Project Manual

Downtown Mystic Streetscapes
Groton, Connecticut
(F.A.P. NO. H018(013))

April 5, 2010

Prepared by:

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115 Broad Street
Boston, MA 02110

BID DOCUMENT

SPECIFICATIONS & BID FORM
FOR

MYSTIC STREETSCAPES AND UTILITY RELOCATION
(STATE PROJECT NUMBERS SP58-316 AND SP58-294)
(F.A.P. NO. H018(013))

ARRA (American Recovery and Reinvestment Act)

GROTON, CONNECTICUT

Contract # 10- 13

BID OPENING

DATE: April 29, 2010

TIME: 2:00 P.M. PREVAILING TIME

PLACE: TOWN HALL ANNEX
134 GROTON LONG POINT ROAD
(OPPOSITE FITCH HIGH SCHOOL)
GROTON, CONNECTICUT 06340

TOWN COUNCIL

JAMES L. STREETER, MAYOR

BRUCE S. FLAX
BILL JOHNSON
CATHERINE KOLNASKI
DEBORAH B. MONTEIRO
FRANK O'BEIRNE, JR.
DEBORAH L. PERUZZOTTI
PAULANN H. SHEETS
HARRY A. WATSON

TOWN MANAGER
MARK R. OEFINGER

DIRECTOR OF PUBLIC WORKS
GARY J. SCHNEIDER

BID DOCUMENT

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BID DOCUMENT

ADVERTISEMENT FOR BIDS
"MYSTIC STREETSCAPES AND UTILITY RELOCATION"
(STATE PROJECT NUMBERS SP58-316 AND SP58-294)
(F.A.P. NO. H018(013))

ARRA (American Recovery and Reinvestment Act)

TOWN OF GROTON, CONNECTICUT
(Owner)

Sealed bids for "Mystic Streetscapes and Utility Relocation" will be received by the Town of Groton at the office of the Department of Public Works, Town Hall Annex, 134 Groton Long Point Road (across from R. E. Fitch High School) Groton, CT 06340-4873 until 2:00 p.m., prevailing time, on April 29, 2010, and then at said office publicly opened and read aloud. Bids must be enclosed in a sealed envelope and designated as bid for "Mystic Streetscapes and Utility Relocation."

A mandatory pre-bid meeting will be held at the office of the Department of Public Works, 134 Groton Long Point Road (across from R. E. Fitch High School) Groton, CT 06340-4873 10:00 a.m., prevailing time, on April 16, 2010.

Any bid may be withdrawn prior to the above scheduled time for opening of bids. Any bid received after the time and date specified will be returned unopened.

All Contract Documents may be examined at the following:

DEPARTMENT OF PUBLIC WORKS OFFICE – TOWN HALL ANNEX, 134 GROTON LONG POINT ROAD

The project consists of installing new concrete sidewalks, roadway paving, stormwater and sanitary sewage improvements, granite curbing, site amenities, street lighting and landscaping on West Main Street (Mystic River Bridge to High Street) and Water Street in downtown Mystic in the Town of Groton. Also included is relocating existing overhead utilities underground on West Main Street from the Mystic River Bridge to High Street.

Copies of the Contract Documents may be obtained from the Department of Public Works Office-Town Hall Annex, 134 Groton Long Point Road after 8:30am on April 6, 2010. All contract documents will be provided in pdf electronic format on a compact disk. Printing of the documents is the responsibility of the contractor. The Contract Documents may be obtained by depositing a non-refundable payment of Fifty dollars ($50) for each compact disk so obtained.

Bid security in the amount of 10% of the base bid, made out to the Town of Groton must accompany each bid if Base Bid price exceeds $50,000.00. Bid bond amount will be retained as liquidated damages in case the selected bidder fails to execute contract.

The Town of Groton reserves the right to waive any formalities or to reject any or all bids.

The bidder agrees that 12% of the awarded contract value shall be performed by disadvantaged business enterprises (DBE) as approved subcontractor or owner-operator of construction equipment. The successful bidder must indicate the disadvantaged business enterprise(s) it intends to utilize to achieve the above stated percentage prior to award of the contract.

No bidder may withdraw his bid within 90 days after the actual date of the opening thereof.

Gary J. Schneider
Director of Public Works
Town of Groton, Connecticut

The Town of Groton is An Equal Opportunity/Affirmative Action Employer.

INFORMATION FOR BIDDERS

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INFORMATION FOR BIDDERS

1. Sealed Bids

Sealed bids for "Mystic Streetscapes and Utility Relocation (F.A.P. NO. H018(013))"." will be received by the Town of Groton at the office of the Department of Public Works, 134 Groton Long Point Road, Groton, CT until 2:00 p.m. prevailing time on April 2, 2010, and then at said office publicly opened and read aloud. Bids must be enclosed in a sealed envelope and designated as bid for "Mystic Streetscapes and Utility Relocation (F.A.P. NO. H018(013))".".
Any bid may be withdrawn prior to the above scheduled time for the opening of bids. Any bid received after the time and date specified shall not be considered.

2. Method of Award

The Town of Groton intends to award the contract to the lowest responsible bidder. The Town reserves the right to reject any and all bids and to award each contract to the bidder who is most responsive to the interests of the Town.

It the lowest bid submitted by a responsible bidder does not exceed the amount of funds available to finance the contract, the contract will be awarded on the base bid only. The Owner may award the contract on the base bid combined with such add alternates applied in any order in which they are listed in the Form of Bid, that produces a net amount which is within the available funds.

3. Bid Schedule

Bids must be made on these forms and returned intact. Bidders will state both in writing and in figures, in ink or typewritten, the proposed price for each separate item of the work called for in the bid schedule, by which prices will be compared. If any price is omitted, the blank shall be filled with the highest price named by any bidder for that item or the bid may be rejected. Alterations and erasures must be initialed by the signer.

4. Arithmetic Discrepancies

A. For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the bidding schedule as submitted by bidders:

1. Obviously misplaced decimal points will be corrected.

2. In case of discrepancy between unit price and extended price, the unit price will govern.

3. Apparent errors in extension of unit prices will be corrected.

4. Apparent errors in addition of lump sum and extended prices will be corrected.

B. For the purpose of bid evaluation, the Town will proceed on the assumption that the bidder intends his bid to be evaluated on the basis of the unit prices, extensions, and totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

5. Bid Security

If the total amount of the bid submitted exceeds $50,000, or if the bid contains any add alternates and the combination of the base bid plus all add alternates exceeds $50,000, then the bid must be accompanied by a CERTIFIED CHECK or a BID BOND, signed by a responsible Surety, in the amount of 10% of the total amount of the tendered bid and made payable to the order of the Town of Groton. All bid checks or bonds, except those of the lower three (3) bidders will be returned within ten (10) days of the opening of bids. Those of the lower three (3) bidders will be retained by the Town of Groton until one of the lower three (3) bidders signs the contract or until all bids are rejected; however, in no case will the bid check or bond be retained for more than 90 days unless forfeited as hereinafter stipulated. No bidder may withdraw his bid within 90 days after the actual date of the opening thereof.

Should there be reasons why the CONTRACT cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

If the total amount of the bid (or base bid plus alternates) submitted is $50,000 or less, then no bid security is required.

The Bid Bond and Surety's Letter of Intent must be provided by a Surety Company that meets all of the following qualifications as of the date of bid.

A. Licensed to do business in the State of Connecticut
B. Listed on the current U. S. Treasury "T" List
C. Rate A- or better by A. M. Best

6. Qualifications of BIDDER

The OWNER may make such investigations as he deems necessary to determine the ability of the BIDDER to perform the work, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any bid if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the CONTRACT and to complete the work contemplated therein. Conditional bids shall not be accepted. Any CONTRACTOR, who is in litigation or arbitration with the Town at the time of the bid opening, or prior to the execution of the

CONTRACT, may be considered an unacceptable BIDDER and may be disqualified.

7. Identity of SUB-CONTRACTORS

If any portion of the work is to be performed by persons or entities not considered to be part of the bidder's own forces, the successful bidder shall, upon notification of the award of a contract, furnish a written list of such other persons or entities and a description of the work to be performed by them. If requested by the Owner, the successful bidder shall be required to establish, to the satisfaction of the Owner, the reliability and responsibility of such Sub-Contractors.

8. Bonds

A. **Performance Bond**

If the total bid price for the project exceeds **$50,000**, or if the bid contains any alternates and the combination of the base bid plus all Town accepted alternates exceeds $50,000, then either of the following is required:

1. The Contractor shall furnish a bond covering faithful performance of the Contract. Surety shall be qualified to do business in the State of Connecticut, listed on the current U. S. Treasury “T” list, and rated "A-" or better by A. M. Best. The cost of the bond premium shall be included in the Contract Sum. The amount of the bond shall be equal to 100 percent of the Contract Sum.

OR

2. In lieu of a Performance Bond, a security in a form acceptable to the Town (for example, letter of credit or an assigned passbook) in the amount of 100% of the Contract may be substituted.

The Contractor shall deliver the required security to the Owner on the date the agreement is entered into.

The Contractor shall require the attorney-in-fact, who executes the required bond on behalf of the surety, to affix thereto a certified and current copy of the power-of-attorney.

In the case where add alternates are part of the bid, and where acceptance of any alternates would cause the Contract Sum to exceed the $50,000 threshold, then the price of the alternate shall include the cost of the required bond or security.

B. **Payment Bond**

If the total bid price for the project exceeds **$100,000**, or if the bid contains any alternates and the combination of the base bid plus all Town accepted alternates exceeds $100,000, then either of the following is required:

1. The Contractor shall furnish a bond covering payment of obligations arising under the terms of the Contract. Surety shall be qualified to do business in the State of Connecticut, listed on the current U.S. Treasury "T" list, and rated "A-"or better by A.M. Best. The cost of the bond premium shall be included in the Contract Sum. The amount of the bond shall be equal to 100 percent of the Contract Sum.

OR

2. In lieu of a Payment Bond, a security in a form acceptable to the Town (for example, a letter of credit or an assigned passbook) in the amount of 100% of the Contract may be substituted.

The Contractor shall deliver the required security to the Owner on the date the Agreement is entered into.

The Contractor shall require the attorney-in-fact, who executes the required bond on behalf of the surety, to affix thereto a certified copy of the power-of-attorney.

In the case where add alternates are part of the bid, and where acceptance of any alternates would cause the Contract Sum to exceed the $100,000 threshold, then the price of the alternate shall include the cost of the required bond or security.

If the total bid (or base bid plus alternates) for the project is $100,000 or less, then in lieu of providing any security listed in Section 8.B, the Contractor can elect to substitute the following:

1. Provide certified lien waivers from each supplier and sub-contractor affirming that they have been paid for work and materials for which previous payment applications were issued by the Owner and payments received by the Contractor.

9. <u>Non-Resident Contractor Guarantee Bonds</u>

A Non-Resident Contractor is required to post a Guarantee Bond (form AU-766) or Cash Bond (form AU-72) with the State of Connecticut Department of Revenue Services (DRS) in the amount of 5% of the total contract price. This

Bond will secure payment for applicable taxes payable to the State related to this Project. The State will issue a Certificate of Compliance once an acceptable bond has been submitted by the Non-Resident Contractor. This Certificate of Compliance must be provided by the Contractor to the Town prior to the release of the first progress payment under the Contract, or the Town must remit 5% of the total contract value directly to the State. This 5% is in addition to the Project retainage.

Special Notice SN2005(12), published by the State of Connecticut Department of Revenue Services, details the procedures and requirements regarding the Guarantee Bond or Cash Bond. The Special Notice and bond forms can be obtained at the State of Connecticut Department of Revenue Services webpage, **www.ct.gov/DRS.**

10. Insurance

The Contractor must provide a CERTIFICATE OF INSURANCE as specified in the General and Supplementary Conditions.

11. Receipt of Bonds & Insurance Certificates Prior to Signing Contract

The Contractor to whom the contract shall be awarded must file the requisite BONDS and CERTIFICATE OF INSURANCE as specified and any other forms and documents required by the specifications prior to signing of the contract, and within 21 days from the date of receipt of notification of said award.

12. Obligation of Bidder

Bidders, if requested, must be able to present evidence satisfactory to the Town Representative that they have been regularly engaged in the business of constructing such work as they propose to execute, and that they are fully prepared with the necessary capital, materials, and equipment to conduct the work to be contracted for, and to begin it promptly when ordered.

Prior to submitting his bid, the bidder must inspect the site and thoroughly read all plans, specifications and bid and contract documents. The failure or omission of any bidder to examine any form, instrument or document and to thoroughly examine the site shall in no way relieve any bidder from any obligations in respect to his bid.

13. Damages for Failure to Enter into Contract

The party to whom the CONTRACT is awarded will be required to execute the CONTRACT within thirty (30) calendar days from the date when Notice of Award is delivered to the BIDDER. In case of failure of the BIDDER to execute the CONTRACT, the OWNER may at his option, consider the BIDDER in default, in which case the bid security accompanying the proposal shall become the property of the OWNER as liquidated damages and not as a penalty.

14. Execution of Contract and Notice to Proceed

The OWNER within twenty (20) days of receipt of acceptable PERFORMANCE BOND, PAYMENT BOND and CONTRACT signed by the party to whom the CONTRACT was awarded shall sign the CONTRACT and return to such party an executed duplicate of the CONTRACT. Should the OWNER not execute the CONTRACT within such period, the BIDDER may by written notice withdraw his signed CONTRACT. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The Notice to Proceed shall be issued within ten (10) days of the execution of the CONTRACT by the OWNER. Should there be reasons why the Notice to Proceed cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and the CONTRACTOR. If the Notice to Proceed has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the CONTRACT, whereupon it shall become null and void and all rights and obligations created thereunder shall be extinguished.

15. Time of Completion and Liquidated Damages

BIDDER must agree to commence work on or before a date to be specified in a written Notice to Proceed from the OWNER and to fully complete the project within 650 consecutive calendar days thereafter. Bidder must agree also to pay as liquidated damages, the sum of $500.00 for each consecutive calendar day thereafter as hereinafter provided in the GENERAL CONDITIONS.

It is hereby understood and mutually agreed, by and between the CONTRACTOR and the OWNER, that the date of beginning and the time for completion during the normal working hours as specified in the General Conditions of the work to be done hereunder are essential conditions of this CONTRACT; and it is further mutually understood and agreed that the work embraced in this CONTRACT shall be commenced on a date to be specified in the "Notice to Proceed".

