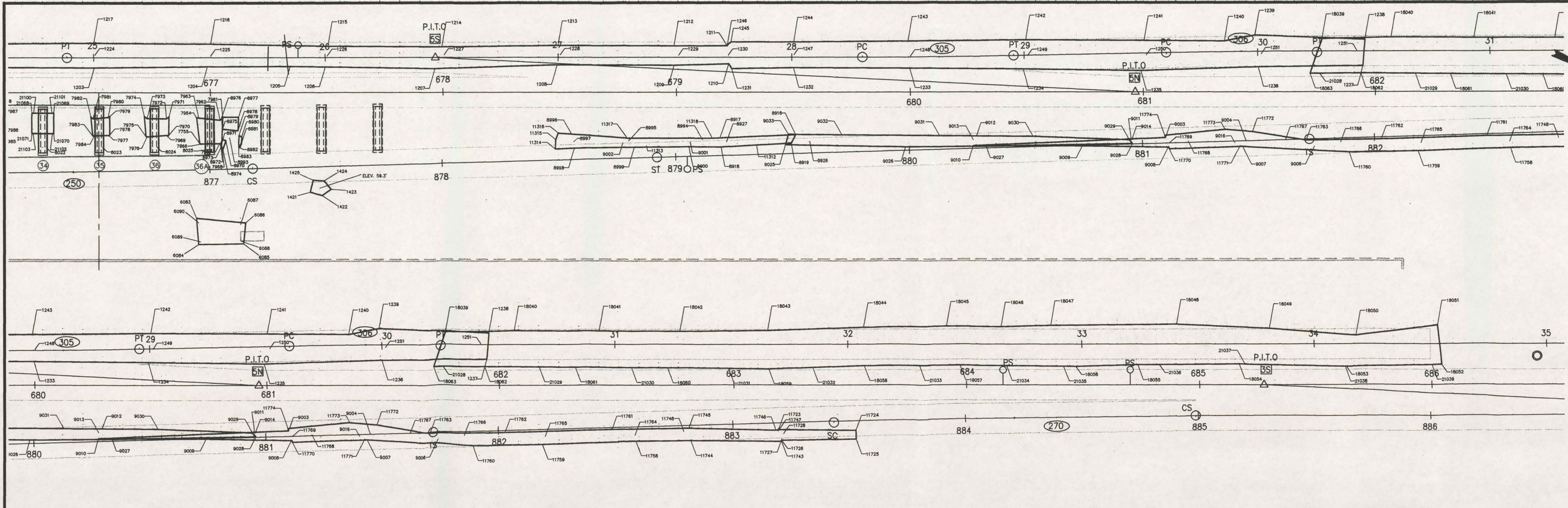
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PREPARED FOR:
THE MIDDLESEX CORPORATION
1 SPECTACLE POND ROAD
LITTLETON, MA
01460

BSC GROUP
384 Washington Street
Norwell, Massachusetts
02061
781 659 7981

- NOTES:**
- COORDINATES SHOWN HEREON ARE STATE PLANE MASSACHUSETTS MAINLAND ZONE 2001 MAD 27.
 - ELEVATIONS SHOWN HEREON ARE BASED ON NGVD 1929.
 - DETAIL SHOWN HEREON HAS BEEN FIELD LOCATED IN AN ACTUAL ON-THE-GROUND SURVEY BY THE BSC GROUP, INC. AND DATA PROVIDED BY THE MIDDLESEX CORPORATION.
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 - BASE INFORMATION IS DERIVED FROM A RECORD PLAN SET ENTITLED "INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS, ALTERNATE COVER, RECORD DRAWINGS, APPENDIX M", PREPARED BY MERIDIAN LAND SERVICES, INC., DATED APRIL 24, 1998, PROVIDED BY THE MIDDLESEX CORPORATION.
 - FOR COORDINATES ON POINTS SEE SHEET M5-6.

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SCALE: 1" = 20'
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JOB. NO: 4-5862.00 SHEET 10 OF 23