The CONTRACTOR agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the time for the completion of the work described herein is a reasonable time for the completion of same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.
If the said CONTRACTOR shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extensions thereof granted by the OWNER, then the CONTRACTOR does hereby agree, as a part consideration for the awarding of this CONTRACT, to pay to the OWNER the amount specified in the Information for Bidders, not as a penalty but as liquidated damages for such breach of CONTRACT as hereinafter set forth, for each and every calendar day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT for completion of the work.

The said amount is fixed and agreed upon by and between the CONTRACTOR and the OWNER because of the impracticability and extreme difficulty of fixing and ascertaining

the actual damages the OWNER would in such event sustain, and said amount is agreed to be the amount of damages which the OWNER would sustain and said amount shall be retained from time to time by the OWNER from current periodic estimates.

It is further agreed that time is of the essence of each and every portion of this CONTRACT and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the CONTRACT an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this CONTRACT. The CONTRACTOR shall not be in default when the delay in completion of the work is due:

A. To any preference, priority or allocation order duly issued by the State or Federal Government

B. To unforeseeable cause beyond the control and without the fault or negligence of the CONTRACTOR, including, but not limited to, acts of God, or of the public enemy, acts of the OWNER, acts of another contractor in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and severe weather.

The CONTRACTOR shall, within ten (10) days from the beginning of any such delay, unless the OWNER shall grant a further period of time prior to the date of final settlement of the CONTRACT, notify the OWNER, in writing, of the causes of the delay. The Owner shall ascertain the facts and extent of the delay and notify the CONTRACTOR within a reasonable time of its decision in the matter.

16. Addenda and Interpretations

All questions about the meaning or intent of the Contract Documents are to be directed to the Town's Representative, Rick Norris, 134 Groton Long Point Road, Groton, CT 06340, Tel: 860-446-5974, fax 860-446-5978. Interpretations or clarifications considered necessary by the Owner in response to such questions will be issued by Addenda emailed, mailed, faxed or delivered to all parties recorded by the Owner as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

Addenda will be issued to modify the Bidding Documents as deemed advisable by the Owner.

17. Substitution Clause

Wherever in the Plans and Specifications any item of equipment or material is designed by reference to a particular brand, manufacturer, or trade name, it is understood that an approved equal product, acceptable to the OWNER, may be substituted by the BIDDER or the CONTRACTOR.

18. Retainage

The Town of Groton reserves the right to retain 5% of the final contract price for a period not to exceed six (6) months from the date of final acceptance of the project.

19. Laws and Regulations

The bidder's attention is directed to the fact that all applicable Federal and State law, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

20. List of Utilities in the Area

Attention is called to the fact that the following Utility Companies have facilities in the area:

Aquarion Water Co. – Water
CL & P – Electric
AT & T – Telephone
Comcast Cablevision Co. – CATV
Thames Valley Communications, Inc. - CATV
Town of Groton – Sewer
ConnDOT-Drainage (in State R.O.W.)
Town of Groton-Drainage (in Town R.O.W.)
Mystic Fire District – Fire Alarm

Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner by owners of such Underground Facilities or others, and Owner does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.
The Contractor should acquaint himself with and adhere to the regulations of those utilities which are in the area of this Contract.

When requested by the Contractor, all underground utilities will be located and marked on the surface by the controlling utility company at no cost to him. Contractor will be responsible for notifying the Utility clearinghouse, "Call-Before-You-Dig" 48 hours prior to any excavation, to allow for the location of the existing utilities by controlling Utility Company.

21. Sales Tax

Under the terms of the regulations referring to CONTRACTORS and SUBCONTRACTORS, issued by the STATE TAX COMMISSION in administration of the STATE Sales and Use Tax, to which the BIDDER is referred, the CONTRACTOR may purchase materials or supplies to be consumed in the performance of this contract without payment of tax and shall not include in his bid nor charge any use or sales tax thereon.

22. Site Investigation and Conditions Affecting the Work

Arrangements to visit the site may be made by calling the Office of Planning and Development Services, (860) 446-5995, Monday through Friday, 8:30 a.m. to 4:30 p.m.

A. The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to:

1. Conditions bearing upon transportation, disposal, handling, and storage of materials;
2. The availability of labor, water, electric power, and roads;
3. Uncertainties of weather, river stages, tides, or similar physical conditions at the site;
4. The conformation and conditions of the ground; and
5. The character of equipment and facilities needed preliminary to and during work performance.

B. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Town, as well from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Town.

C. The Town assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Town. Nor does the Town assume responsibility for any understanding reached or representation made concerning conditions, which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this Contract.

D. The Contract Documents contain the provisions required for the construction of the project. Information obtained from an officer, agent or employee of the OWNER or any other person shall not affect the risks or obligations assumed by

the CONTRACTOR or relieve him from fulfilling any of the conditions of the CONTRACT.

23. Permits

The Contractor must obtain all necessary construction and building permits; however, the fee for any permits issued by the Town of Groton shall be waived. The Contractor is responsible to pay the State portion of any Town permit.

The Contractor must obtain an Encroachment Permit from Connecticut DOT – District II. The cost of this permit, and any bonds and insurance associated with the permit, shall be paid for by the Contractor.

24. Work Area

Construction will be confined to the immediate work area only. Trespass on property other than Town property or easements acquired by the Town for the project will be by written permission of the property owner only.

25. Change Orders

Any deviations from, additions to, or deductions from either scope of work or contract price shall be submitted by the Contractor to the Town in the form of a contract change order. The Town Representative must approve this contract change order before said deviations, additions, or deductions shall be enacted.

Further, all changes in scope of work involving unit price items shall be governed by the unit price indicated by the Contractor on the Base Bid Form.

26. Wages

Bidder is directed to Paragraph 45 of the General Conditions for wage rate scales and legislation applicable to this contract.

END OF SECTION

PROPOSAL
Mystic Streetscapes and Utility Relocation
(F.A.P. NO. H018(013))

Proposal of _____hereinafter called "BIDDER"

*a corporation of the State of

*a partnership, or

*an individual doing business as

To the Town of Groton, Connecticut

Gentlemen:

The undersigned hereby declares that no person or persons other than those named herein are interested in this proposal or in the Contract proposed to be taken; that it is made without any connection with any other person making any proposal for the same work, and is in all respects fair and without collusion or fraud; that no person acting for or employed by the Town of Groton is directly interested therein, or in the supplies or works to which it relates, or in any portion of the profits thereof; that it is understood that the Town, its agents and employees are not to be in any manner held responsible for the accuracy of, or bound by, the estimates or borings or plan of borings relative to the work and appearing on plans or in the foregoing notice; and that all such estimates, etc., are to be considered solely for the purpose of filling out and comparing the several proposals.

The undersigned further declares that he has carefully examined the Information For Bidders, Contract documents, including the Plans and Specifications, and has inspected the site and will contract to provide all necessary tools, apparatus and implements, freight, cartage, and expense, and to do all the work and furnish all the materials necessary in the manner and upon the conditions specified and upon the following terms at the prices specified on the following pages.

The undersigned agrees to furnish satisfactory bonds and insurance as required by Paragraph 1 of the General Conditions, Section 8, 9, 10 and 11 of the Information for Bidders and by the Supplementary Conditions Section 1, and to execute within 30 days after notice of the award, a formal contract with the Town of Groton for the fulfillment of this proposal, and it is agreed that in case of failure on the part of the undersigned to do so, the certified check or bid bond deposited herewith shall be forfeited to the Town of Groton as liquidated damages for such failure.

BIDDER hereby agrees to commence work under this contract on or before a date to be specified in written NOTICE TO PROCEED of the OWNER and to fully complete the project in strict compliance with the Contract Documents within 650 consecutive calendar days thereafter as stipulated in the specifications. BIDDER further agrees to pay as liquidated damages, the sum of $500.00 for each consecutive calendar day thereafter as hereinafter provided in Paragraph 15 of the Information for Bidders.

BIDDER acknowledges receipt of the following addendum:

_____

_____

The undersigned further agrees, in case of a corporation or fictitious trade name, that an acceptable certificate will be filed showing the proper officer or person authorized to sign said contract.

Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.

The unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any formalities in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids.

The bid Security attached in the sum of:
_____dollars ($_____)

SCHEDULE OF PRICES

MYSTIC STREETSCAPES AND UTILITY RELOCATION
(F.A.P. NO. H018(013))

BASE BID

NOTE: All prices must be written in ink or typewritten, in words and in figures for the entire proposal. In case of discrepancy, words will take precedence over numbers and unit prices will take precedence over extended prices.

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
0000547A	350 LF	2x3 (6"Sched.40 PVC) ductbank, per Linear Foot _____dollars _____cents	$_____	$_____
0000580A	820 LF	1x1 (4"Sched.40 PVC) ductbank, per Linear Foot _____dollars _____cents	$_____	$_____
0000581A	225 LF	1x2 (4"Sched.40 PVC) ductbank, per Linear Foot _____dollars _____cents	$_____	$_____
0100151A	LS	Water and Wastewater Facilities, per Lump Sum _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
0177151A	LS	Architectural Repairs, per Lump Sum _____dollars _____cents	$_____	$_____
0201012	10 EA	Removal of Trees, per Each _____dollars _____cents	$_____	$_____
0201019A	6 EA	Removal of Wood Planters, per Each _____dollars _____cents	$_____	$_____
0201323A	6 EA	Removal of Bench, per Each _____dollars _____cents	$_____	$_____
0201324A	1 EA	Removal of Bicycle Rack, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
0219001	200 LF	Sedimentation Control System, per Linear Foot _____dollars _____cents	$_____	$_____
0219005A	152 LF	Debris Control Netting, per Linear Foot _____dollars _____cents	$_____	$_____
202001	355 CY	Earth Excavation, per Cubic Yard _____dollars _____cents	$_____	$_____
202129A	110 CY	Earth Excavation-Special, per Cubic Yard _____dollars _____cents	$_____	$_____
202452A	20 EA	Test Pit, per Each _____dollars _____cents	$_____	$_____
202453A	25 EA	Pavement Coring, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
202484A	40 LF	Remove Bituminous Concrete Berm, per Linear Foot _____dollars _____cents	$_____	$_____
202491A	793 LF	Removal of Granite Stone Curbing, per Linear Foot _____dollars _____cents	$_____	$_____
202502	1,509 SY	Removal of Concrete Pavement, per Square Yard _____dollars _____cents	$_____	$_____
202503A	2,459 LF	Removal of Concrete Curbing, per Linear Foot _____dollars _____cents	$_____	$_____
202504A	5 EA	Removal of Concrete Planters, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
202512	3,391 LF	Cut Concrete Sidewalk, per Linear Foot _____dollars _____cents	$_____	$_____
202529	5,064 LF	Cut Bituminous Pavement, per Linear Foot _____dollars _____cents	$_____	$_____
202531	1,463 SY	Removal of Bituminous Concrete, per Square Yard _____dollars _____cents	$_____	$_____
203001	15 CY	Structure Excavation -Earth (Complete) per Cubic Yard _____dollars _____cents	$_____	$_____
205001	38 CY	Trench Excavation 0'-4' Deep, per Cubic Yard _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
205003	220 CY	Trench Excavation 0'-10' Deep, per Cubic Yard _____dollars _____cents	$_____	$_____
205004	54 CY	Rock-In-Trench Excavation 0'-10' Deep, per Cubic Yard _____dollars _____cents	$_____	$_____
205005	60 CY	Trench Excavation 0'-15' Deep, per Cubic Yard _____dollars _____cents	$_____	$_____
205006	60 CY	Rock-In-Trench Excavation 0'-15' Deep, per Cubic Yard _____dollars _____cents	$_____	$_____
207001	2,871 CY	Borrow, per Cubic Yard _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
208001	150 CY	Free Draining Material, per Cubic Yard _____dollars _____cents	$_____	$_____
212001	70 CY	Subbase, per Cubic Yard _____dollars _____cents	$_____	$_____
213050	915 CY	Bank Run Gravel, per Cubic Yard _____dollars _____cents	$_____	$_____
216001	65 CY	Pervious Structure Backfill, per Cubic Yard _____dollars _____cents	$_____	$_____
219011A	23 EA	Sediment Control System at Catch Basin, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
401152A	17 CY	Concrete Pavement Repair at Storm Drain Trenches, per Cubic Yard _____dollars _____cents	$_____	$_____
402890A	128 SF	Irregular Stone Pavers, per Square Foot _____dollars _____cents	$_____	$_____
402891A	443 SF	Sloped Irregular Granite Pavers, per Square Foot _____dollars _____cents	$_____	$_____
402898A	125 SF	Remove and Reset Brick Pavement, per Square Foot _____dollars _____cents	$_____	$_____
402899A	100 SF	Remove and Reset Granite Cobblestone Pavement, per Square Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
402902A	1,806 SF	Granite Pavers, per Square Foot _____dollars _____cents	$_____	$_____
406169A	430 TON	HMA S1.5, per TON _____dollars _____cents	$_____	$_____
406170A	378 TON	HMA S1,per TON _____dollars _____cents	$_____	$_____
406171A	1774 TON	HMA S0.5,per TON _____dollars _____cents	$_____	$_____
406447	TON	Superpave Bituminous Concrete Wedging,per TON _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
406200	9000 LF	Cleaning and Sealing Joints and Cracks,per LF _____dollars _____cents	$_____	$_____
406236	656 GAL	Material for Tack Coat, per Gallon _____dollars _____cents	$_____	$_____
406321	11,000 LF	HMA Longitudinal Joint Sealant per Linear Foot _____dollars _____cents	$_____	$_____
406270A	6,560 SY	Milling of Bituminous Concrete (0"-6"), per Square Yard _____dollars _____cents	$_____	$_____
507001	8 EA	Type “C” Catch Basin, per Each _____dollars _____cents	$_____	$_____
507021	1 EA	Type “C” Catch Basin Double Grate – Type I, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
507022	1 EA	Type "C" Catch Basin Double Grate – Type II, per Each _____dollars _____cents	$_____	$_____
507097A	2 EA	Type "C" Catch Basin (4' sump), per Each _____dollars _____cents	$_____	$_____
507124A	1 EA	Type "C" Catch Basin Double Grate-Type II (4' sump), per Each _____dollars _____cents	$_____	$_____
507155A	1 EA	Type "C-L" Offset Sump Catch Basin, per Each _____dollars _____cents	$_____	$_____
507156A	1 EA	Type "C" Offset Sump Catch Basin, per Each _____dollars _____cents	$_____	$_____
507171A	1 EA	Hydrodynamic Separator (Site No.1), per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
507249	1 EA	Type "CL" Catch Basin Double Grate – Type II Top, per Each _____dollars _____cents	$_____	$_____
507254	1 EA	Type "C" Catch Basin Double Grate – Type II Top, per Each _____dollars _____cents	$_____	$_____
507601	1 EA	Manhole, per Each _____dollars _____cents	$_____	$_____
507771	1 EA	Reset Catch Basin, per Each _____dollars _____cents	$_____	$_____
507781	5 EA	Reset Manhole, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
507800A	1 EA	Convert CB to Type "C" Catch Basin Double Grate –Type II, per Each _____dollars _____cents	$_____	$_____
507831	4 EA	Convert Catch Basin to Manhole, per Each _____dollars _____cents	$_____	$_____
601001	25 CY	Class "A" Concrete, per Cubic Yard _____dollars _____cents	$_____	$_____
601109A	LS	Granite Steps, per Lump Sum _____dollars _____cents	$_____	$_____
602001	400 LB	Deformed Steel Bars, per Pounds _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
602903A	11 EA	Drilling Holes, per Each _____dollars _____cents	$_____	$_____
651001	15 CY	Bedding Material, per Cubic Yard _____dollars _____cents	$_____	$_____
651011	54 LF	12" R.C. Pipe, per Linear Foot _____dollars _____cents	$_____	$_____
651012	115 LF	15" R.C. Pipe, per Linear Foot _____dollars _____cents	$_____	$_____
651722	24 LF	8" Ductile Iron Pipe, per Linear Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
653001	4 EA	Clean Existing Catch Basin, per Each _____dollars _____cents	$_____	$_____
653010	5 EA	Clean Existing Manhole, per Each _____dollars _____cents	$_____	$_____
653100	2,300 LF	Clean Existing Culvert- 12" to 42" Diameter, per Linear Foot _____dollars _____cents	$_____	$_____
708002A	LS	Dampproofing and EPDM Seal, per Lump Sum _____dollars _____cents	$_____	$_____
751710 5	0 LF	4” Underdrain, per Linear Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
755001	50 SY	Filter Fabric, per Square Yard _____dollars _____cents	$_____	$_____
812200A	78 LF	4" Granite Stone Curb, per Linear Foot _____dollars _____cents	$_____	$_____
813021A	1,835 LF	6" Granite Stone Curbing, per Linear Foot _____dollars _____cents	$_____	$_____
813031A	905 LF	6" Granite Curved Stone Curbing, per Linear Foot _____dollars _____cents	$_____	$_____
813046A	16 LF	Granite Mountable Curbing, per Linear Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
813451A	523 LF	Granite Stone Transition Curbing, per Linear Foot _____dollars _____cents	$_____	$_____
814002A	450 LF	Reset Granite Stone Curbing, per Linear Foot _____dollars _____cents	$_____	$_____
815001	100 LF	Bituminous Concrete Lip Curbing, per Linear Foot _____dollars _____cents	$_____	$_____
815091	100 LF	Removal of Bituminous Concrete Lip Curbing, per Linear Foot _____dollars _____cents	$_____	$_____
822001	175 LF	Temporary Precast Concrete Barrier Curb, per Linear Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
901003A	19 EA	Steel Bollard, per Each _____dollars _____cents	$_____	$_____
901005A	26 EA	Bollard Chain, per Each _____dollars _____cents	$_____	$_____
904001A	14 LF	Stair Handrails, per Linear Foot _____dollars _____cents	$_____	$_____
904002A	80 LF	Rail on Existing Wall, per Linear Foot _____dollars _____cents	$_____	$_____
913068A	200 LF	Temporary 6’ ht. Chain Link Fence, per Linear Foot _____dollars _____cents	$_____	$_____
921001A	24,573 SF	Concrete Sidewalk, per Square Foot _____dollars _____cents	$_____	$_____
921013A	2,951 SF	Concrete Driveway Apron, per Square Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
926001A	400 SF	Gravel Driveway, per Square Foot _____dollars _____cents	$_____	$_____
944001A	223 SY	Furnishing and Placing Topsoil, per Square Yard _____dollars _____cents	$_____	$_____
945060A	100 SY	Pine Bark Mulch, per Square Yard _____dollars _____cents	$_____	$_____
947208A	14 EA	Bicycle Rack, per Each _____dollars _____cents	$_____	$_____
949004A	6 EA	Hydrangea Macrophylla- "Homli Hydrangea: 1 Gallon, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
949006A	17 EA	Hydrangea Macrophylla-Bigleaf Hydrangea: 2' to 2½' Height, per Each _____dollars _____cents	$_____	$_____
949017A	8 EA	Leucothoe Fontanesiana-Fountain Leucothoe: 18" Height, per Each _____dollars _____cents	$_____	$_____
949086	3 EA	Clethra Alnifolia-Summer-sweet: 2' to 3' Height, per Each _____dollars _____cents	$_____	$_____
949139A	5 EA	Cotoneaster Horizontalis-Rock-Spray: 18” Spread, per Each _____dollars _____cents	$_____	$_____
949174	33 EA	Pennisetum Alopecuriodes “Little Bunny”-“Dwarf Fountain Grass: 1 Gallon, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
949175A	9 EA	Rudbeckia Fulgida-Black-eyed Susan: 2 Gallon, per Each _____dollars _____cents	$_____	$_____
949184A	30 EA	Prunus Pumila Depressa “Gus Mehlquist”-Sand Cherry: 1 Gallon, per Each _____dollars _____cents	$_____	$_____
949189A	10 EA	Spiraea Japonica “Little Princess”: 18” Height, per Each _____dollars _____cents	$_____	$_____
949190A	7 EA	Stephandra Incisa “Crispa”-Cutleaf Stephandra: 1 Gallon, per Each _____dollars _____cents	$_____	$_____
949223A	16 EA	Ilex Glabra-Inkberry: 2' to 2½' Height, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
949224A	3 EA	Astibe “Bridle Veil”-Astibe: 1 Gallon, per Each _____dollars _____cents	$_____	$_____
949225A	9 EA	Convallaria Majalis-Lily of the Valley: 1 Quart, per Each _____dollars _____cents	$_____	$_____
949229A	4 EA	Salix Repens “Voorthuisen”-Spreading Willow: 1 Gallon, per Each _____dollars _____cents	$_____	$_____
949249A	101 EA	Juniperus Conferta-Shore Juniper: 18" Spread, per Each _____dollars _____cents	$_____	$_____
949253A	8 EA	Dicentra Spectabilis “Alba”-Bleeding Heart: 1 Gallon, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
949254A	100 EA	Galanthus Nivalus-Snowdrops: Top Size, per Each _____dollars _____cents	$_____	$_____
949258A	19 EA	Hosta "Black Hills"-Plaintain Lily: 1 Gallon, per Each _____dollars _____cents	$_____	$_____
949259A	4 EA	Iris Cristata-Crested Iris: 1 Quart, per Each _____dollars _____cents	$_____	$_____
949295	5 EA	Arcostaphylus Uva-Ursi-Bearberry: 1 Gallon, per Each _____dollars _____cents	$_____	$_____
949317A	8 EA	Iris Siberica "Ottawa"-Siberian Iris: 1 Gallon, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
949318A	4 EA	Lavendula Angustifolia-Lavendar: 1Gallon, per Each _____dollars _____cents	$_____	$_____
949321A	50 EA	Narcissus sp-Trumpet Daffodil: Top Size, per Each _____dollars _____cents	$_____	$_____
949322A	100 EA	Scillia Siberica-Siberian Squill- Top Size, per Each _____dollars _____cents	$_____	$_____
949346A	105 EA	Liriope Spicata-Lily Turf: 1 Gallon, per Each _____dollars _____cents	$_____	$_____
949350A	28 EA	Myrica Pensylvanica-Bayberry: 2½' to 3' Height, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
949405A	3 EA	Rhus Aromatica- "Gro Low": 18" Height, per Each _____dollars _____cents	$_____	$_____
949494A	5 EA	Ulmus Americana "Valley Forge" Valley Forge American Elm: 3" to 3½" Caliper, per Each _____dollars _____cents	$_____	$_____
949520A	3 EA	Sedum "Autumn Joy"- Sedum: 2 Gallon, per Each _____dollars _____cents	$_____	$_____
949553A	6 EA	Vibumum Opulus "Nanum"- European Cranberrybush: 18" Height, per Each _____dollars _____cents	$_____	$_____
949566	27 EA	Hemerocallis "Happy Returns" Daylily: 1 Gallon, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
949713A	3 EA	Amelanchier X Grandiflora "Autumn Brilliance"- Serviceberry: 10'to12' Height, per Each _____dollars _____cents	$_____	$_____
949765A	3 EA	Vaccinium Angustifolium Lowbush Blueberry: 1 gallon, per Each _____dollars _____cents	$_____	$_____
949793A	10 EA	Malus "Sugar Tyme" Crabapple: 2 ½" to 3" Caliper, per Each _____dollars _____cents	$_____	$_____
949914A	5 EA	Betula Nigra "Heritage" River Birch: 12' to 14' Height, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
949916A	2 EA	Gledistia Triancanthos var. inemis “Halka”- Thomless Honeylocust: 3"to3½" Caliper, per Each _____dollars _____cents	$_____	$_____
949998A	64 EA	Annuals, per Each _____dollars _____cents	$_____	$_____
950019A	419 SY	Turf Establishment, per Square Yard _____dollars _____cents	$_____	$_____
950029A	LS	Cast Iron Planter, per Lump Sum _____dollars _____cents	$_____	$_____
969062A	18 MO	Construction Field Office (Type A), per Month _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
970006A	EST	Trafficperson (Municipal Police), per Estimate _Ninety seven thousand_five hundred dollars __zero_____cents	$_____	$_____
970007A	2880 HR	Trafficperson (Uniform Flagger), per Hour _____dollars _____cents	$_____	$_____
971001A	LS	Maintenance & Protection of Traffic, per Lump Sum _____dollars _____cents	$_____	$_____
975002	LS	Mobilization, per Lump Sum _____dollars _____cents	$_____	$_____
976002	1,920 DAY	Barricade Warning Lights-High Intensity, per Day _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
977001	30 EA	Traffic Cone, per Each _____dollars _____cents	$_____	$_____
978002	140 EA	Traffic Drum, per Each _____dollars _____cents	$_____	$_____
979003A	16 EA	Construction Barricade Type III, per Each _____dollars _____cents	$_____	$_____
980001	LS	Construction Staking, per Lump Sum _____dollars _____cents	$_____	$_____
992089A	92 EA	Flagpole Socket, per Each _____dollars _____cents	$_____	$_____
992090A	12 EA	Wood and Granite Bench, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
992091A	2 EA	Wood and Granite Bench-With Back, per Each _____dollars _____cents	$_____	$_____
992092A	73 LF	Granite Seatwall, per Linear Foot _____dollars _____cents	$_____	$_____
992103A	12 EA	Trash Receptacle, per Each _____dollars _____cents	$_____	$_____
1001001	11,135 LF	Trenching and Backfilling, per Linear Foot _____dollars _____cents	$_____	$_____
1001002A	200 LF	Trenching and Backfilling with Archeological Monitoring, per Linear Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1002110	32 EA	Decorative Light Pole Foundation, per Each _____dollars _____cents	$_____	$_____
1002215A	2 EA	Traffic Control Foundation-Warning Gate, per Each _____dollars _____cents	$_____	$_____
1002202	1 EA	Traffic Control Foundation-Mast Arm, per Each _____dollars _____cents	$_____	$_____
1003551A	8 EA	Dock Bollard, per Each _____dollars _____cents	$_____	$_____
1003593A	32 EA	Decorative Light Standard and Luminaire, per Each _____dollars _____cents	$_____	$_____
1003895	5 EA	Remove Decorative Light Standard, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1008115A	645 LF	2" Rigid Galvanized Steel Conduit in Trench, per Linear Foot _____dollars _____cents	$_____	$_____
1008116	150 LF	2 1/2" Rigid Galvanized Steel Conduit in Trench, per Linear Foot _____dollars _____cents	$_____	$_____
1008119A	1,640 LF	4" Rigid Galvanized Steel Conduit in Trench, per Linear Foot _____dollars _____cents	$_____	$_____
1008124	2,450 LF	1” PVC in Trench, per Linear Foot _____dollars _____cents	$_____	$_____
1008127	1,525 LF	2" Sched. 40 PVC in Trench, per Linear Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1008128	625 LF	2 1/2" Sched. 40 PVC in Trench, per Linear Foot _____dollars _____cents	$_____	$_____
1008129	650 LF	3" Sched. 40 PVC in Trench, per Linear Foot _____dollars _____cents	$_____	$_____
1008131	4,495 LF	4" Sched. 40 PVC in Trench, per Linear Foot _____dollars _____cents	$_____	$_____
1008135	330 LF	1” PVC Under Roadway, per Linear Foot _____dollars _____cents	$_____	$_____
1008623	742 LF	Concrete Encased Duct-Bank, per Linear Foot _____dollars _____cents	$_____	$_____
1008645A	2,355 LF	4” 3 Cell Innerduct, per Linear Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1008646A	915 LF	2” 3 Cell Innerduct, per Linear Foot _____dollars _____cents	$_____	$_____
1010002A	5 EA	Handholes, per Each _____dollars _____cents	$_____	$_____
1010003A	6 EA	Handhole Unit (nominal size=32”x19”), per Each _____dollars _____cents	$_____	$_____
1010004A	20 EA	Handhole Unit (nominal size=24”x13”), per Each _____dollars _____cents	$_____	$_____
1010005A	18 EA	Handhole Unit (nominal size=18”x11”), per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
10100327A	1 EA	Precast Hexhole Vault (size=54"), per Each _____dollars _____cents	$_____	$_____
1010912A	1 EA	Electrical Manhole (size=14'x7'), per Each _____dollars _____cents	$_____	$_____
1012010	9,500 LF	No.10 Single Conductor, per Linear Foot _____dollars _____cents	$_____	$_____
1012036	3,800 LF	No.6 Single Conductor, per Linear Foot _____dollars _____cents	$_____	$_____
1014142	1,300 LF	Wiring: 5 Conductor, #12 AWG per Linear Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1017031A	7 EA	Transformer Pad, per Each _____dollars _____cents	$_____	$_____
1017040A	8 EA	Service Entrance Combination with Meter Socket, per Each _____dollars _____cents	$_____	$_____
1017100A	2 EA	Service Entrance and Cabinet, per Each _____dollars _____cents	$_____	$_____
1017101A	5 EA	Cable Terminal Pedestal Unit, per Each _____dollars _____cents	$_____	$_____
1017102A	2 EA	Master Fire Box, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1113000	130 LF	1-Conductor, #6 AWG-Type THW, per Linear Foot _____dollars _____cents	$_____	$_____
1113019	130 LF	3-Conductor, #2 AWG- Type THW, per Linear Foot _____dollars _____cents	$_____	$_____
1113057	250 LF	3-Conductor, 1/0 AWG-SE Cable, per Linear Foot _____dollars _____cents	$_____	$_____
1113058	500 LF	3-Conductor, 4/0 AWG-SE Cable, per Linear Foot _____dollars _____cents	$_____	$_____
1205207	10 EA	Type DE-7 Delineator, per Each _____dollars _____cents	$_____	$_____
1206023A	LS	Removal and Relocation of Existing Signs, per Lump Sum _____dollars _____cents	$_____	$_____
1208906	39 SF	Sign Face-Sheet Aluminum-Bright Wide Angle Retro-Reflective Sheeting, per Square Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1208928	512 SF	Sign Face-Sheet Aluminum (Type III Reflective Sheeting), per Square Foot _____dollars _____cents	$_____	$_____
1208966A	LS	Bulletin Board/Historic Mystic Board, per Lump Sum _____dollars _____cents	$_____	$_____
1208967A	LS	Wayfinding Sign, per Lump Sum _____dollars _____cents	$_____	$_____
1209114	6,600 LF	Hot-Applied Painted Pavement Markings 4" Yellow, per Linear Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1209124	7000 LF	Hot-Applied Painted Pavement Markings 4" White, per Linear Foot _____dollars _____cents	$_____	$_____
1209131	1121 SF	Hot-Applied Painted Legend, Arrows and Markings, per Square Foot _____dollars _____cents	$_____	$_____
1210101	2,130 LF	4" White Epoxy Resin Pavement Markings, per Linear Foot _____dollars _____cents	$_____	$_____
1210102	2,906 LF	4" Yellow Epoxy Resin Pavement Markings, per Linear Foot _____dollars _____cents	$_____	$_____
1210105	2,100SF	Epoxy Resin Pavement Markings, Symbols and Legends, per Square Foot _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1211001	3,680 SF	Removal of Pavement Markings, per Square Foot _____dollars _____cents	$_____	$_____
1220001A	120 SF	Construction Signs, per Square Foot _____dollars _____cents	$_____	$_____
1220011A	525 SF	Construction Signs-Type III Reflective Sheeting, per Square Foot _____dollars _____cents	$_____	$_____
1302046A	1 EA	Reset Manhole (Water), per Each _____dollars _____cents	$_____	$_____
1302061A	53 EA	Adjust Gate Box (Water), per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1303189A	2 EA	Reset Existing Fire Hydrant, per Each _____dollars _____cents	$_____	$_____
1303196A	1 EA	Relocate Fire Hydrant, per Each _____dollars _____cents	$_____	$_____
1403501	23 EA	Reset Manhole (Sanitary Sewer), per Each _____dollars _____cents	$_____	$_____
1807012	2 EA	Temporary Impact Attenuation System Type A Module 700 LB, per Each _____dollars _____cents	$_____	$_____
1807013	8 EA	Temporary Impact Attenuation System Type A Module 1,400 LB, per Each _____dollars _____cents	$_____	$_____