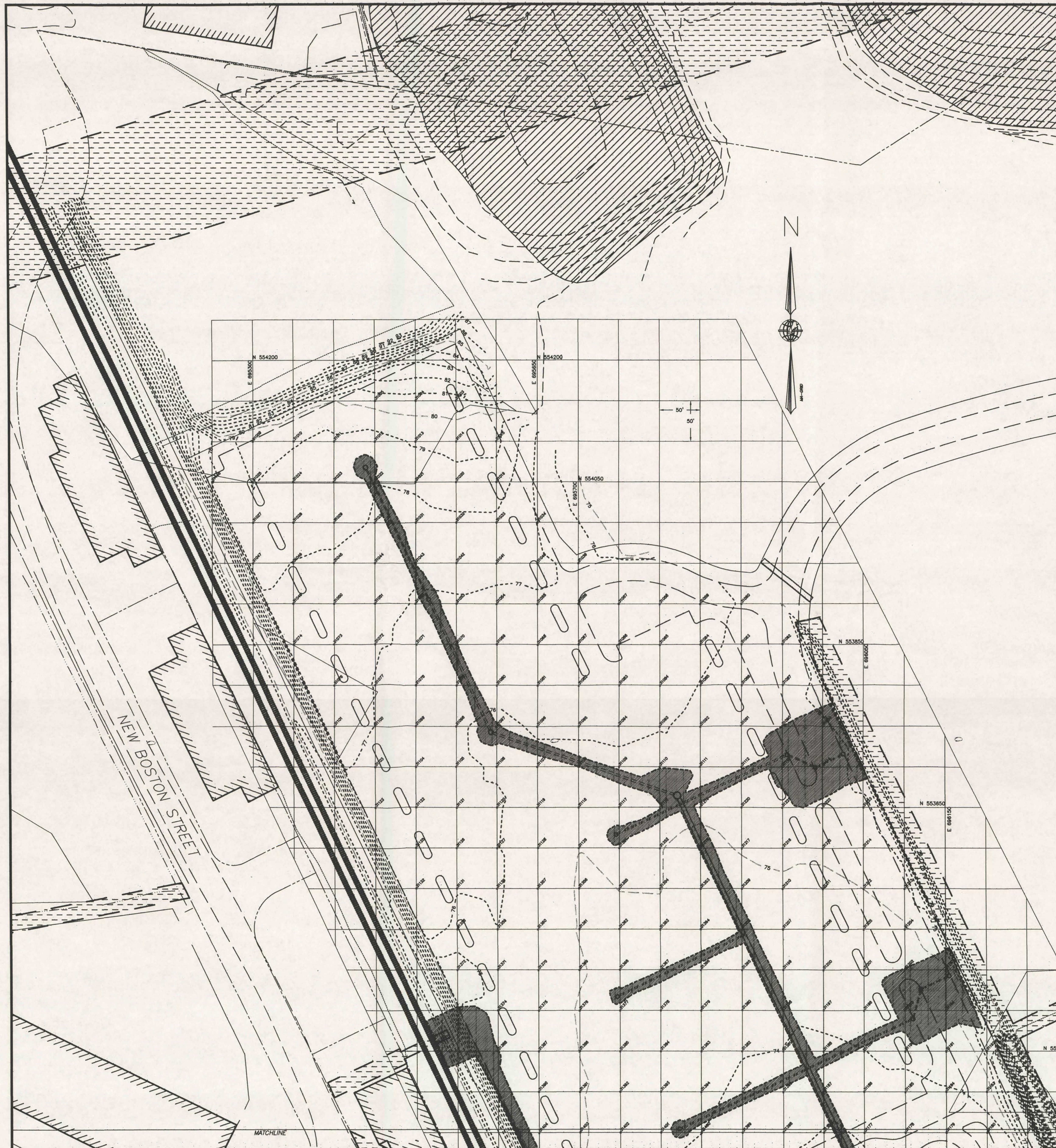
ANDERSON
REGIONAL
TRANSPORTATION
CENTER
MASSPORT CONTRACT # 1.727

100 ATLANTIC AVENUE
IN
WOBURN
MASSACHUSETTS
01801
(MIDDLESEX COUNTY)

TRACK INTRUSIVE WORK

JULY 13, 2001

Point	Northing	Easting	Elev	Desc	Point	Northing	Easting	Elev	Desc	Point	Northing	Easting	Elev	Desc	Point	Northing	Easting	Elev	Desc	Point	Northing	Easting	Elev	Desc	Point	Northing	Easting	Elev	Desc
1200	553771.3	695489.7	68.8	FABRIC	3314	552996.0	695660.6	67.9	SPOT	7759	55337.9	695532.7	68.0	SPOT	8980	553564.4	695431.1	70.3	SEAM	11834	552166.4	696094.8	65.3	FABRIC	21069	553486.7	695456.6	69.2	FABRIC
1201	553440.4	695453.1	68.9	FABRIC	3315	553012.2	695681.8	67.4	FABRIC	7760	553318.2	695561.9	68.1	SPOT	8981	553565.5	695433.9	69.9	SEAM	11835	552166.4	696094.8	65.3	FABRIC	21070	553490.4	695464.5	69.4	FABRIC
1202	553493.8	695431.7	68.9	FABRIC	3316	553082.9	695619.7	68.1	SPOT	7761	553315.3	695554.7	67.9	SPOT	8982	553565.5	695435.7	68.8	SEAM	11836	552220.6	696064.5	65.1	FABRIC	21071	553481.9	695468.5	69.4	FABRIC
1203	553493.8	695431.7	68.9	FABRIC	3317	553129.4	695597.1	68.3	SPOT	7762	553295.1	695564.8	67.9	SPOT	8983	553564.4	695435.7	68.0	SEAM	11837	552221.1	696064.5	65.1	FABRIC	21072	553481.9	695468.5	69.4	FABRIC
1204	553538.9	695411.3	68.9	FABRIC	3318	553176.0	695574.5	68.5	SPOT	7763	553273.0	695574.0	67.9	SPOT	8984	553564.4	695435.7	68.0	SEAM	11838	552221.1	696064.5	65.1	FABRIC	21073	553481.9	695468.5	69.4	FABRIC
1205	553570.4	695394.9	68.9	FABRIC	3319	553220.7	695554.9	68.7	SPOT	7764	553249.6	695564.8	67.8	SPOT	8985	553564.4	695435.7	68.0	SEAM	11839	552221.1	696064.5	65.1	FABRIC	21074	553481.9	695468.5	69.4	FABRIC
1206	553583.9	695378.9	68.9	FABRIC	3320	553266.3	695534.4	68.8	SPOT	7765	553228.9	695564.8	67.7	SPOT	8986	553564.4	695435.7	68.0	SEAM	11840	552221.1	696064.5	65.1	FABRIC	21075	553481.9	695468.5	69.4	FABRIC
1207	553626.8	695369.4	68.9	FABRIC	3321	553309.9	695511.2	69.0	SPOT	7766	553206.9	695564.8	67.6	SPOT	8987	553564.4	695435.7	68.0	SEAM	11841	552221.1	696064.5	65.1	FABRIC	21076	553481.9	695468.5	69.4	FABRIC
1208	553673.5	695345.6	68.9	FABRIC	3322	553357.1	695490.4	69.1	SPOT	7767	553185.3	695564.8	67.5	SPOT	8988	553564.4	695435.7	68.0	SEAM	11842	552221.1	696064.5	65.1	FABRIC	21077	553481.9	695468.5	69.4	FABRIC
1209	553719.0	695324.3	68.9	FABRIC	3440	553201.2	695471.9	61.9	SPOT	7768	553163.5	695564.8	67.4	SPOT	8989	553564.4	695435.7	68.0	SEAM	11843	552221.1	696064.5	65.1	FABRIC	21078	553481.9	695468.5	69.4	FABRIC
1210	553739.7	695313.9	68.9	FABRIC	3441	553207.4	695489.8	62.5	FABRIC	7769	553142.9	695564.8	67.4	SPOT	8990	553564.4	695435.7	68.0	SEAM	11844	552221.1	696064.5	65.1	FABRIC	21079	553481.9	695468.5	69.4	FABRIC
1211	553735.9	695307.1	68.9	FABRIC	3442	553199.7	695481.8	62.5	FABRIC	7770	553129.4	695564.8	67.3	SPOT	8991	553564.4	695435.7	68.0	SEAM	11845	552221.1	696064.5	65.1	FABRIC	21080	553481.9	695468.5	69.4	FABRIC
1212	553715.4	695291.8	68.9	FABRIC	3443	553191.9	695473.8	62.5	FABRIC	7771	553107.6	695564.8	67.1	SPOT	8992	553564.4	695435.7	68.0	SEAM	11846	552221.1	696064.5	65.1	FABRIC	21081	553481.9	695468.5	69.4	FABRIC
1213	553670.3	695275.9	68.9	FABRIC	3444	553184.2	695465.8	62.5	FABRIC	7772	553090.8	695564.8	66.9	SPOT	8993	553564.4	695435.7	68.0	SEAM	11847	552221.1	696064.5	65.1	FABRIC	21082	553481.9	695468.5	69.4	FABRIC
1214	553630.9	695260.0	68.9	FABRIC	3445	553176.4	695457.8	62.5	FABRIC	7773	553077.1	695564.8	66.7	SPOT	8994	553564.4	695435.7	68.0	SEAM	11848	552221.1	696064.5	65.1	FABRIC	21083	553481.9	695468.5	69.4	FABRIC
1215	553581.1	695244.1	68.9	FABRIC	3446	553168.6	695449.8	62.5	FABRIC	7774	553063.4	695564.8	66.5	SPOT	8995	553564.4	695435.7	68.0	SEAM	11849	552221.1	696064.5	65.1	FABRIC	21084	553481.9	695468.5	69.4	FABRIC
1216	553531.3	695228.1	68.9	FABRIC	3447	553160.8	695441.8	62.5	FABRIC	7775	553049.7	695564.8	66.3	SPOT	8996	553564.4	695435.7	68.0	SEAM	11850	552221.1	696064.5	65.1	FABRIC	21085	553481.9	695468.5	69.4	FABRIC
1217	553481.5	695212.1	68.9	FABRIC	3448	553153.0	695433.8	62.5	FABRIC	7776	553037.6	695564.8	66.1	SPOT	8997	553564.4	695435.7	68.0	SEAM	11851	552221.1	696064.5	65.1	FABRIC	21086	553481.9	695468.5	69.4	FABRIC
1218	553431.7	695196.1	68.9	FABRIC	3449	553145.2	695425.8	62.5	FABRIC	7777	553025.5	695564.8	65.9	SPOT	8998	553564.4	695435.7	68.0	SEAM	11852	552221.1	696064.5	65.1	FABRIC	21087	553481.9	695468.5	69.4	FABRIC
1219	553381.9	695180.1	68.9	FABRIC	3450	553137.4	695417.8	62.5	FABRIC	7778	553013.4	695564.8	65.7	SPOT	8999	553564.4	695435.7	68.0	SEAM	11853	552221.1	696064.5	65.1	FABRIC	21088	553481.9	695468.5	69.4	FABRIC
1220	553332.1	695164.1	68.9	FABRIC	3451	553129.6	695409.8	62.5	FABRIC	7779	553001.3	695564.8	65.5	SPOT	9000	553564.4	695435.7	68.0	SEAM	11854	552221.1	696064.5	65.1	FABRIC	21089	553481.9	695468.5	69.4	FABRIC
1221	553282.3	695148.1	68.9	FABRIC	3452	553121.8	695401.8	62.5	FABRIC	7780	552989.2	695564.8	65.3	SPOT	9001	553564.4	695435.7	68.0	SEAM	11855	552221.1	696064.5	65.1	FABRIC	21090	553481.9	695468.5	69.4	FABRIC
1222	553232.5	695132.1	68.9	FABRIC	3453	553114.0	695393.8	62.5	FABRIC	7781	552977.1	695564.8	65.1	SPOT	9002	553564.4	695435.7	68.0	SEAM	11856	552221.1	696064.5	65.1	FABRIC	21091	553481.9	695468.5	69.4	FABRIC
1223	553182.7	695116.1	68.9	FABRIC	3454	553106.2	695385.8	62.5	FABRIC	7782	552965.0	695564.8	64.9	SPOT	9003	553564.4	695435.7	68.0	SEAM	11857	552221.1	696064.5	65.1	FABRIC	21092	553481.9	695468.5	69.4	FABRIC
1224	553132.9	695100.1	68.9	FABRIC	3455	553098.4	695377.8	62.5	FABRIC	7783	552952.9	695564.8	64.7	SPOT	9004	553564.4	695435.7	68.0	SEAM	11858	552221.1	696064.5	65.1	FABRIC	21093	553481.9	695468.5	69.4	FABRIC
1225	553083.1	695084.1	68.9	FABRIC	3456	553090.6	695369.8	62.5	FABRIC	7784	552940.8	695564.8	64.5	SPOT	9005	553564.4	695435.7	68.0	SEAM	11859	552221.1	696064.5	65.1	FABRIC	21094	553481.9	695468.5	69.4	FABRIC
1226	553033.3	695068.1	68.9	FABRIC	3457	553082.8	695361.8	62.5	FABRIC	7785	552928.7	695564.8	64.3	SPOT	9006	553564.4	695435.7	68.0	SEAM	11860	552221.1	696064.5	65.1	FABRIC	21095	553481.9	695468.5	69.4	FABRIC
1227	552983.5	695052.1	68.9	FABRIC	3458	553075.0	695353.8	62.5	FABRIC	7786	552916.6	695564.8	64.1	SPOT	9007	553564.4	695435.7	68.0	SEAM	11861	552221.1	696064.5	65.1	FABRIC	21096	553481.9	695468.5	69.4	FABRIC
1228	552933.7	695036.1	68.9	FABRIC	3459	553067.2	695345.8	62.5	FABRIC	7787	552904.5	695564.8	63.9	SPOT	9008	553564.4	695435.7	68.0	SEAM	11862	552221.1	696064.5	65.1	FABRIC	21097	553481.9	695468.5	69.4	FABRIC
1229	552883.9	695020.1	68.9	FABRIC	3460	553059.4	695337.8	62.5	FABRIC	7788	552892.4	695564.8	63.7	SPOT	9009	553564.4	695435.7	68.0	SEAM	11863	552221.1	696064.5	65.1	FABRIC	21098	553481.9	695468.5	69.4	FABRIC
1230	552834.1	695004.1	68.9	FABRIC	3461	553051.6	695329.8	62.5	FABRIC	7789	552880.3	695564.8	63.5	SPOT	9010	553564.4	695435.7	68.0	SEAM	11864	552221.1	696064.5	65.1	FABRIC	21099	553481.9	695468.5	69.4	FABRIC
1231	552784.3	694988.1	68.9	FABRIC	3462	553043.8	695321.8	62.5	FABRIC	7790	552868.2	695564.8	63.3	SPOT	9011	553564.4	695435.7	68.0	SEAM	11865	552221.1	696064.5	65.1	FABRIC	21100	553481.9	695468.5	69.4	FABRIC
1232	552734.5	694972.1	68.9	FABRIC	3463	553036.0	695313.8	62.5	FABRIC	7791	552856.1	695564.8	63.1	SPOT	9012	553564.4	695435.7	68.0	SEAM	11866	552221.1	696064.5	65.1	FABRIC	21101	553481.9	695468.5	69.4	FABRIC
1233	552684.7	694956.1	68.9	FABRIC	3464	553028.2	695305.8	62.5	FABRIC	7792	552844.0	695564.8	62.9	SPOT	9013	553564.4	695435.7	68.0	SEAM	11867	552221.1	696064.5	65.1	FABRIC	21102	553481.9	695468.5	69.4	FABRIC
1234	552634.9	694940.1	68.9	FABRIC	3465	553020.4	695297.8	62.5	FABRIC	7793	552831.9	695564.8	62.7	SPOT	9014	553564.4	695435.7	68.0	SEAM	11868	552221.1	696064.5	65.1	FABRIC	21103	553481.9	695468.5	69.4	FABRIC
1235	552585.1	694924.1	68.9	FABRIC	3466	553012.6	695289.8	62.5	FABRIC	7794	552819.8	695564.8	62.5	SPOT	9015	553564.4	695435.7	68.0	SEAM	11869	552221.1	696064.5	65.1	FABRIC	21104	553481.9	695468.5	69.4	FABRIC
1236	552535.3	694908.1	68.9	FABRIC	3467	553004.8	695281.8	62.5	FABRIC	7795	552807.7	695564.8	62.3	SPOT	9016	553564.4</													

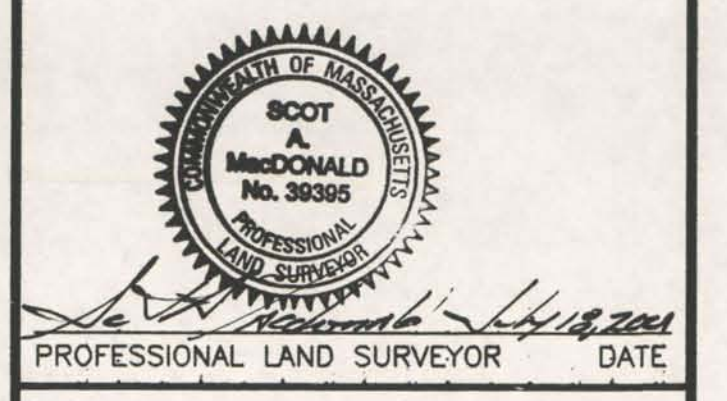


LEGEND

- | | |
|--------------------------------------|---|
| --- R.T.C. SITE BOUNDARY | ⊙ ASBUILT COVER TYPE |
| - - - I-PLEX SITE LIMIT | ⊙ TEST PIT |
| - - - PROPERTY BOUNDARIES | ⊙ MONITOR WELL |
| - - - RIGHTS OF WAY | - - - HYDRANT |
| - - - TRANSITION ZONE | - - - GATE VALVE |
| - - - EXCLUSION ZONE | ⊙ CATCH BASIN |
| - - - GRID LINE | ⊙ DRAIN MANHOLE |
| - - - EDGE OF EXISTING PAVEMENT | ⊙ SEWER MANHOLE |
| - - - EDGE OF GEOTEXTILE | ⊙ UTILITY POLE |
| - - - A.T.&T. FIBER OPTIC CABLE | - - - GUY WIRE |
| - - - TOE OF SLOPE | ⊙ ASBUILT POINT NO. & LOCATION |
| - - - TOP OF SLOPE | B19 DETENTION BASIN PANEL NUMBER (TYPICAL) |
| - - - LIMIT CHAIN LINK FENCE | P4 ATLANTIC AVENUE DRAINWAY PANEL NUMBER (TYPICAL) |
| - - - EDGE OF ASBUILT GRAVEL ROAD | ISB DETENTION BASIN DESTRUCTIVE TEST LOCATION |
| - - - BACK EDGE OF PLANTER | IS ATLANTIC AVENUE DRAINWAY DESTRUCTIVE TEST LOCATION |
| - - - EDGE OF PROPOSED PAVEMENT | IS UTILITY EASEMENT |
| - - - UTILITY EASEMENT | 3X REPAIR LOCATION (TYPICAL) |
| - - - ASBUILT CULVERT | |
| - - - LIMIT OF COVER (MCP LINE) | |
| - - - EXISTING CONCRETE STRUCTURE | |
| - - - ASBUILT FG CONTOUR 5' INTERVAL | |
| - - - ASBUILT FG CONTOUR 1' INTERVAL | |
-
- | | |
|--------------------------------|--|
| ▨ LIMITS OF EXISTING EASEMENTS | ▨ HIDE PILES BASED ON CONSENT DECREE |
| ▨ EDGE OF EXISTING BUILDINGS | ▨ LIMITS OF UTILITY / DRAINAGE CORRIDORS |
| ▨ AREA OF LEDGE AT SUBGRADE | ▨ LIMITS OF ASBUILT D50= 3" STONE |
| ▨ LIMIT OF LOAM BERM | ▨ LIMITS OF ASBUILT D50= 6" STONE |
| ▨ LIMIT OF ASBUILT GRAVEL ROAD | ▨ LIMITS OF ASBUILT D50= 12" STONE |

1. NO INFORMATION HAS BEEN ALTERED OR ADDED TO THIS DRAWING. IT IS FOR REFERENCE PURPOSES ONLY. PLEASE SEE SHEET M6-3 ENTITLED "SHEET GRID CHARTS", PREPARED BY THE BSC GROUP, INC., DATED APRIL 12, 2001.