ITEM	ESTIMATED QUANTITY	BRIEF DESCRIPTION AND UNIT PRICE IN WORDS	UNIT PRICE IN FIGURES	TOTAL PRICE IN FIGURES
1807014	4 EA	Temporary Impact Attenuation System Type A Module 2,100 LB, per Each _____dollars _____cents	$_____	$_____
1807202	1 EST	Repair of Temporary Impact Attenuation System, per Estimate _____dollars _____cents	$_____	$_____

MYSTIC STREETSCAPES AND UTILITY RELOCATION
(F.A.P. NO. H018(013))
GROTON, CONNECTICUT

TOTAL
BASE BID

THE TOTAL BASE BID OF ITEMS AS COMPUTED BY THE BIDDER, USING THE ESTIMATED QUANTITIES SHOWN:

IN FIGURES: _____

IN WORDS: _____

MYSTIC STREETSCAPES AND UTILITY RELOCATION
(F.A.P. NO. H018(013))

ADD ALTERNATE #1
COBRAHEAD REPLACEMENT

1004934A	11 EA	High Pressure Sodium Luminaire with Integral Ballast, per Each		
		_____dollars		
		_____cents	$_____	$_____

TOTAL
ADD ALTERNATIVE #1

THE TOTAL ADD ALTERNATIVE #1 OF ITEMS AS COMPUTED BY THE BIDDER, USING THE ESTIMATED QUANTITIES SHOWN:

IN FIGURES: _____

IN WORDS: _____

The undersigned offers the following information as evidence of his qualifications to perform the work as bid upon according to all requirements of the Plans and Specifications.

1. Have been in business under present business name: _____years.

2. Ever failed to complete any work?

3. List the more important contracts recently completed by you, stating approximate cost for each, and the month and year completed.

   a. Location_____

      Project/Phone#_____

      Engineer/Phone#_____

      Completion Date_____

      Amount of Contract_____

   b. Location_____

      Project/Phone#_____

      Engineer/Phone#_____

      Completion Date_____

      Amount of Contract_____

   c. Location_____

      Project/Phone#_____

      Engineer/Phone#_____

      Completion Date_____

      Amount of Contract_____

4. Bank Reference/Phone#_____

_____

This firm consists of the following members:

Full Name Residence

_____

_____

_____

_____

The officers are:

Full Name Residence

President:_____

Treasurer:_____

Directors:_____

_____

_____

Respectfully Submitted:

_____
(Firm Name)

SEAL: (If bid is by a Corporation)

By: _____
(Signature)

_____
(Typed Name and Title)

_____

_____
(Business Address)

_____
(Telephone)

_____
(Fax)

_____
(Email)

(ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION)

STATE OF _____

ss:

COUNTY OF _____

ON THIS_____ DAY OF_____, 2010, BEFORE ME PERSONALLY CAME AND APPEARED_____, TO ME KNOWN, WHO, BEING BY ME DULY SWORN, DID DEPOSE AND SAY THAT HE RESIDES AT _____, THAT HE IS THE_____ OF _____, THE CORPORATION DESCRIBED IN AND WHICH EXECUTED THE FOREGOING INSTRUMENT THAT HE KNOWS THE SEAL OF SAID CORPORATION - THAT ONE OF THE IMPRESSIONS AFFIXED TO SAID INSTRUMENT IS AN IMPRESSION OF SUCH SEAL - THAT IT WAS SO AFFIXED BY ORDER OF THE DIRECTORS OF SAID CORPORATION, AND THAT HE SIGNED HIS NAME THERETO BY LIKE ORDER.

(SEAL) _____

(NOTARY PUBLIC)

****

(ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP)

STATE OF_____

ss:

COUNTY OF _____

ON THIS_____DAY OF_____, 2010, BEFORE ME PERSONALLY CAME AND APPEARED _____, TO ME KNOWN AND KNOWN TO ME TO BE ONE OF THE MEMBERS OF THE FIRM OF_____DESCRIBED IN AND WHO EXECUTED THE SAME AS AND FOR THE ACT AND DEED OF SAID FIRM.

(SEAL) _____

(NOTARY PUBLIC)

****

(ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL)

STATE OF_____

ss:

COUNTY OF_____

ON THIS_____DAY OF_____, 2010, BEFORE ME PERSONALLY CAME AND APPEARED _____TO ME KNOWN AND KNOWN TO ME TO BE THE PERSON DESCRIBED IN AND WHO EXECUTED THE SAME.

(SEAL) _____

(NOTARY PUBLIC)

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____

_____ as Principal, and _____

as Surety, are hereby held and firmly bound unto The Town of Groton as owner in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _____day of _____, 2010

The condition of the above obligation is such that whereas the Principal has submitted to The Town of Groton a certain bid, attached hereto and hereby made a part hereof to enter into a contract in writing for the

NOW, THEREFORE,

A. If said Bid shall be rejected, or in the alternate,
B. If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto, properly completed in accordance with said Bid, and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall provide the required evidence of insurance,

THEN, this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
(Principal)

(Surety)

By:

SEAL:

TOWN OF GROTON

CONTRACT # 10-13

This Contract is entered into this ____ day of _____, 2010, between the TOWN OF GROTON, hereinafter called the TOWN and _____ hereinafter called the CONTRACTOR, whereby the CONTRACTOR agrees to complete the work on the project entitled _____ in accordance with the contract documents which consist of the Instructions to Bidders, the Proposal, General and Supplementary Conditions, plans and specifications and which are hereby made part of this Contract. The CONTRACTOR agrees to carry on the work with diligence and dispatch, and to furnish such equipment and labor as is consistent with good construction practice and furnish the completed project to the TOWN in a good and usable condition.

The TOWN agrees that it will pay the CONTRACTOR as specified in the Specifications and the Proposal, and upon satisfactory completion of the work, it will accept the project. After completion of the project, and acceptance by the TOWN the CONTRACTOR shall submit an itemized final estimate. No later than 31 days after acceptance of the final estimate by the TOWN, the TOWN shall pay 95% of the Contract price. No later than six (6) months after acceptance of the final estimate, the TOWN will pay the 5% retained, unless in that time the materials or workmanship in the project shall have been found to be defective.

The total payment will be
_____
($_____).

Signed at Groton, Connecticut this _____ day of _____, 2010

For the CONTRACTOR

_____

_____

FOR TOWN OF GROTON

_____
Mark R. Oefinger
Town Manager

_____
S. M. Pandolfo
Director of Finance

_____
Gary J. Schneider
Director of Public Works

PAYMENT BOND

Bond #_____

KNOW ALL MEN BY THESE PRESENTS:

That we _____
(Name of Contractor)
a _____hereinafter called "Principal" and
(corporation, partnership or individual)

_____, of _____, State of _____,
(Surety)
hereinafter called "Surety" are held and firmly bound unto _____,
(Owner)
of _____, hereinafter called "Owner", in the penal sum of

_____ Dollars
($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 2010, a copy of which is hereto attached and made a part hereof for the construction of:

_____

_____

NOW, THEREFORE, if the Principal shall make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke consumed, repairs on machinery, equipment and tools, or insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

PROVIDED, FURTHER, that the provisions of Sec. 49-41a of the Connecticut General Statutes are incorporated herein and made a part hereof. Any provision of this bond contrary to such statutory provisions shall not be enforceable.

IN WITNESS, WHEREOF, this instrument is executed in three (3) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2010.

_____
Principal

ATTEST:

_____ By _____(S)
(Principal) Secretary

_____
(SEAL) (Address - Zip Code)

_____
Witness as to Principal

_____
(Address - Zip Code)

_____
ATTEST: Surety

_____ By _____(S)
(Surety) Secretary Attorney-in-Fact

_____
(SEAL) (Address - Zip Code)

_____
Witness as to Surety

_____
(Address - Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute bond.

PERFORMANCE BOND

Bond #_____

KNOW ALL MEN BY THESE PRESENTS:

That we _____
(Name of Contractor)
a _____ hereinafter called "Principal" and
(corporation, partnership or individual)
_____ of _____, State of _____,
(Surety)
hereinafter called the "Surety", are held and firmly bound unto _____
(Owner)
of _____, hereinafter called "Owner", in the penal sum of _____Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered in a certain contract with the Owner, dated the _____ day of _____, 2010, a copy of which is hereto attached and made a part hereof for the construction of:

_____
_____
_____

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for such value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied. IN WITNESS WHEREOF, this instrument is executed in three (3) counterparts, each of which shall be deemed an original, this the _____ day of _____, 2010.

_____
Principal

ATTEST:

_____ By _____(S)
(Principal) Secretary

(SEAL) _____
(Address - Zip Code)

_____
Witness as to Principal

_____
(Address - Zip Code)

_____
Surety

ATTEST:

_____ By _____(S)
(Surety) Secretary Attorney-in-Fact

(SEAL) _____
(Address - Zip Code)

_____
Witness as to Surety

_____
(Address - Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute Bond.

GENERAL CONDITIONS

1. Insurance Requirements
2. Town Representation
3. Contractor Field Supervision
4. Engineering
5. Contract Drawings, Maps and Specifications
6. Utility Relocation
7. Test Pits
8. Explosives
9. Dust Control
10. Sanitary Facilities
11. Pre-Construction Meeting
12. Construction Meetings
13. Quantities
14. Differing Site Conditions
15. Reports
16. Eliminated Items
17. Work Stoppages
18. Traffic Control
19. Protection of Existing Vegetation, Structures, Equipment, Utilities & Improvements
20. Engineer
21. Progress Payments
22. General Guaranty
23. Daily Clean Up
24. Nondiscrimination
25. Roadway Closings
26. Extra Work
27. Samples
28. Quality of Equipment and Materials
29. Shop or Setting Drawings
30. Plans & Specifications at the Site
31. Materials, Services and Facilities
32. Contractor's Title to Materials
33. Inspection of Construction
34. Inspection and Testing of Materials
35. Contractor's Obligation
36. Weather Conditions
37. Provisions Required by Law Deemed Inserted
38. Right of the Owner to Terminate Contract
39. Acceptance of Final Payment Constitutes Release
40. Assignment
41. Codes, Regulations and Issue Date of Standard Specifications
42. Emergency Telephone Number

43. Other Contracts
44. The Owner's Duties and Rights
45. Wage Rates
46. Contract Bid Breakdown (Lump Sum)
47. Hours of Work
48. Waste Disposal

1. Insurance Requirements

The Contractor must carry insurance under which the Town is an ADDITIONAL INSURED. Such insurance must be by insurance companies licensed to write such insurance in Connecticut against the risks and for no less than the minimum amounts and duration's as set forth in the SUPPLEMENTARY CONDITIONS, Section 1.

2. Town Representation

The Town will be represented at all times by the Director of Planning and Development Services or an authorized representative of the Department of Planning and Development Services. They shall have the responsibility and authority for the interpretation of the Contract, its specifications and drawings.

3. Contractor Field Supervision

The Contractor must have a competent Field Supervisor on the job during all working hours. His name and address shall be available to the Town for after-hour emergencies.

4. Engineering

All layout shall be provided by the Contractor. No field changes shall be allowed without specific notification of and approval by the Owner. Any changes will be recorded on prints and initialed by the Construction Observer.