2. BASE INFORMATION IS DERIVED FROM A RECORD PLAN SET ENTITLED "INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS, R.T.C. ALTERNATE COVER, RECORD DRAWINGS, APPENDIX M", PREPARED BY MERIDIAN LAND SERVICES, INC., DATED APRIL 24, 1998, PROVIDED BY THE MIDDLESEX CORPORATION.



**ANDERSON
REGIONAL
TRANSPORTATION
CENTER**

MASSPORT CONTRACT #1.727

100 ATLANTIC AVENUE
IN
WOBURN
MASSACHUSETTS
01801
(MIDDLESEX COUNTY)

SITE GRID

JULY 13, 2001

REVISIONS:

NO.	DATE	DESC.

PREPARED FOR:
THE MIDDLESEX CORPORATION
1 SPECTACLE POND ROAD
LITTLETON, MA
01460

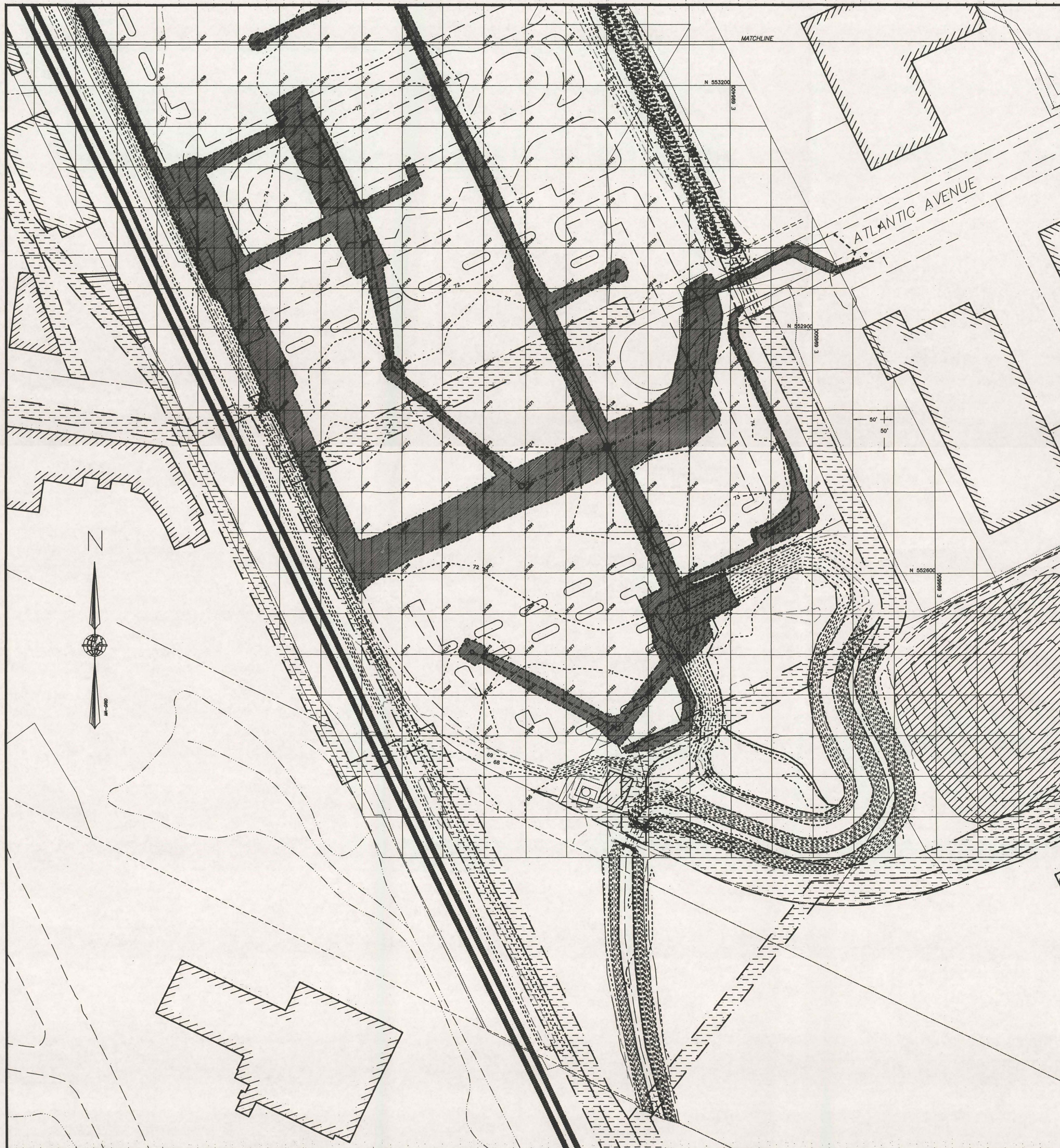
BSC GROUP
384 Washington Street
Norwell, Massachusetts
02061
781 659 7981

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SCALE: 1" = 50'
0 6.25 12.5 25 METERS
0 25 50 100 FEET

PROJ. MGR.: SAM
FIELD: JD/SJ
CALC./DESIGN: EJC
DRAWN: EJC/LLT
CHECK: SAM/EJC
FILE: M6-1.DWG
DWG. NO: 4354-08
JOB. NO: 4-5862.00

SHEET 12 OF 23



LEGEND

—	RTC SITE BOUNDARY	⊙	ASBULT COVER TYPE
- - -	1-PLEX SITE LIMIT	⊙	TEST PIT
- - -	PROPERTY BOUNDARIES	⊙	MONITOR WELL
- - -	RIGHTS OF WAY	⊙	HYDRANT
- - -	TRANSITION ZONE	⊙	GATE VALVE
- - -	EXCLUSION ZONE	⊙	CATCH BASIN
N 551,000	GRID LINE	⊙	DRAIN MANHOLE
- - -	EDGE OF EXISTING PAVEMENT	⊙	SEWER MANHOLE
- - -	EDGE OF GEOTEXTILE	⊙	UTILITY POLE
- - -	A.T.&T. FIBER OPTIC CABLE	⊙	GUY WIRE
- - -	TOE OF SLOPE	⊙	ASBULT POINT NO. & LOCATION
- - -	TOP OF SLOPE	B19	RETENTION BASIN PANEL NUMBER (TYPICAL)
- - -	LIMIT CHAIN LINK FENCE	P4	ATLANTIC AVENUE DRAINWAY PANEL NUMBER (TYPICAL)
- - -	EDGE OF ASBULT GRAVEL ROAD	DSB	RETENTION BASIN DESTRUCTIVE TEST LOCATION
- - -	BACK EDGE OF PLANTER	DS	ATLANTIC AVENUE DRAINWAY DESTRUCTIVE TEST LOCATION
- - -	EDGE OF PROPOSED PAVEMENT	3X	REPAIR LOCATION (TYPICAL)
- - -	UTILITY EASEMENT		
- - -	ASBULT CULVERT		
- - -	LIMIT OF COVER (MCP LINE)		
- - -	EXISTING CONCRETE STRUCTURE		
- - -	ASBULT FG CONTOUR 5' INTERVAL		
- - -	ASBULT FG CONTOUR 1' INTERVAL		
[Pattern]	LIMITS OF EXISTING EASEMENTS	[Pattern]	HIDE PILES BASED ON CONSENT DECREE
[Pattern]	EDGE OF EXISTING BUILDINGS	[Pattern]	LIMITS OF UTILITY / DRAINAGE CORRIDORS
[Pattern]	AREA OF LEDGE AT SUBGRADE	[Pattern]	LIMITS OF ASBULT D50= 3" STONE
[Pattern]	LIMIT OF LOAM BERM	[Pattern]	LIMITS OF ASBULT D50= 6" STONE
[Pattern]	LIMIT OF ASBULT GRAVEL ROAD	[Pattern]	LIMITS OF ASBULT D50= 12" STONE

1. NO INFORMATION HAS BEEN ALTERED OR ADDED TO THIS DRAWING. IT IS FOR REFERENCE PURPOSES ONLY. PLEASE SEE SHEET M6-3 FOR FURTHER INFORMATION.

2. BASE INFORMATION IS DERIVED FROM A RECORD PLAN SET ENTITLED "INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS, R.T.C. ALTERNATE COVER, RECORD DRAWINGS, APPENDIX M", PREPARED BY MERIDIAN LAND SERVICES, INC., DATED APRIL 24, 1998, PROVIDED BY THE MIDDLESEX CORPORATION.



ANDERSON
REGIONAL
TRANSPORTATION
CENTER

MASSPORT CONTRACT # 1.727

100 ATLANTIC AVENUE
IN
WOBURN
MASSACHUSETTS
01801
(MIDDLESEX COUNTY)

SITE GRID

JULY 13, 2001

REVISIONS:

NO.	DATE	DESC.

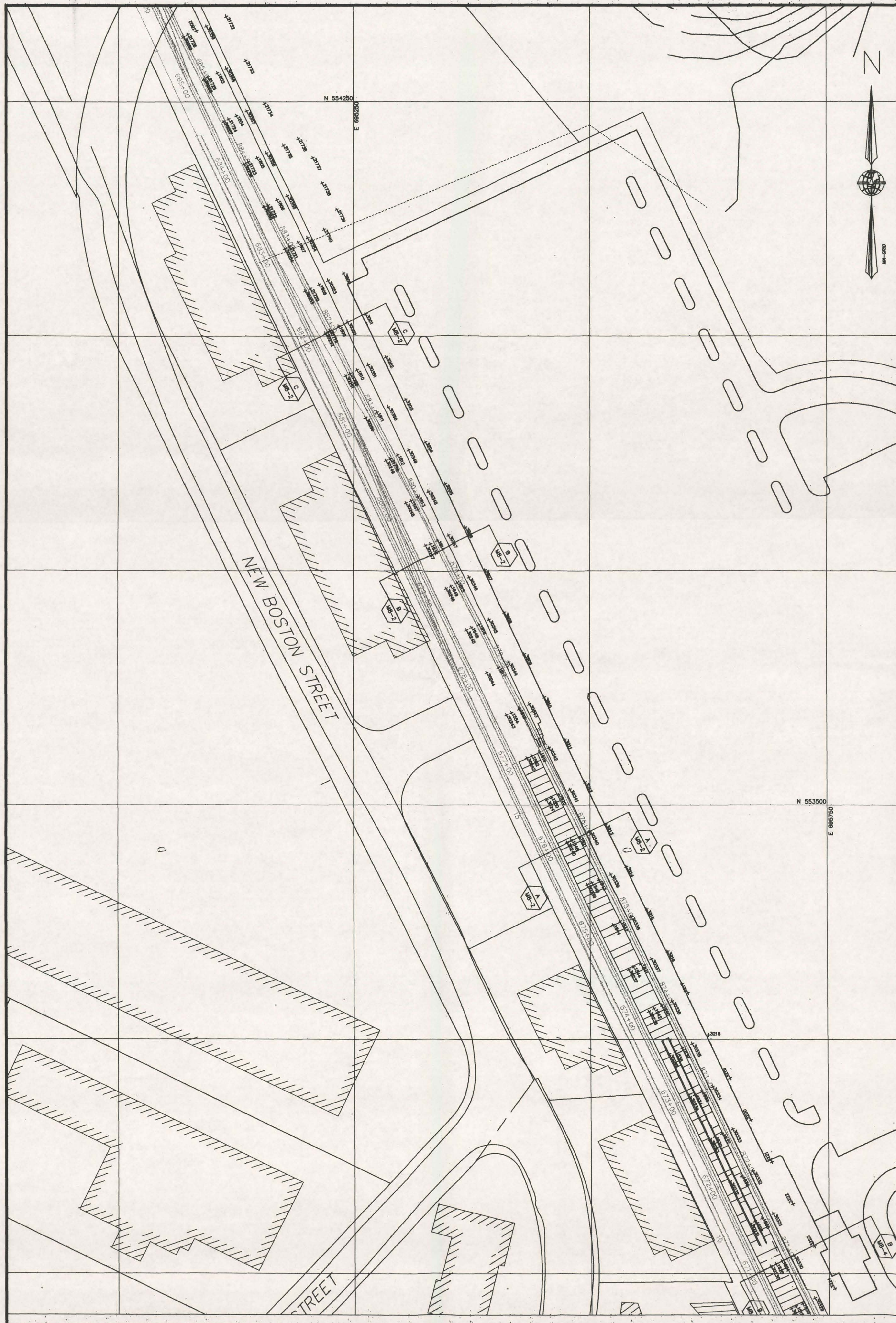
PREPARED FOR:
THE MIDDLESEX CORPORATION
1 SPECTACLE POND ROAD
LITTLETON, MA
01460

BSC GROUP
384 Washington Street
Norwell, Massachusetts
02061
781 659 7981

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SCALE: 1" = 50'
0 6.25 12.5 25 METERS
0 25 50 100 FEET

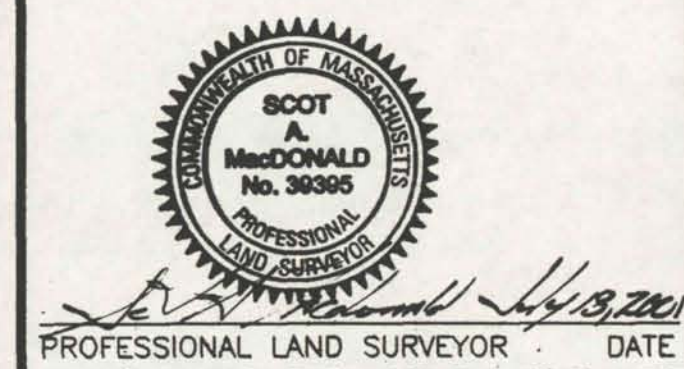
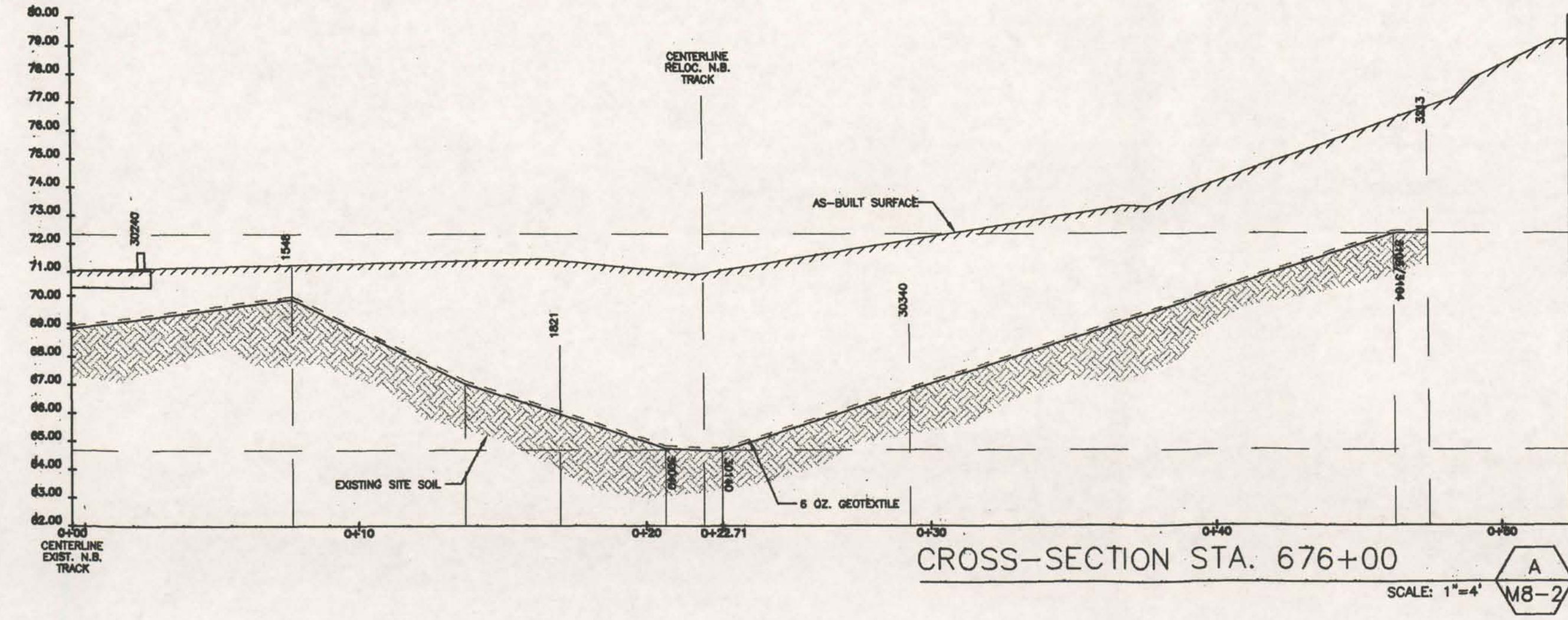
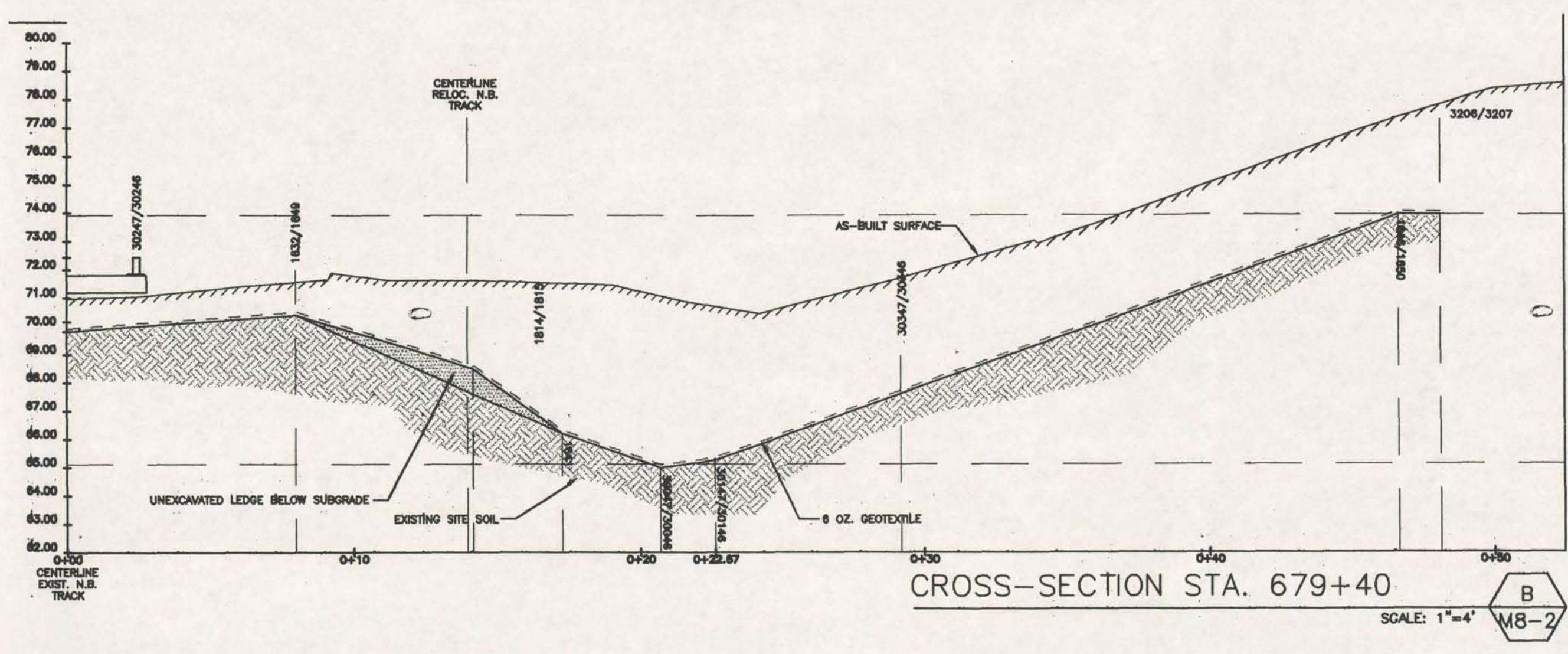
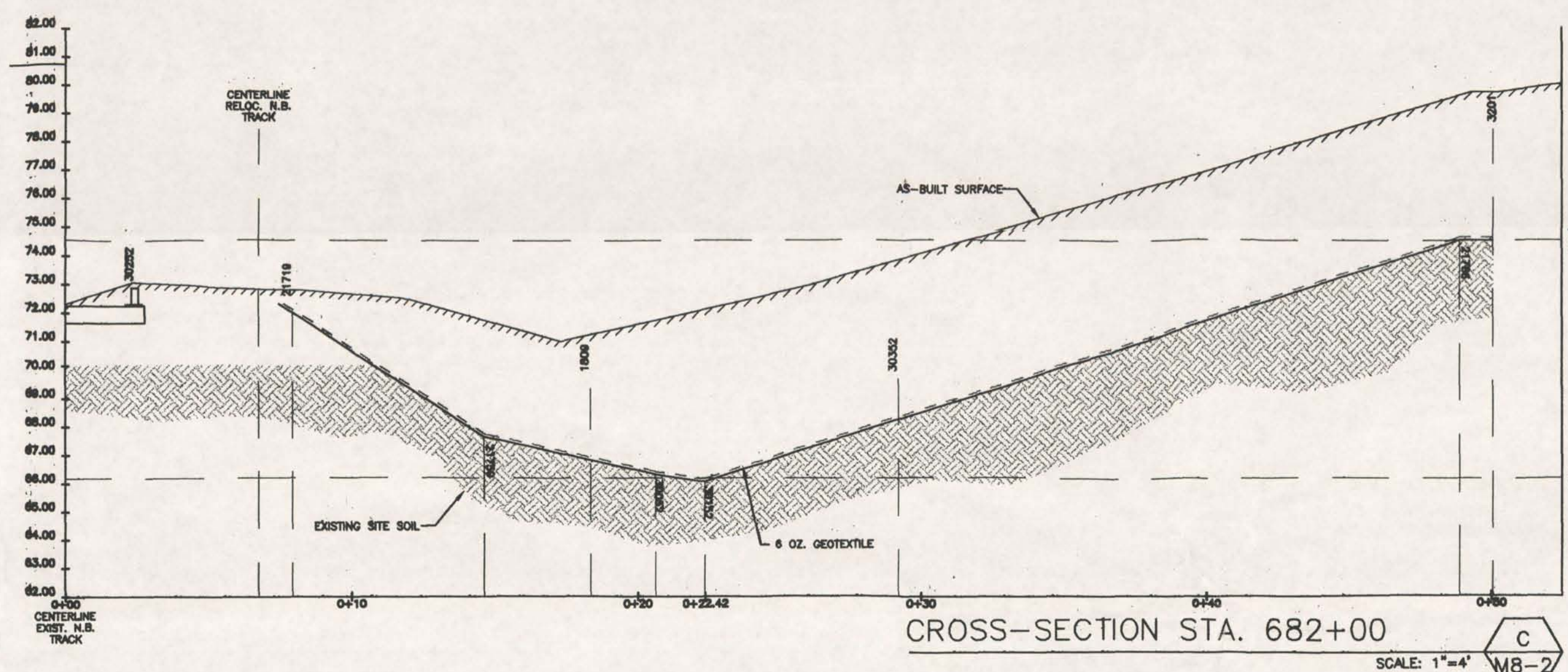
PROJ. MGR.: SAM
FIELD: JD/SJ
CALC./DESIGN: EJC
DRAWN: EJC/LIT
CHECK: SAM/EJC
FILE: M6-2.DWG
DWG. NO: 4354-06
JOB. NO: 4-5862.00