5. Contract Drawings, Maps and Specifications

A. Omissions from the drawings or specifications or the mis-description of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or mis-described details of the work but they shall be performed as if fully and correctly set forth and described in the drawings and specifications.

B. The Contractor shall check all drawings furnished him immediately upon their receipt and shall promptly notify the Owner of any discrepancies. Figures marked on drawings shall in general be followed in preference to scale measurements. The Contractor shall compare all drawings and verify the figures before laying out the work and will be responsible for any errors which might have been avoided thereby.

C. Any discrepancies found between the Drawings and Specifications and site conditions or any errors or omissions in the Drawings or Specifications shall be immediately reported to the Town Representative in writing, who shall promptly correct such error or omission in writing. Any work done by the CONTRACTOR

after his discovery of such discrepancies, errors or omissions without notifying the Town Representative shall be done at the CONTRACTOR'S risk.

D. Further instructions may be issued by the Town Representative during the progress of the work by means of Drawings or oral or written instruction to make more clear or specific the Drawings and Specifications or as may be necessary to explain or illustrate changes in the work to be done. The CONTRACTOR shall carry out the work in accordance with the additional Drawings and Instructions.

E. Order of Precedence

In the event of any conflict or discrepancy in the provision of the contract documents, the documents shall be interpreted on the basis of the following order of priority:

1. Agreement between Owner and Trade contractor
2. Bid Supplements with the date having greater priority
3. Bid Package Proposal Form
4. General Conditions under Owner-Trade-Contractor Agreements
5. Specifications
6. Drawings, large scale details and/or schedules
7. Drawings, small scale

6. Utility Relocation

All temporary utility relocations encountered shall be the responsibility of the Contractor and all labor and materials shall be included in his general expense. All permanent utility relocations listed on the drawings or as directed by the Town shall be paid for by the Town.

7. Test Pits

At locations shown on the plans or designated by the Owner, the Contractor shall excavate and expose existing utilities and other structures prior to start of construction. Elevations and locations and other pertinent data of the exposed utilities and other structures are to be recorded and forwarded to the Owner.

8. Explosives

Explosives may not be used for any rock excavation. The Contractor shall use other means and methods approved by the Town and obtain any required permits from established authorities.

9. Dust Control

The Contractor shall be responsible for dust control. Dust control shall be incidental to the pay items performed at the time and will not be paid separately.

10. Sanitary Facilities

The Contractor shall provide temporary sanitary facilities for his employees. These facilities shall be cleaned regularly and in all ways comply with the State and Town Health Regulations.

11. Pre-Construction Meeting

The Owner will conduct a pre-construction meeting with the selected Contractor. The purpose of the meeting will be to answer any questions the Contractor may have about scheduling, the scope of work, the methods of work to be applied, and/or other technical or contractual issues.

12. Construction Meetings

To enable orderly review during progress of the Work and to provide for systematic discussion of problems, the Owner will conduct project meetings throughout the construction period. Persons designated by the Contractor to attend and participate in the project meetings shall have all required authority to commit the Contractor to solutions agreed upon in the project meetings.

13. Quantities

The estimated quantities of work to be done and materials to be furnished under this Contract, are provided only for use in comparing bids and to indicate the approximate total amount of the Contract.

14. Differing Site Conditions

A. The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Owner of:

1. Subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or

2. Unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and provided for in the Contract.

B. The Owner shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this Contract, whether or not changes as a result of the conditions, an

equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

C. No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required.

D. No request by the Contractor for an equitable adjustment to the Contract for differing site conditions shall be allowed if made after final payment under this contract.

15. Reports

It is imperative that the contractor keep records and submit reports in strict accordance with all sections of these General Conditions. Several different sections require specific information which may be addressed individually or in aggregate with other sections at the contractor's option. Provided all information is available, the Municipality will not mandate a specific format to be followed. If information submitted by the contractor is unclear or incomplete, the Municipality may request that the records/reports be re-submitted.

The contractor shall submit to the owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the owner may request concerning work performed or to be performed under this contract.

Payrolls and basic records relating thereto will be maintained during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work, or under the United States Housing Act of 1937 or under the Housing Act of 1949, in the construction or development of the project. Such records will contain for each employee, their name, address, correct classification, rate(s) of pay (including rates of contributions or costs anticipated of the types described in section 1(b)(2) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers and mechanics affected, and which show the costs anticipated or the actual cost incurred in providing such benefits.The contractor will submit weekly certified copies of all payrolls to the Town Representative. The payroll shall be accompanied by a statement signed by the employer or authorized representative indicating that the payrolls are correct and complete, that the wage rates contained therein are not less than those determined by the Secretary of Labor and that the classifications set forth for each laborer or mechanic conform with the actual work performed. The submission of a "Weekly

Statement of Compliance" which is required under this contract and the Copeland regulations of the Secretary of Labor (29CFR Part 3) and the filing with the initial payroll or any subsequent payroll of a copy of any findings by the Secretary of Labor under 29 CFR 5.5(a)(1)(iv) shall satisfy this requirement. The prime contractor shall be responsible for the submission of copies of payrolls of all subcontractors. The contractor will make the required records available for inspection by authorized representatives of the Municipality, its agents, State DECD and the Department of Labor, and will permit such representatives to interview employees during working hours on the job.

A. Payrolls And Basic Records. Payrolls and basic records relating to such payrolls shall be maintained by each employer with respect to his/her own workforce employed on the site of the work. The principal contractor shall maintain such records relative to all laborers and mechanics working on the site of the work. Payrolls and related records shall be maintained during the course of the construction work and preserved by the contractor and all employers for at least 3 years following the completion of the work. Such records shall contain:

1. The name, address and social security number of each laborer and mechanic;

2. His or her correct work classification(s);

3. Hourly rates of pay including rates of contributions or costs anticipated for fringe benefits;

4. Daily and weekly number of hours worked, including any overtime hours;

5. Deductions made and actual net wages paid;

6. Evidence pertaining to any fringe benefit programs;

7. Evidence of the approval of any apprenticeship or trainee program, the registration of each apprentice or trainee and the ratios and wage rates contained in the program.

B. Certified Payroll Reports. Certified weekly payroll reports (CPRs) shall be submitted with respect to each week any contract work is performed. Each contractor and subcontractor (employer) shall prepare and certify such payroll reports to demonstrate compliance with the labor standards requirements. The principal contractor is responsible for full compliance with regard to its own workforce and with regard to the compliance of every subcontractor.

1. CPR Format. CPR information may be submitted in any form provided that the LWA can reasonable interpret the information to monitor employer compliance with the labor standards. Employers are encouraged to utilize

DOL Payroll Form WH-347. LWA shall make available to each principal contractor a limited number of copies of the WH-347 for the contractor's reproduction and use.

2. Submission Requirements. CPRs shall be submitted for each contractor/subcontractor (employer) beginning with the first week such employer performs work on the site of the work. CPRs shall be submitted promptly following the close of each such pay week.

3. CPR Preparation. CPRs for each employer shall be numbered sequentially beginning with A1. The CPR for the last week of work to be performed on the project by each employer shall be clearly marked Final.

   a. Employee Information. The first payroll on which each employee appears shall contain the employee's name, address and Social Security Number. Thereafter, the address and Social Security Number only need to be reported if there is a change in such information.

   b. Apprentices or Trainees. The first payroll on which any apprentice or trainee appears shall be accompanied with a copy of that apprentices' or trainee's registration in an approved program. A copy of the approved program pertaining to the wage rates and rations shall also accompany the first CPR on which the first apprentice or trainee appears.

   c. Split Classifications. The division of hours worked in different classifications shall be accurately maintained and clearly reported. The employer may list the employee once for each classification, distributing the hours of work accordingly, and reflecting the rate of pay and gross earnings for each classification. Deductions and net pay may be based upon the total gross amount earned for all classifications.

   d. Hours Worked at Other Job Sites. The CPRs should reflect ONLY hours worked at the site of work. If an employee performs work at job sites other than the project for which the CPR is prepared, those hours *should not* be reported on the CPR. In these cases the employer should list the employee's name, classification, hours this project only, and the rate of pay and gross earnings at this project. Deductions and net pay may be reflected based upon the employee's total earnings (for all projects) for the week.

4. No Work / No Payrolls. Employers are not required to submit CPRs for weeks during which no work was performed on the site of the work *provided* that the CPRs are number sequentially *or* that the employer has provided written notice that its work on the project has been suspended.

5. Weekly Payroll Certification. Each weekly payroll shall be accompanied by a *Statement of Compliance*. The Statement of Compliance shall be executed by the original signature of the principal executive of the contractor/subcontractor or of a person authorized in writing by the principal. The Statement shall contain the language prescribed on DOL Form WH-348 or the reverse side of Form WH-347 which shall certify to the following:

   a. That the payroll for the payroll period contains the information required to be maintained and that the information is correct and complete;

   b. That each laborer or mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set for in Regulations, 29 CFR Part 3; and

   c. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

6. Falsification. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

16. Eliminated Items

Should any items contained in the proposal be found unnecessary for the proper completion of the contracted work, or if due to over expenditure on other contract items; the Owner may eliminate certain items from the Contract. Such action shall in no way invalidate the Contract and no allowance will be made for such items in making final payment except for such work already completed or materials previously purchased for those items.

17. Work Stoppages

Should the Town be prevented or enjoined from proceeding with work either before or after the start of construction by reason of any litigation or other reason beyond the control of the Town, the Contractor shall not be entitled to or assert claim for damage by reason of said delay. However, time for completion of the work will be extended to such reasonable time as the Town may determine. Such time extension will be set forth in writing.

18. Traffic Control

The Contractor will furnish and pay for traffic control men to direct and control traffic in the immediate construction area. (See appropriate bid item.) The Contractor will be responsible for maintenance of adequate barricades, signs, and warning systems to protect the job and the traveling public.

Use of uniformed police or traffic control personnel will in no way relieve the Contractor of his responsibility for traffic accidents caused by his failure to provide adequate barricades, signs and warning devices.

19. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements

A. The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut.

B. The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Owner may have the necessary work performed and charge the cost to the Contractor.

20. Engineer

The term "Engineer" shall mean the duly authorized representative of the Office of Planning and Development Services.

21. Progress Payments

On the twenty fifth of each month, the Contractor may submit but not more than once each month, a Request for Payment for work done. The CONTRACTOR shall furnish the OWNER all reasonable facilities required for obtaining the necessary information relative to the progress and execution of the work including but not limited to AIA 702,

certified payrolls for the general contractor and all subcontractors, ARRA reports. He must, if requested by the Owner, submit satisfactory evidence that he has paid in full for all labor, materials, and equipment included in the monthly estimate. The estimates shall be made on forms furnished by the Town and the Contractor shall certify that the estimate is correct and the work performed is in conformity with the plans and specifications. Incomplete documentation will delay payment.

Within fifteen (15) days from the date of approval of a Request for Payment by the OWNER, the TOWN shall:

A. Pay the Request for Payment as approved less a five percent (5%) retainage.

B. Approve such other amount as he shall decide is due the CONTRACTOR, informing the CONTRACTOR in writing of his reasons for approving the amended amount, or

C. Withhold payment in whole or in part on a approved Request for Payment to the extent necessary to protect itself from loss on account of any of the following causes discovered subsequent to approval of Request for Payment by the OWNER provided he informs the CONTRACTOR in writing of his reasons for withholding payment in whole or in part:

1. Defective work.

2. Evidence indicating the probable filing of claims by other parties against the CONTRACTOR.

3. Failure of the CONTRACTOR to make payments to SUBCONTRACTORS, material suppliers or labor.

4. Damage to another CONTRACTOR.

After completion of the project and acceptance by the Town, the Contractor shall submit an itemized final estimate. No later than six (6) months after acceptance of the final estimate, the Town shall pay the 5% retained, unless, within that time, the materials or workmanship in the project have been found defective. The Contractor agrees that the OWNER may expend the same in making such repairs or replacements of said work as the OWNER may deem expedient upon proper notification in writing to the Contractor.

22. General Guaranty

Neither the final certificate of payment nor any provision in the contract documents, nor partial or entire occupancy of the premises by the Owner, shall constitute an acceptance of work not done in accordance with the contract documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or

workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom. The Owner will give notice of observed defects with reasonable promptness.

23. Daily Clean-Up

Before the completion of each days work, the Contractor shall be responsible for cleaning up and removing or relocating all excavated material, debris, equipment and like and for temporary backfilling or filling excavations as necessary to insure the continuous flow of traffic in roadways and pedestrian traffic on sidewalks where work is progressing including access to private property during non-working hours. Roads and sidewalks shall be "broom clean" at the end of each work day. The Contractor is responsible for clean up of their own work and the work of their subcontractors.

24. Nondiscrimination

Discrimination is prohibited under this contract.

No person in the United States shall, on the ground of race, color, national origin, or sex, be excluded from participation under any program or activity of a recipient government which government receives funds made available under Subtitle A of the Act. Any prohibition against discrimination on the basis of age under the Age Discrimination Act of 1975 (hereinafter referred to as discrimination on the basis of age) or with respect to an otherwise qualified handicapped individual as provided in section 504 of the Rehabilitation Act of 1973, (hereinafter referred to as discrimination on the basis of handicapped status) or any prohibition against discrimination on the basis of religion, as well as any exemption from such prohibition as provided in the Civil Rights Act of 1964 or the Civil Rights Act of 1968 (hereinafter referred to as discrimination on the basis of religion) shall also apply to any such program or activity.

All of subpart E or Regulations governing the Payment of Entitlements under Title I of the State and Local Fiscal Assistance Act of 1972 as Amended by the State and Local Fiscal Assistance Amendments of 1976 applies.

The Town of Groton does not discriminate against individuals with disabilities as provided in the Americans With Disabilities Act (ADA). The Town expects that the vendors and/or contractors with whom it does business will comply with the American With Disabilities Act to the extent required by law. If awarded a contract with the Town, the successful vendor/contractor will be required to sign a statement agreeing to comply with the provisions of ADA.

25. Roadway Closings

In certain cases where deemed necessary for protection of the public, the Town Representative MAY officially close Town roads to vehicular traffic for a specified period of time. Prior to closing any roads in accordance with this paragraph, detours shall be established by the CONTRACTOR, approved by the OWNER, and suitable signs erected. Access to all homes and business shall be maintained at all times for area residents and emergency vehicles.

West Main Street and Water Street may not be closed for any period of time.