SHEET 13 OF 23



LEGEND

- | | | | |
|-----|----------------------------------|---|--|
| — | RTC SITE BOUNDARY | ⊙ | AS-BUILT COVER TYPE |
| --- | I-PLUX SITE LIMIT | ⊙ | TEST PIT |
| --- | PROPERTY BOUNDARIES | ⊙ | MONITOR WELL |
| --- | RIGHTS OF WAY | ⊙ | HYDRANT |
| --- | TRANSITION ZONE | ⊙ | GATE VALVE |
| --- | EXCLUSION ZONE | ⊙ | CATCH BASIN |
| --- | N 551,000 | ⊙ | DRAIN MANHOLE |
| --- | GRID LINE | ⊙ | SEWER MANHOLE |
| --- | EDGE OF EXISTING PAVEMENT | ⊙ | UTILITY POLE |
| --- | LIMIT OF GEOTEXTILE 1998-1997 | ⊙ | GUY WIRE |
| --- | A.T.A.T. FIBER OPTIC CABLE | ⊙ | AS-BUILT POINT NO. & LOCATION |
| --- | TOE OF SLOPE | ⊙ | B19 DETENTION BASIN PANEL NUMBER (TYPICAL) |
| --- | TOP OF SLOPE | ⊙ | P4 ATLANTIC AVENUE DRAINWAY PANEL NUMBER (TYPICAL) |
| --- | LIMIT CHAIN LINK FENCE | ⊙ | DETENTION BASIN DESTRUCTIVE TEST LOCATION |
| --- | EDGE OF AS-BUILT GRAVEL ROAD | ⊙ | ATLANTIC AVENUE DRAINWAY DESTRUCTIVE TEST LOCATION |
| --- | BACK EDGE OF PLANTER | ⊙ | REPAIR LOCATION (TYPICAL) |
| --- | EDGE OF PROPOSED PAVEMENT | ⊙ | LIMIT OF LOAM BERM |
| --- | UTILITY EASEMENT | ⊙ | HIDE PILES BASED ON CONSENT DECREE |
| --- | AS-BUILT CULVERT | ⊙ | LIMITS OF AS-BUILT D50= 3" STONE |
| --- | LIMIT OF COVER (MCP LINE) | ⊙ | LIMITS OF AS-BUILT D50= 6" STONE |
| --- | EXISTING CONCRETE STRUCTURE | ⊙ | LIMITS OF AS-BUILT D50= 12" STONE |
| --- | AS-BUILT 50' CONTOUR 3' INTERVAL | ⊙ | LIMIT OF AS-BUILT GRAVEL ROAD |
| --- | AS-BUILT 50' CONTOUR 1' INTERVAL | ⊙ | |
| --- | LIMITS OF EXISTING EASEMENTS | ⊙ | |
| --- | EDGE OF EXISTING BUILDINGS | ⊙ | |
| --- | AREA OF LEDGE AT SUBGRADE | ⊙ | |
| --- | LIMITS OF PLACED GEOTEXTILE | ⊙ | |



PROFESSIONAL LAND SURVEYOR DATE

ANDERSON REGIONAL TRANSPORTATION CENTER
MASSPORT CONTRACT #1.727

100 ATLANTIC AVENUE
IN
WOBURN MASSACHUSETTS
01801
(MIDDLESEX COUNTY)
NORTH VIEW FINISH SURFACE
JULY 13, 2001

REVISIONS:

NO.	DATE	DESC.

PREPARED FOR:
THE MIDDLESEX CORPORATION
1 SPECTACLE POND ROAD
LITTLETON, MA
01460

BSC GROUP
384 Washington Street
Norwell, Massachusetts
02061
781 659 7981

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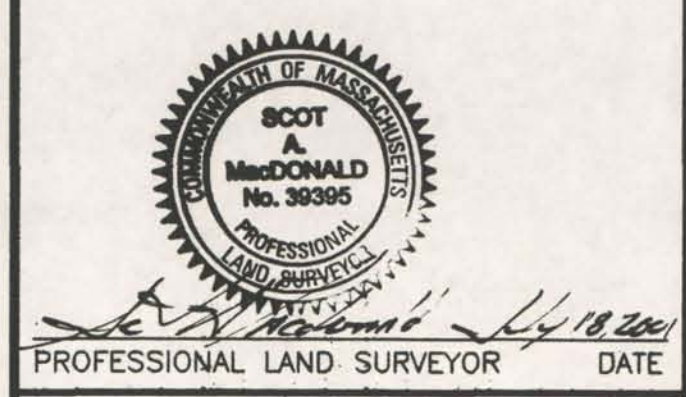
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FIELD: JD/SJ	
CALC./DESIGN: EJC	
DRAWN: EJC/LLT	
CHECK: SAM/EJC	
FILE: MB-2.DWG	
DWG. NO: 4354-06	
JOB. NO: 4-5862.00	SHEET 15 OF 23



LEGEND

—	RTC SITE BOUNDARY	⊙	ASBUILT COVER TYPE
—	I-FLEX SITE LIMIT	⊙	TEST PIT
—	PROPERTY BOUNDARIES	⊙	MONITOR WELL
—	RIGHTS OF WAY	⊙	HYDRANT
—	TRANSITION ZONE	⊙	GATE VALVE
—	EXCLUSION ZONE	⊙	CATCH BASIN
—	GRID LINE	⊙	DRAIN MANHOLE
—	EDGE OF EXISTING PAVEMENT	⊙	SEWER MANHOLE
—	LIMIT OF GEOTEXTILE 1998-1997	⊙	UTILITY POLE
—	A.T.AT. FIBER OPTIC CABLE	⊙	GLY WIRE
—	TOE OF SLOPE	⊙	ASBUILT POINT NO. & LOCATION
—	TOP OF SLOPE	B19	DETENTION BASIN PANEL NUMBER (TYPICAL)
—	LIMIT CHAIN LINK FENCE	P4	ATLANTIC AVENUE DRAINWAY PANEL NUMBER (TYPICAL)
—	EDGE OF ASBUILT GRAVEL ROAD	DSB	DETENTION BASIN DESTRUCTIVE TEST LOCATION
—	BACK EDGE OF PLANTER	DS	ATLANTIC AVENUE DRAINWAY DESTRUCTIVE TEST LOCATION
—	EDGE OF PROPOSED PAVEMENT	3X	REPAIR LOCATION (TYPICAL)
—	UTILITY EASEMENT		
—	ASBUILT CULVERT		
—	LIMIT OF COVER (MCP LINE)		
—	EXISTING CONCRETE STRUCTURE		
—	ASBUILT SG CONTOUR 5' INTERNAL		
—	ASBUILT SG CONTOUR 1' INTERNAL		
▭	LIMITS OF EXISTING EASEMENTS		
▭	EDGE OF EXISTING BUILDINGS		
▭	AREA OF LEDGE AT SUBGRADE		
▭	LIMITS OF PLACED GEOTEXTILE		
▭			LIMIT OF LOAM BERM
▭			HIDE PILES BASED ON CONSENT DECREE
▭			LIMITS OF ASBUILT D50= 3" STONE
▭			LIMITS OF ASBUILT D50= 6" STONE
▭			LIMITS OF ASBUILT D50= 12" STONE
▭			LIMIT OF ASBUILT GRAVEL ROAD



ANDERSON REGIONAL TRANSPORTATION CENTER
 MASSPORT CONTRACT #1.727
 100 ATLANTIC AVENUE
 IN
 WOBURN MASSACHUSETTS
 01801
 (MIDDLESEX COUNTY)
 SOUTH VIEW FINISH SURFACE
 JULY 13, 2001

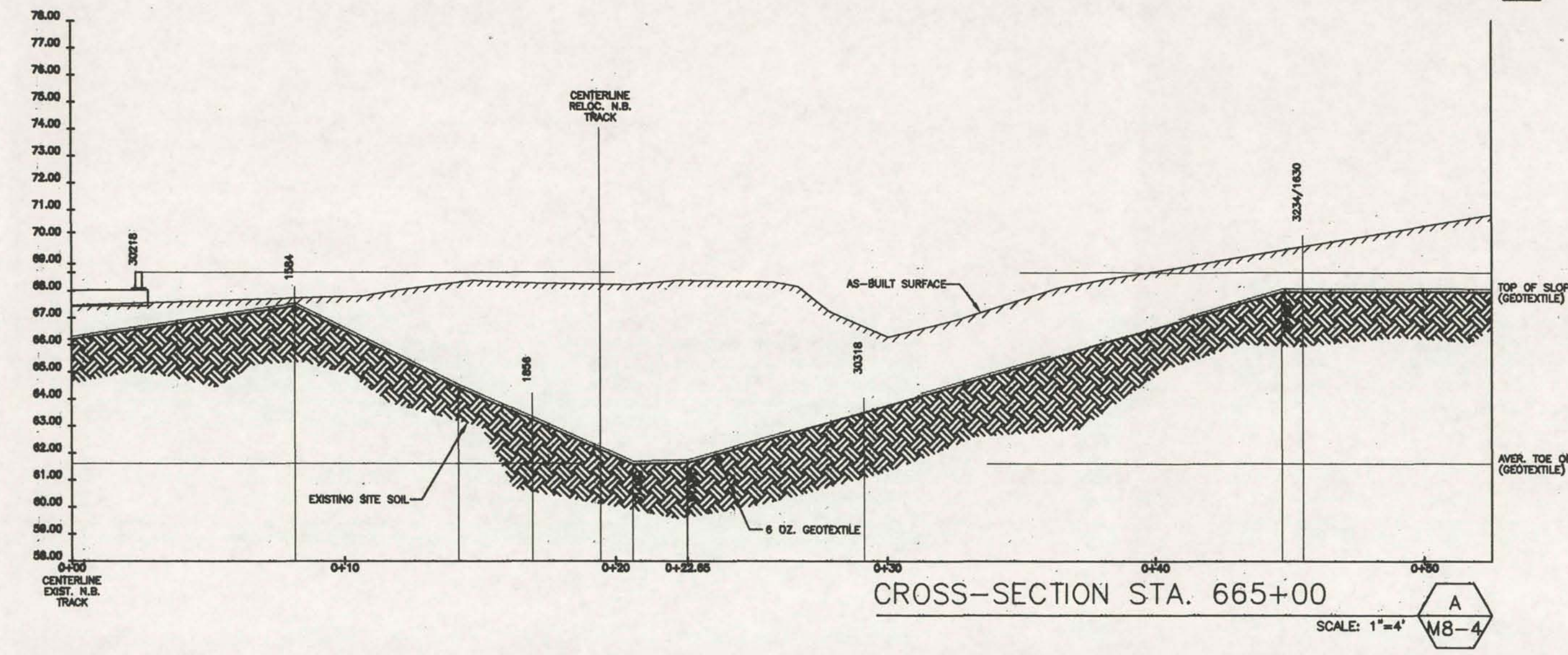
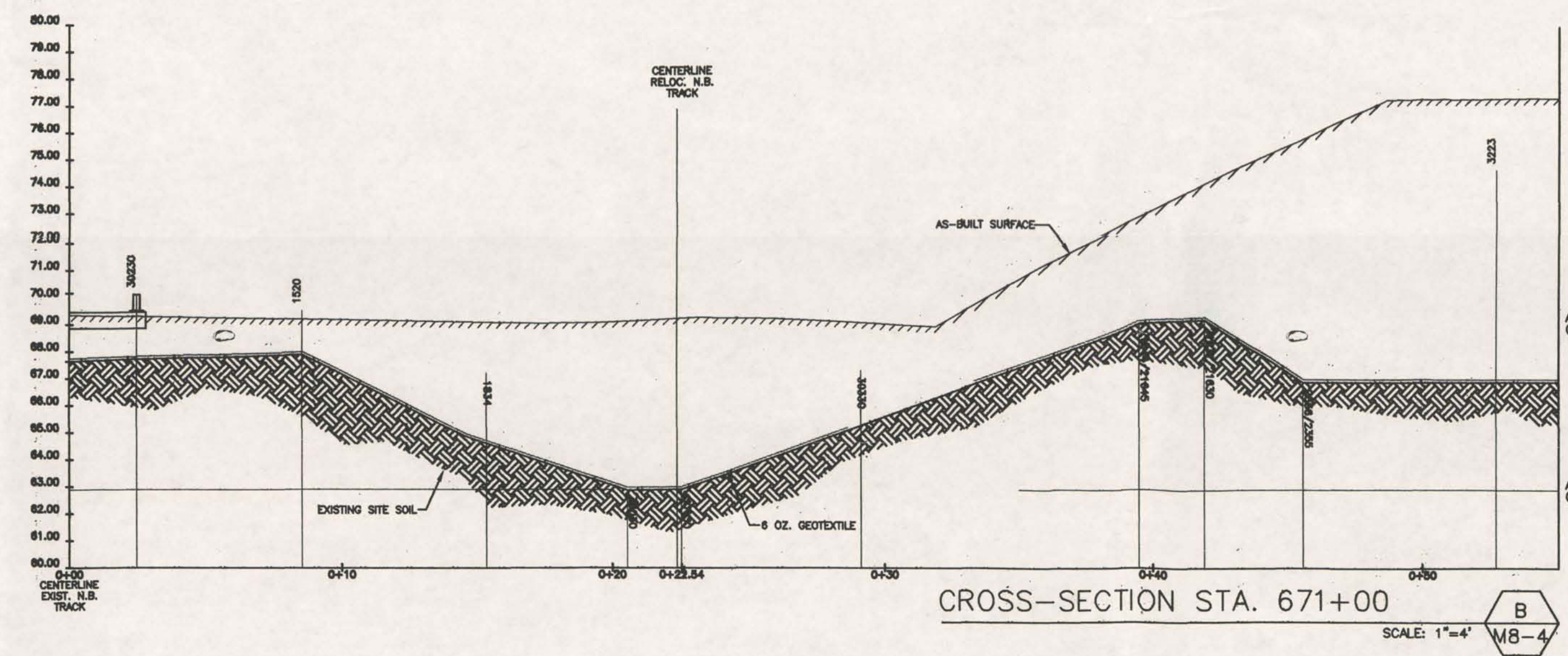
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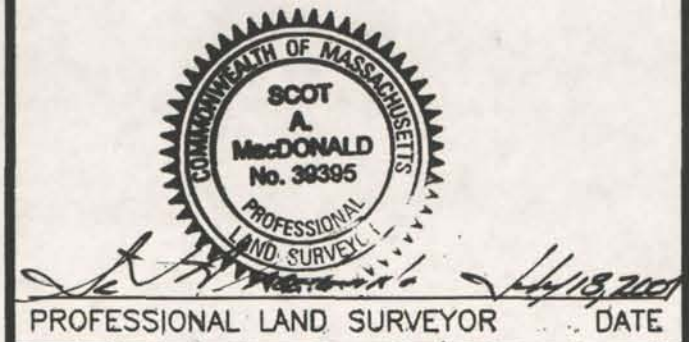
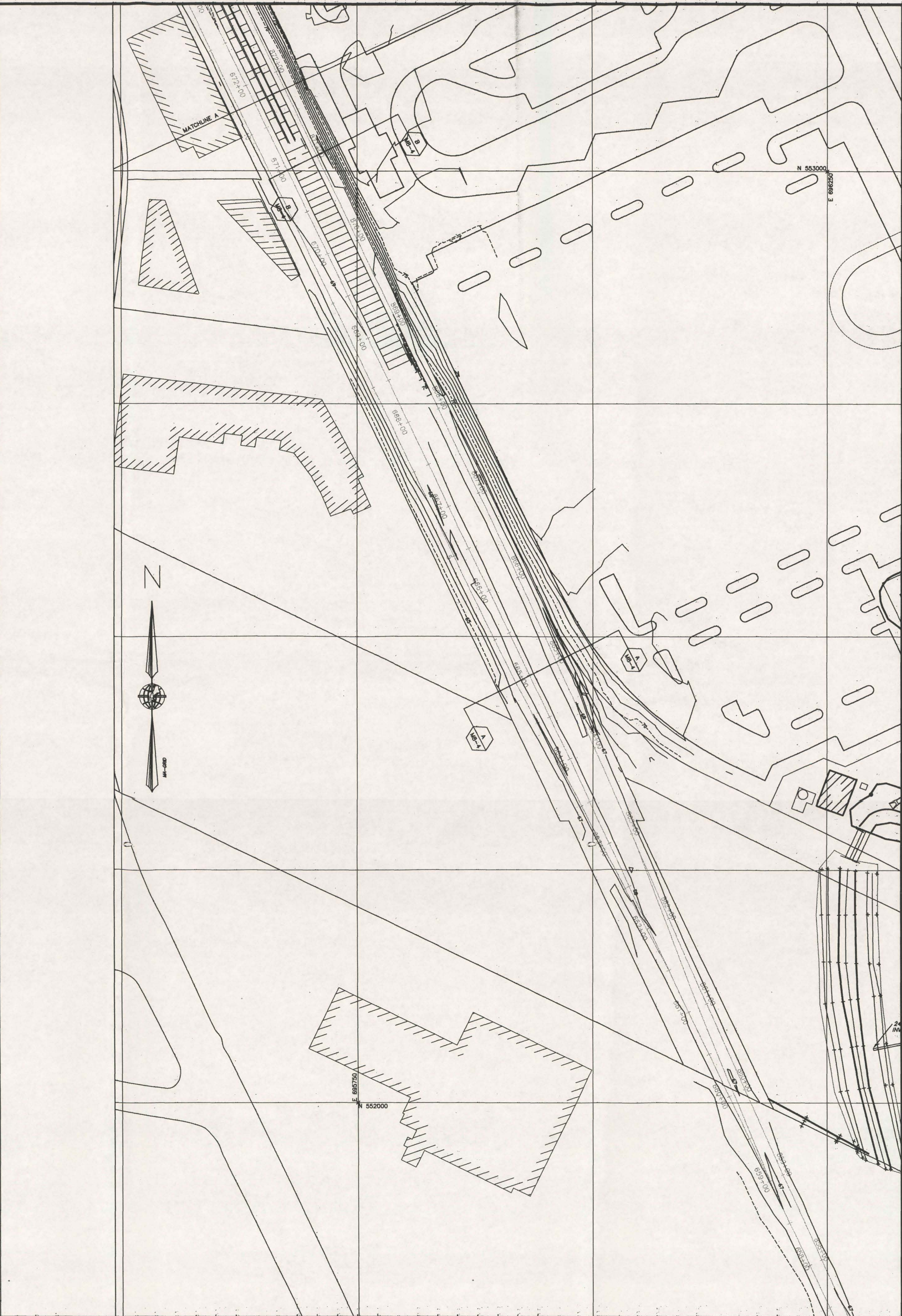
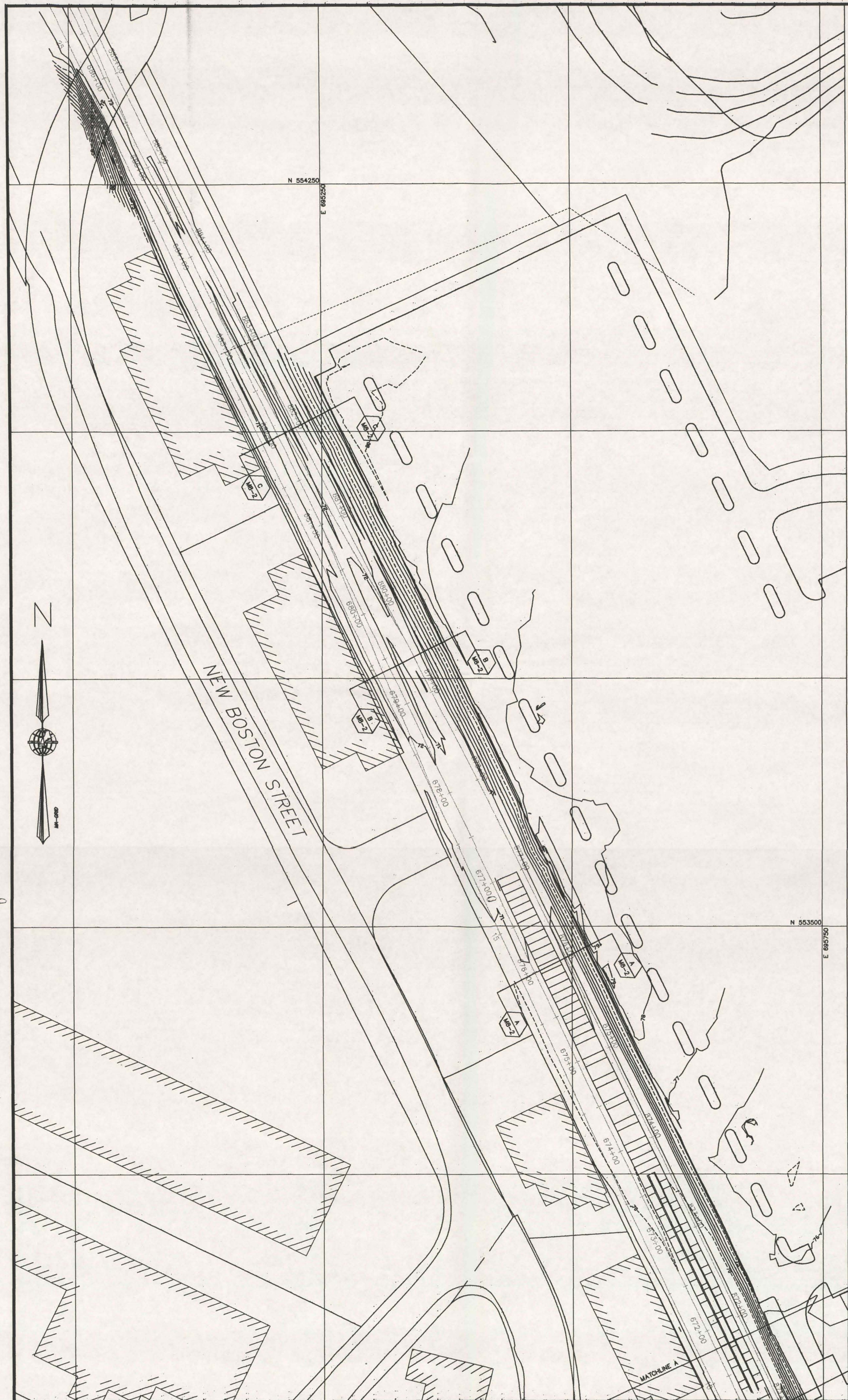
NO.	DATE	DESC.

PREPARED FOR:
 THE MIDDLESEX CORPORATION
 1 SPECTACLE POND ROAD
 LITTLETON, MA
 01460

BSC GROUP
 384 Washington Street
 Norwell, Massachusetts
 02061
 781 659 7981

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 SCALE: 1" = 50'
 0 6.25 12.5 25 METERS
 0 25 50 100 FEET
 PROJ. MGR.: SAM
 FIELD: JD/SJ
 CALC./DESIGN: EJC
 DRAWN: EJC/LLT
 CHECK: SAM/EJC
 FILE: MB-4.DWG
 DWG. NO: 4354-06
 JOB. NO: 4-5862.00 SHEET 16 OF 23





**ANDERSON
REGIONAL
TRANSPORTATION
CENTER**

MASSPORT CONTRACT #1.727

100 ATLANTIC AVENUE
IN
WOBURN
MASSACHUSETTS
01801
(MIDDLESEX COUNTY)

FINISH GRADE CONTOURS

JULY 13, 2001

REVISIONS:

NO.	DATE	DESC.