26. Extra Work

The Contractor shall be responsible for performing any extra work, as requested by the Owner, made necessary by changes in plan or required to fulfill the scope of the project. Such work shall be performed by the Contractor at the unit or lump sum price provided in the Contract.

27. Samples

All samples called for in the Specifications or required by the OWNER shall be furnished by the CONTRACTOR at his expense and shall be submitted to the OWNER for his approval. Samples shall be furnished so as not to delay fabrication, allowing the OWNER reasonable time for the consideration of the samples submitted. CONTRACTOR shall furnish such samples of materials, and workmanship shall be in accordance with approved samples.

28. Quality of Equipment and Materials

A. Everything furnished and provided shall be new, and all materials and equipment shall be of the quality specified. All unspecified materials and equipment shall be equal in grade and quality to specified materials. The CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of all materials.

B. In order to establish standards of quality, the OWNER may have, in the detailed Specifications, referred to certain products by name and catalog number. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable in design.

C. The CONTRACTOR shall abide by the OWNER'S judgment when proposed substitute materials or items of equipment are judged to be unacceptable and shall furnish the specified materials or items of equipment in such cases. All proposals

for substitutions shall be submitted in writing by the General CONTRACTOR and not by individual trades or material suppliers. The OWNER will approve or disapprove proposed substitutions in writing within a reasonable time. No substitute materials shall be used unless approved in writing.

29. Shop or Setting Drawings

The Contractor shall submit promptly to the Consultant six (6) copies of each shop or setting drawing prepared in accordance with the schedule predetermined as aforesaid. After examination of such drawings by the Consultant and the return thereof, the Contractor shall make such corrections to the drawings as have been indicated and shall furnish the Consultant with six (6) corrected copies. If requested by the Owner, the Contractor must furnish additional copies. Regardless of corrections made in, or approval given to, such drawings by the Consultant, the Contractor will nevertheless be responsible for the accuracy of such drawings and for their conformity to the Plans and Specifications, unless he notifies the Consultant in writing of any deviations at the time he furnishes such drawings.

30. Plans and Specifications at the Site

The Contractor shall maintain at the Work Site, one copy of all Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders and other modifications, Schedules, Instructions, etc. in good order and marked to record all changes made during construction. These shall be available at all times to the Owner or his authorized representatives.

31. Materials, Services, and Facilities

It is understood that except as otherwise specifically stated in the contract documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete, and deliver the work within the specified time.

32. Contractor's Title to Materials

No materials or supplies for the work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work, free from all liens, claims or encumbrances.

33. Inspection of Construction

A. Definition. "Work" includes, but is not limited to materials, workmanship, and manufacture and fabrication of components.

B. The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work called for by this contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Town. All work is subject to inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

C. Town inspections and tests are for the sole benefit of the Town and do not:

1. Relieve the Contractor of responsibility for providing adequate quality control measures;

2. Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;

3. Constitute or imply acceptance;

D. The presence or absence of a Town inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Owner's written authorization.

34. Inspection and Testing of Materials

A. All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Owner. The Owner will pay for all laboratory inspection service directly, and not as a part of the Contract.

B. Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for uses intended.

35. Contractor's Obligations

The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise specified, necessary or proper.

36. Weather Conditions

In the event of temporary suspension of work, or during the inclement weather, or whenever the Owner shall direct, the Contractor will, and will cause his Subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Owner, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his Subcontractors so to protect his work, such materials shall be removed and replaced at the expense of the Contractor.

37. Provisions Required By Law Deemed Inserted

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if, through mistake or otherwise, any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion or correction.

38. Right of the Owner to Terminate Contract

In the event that any of the provisions of this contract are violated by the Contractor, or by any of his subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate the Contract, such notices to contain the reasons for such intention to terminate the contract, and unless within (10) days after the serving of such notice upon the Contractor, such violation or delay shall cease and satisfactory arrangement of correction to be made, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor and the Surety shall have the right to take over and perform the contract; provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and prosecute the same to completion by contract or by force account for the account and at the expense of the Contractor and the Contractor and his Surety shall be liable to the Owner for any excess cost occasioned the Owner thereby; and in such event the Owner may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefore.

In the event of such termination, the OWNER may take possession of the work and of all materials, tools and equipment thereon and may finish the work by whatever method and means he may select. The CONTRACTOR shall consider it default whenever he shall:

A. Declare bankruptcy, become insolvent, or assign his assets for the benefit of his creditors.

B. Disregard or violate important provisions of the Contract Documents or OWNER'S instructions, or fail to prosecute the work according to the agreed Schedule of Completion including extensions thereof.

C. Fail to provide a qualified superintendent, competent workmen or SUBCONTRACTORS, or proper materials, or fail to make prompt payment thereof.

If the right of the CONTRACTOR to proceed is so terminated, the OWNER may take possession of and utilize in completing the work such materials, appliances, supplies, plant and equipment as may be on the site of the work, and necessary therefor. Upon termination of the CONTRACT by the OWNER, no further payments shall be due the CONTRACTOR until the work is completed. If the unpaid balance of the Contract Amount shall exceed the cost of completing the work including all overhead costs and damages resulting from delay, the excess shall be paid to the CONTRACTOR.

If the cost of completing the work shall exceed the unpaid balance, the CONTRACTOR and his sureties shall pay the difference to the OWNER.

39. Acceptance of Final Payment Constitutes Release

The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor for all things done or furnished in connection with his work and for every act and neglect of the Owner and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this contract or the Performance and Payment Bond.

40. Assignments

The Contractor shall not assign the whole or any part of this contract or any moneys due or to become due hereunder without written consent of the Owner. In case the Contractor, with the consent of the Owner, assigns all or any part of any moneys due or to become due under this contract, the instrument of assignment shall contain a clause substantial to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the Contractor shall be subject to prior claims of all persons, firms and corporations of services rendered or materials supplied for the performance of the work called for in this contract.

41. Codes, Regulations and Issue Date of Standard Specifications

Where standard specifications, codes, regulations and similar publications of governmental agencies, technical societies, manufacturer's associations and regulatory groups or bureaus are referred to in these Specifications, the applicable portion thereof shall be of the same effect as if fully printed herein, and the work done in full accordance

therewith. The edition current as of the date of issue of this Specification shall be used except where publication date is specifically stated.

42. Emergency Telephone Number

The CONTRACTOR is required to provide the OWNER with a telephone number, which can be used during emergencies, 24 hours per day, seven days per week, to reach the CONTRACTOR.

43. Other Contracts

The Town may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with Town employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Owner. The Contractor shall not commit or permit any action that will interfere with the performance of work by any other contractor or by Town employees.

44. The Owner's Duties and Rights

A. The OWNER will provide the lands shown on the Drawings upon which the work under the CONTRACT is to be performed and to be used for rights-of-way for access. Any delay in furnishing these lands by the OWNER shall be deemed proper cause for adjustment in the Contract Amount and in time of completion.

B. The OWNER shall have the right to suspend the work or any portion thereof at any time provided that he gives the CONTRACTOR five (5) days written notice of suspension which shall set forth the date on which work is to be resumed. The CONTRACTOR shall resume the work upon written notice from the OWNER and within ten (10) days after the date set forth in the notice of suspension. If the OWNER does not give written notice to resume work within ten (10) days of the date fixed in the notice of suspension, the CONTRACTOR may abandon that portion of the work so suspended and shall be entitled to payment for all work done on the portions so abandoned, plus 15 percent of the value of the abandoned work to compensate for overhead, plant expense, and anticipated profit.

C. The OWNER shall have the authority to suspend the work, wholly or in part, for such period or periods, as may be deemed necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for prosecution of the work, or failure on the part of the CONTRACTOR to carry out the provisions of the CONTRACT or to supply materials meeting the requirements of the Specifications. The CONTRACTOR shall not suspend operations due to unsuitable weather without the OWNER'S permission.

D. The OWNER shall have the right to correct any deficiencies, without prejudice to any other remedy he may have, upon failure of the CONTRACTOR to perform the work in accordance with the Contract Documents, including any requirements with respect to the Schedule of Completion, after five (5) days written notice to the CONTRACTOR. The cost of the work so performed by the OWNER shall be paid for by the CONTRACTOR.

E. The OWNER shall have the authority to direct the CONTRACTOR not to correct work that has been damaged, or that was not performed in accordance with the Contract Documents. An equitable deduction from the Contract Amount shall be made to compensate the OWNER for the uncorrected work.

F. The OWNER shall have the right to order changes in the work through additions, deletions or modifications without invalidating the CONTRACT.

G. The OWNER shall have the right to take possession of and use any completed or partially completed portions of the work, not withstanding that the time for completing the entire work or such portions may not have expired; but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of or delays the completion of uncompleted work or causes refinishing of completed work, the CONTRACTOR shall be entitled to such extra compensation, or extension of time or both, as the OWNER may determine.

45. Wage Rates

Notice is given that Federal minimum wage rates **apply** to this Contract. The Contractor shall comply with all provisions in FHWA-1273 concerning minimum wage rates.

The wage rates have been determined by the United States Department of Labor and the Contractor in payment of wage shall be bound by such schedules in the performance of the work herein provided.

46. Hours of Work

Any work necessary to be performed after regular working hours, on Saturdays, Sundays or Legal Holidays, shall be performed if approved by the Town Representative without additional expense to the Owner.

47. Waste Disposal

The Contractor shall be responsible for the cost and legal disposal of all construction debris, municipal solid waste, stumps, and excess materials.

The Contractor shall legally dispose of any hazardous materials at approved sites at his own expense.

END OF SECTION

SUPPLEMENTARY CONDITIONS

1. Insurance Requirements

2. Worker's Compensation Provision

3. Indemnification

4. Enumeration of Contract Drawings, Specifications, Appendices and Addenda

5. Lock-Out Tag-Out Standard

6. Hazard Communication

7. Required Contract Provisions
Federal – Aid Construction Contracts

8. American Recovery and Reinvestment Act (ARRA) Reporting Requirements

9. Connecticut Required Contract/Agreement Provisions

10. State of Connecticut – Department of Transportation Permit Requirements

11. D. B. E. Subcontractors and Material Suppliers or Manufacturers

12. Wage Rates Schedules

INSURANCE REQUIREMENTS

The Contractor, at his expense, will provide, carry and maintain throughout the term of this contract, adequate insurance as requested by the Town that will protect the Contractor, the Town of Groton, its officers, employees and volunteers from any and all claims for loss, damage, injury or death which may arise from the operation of this contract by the Contractor or anyone directly or indirectly employed by them. Policies shall be so written that the Department of Public Works will be notified of cancellation at least thirty (30) days prior to the effective date of such cancellation. Certificates showing that all of the Contractor's operations are covered, and stating the coverage with the Town included as an additional insured, the limits of liability, expiration dates and exclusions, if any, will be filed with the Town of Groton Department of Public Works before the term of the contract commences.

The Contractor shall provide the Town with certification by a properly qualified representative of the insurer that the Contractor's insurance complies with this section.

All of the insurance policies required shall have the legal company name of the insurer providing coverage, and contain the current rating of the insurer as provided by "Best's Insurance Reports", which must be A-, VII or above. This obligation applies to coverage written on an occurrence as well as a "claims-made" basis.

The Insurance Certificate must state whether coverages are written on an "occurrence" basis or a "claims-made" basis. All insurance must maintain that the Town of Groton and ConnDOT are an "additional insured" for General Liability and Umbrella policies, and any other coverages as the Town may require for specific projects. Such insurance must be issued by insurance companies licensed to write such insurance in the State of Connecticut.

The Town of Groton, its officers, officials, employees and volunteers are to be covered as insureds as respects liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, occupied, or used by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the Town, its officers, officials, employees, or volunteers.

The Contractor's insurance coverage shall be primary insurance as respects the Town, its officials, employees and volunteers. Any insurance or self-insurance maintained by the Town, its officers, officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

SECTION A. WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY

Worker's Compensation must be provided in accordance with the Worker's Compensation Laws of Connecticut. Should a Contractor be involved in operations requiring coverage under special State or Federal Acts, such as Maritime or Railroad, the Contractor must provide evidence of this coverage. Should a Contractor be exempt from the Worker's Compensation Laws of the State of Connecticut, or any other State or Federal requirements, evidence of such exemption must be provided to the Town and a "Hold-Harmless" agreement provided in language satisfactory to the Town holding it harmless in the event of any claim for injury or damages. Contractors based out-of-state must provide evidence that their Worker's Compensation policy will cover injuries/illnesses sustained while working in the State of Connecticut.

The Contractor is responsible for ensuring that all of its subcontractors carry Worker's Compensation Insurance, as described above.

Employer's Liability must be provided in accordance with the following limits:

$500,000 each - Bodily Injury
$500,000 disease - Policy Limit - Bodily Injury
$500,000 disease - Each Employee - Bodily Injury

SECTION B. GENERAL LIABILITY

B.1 OCCURRENCE POLICY GUIDELINES

General Liability - Written under commercial or comprehensive form including the following: (Premises/Operation, Products/Completed Operations, Contractual, Independent Contractors, Broad Form Property Damage, and Personal Injury.)

♦ General Aggregate	$1,000,000
♦ Products/Completed Operations Aggregate	$1,000,000
♦ Personal & Adv Injury	$1,000,000
♦ Each Occurrence	$1,000,000
♦ Fire Damage (any one fire)	$1,000,000
♦ Medical Expense (any one person)	$ 10,000

♦ Also "follow form" umbrella coverage over General Liability, Employer's Liability and Auto Liability in a minimum amount of $1,000,000.

The Town requires that these aggregate limits be maintained by the Contractor as required. It is the responsibility of the Contractor or his representative to notify the Town if ever or whenever claims reduce the General Aggregate below $1,000,000. If the aggregate limits include defense costs the Town should be so notified. It is the responsibility of the Contractor and his insuring agent to provide the Town with current certificates throughout the contract period keeping the required limits in full force and effect. The Town of Groton reserves the right to modify or change the requirements at any time if it is in the best interest of the Town to do so.

B.2 CLAIMS-MADE COVERAGE GUIDELINES

General Liability - Written under commercial or comprehensive form including the following: (Premises/Operations, Products/Completed Operations, Contractual, Independent Contractors, Broad Form Property Damage, and Personal Injury).

The Town requires that the Certificate of Insurance include the retroactive date of the policy. Retroactive dates must be either before or coincident with the Contract's inception.

The Town requires prompt and immediate notice of the following:

1. Erosion of any aggregate limits,
2. Advance of any retroactive dates,
3. Cancellation or non-renewal. Prior 30 day notice.