PREPARED FOR:
THE MIDDLESEX CORPORATION
1 SPECTACLE POND ROAD
LITTLETON, MA
01460

BSC GROUP
384 Washington Street
Norwell, Massachusetts
02061
781 659 7981

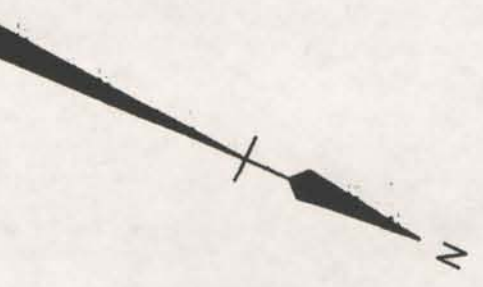
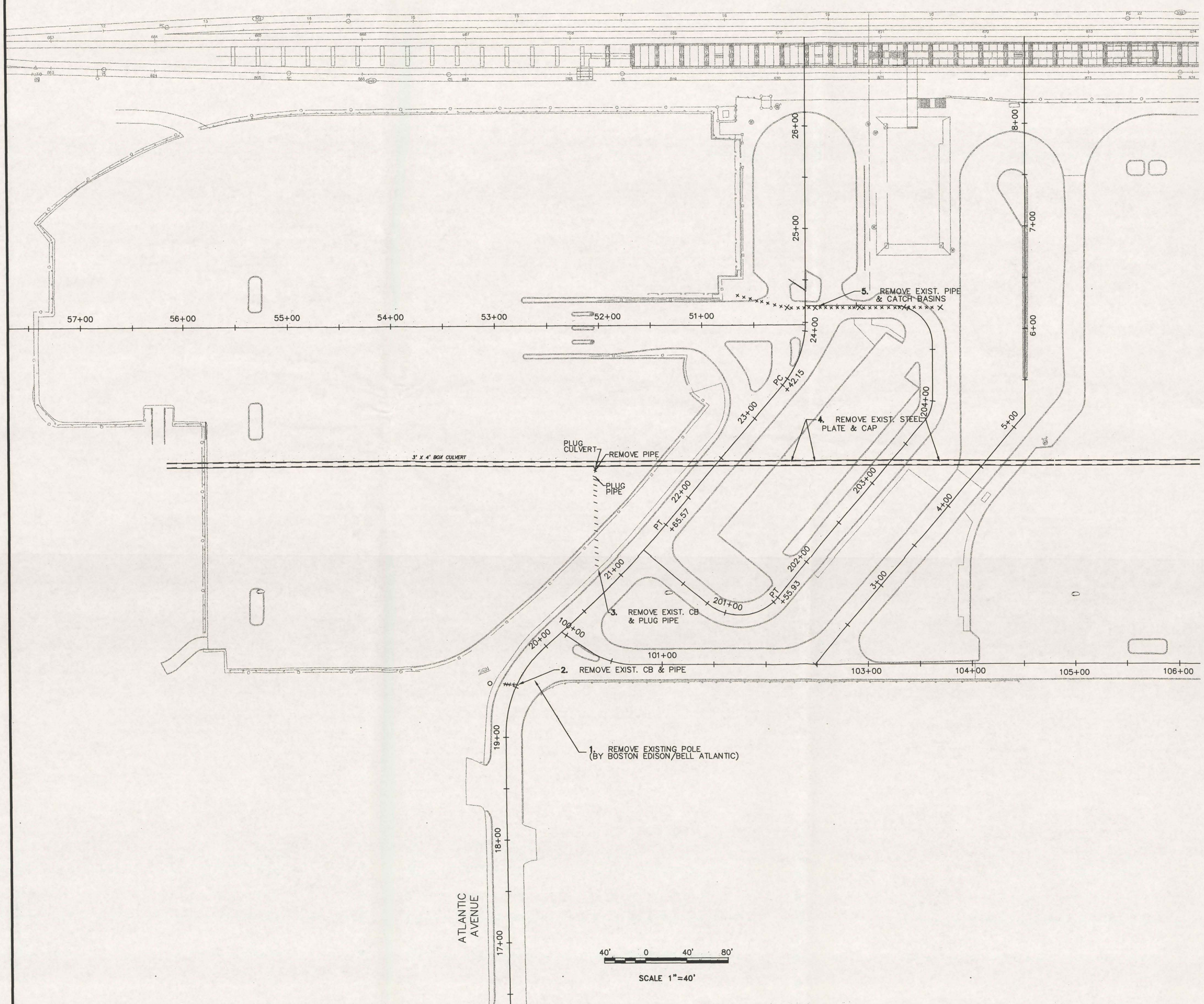
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SCALE: 1" = 50'
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FIELD: JD/SJ	
CALC./DESIGN: EJC	
DRAWN: EJC/LLT	
CHECK: SAM/EJC	
FILE: MB-5.DWG	
DWG. NO: 4354-06	
JOB. NO: 4-5862.00	SHEET 17 OF 23

ANDERSON REGIONAL TRANSPORTATION CENTER
100 ATLANTIC AVENUE
IN
WOBURN MASSACHUSETTS (MIDDLESEX COUNTY)
DECOMMISSIONED UTILITIES, FOUNDATIONS AND STRUCTURE

JULY 13, 2001



LEGEND
 X-X-X REMOVE EXISTING PIPE
 --- ABANDON EXISTING PIPE

NOTES:
 1. LOCATIONS OF REMOVED UTILITIES ARE PER DESIGN PLANS. FOR CONTRACT DRAWINGS SEE MASSACHUSETTS PORT AUTHORITY CONTRACT #1.727.

REMOVAL NOTES:
 (PROVIDED BY THE MIDDLESEX CORPORATION)

- NEW UTILITY POLE WAS INSTALLED AT THE END OF ATLANTIC AVE./BORDER OF WRTC SITE. TMC INSTALLED "CLEAN SLEEVE" FOR IT; POLE INSTALLED BY BOSTON EDISON. UTILITIES WERE RELOCATED FROM OLD POLE TO NEW POLE BY UTILITY COMPANIES; BOSTON EDISON CUT THE OLD POLE OFF AT SURFACE GRADE. THE MIDDLESEX CORPORATION REMOVED THE REMAINING PART OF THE POLE DURING EXCAVATION OF UTILITY CORRIDOR.
- ALL WORK TREATED AS "HOT" WORK SINCE ONLY THE EXISTING PAVEMENT WAS CONSIDERED COVER ON REGULATED MATERIAL. EXCAVATED AND BUILT NEW CATCH BASIN ("CB-2") OVER EXISTING PIPE; EXCAVATOR DUG AROUND EXISTING CATCH BASIN; CHAIN WAS USED TO PULL CATCH BASIN OUT. CATCH BASIN WAS CRUSHED AND RUBBLE FROM IT AND ALL SOILS WERE HAULED TO REGULATED SOIL CONTAINMENT CELL ON-SITE. PLASTIC DRAIN PIPE WAS REMOVED, DECONTAMINATED/CLEANED, AND PUT IN DUMPSTER FOR DISPOSAL.
- EXCAVATOR DUG AROUND EXISTING CATCH BASIN; USED CHAIN TO PULL CB OUT. CB HAULED TO MIDDLESEX PROPERTY IN LITTLETON, MA FOR RE-USE. USED CEMENT & BRICK TO PLUG EAST END OF PIPE. REMOVED APPROXIMATELY 3-1/2 FT SECTION OF PIPE NEAR ITS INTERSECTION WITH CULVERT. USED CEMENT & BRICK TO PLUG WEST END OF PIPE, AND PLUG HOLE IN CULVERT WHERE PIPE TIED IN. PLASTIC DRAIN PIPE WAS PUT IN DUMPSTER FOR DISPOSAL. ALL WORK DONE ABOVE EXISTING GEOTEXTILE.
- EXCAVATED APPROX. 1 FOOT OF COVER TO EXPOSE STEEL PLATES ON CULVERT; MATERIAL WAS STOCKPILED AND USED AS BACKFILL WHEN WORK WAS COMPLETE. REMOVED STEEL PLATES. FRAMED FOR CONCRETE PLACEMENT FROM INSIDE CULVERT. DOWELED IN REBAR TO CULVERT AND PLACED CONCRETE IN ACCORDANCE WITH CONTRACT DRAWING C-26 DETAIL 14 FOR NEW CAP ON OPENING.
- EXCAVATOR DUG AROUND EXISTING CATCH BASINS; USED CHAIN TO PULL CB'S OUT. CB'S HAULED TO MIDDLESEX PROPERTY IN LITTLETON, MA FOR RE-USE. REMOVED APPROXIMATELY 100 FEET OF PIPE AND PUT IN DUMPSTER FOR DISPOSAL. CONSTRUCTED NEW DRAIN MANHOLE AND CONNECTED EXISTING PIPE TO IT. ALL WORK DONE ABOVE EXISTING GEOTEXTILE.

REVISIONS:

NO.	DATE	DESC.

PREPARED FOR:
 THE MIDDLESEX CORPORATION
 ONE SPECTACLE POND ROAD
 LITTLETON, MA
 01460

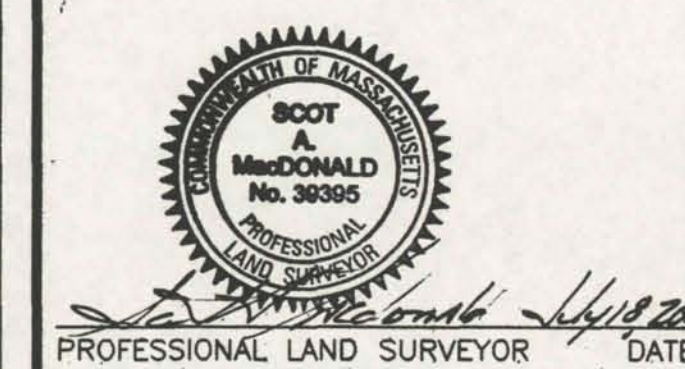
BSC GROUP
 384 Washington Street
 Norwell, Massachusetts
 02061
 781 659 7981

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SCALE: 1" = 40'

PROJ. MGR.: S. MACDONALD	
FIELD: JD/SJ	
CALC./DESIGN: EJC	
DRAWN: EJC/LLT	
CHECK: SAM/EJC	
FILE: M9.DWG	
DWG. NO.: 4354-08	
JOB. NO.: 4-5862.00	SHEET 18 OF 23

SCALE 1"=40'



PROFESSIONAL LAND SURVEYOR DATE

ANDERSON REGIONAL TRANSPORTATION CENTER

MASSPORT CONTRACT #1.727

100 ATLANTIC AVENUE
IN
WOBURN MASSACHUSETTS
01801
(MIDDLESEX COUNTY)

LAYOUT AND MATERIALS

JULY 13, 2001

REVISIONS:
NO. DATE DESC.

NOTES:

- COORDINATES SHOWN HEREON ARE STATE PLANE MASSACHUSETTS MAINLAND ZONE 2001 M4D 27.
- ELEVATIONS SHOWN HEREON ARE BASED ON NGVD 1929.
- DETAIL SHOWN HEREON HAS BEEN FIELD LOCATED IN AN ACTUAL ON-THE-GROUND SURVEY BY THE BSC GROUP, INC. AND DATA PROVIDED BY THE MIDDLESEX CORPORATION.
- FOR CONTRACT DRAWINGS SEE MASSACHUSETTS PORT AUTHORITY CONTRACT #1.727.
- BASE INFORMATION IS DERIVED FROM A RECORD PLAN SET ENTITLED "INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS, R.T.C. ALTERNATE COVER, RECORD DRAWINGS, APPENDIX M", PREPARED BY MERIDIAN LAND SERVICES, INC., DATED APRIL 24, 1998, PROVIDED BY THE MIDDLESEX CORPORATION.