The Town requires that any extended reporting period premium be paid by the named insured. The reporting of possible claims to the Town of Groton is necessary and the Town retains the right to require that the extended reporting period be invoked by the Contractor at his/her expense. The Town requires that if any excess coverage is secured to meet the requirements that the retroactive dates be concurrent with the primary policy and that the retro dates be either before or coincident with the inception of the Contract. If the retroactive date is moved, or if the policy is canceled or not renewed, the Contractor must invoke the tail coverage option, at no expense to the Town but rather at the expense of the Contractor, in order to adequately assure that the policy meets the above requirements.

Liability Limits: Same as those under Section B.1 "Occurrence Policy Guidelines"

B.3 OTHER COVERAGE

The coverages below apply only if there is an amount stated, otherwise coverage is not being requested at this time.

Underground Explosion and Collapse Hazard	$_____n/a_____
Blasting/Explosion	$_____n/a_____
Pollution Legal Liability	$_____n/a_____

The above coverages are on a combined single limit basis for bodily injury and property damage, on an occurrence form.

SECTION C. <u>AUTOMOBILE LIABILITY</u>

C. Automobile Liability - coverage for commercial or comprehensive automobile liability (vehicular), covering any auto, all owned autos (private passenger), all owned autos (other than private passenger), hired autos and non-owned autos.

- Combined Single Limit – Bodily Injury/Prop Damage $1,000,000
- Also "follow form" umbrella coverage over General Liability, Employer's Liability and Auto Liability in a minimum amount of $1,000,000.

Insurance under B & C above must provide for a 30-day notice to the Town of Groton of cancellation, non-renewal, termination, or any restrictive amendment.

The Certificates of Insurance must be received by the Department of Public Works prior to the signing of any contract documents.

Attached is a sample certificate of insurance form that will illustrate the coverages that are described above in terms of types and amounts required.

ACORD (SAMPLE)	CERTIFICATE OF LIABILITY INSURANCE	DATE (MM/DD/YY) (Issue Date)

PRODUCER (Agency Name, Address & Telephone)	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
	COMPANIES AFFORDING COVERAGE
INSURED: (Contractor's Name and Address, as shown on Bid Form)	COMPANY A. (Company Name & Best Rating)
	COMPANY B. (Company Name & Best Rating)
	COMPANY C. (Company Name & Best Rating)
	COMPANY D. (Company Name & Best Rating)
	COMPANY E.

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOT WITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OR SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE	POLICY EXPIRATION DATE	LIMITS	
A	**GENERAL LIABILITY**	(Policy Number)	(Policy Effective Date)	(Policy Expiration Date)	GENERAL AGGREGATE	$ 1,000,000
	X COMMERCIAL GENERAL LIABILITY				PRODUCTS - COMP/OP AGG	$ 1,000,000
	CLAIMS MADE X OCCURRENCE				PERSONAL & ADV INJURY	$ 1,000,000
	OWNER'S & CONTRACTORS PROT				EACH OCCURRENCE	$ 1,000,000
	_____				FIRE DAMAGE (Any one fire)	$ 1,000,000
					MED EXP (Any one person)	$ 10,000
B	**AUTOMOBILE LIABILITY**	(Policy Number)	(Policy Effective Date)	(Policy Expiration Date)	COMBINED SINGLE LIMIT	$ 1,000,000
	X ANY AUTO					
	ALL OWNED AUTOS				BODILY INJURY (Per person)	
	SCHEDULED AUTOS					
	HIRED AUTOS				BODILY INJURY (Per accident)	
	NON-OWNED					
	_____				PROPERTY DAMAGE	
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	
	ANY AUTO				OTHER THAN AUTO ONLY:	
	_____				EACH ACCIDENT	
					AGGREGATE	
C	**EXCESS LIABILITY**	(Policy Number)	(Policy Effective Date)	(Policy Expiration Date)	EACH OCCURRENCE	$ 1,000,000
	X UMBRELLA FORM				AGGREGATE	$ 1,000,000
	OTHER THAN UMBRELLA FORM					
D	**WORKERS COMPENSATION AND EMPLOYERS LIABILITY**	(Policy Number)	(Policy Effective Date)	(Policy Expiration Date)	WC STATUTORY LIMITS x / OTH-ER	
	THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE: INCL / EXCL				EL EACH ACCIDENT	$ 500,000
					EL DISEASE - POLICY LIMIT	$ 500,000
					EL DISEASE - EA EMPLOYEE	$ 500,000
	OTHER					

LIABILITY LIMITS SHOWN ARE MINIMUM AMOUNTS

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

The Town of Groton is endorsed as Additional Insured with respect to General Liability and Excess Liability Coverages.

CERTIFICATE HOLDER	CANCELLATION
Town of Groton Department of Public Works Town Hall Annex 134 Groton Long Point Road Groton, CT 06340	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL **30** DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT., BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES. **AUTHORIZED REPRESENTATIVE** **(Authorized Signature)**

2. Worker's Compensation Provision

Before entering into the contract for the project, the successful bidder must comply with all aspects of State Statute 31-286a, including providing the Town with a current statement from the State Treasurer that, to the best of his knowledge and belief as of the date of the statement, the Contractor or any of his Subcontractors was not liable to the State for any Worker's Compensation payments made pursuant to Section 31-355 of the General Statutes.

Contract documents will not be signed until the statement has been received by the Town from the State Treasurer.

3. Indemnification

The Contractor will indemnify and hold harmless the Owner (Town of Groton), ConnDOT, and the Engineer and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the work, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom. The Contractor, subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable will be held responsible for any type of pollution and/or environmental impairment into or upon land, the atmosphere or any course or body of water that is above or below ground; and is caused in whole or in part by any negligent or willful or wanton act or omission of any of the above stated individuals or group of individuals. The Contractor, Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable will be held responsible for acts that are outside of the contract specifications and without the supervision or direction of the Town, its architects, and engineers. These same individuals or group of individuals will also be held responsible for the misuse or malfunction of any equipment rented, owned or leased by any of these individuals or groups of individuals that would create any type of pollution or environmental damage.

The owner assumes no responsibility or liability arising from loss or damage to Contractor's equipment, materials or supplies.

4. Enumeration of Contract Drawing, Specifications, Appendices and Addenda

The following are the contract drawings, specifications, appendices and addenda which form a part of this contract as set forth in paragraph 5 of the General Conditions.

Specifications

Specifications and Bid Form for “Mystic Streetscapes and Utility Relocation”

Information for Bidders
Bid Proposal
General Conditions
Supplementary Conditions
Technical Specifications

Addenda

Number and Date

Plans

“Mystic Streetscapes and Utility Relocation
Department of Planning and Development Services, Town of Groton,
Sheets .

5. Lock-Out Tag-Out Standard

The Town of Groton requires that any Contractor that maintains or is hired to work on any Town equipment, abide by the OSHA "Lock-Out Tag-Out" standard. The Contractor must provide his workers with locks, hasps and keys approved by OSHA for the proper locking and tagging out of equipment from its power source according to the OSHA standard. The Town of Groton is not responsible for providing the Contractor with the locks and hasps. The Contractor is responsible for complying with this standard and assuring that all of his employees comply with it while working on Town of Groton equipment. The Town requires that any Contractor's equipment brought on to Town property by the Contractor be properly locked or tagged out from its power source in accordance with the OSHA standard.

6. Hazard Communication

The Town of Groton requires that any vendor or Contractor using hazardous materials, or any material that would fall under the OSHA "Right to Know" standard, provide a list to the Town of Groton of those materials that will be used while on Town property, as well as the material safety data sheets for those products. Conversely, the Town of Groton shall inform the Contractor of where the "Employee Right to Know" station is in the area where they are working so that the Contractor's employees can be aware of any substances that they may encounter while working within the Town of Groton workplace.

7. American Recovery and Reinvestment Act (ARRA)

A portion of this project is being funded by the ARRA. As a requirement of this contract, the contractor shall be required to abide by all requirements of ARRA. This includes, but is not limited to, installing any required project signs and all required reporting on FHWA Form 1585 and 1589. These forms and reporting information is included herein. Additional information is available at the Connecticut Department of Transportation's website: www.ct.gov/dot.

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

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ATTACHMENTS

A. Employment Preference for Appalachian Contracts (included in Appalachian contracts only)

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

Section I, paragraph 2;
Section IV, paragraphs 1, 2, 3, 4, and 7;
Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. **Selection of Labor:** During the performance of this contract, the contractor shall not:

a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."

2. **EEO Officer:** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed

in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. **Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA

each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. **General:**

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. **Classification:**

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. **Payment of Fringe Benefits:**

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. **Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:**

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. **Apprentices and Trainees (Programs of the U.S. DOT):**

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. **Withholding:**

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. **Overtime Requirements:**

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. **Violation:**

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. **Withholding for Unpaid Wages and Liquidated Damages:**

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted shall set out accurately and completely all of the information required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of

a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined not more that $10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. **Instructions for Certification - Primary Covered Transactions:**

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this

transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

2. Instructions for Certification - Lower Tier Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and

frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

*****

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

*****

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT PREFERENCE FOR APPALACHIAN CONTRACTS
(Applicable to Appalachian contracts only.)

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph 1c shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph 4 below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which he estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, he shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within 1 week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph 1c above.

5. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

Connecticut Department of Transportation
ARRA Reporting Requirements

FHWA – 1585: Monthly Recipient Project Status Report – DBE Information
To be completed by Prime Contractor, Prime Consultant, Municipality

(Submit to District Designee by prime contractor/consultant/municipality by the 3rd of the month)) (Upon receipt, the District Designee will submit information to Ted Szymanski: theodore.szymanski@ct.gov)

DBE Actual Total Payments to date:

State Project Number _____

Town _____

Period ending _____

Prime Contractor _____

DBE Payments to date _____

Prime Consultant _____

DBE Payments to date _____

Municipality _____

DBE Payments to date _____

Submitted by (print) _____

Signature _____

Title _____

Date _____

(Submit to District Designee by the 3rd of each month)

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Connecticut Department of Transportation
ARRA Reporting Requirements

FHWA – 1585: Project Status Report – DUNS and E-Mail Information
To be completed by Prime Contractor, Prime Consultant, Municipality

(Submit to District Designee by prime contractor/consultant/municipality no later than 5 days after the project's preconstruction meeting) (Upon receipt, the District Designee will submit information to Ted Szymanski: theodore.szymanski@ct.gov)

Project Number/Town _____

Prime Contractor DUNS Number _____

Prime Contractor E-Mail Address _____

Prime Consultant DUNS Number _____

Prime Consultant E-Mail Address _____

Municipality DUNS Number _____

Municipality E-Mail Address _____

Instruction for obtaining DUNS Number:

- **DUNS number:** The unique nine-digit number issued by Dun & Bradstreet followed by the optional 4 digit DUNS Plus number. All prime contractors, prime consultants, municipalities must have a DUNS number as noted by the ARRA Reporting Requirements.

- **To obtain your DUNS number use the online webform process at http://fedgov.dnb.com/webform**

- **E-mail address:** Please list the official e-mail address for the firm.

(Submit to District Designee within 5 days after the Preconstruction Meeting)

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Contractor Form 1589

CONTRACTOR MONTHLY EMPLOYMENT REPORT - 1589
AMERICAN RECOVERY AND REINVESTMENT ACT

1. Report Month: (mm/yyyy) Start date: End date:	2. Contracting Agency (Indicate CT if CTDOT project; Name of town if municipal project)	
3. Federal-Aid Project Number (7 digit number, no hyphens)	4. State Project Number (number assigned by State or town consistent with FMIS)	5. Circle applicable Code/County: 09001-Fairfield, 09003-Hartford, 09005-Litchfield, 09007-Middlesex, 09009-New Haven, 09011-New London, 09013-Tolland, 09015-Windham

6. PRIME CONTRACTOR NAME AND ADDRESS (please print)

Name:

Address:

City: State:

Zip:

7. Contractor/Subcontractor DUNS Number:

8. Employment Data

	EMPLOYEES	HOURS	PAYROLL
Prime Contractor Labor Information for Noted Month			
Prime Contractor's Subs Labor for Noted Month (list each sub with data):			
Prime and Subcontractor Totals			

9. PREPARED BY CEO or Payroll Official: DATE:

Name (print):

Signature:

Title:

Form FHWA-1589

Specific Equal Employment Opportunity Responsibilities

1. General

A. Equal Employment Opportunity Requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246, Executive Order 11375, the Railroad Revitalization and Regulatory Reform Act of 1976 and other U.S. Department of Transportation nondiscrimination legislation are set forth in this Required Contract/Agreement Provision. The requirements set forth in these special provisions shall constitute the specific affirmative action requirements for project activities under this contract (or agreement) and supplement the equal employment opportunity requirements set forth in other related contract provisions.

B. "Company" refers to any entity doing business with the Connecticut Department of Transportation and includes but is not limited to the following:

Contractors	Vendors (where applicable)
Subcontractors	Suppliers of Materials (where applicable)
Consultants	Municipalities (where applicable)
Subconsultants	Utilities (where applicable)

C. The Company will work with the Connecticut Department of Transportation and the federal government in carrying out equal employment opportunity obligations and in their review of his/her activities under the contract or agreement.

D. The Company and all their subcontractors or subconsultants holding subcontracts or subagreements of $10,000 or more on federally-assisted projects and $5,000 or more on state funded projects, will comply with the following minimum specific requirement activities of equal employment opportunity. The Company will physically include these requirements in every subcontract or subagreement meeting the monetary criteria above with such modification of language as is necessary to make them binding on the subcontractor or subconsultant.

E. These Required Contract Provisions apply to all state funded and/or federally-assisted projects, activities and programs in all facets of the Connecticut Department of Transportation operations resulting in contracts or agreements.

2. Equal Employment Opportunity Policy

The Company will develop, accept and adopt as its operating policy an Affirmative Action Plan utilizing as a guide the Connecticut Department of Transportation Affirmative Action Plan Guideline.

3. Equal Employment Opportunity Officer

The Company will designate and make known to the State Department of Transportation contracting officers an equal employment opportunity officer (hereinafter referred to as the EEO Officer) who will have the responsibility for and must be capable of effectively administering and promoting an active program of equal employment opportunity and who must be assigned adequate authority and responsibility to do so.

4. Dissemination of Policy

A. All members of the Company's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the Company's equal employment opportunity policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

(1) Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less than once every six (6) months thereafter, at which time the Company's equal employment opportunity policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable Company official.