PREPARED FOR:
THE MIDDLESEX CORPORATION
1 SPECTACLE POND ROAD
LITTLETON, MA
01460

BSC GROUP
384 Washington Street
Norwell, Massachusetts
02061
781 659 7981

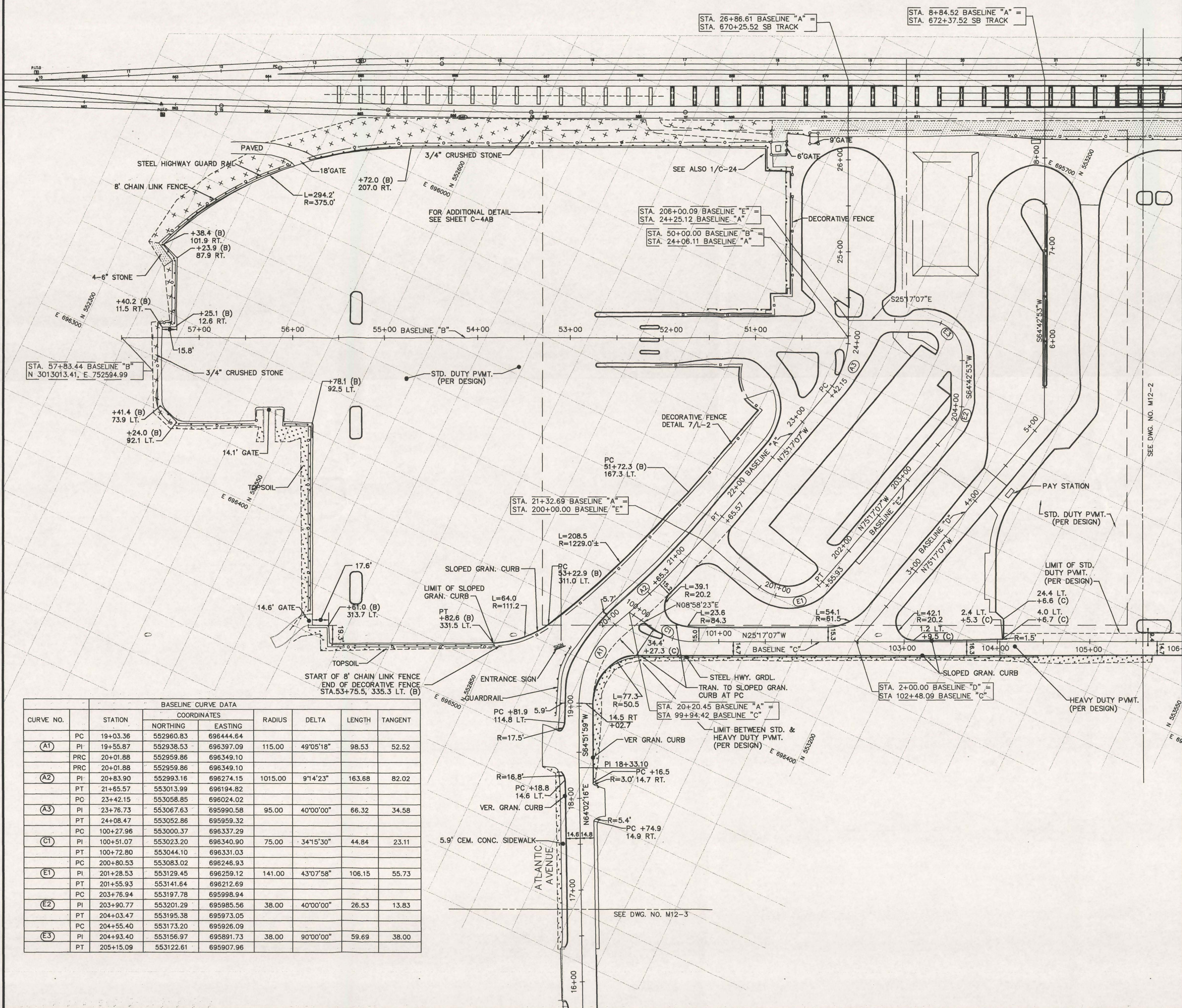
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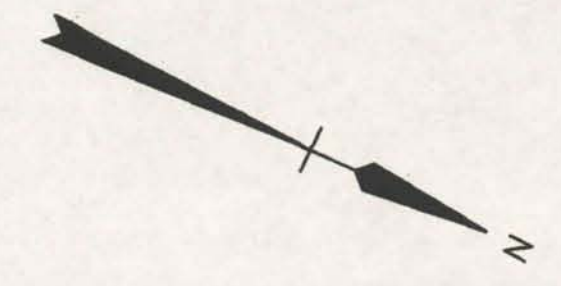
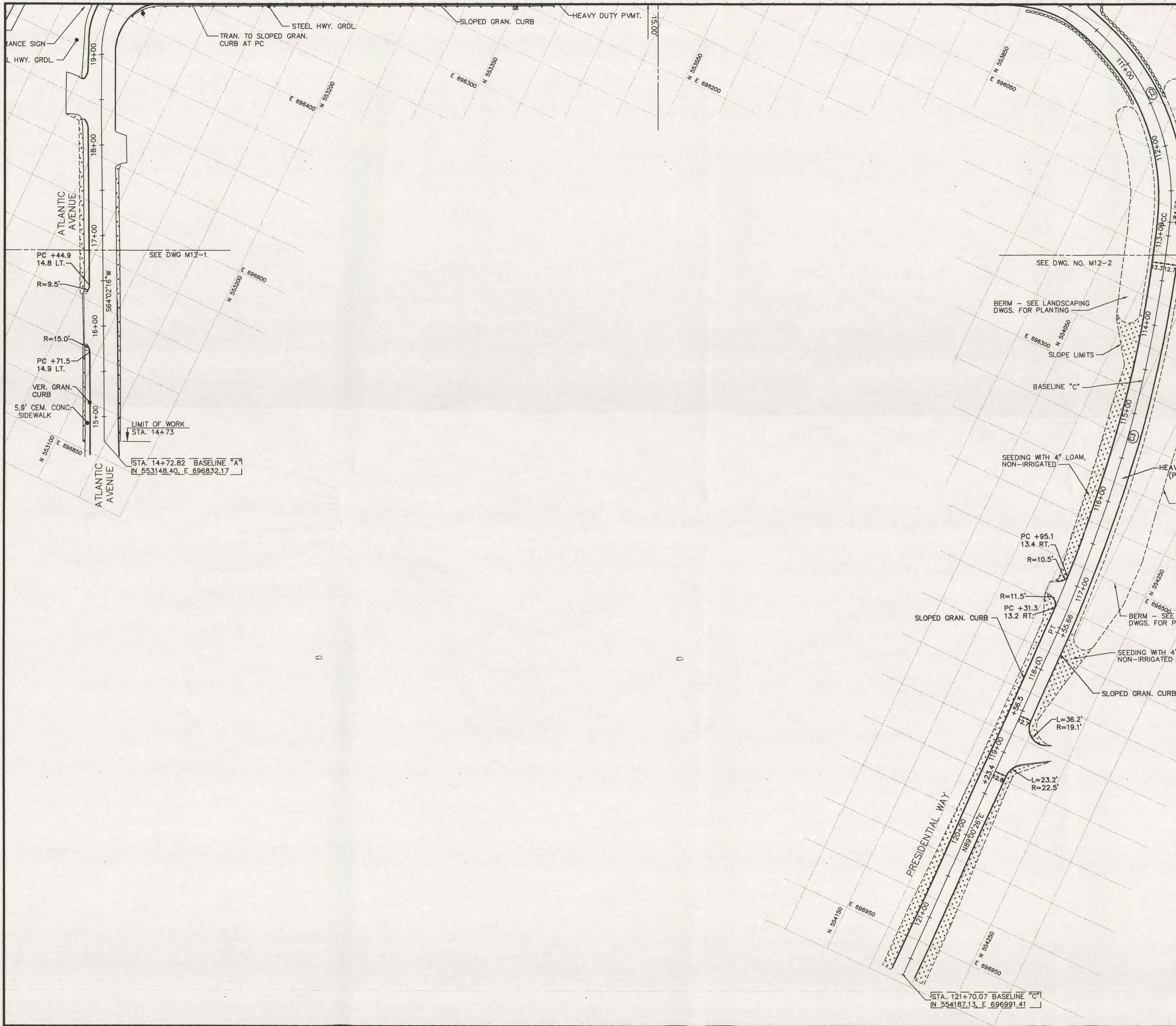
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DRAWN: EJC/LLT
CHECK: SAM/EJC
FILE: M12-1.DWG
DWG. NO: 4354-06
JOB. NO: 4-5862.00

SHEET 19 OF 23



CURVE NO.	STATION	COORDINATES		RADIUS	DELTA	LENGTH	TANGENT
		NORTHING	EASTING				
	PC 19+03.36	552960.83	696444.64				
(A1)	PI 19+55.87	552938.53	696397.09	115.00	49°05'18"	98.53	52.52
	PRC 20+01.88	552959.86	696349.10				
	PT 20+01.88	552959.86	696349.10				
(A2)	PI 20+83.90	552993.16	696274.15	1015.00	9°14'23"	163.68	82.02
	PC 21+65.57	553013.99	696194.82				
	PT 23+42.15	553058.85	696024.02				
(A3)	PI 23+76.73	553067.63	695990.58	95.00	40°00'00"	66.32	34.58
	PC 24+08.47	553052.86	695959.32				
	PT 100+27.96	553000.37	696337.29				
(C1)	PI 100+51.07	553023.20	696340.90	75.00	34°15'30"	44.84	23.11
	PC 100+72.80	553044.10	696331.03				
	PT 200+80.53	553083.02	696246.93				
(E1)	PI 201+28.53	553129.45	696259.12	141.00	43°07'58"	106.15	55.73
	PT 201+55.93	553141.64	696212.69				
	PC 203+76.94	553197.78	695998.94				
(E2)	PI 203+90.77	553201.29	695985.56	38.00	40°00'00"	26.53	13.83
	PT 204+03.47	553195.38	695973.05				
	PC 204+55.40	553173.20	695926.09				
(E3)	PI 204+93.40	553156.97	695891.73	38.00	90°00'00"	59.69	38.00
	PT 205+15.09	553122.61	695907.96				



**ANDERSON
REGIONAL
TRANSPORTATION
CENTER**
 MASSPORT CONTRACT #1.727
 100 ATLANTIC AVENUE
 IN
 WOBURN
 MASSACHUSETTS
 01801
 (MIDDLESEX COUNTY)
LAYOUT AND MATERIALS
 JULY 13, 2001

REVISIONS:

NO.	DATE	DESC.

- NOTES:**
- COORDINATES SHOWN HEREON ARE STATE PLANE MASSACHUSETTS MAINLAND ZONE 2001 MAD 27.
 - ELEVATIONS SHOWN HEREON ARE BASED ON NGVD 1928.
 - DETAIL SHOWN HEREON HAS BEEN FIELD LOCATED IN AN ACTUAL ON-THE-GROUND SURVEY BY THE BSC GROUP, INC. AND DATA PROVIDED BY THE MIDDLESEX CORPORATION.
 - FOR CONTRACT DRAWINGS SEE MASSACHUSETTS PORT AUTHORITY CONTRACT #1.727.
 - BASE INFORMATION IS DERIVED FROM A RECORD PLAN SET ENTITLED "INDUSTRI-PLEX SITE, WOBURN, MASSACHUSETTS, R.T.C. ALTERNATE COVER, RECORD DRAWINGS, APPENDIX #", PREPARED BY MERRIAM LAND SERVICES, INC., DATED APRIL 24, 1998, PROVIDED BY THE MIDDLESEX CORPORATION.

PREPARED FOR:
 THE MIDDLESEX CORPORATION
 1 SPECTACLE POND ROAD
 LITTLETON, MA
 01460

BSC GROUP
 384 Washington Street
 Norwell, Massachusetts
 02061
 781 659 7981

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SCALE: 1" = 40'
 0 5 10 20 METERS
 0 20 40 80 FEET

PROJ. MGR.: SAM
FIELD: JD/SJ
CALC./DESIGN: EJC
DRAWN: EJC/LLT
CHECK: SAM/EJC
FILE: M12-3.DWG
DWG. NO: 4354-06
JOB. NO: 4-5862.00

SHEET 21 OF 23