(2) All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer or other knowledgeable Company official covering all major aspects of the Company's equal employment opportunity obligations within thirty (30) days following their reporting for duty with the Company.

(3) All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer or appropriate Company official in the Company's procedures for locating and hiring protected class group employee.

B. In order to make the Company's equal employment opportunity policy known to all employees, prospective employees and potential sources of employees, i.e., schools, employment agencies, labor unions (where appropriate), college placement officers, etc., the Company will take the following actions:

(1) Notices and posters setting forth the Company's equal employment opportunity policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

(2) The Company's equal employment opportunity policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

5. Recruitment

A. When advertising for employees, the Company will include in all advertisements for employees the notation: "An Equal Opportunity Employer". All such advertisements will be published in newspapers or other publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

B. The Company will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants, including, but not limited to, State employment agencies, schools, colleges and minority group organizations. To meet this requirement, the Company will, through its EEO Officer, identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the Company for employment consideration.

In the event the Company has a valid bargaining agreement providing for exclusive hiring hall referrals, the Company is expected to observe the provisions of that agreement to the extent that the system permits the Company's compliance with equal employment opportunity contract provisions. (The U.S. Department of Labor has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the Company to do the same, such implementation violates Executive Order 11246, as amended.)

C. The Company will encourage its present employees to refer minority group applicants for employment by posting appropriate notices or bulletins in the areas accessible to all such employees. In addition, information and procedures with regard to referring minority group applicants will be discussed with employees.

6. Personnel Actions

Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoffs, and termination, shall be taken without regard to race, color, religion, sex, or national origin, etc. The following procedures shall be followed:

A. The Company will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

B. The Company will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

C. The Company will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the Company will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

D. The Company will promptly investigate all complaints of alleged discrimination made to the Company in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the Company will inform every complainant of all of his avenues of appeal.

E. The general contract provision entitled A(76) Affirmative Action Requirements is made part of this document by reference. In conjunction with this contract provision, only the job categories will change in order to be comparable with the job categories utilized by the Company proposing to do business with the Connecticut Department of Transportation. The goals and time tables will remain the same throughout the contract provision.

7. Training and Promotion

A. The Company will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

B. Consistent with the Company's work force requirements and as permissible under Federal and State regulations, the Company shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event the Training Special Provision is provided under this contract, this subparagraph will be superseded.

C. The Company will advise employees and applicants for employment of available training programs and entrance requirements for each.

D. The Company will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

8. Unions

If the Company relies in whole or in part upon unions as a source of employees, it will use its best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the Company either directly or through an association acting as agent will include the procedures set forth below:

A. The Company will use its best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

B. The Company will use its best efforts to incorporate an equal employment opportunity clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, or national origin, etc.

C. The Company is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the Company, the Company shall so certify to the Connecticut Department of Transportation and shall set forth what efforts have been made to obtain such information.

D. In the event the union is unable to provide the Company with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the Company will, through independent recruitment efforts, fill the employment vacancies without regard to race,

color, religion, sex or national origin, etc. making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The U.S. Department of Labor has held that it shall be no excuse that the union with which the Company has a collective bargaining agreement providing for exclusive referral failed to refer minority employees). In the event the union referral practice prevents the Company from meeting the obligations pursuant to Executive Order 11246, as amended, and these provisions, such Company shall immediately notify the Connecticut Department of Transportation.

9. Subcontracting

A. The Company will use its best efforts to solicit bids from and to utilize minority group subcontractors, or subcontractors with meaningful minority group and female representation among their employees. Companies shall obtain a list of applicable Disadvantaged Business Enterprises firms from the Division of Contract Compliance.

B. The Company will use its best efforts to ensure subcontractor compliance with their equal employment opportunity obligations.

C. The General Contract Provisions entitled "Minority Business Enterprises as Subcontractors" is made part of this document by reference and its requirements are applicable to all entities proposing to do business with the Connecticut Department of Transportation.

10. Records and Reports

For the duration of the project, the company will maintain records as are necessary to determine compliance with the Company's equal employment opportunity obligations and Affirmative Action requirements. Additionally, the company will submit all requested reports in the manner required by the contracting agency.

A. The number of minority and nonminority group members and women employed in each work classification on the project.

B. The progress and efforts being made in cooperation with unions to increase employment opportunities for minorities and women (applicable only to Companies which rely on whole or in part on unions as a source of their work force).

C. The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees, and

D. The progress and efforts being made in securing the services of minority and female owned businesses.

(1) All such records must be retained for a period of three (3) years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the State Department of Transportation and the U.S. Department of Transportation including consultant firms.

(2) If on-the-job training is being required by the "Training Special Provision", the Company will be required to furnish a Monthly Training Report and Supplement Report (1409) for each trainee.

11. Affirmative Action Plan

A. Contractors, subcontractors, vendors, suppliers, and all other Companies with contracts, agreements or purchase orders completely state funded will submit an Affirmative Action Plan if the contract value is $5,000 or over.

B. Contractors, subcontractors, vendors, suppliers, and all other Companies with federally-assisted contracts, agreements, or purchase orders valued at $10,000 or more will submit an Affirmative Action Plan.

C. Companies with contracts, agreements, or purchase orders with total dollar value under that which is stipulated in A and B above shall be exempt from the required submission of an Affirmative Action Plan unless otherwise directed by the Division of Contract Compliance.

JOB NO.: TEMP.
DISK: M-25
LABEL: FRCP1-FRCP4

FEDERAL

February 1988

CONNECTICUT

REQUIRED CONTRACT PROVISIONS

STATE OF CONNECTICUT

PROVISIONS REQUIRED BY GENERAL STATUTES TO BE INCLUDED IN CONTRACT

SUBSTITUTION OF SECURITIES FOR RETAINAGES

The contractor is advised of the provisions of Section 3-112a of the General Statutes of the State of Connecticut, as revised which is quoted as follows:

> SECTION 3-112a. Substitution of securities for retainages on State contracts and subcontracts.
> (a) Under any contract made or awarded by the State, or by any public department or official thereof, or under any subcontract made directly thereunder with the contractor, the contractor and any subcontractor may, from time to time, withdraw the whole or any portion of the amount retained for payments to the contractor or subcontractors, as the case may be, pursuant to the terms of the contract or subcontracts, upon depositing with the comptroller (1) United States Treasury bonds, United States Treasury notes, United States Treasury certificates of indebtedness or United States Treasury bills, or (2) bonds or notes of the state of Connecticut or (3) bonds of any political subdivision in the state of Connecticut.
> No amount shall be withdrawn in excess of the market value of the securities at the time of deposit or of the par value of such securities, whichever is lower.
>
> (b) The comptroller shall, on a regular basis, collect all interest or income on the obligations so deposited and shall pay the same, when and as collected, to the contractor and the subcontractors who deposited the obligations. If the deposit is in the form of coupon bonds, the comptroller shall deliver each coupon as it matures to the contractor and the subcontractors.

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DISK: M-25
LABEL: FRCP2

(c) Any amount deducted by the State, or by any public department or official thereof, pursuant to the terms of the contract and subcontracts made directly thereunder with the contractor, from the retainages due the contractor and said subcontractors, shall be deducted, first from that portion of the retainages for which no security has been substituted, then from the proceeds of any deposited security. In the latter case, the contractor and the subcontractors shall be entitled to receive interest, coupons or income only from those securities which remain after such amount has been deducted.

I. NONDISCRIMINATION

"(a) For the purposes of this section, "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise and (3) who are members of a minority, as such term is defined in subsection (a) of Conn. Gen. Stat. §32-9n; and "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations. "Good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements.

For purposes of this section, "Commission" means the Commission on Human Rights and Opportunities.

(b) (1) The Contractor agrees and warrants that in the performance of the contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut. The Contractor further agrees to take affirmative action to

insure that applicants with job related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation, or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor agrees to comply with each provision of this section and Conn. Gen. Stat. §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Conn. Gen. Stat. §§ 46a-56, 46a-68e and 46a-68f; (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this section and Section 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works project."

(c) Determination of the Contractor's good faith efforts shall include but shall not be limited to the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

(d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.

(e) The Contractor shall include the provisions of subsection (b) of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Conn. Gen. Stat. § 46a-56, as amended by Section 5 of Public Act 89-253; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

(f) The Contractor agrees to comply with the regulations referred to in this section as they exist on the date of this contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto."

II. NONDISCRIMINATION (SEXUAL ORIENTATION)

(a) Pursuant to Section 4a-60a of the Connecticut General Statutes, (1) The Contractor agrees and warrants that in the performance of the contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the commission on human rights and opportunities advising the labor union or workers' representative of the Contractor's committments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said commission pursuant to section 46a-56 of the general statutes; (4) the Contractor agrees to provide the commission on human rights and opportunities with such information requested by the

commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this section and section 46a-56 of the general statutes.

(b) The Contractor shall include the provisions of subsection (a) of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the state and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with section 46a-56 of the general statutes; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the commission, the Contractor may request the state of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter.

"AMERICAN WITH DISABILITIES ACT OF 1990"

This clause applies to those contractors who are or will be responsible for compliance with the terms of the Americans with Disabilities Act of 1990, (42 U.S.C. 12101 et seq.),(Act), during the term of the contract. The contractor represents that it is familiar with the terms of this Act and that it is in compliance with the Act. Failure of the contractor to satisfy this standard as the same applies to performance under this contract, either now or during the term of the contract as it may be amended, will render the contract voidable at the option of the State upon notice to the contractor. The contractor warrants that it will hold the state harmless and indemnify the State from any liability which may be imposed upon the State as a result of any failure of the contractor to be in compliance with this Act, as the same applies to performance under this contract.

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill promulgated June 16, 1971 and, as such, this contract may be cancelled, terminated or suspended by the State Labor Commissioner for violation of, or noncompliance with said Executive Order No. Three, or any states of federal law concerning nondiscrimination, notwithstanding that the Labor Commissioner is not a party to this contract.

DISK: M-25
LABEL: FRCP3

The parties to this contract as part of the consideration hereof, agree that Executive Order No. Three is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the State Labor Commissioner shall have continuing jurisdiction in respect to contract performance in regard to nondiscrimination, until the contract is completed or terminated prior to completion.

The (contractor), (subcontractor), (bidder), (vendor), agrees, as part consideration hereof, that this (order) (contract) is subject to the Guidelines and Rules issued by the State Labor Commissioner to implement Executive Order No. Three, and that he will not discriminate in his employment or practices or policies, will file all reports as required, and will fully cooperate with the State of Connecticut and the State Labor Commissioner.

The Governor's Executive Order No. Three and the Guidelines and Rules implementing the Governor's Executive Order No. Three are included elsewhere herein.

CONSTRUCTION, ALTERATION OR REPAIR OF PUBLIC WORKS PROJECTS BY THE STATE OR POLITICAL SUBDIVISION

The contractor shall comply with the provisions of Section 31-53 of the General Statutes of the State of Connecticut, as revised , a part of which is quoted as follows:

> (a) Each contract for the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project by the state or any of its agents, or by any political subdivision of the state or any of its agents, shall contain the following provision: "The wages paid on an hourly basis to any mechanic, laborer or workman employed upon the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such employee to any employee welfare fund, as defined in subsection (h) of section 31-53 of the General Statutes shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such employees to any such employee welfare fund shall pay to each employee as part of his wages the amount of payment or contribution for his classification on each pay day."

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DISK: M-25
LABEL: FRCP4

SERVICE OF PROCESS

The successful bidder, if not a resident of the State of Connecticut, or, in the case of a partnership, the partners, if not residents, hereby appoints the Secretary of State of the State of Connecticut, and his successors in office as agent for service of process for any action arising out of or as a result of this Contract; such appointment to be in effect throughout the life of this Contract, and six (6) years thereafter.

LISTING ALL EMPLOYMENT OPENINGS WITH THE OFFICE OF THE CONNECTICUT STATE EMPLOYMENT SERVICE

This contract is subject to the provisions of Executive Order No. Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973, and, as such, this contract may be cancelled, terminated or suspended by the contracting agency or the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Seventeen, notwithstanding that the Labor Commissioner may not be a party to this contract. The parties to this contract, as part of the consideration hereof, agree that Executive Order No. Seventeen is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the contracting agency and the State Labor Commissioner shall have joint and several continuing jurisdiction in respect to contract performance in regard to listing all employment openings with the Connecticut State Employment Service.

LABOR ON STATE BRIDGES

The contractor shall comply with the provisions of Section 31-56 of the General Statutes of the State of Connecticut as revised, , which is quoted as follows:

> Section 31-56. Hours of labor on state bridges. Each contract entered into by the commissioner of transportation for the construction, alteration or repair of a state bridge shall contain a provision to the effect that no person shall be employed to work or be permitted to work more than forty-eight hours in any week on any work provided for in such contract. The operation of such limitation of hours of work may be suspended during an emergency, upon approval of the commissioner of transportation.

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RATE OF WAGES FOR WORK ON STATE HIGHWAYS

The contractor shall comply with the provisions of Section 31-54 of the General Statutes of the State of Connecticut, as revised, a part of which is quoted as follows:

The labor commissioner shall hold a hearing at any required time to determine the prevailing rate of wages upon any highway contract within any specified area on an hourly basis and the amount of payment or contributions paid or payable on behalf of each employee to any employee welfare fund, as defined in section 31-53, upon any classifications of skilled, semiskilled and ordinary labor. Said commissioner shall determine the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each employee to any employee welfare fund, as defined in section 31-53, in each locality where any highway or bridge is to be constructed, and the commissioner of transportation shall include such rate of wage on an hourly basis and the amount of payment or contributions paid or payable on behalf of each employee to any employee welfare fund, as defined in section 31-53, or in lieu thereof, in cash as part of wages each pay day, for each classification of labor in the proposal for the contract and in the contract. The rate and the amount so established shall, at all times, be considered as the minimum rate of wage on an hourly basis and the amount of payment or contributions to an employee welfare fund, or cash in lieu thereof, for the classification for which it was established. Any contractor who pays any person at a lower rate of wage on an hourly basis or the amount of payment or contributions paid or payable on behalf of each employee to any employee welfare fund, as defined in section 31-53, or where he is not obligated by any agreement to make payment or contributions to the employee welfare funds, as defined in section 31-53, and fails to pay the amount of such payment or contributions directly to the employee as part of his wages each pay day, than that so established for the classifications of work specified in any such contract shall be fined not more than one hundred dollars for each offense. The provisions of this section shall apply only to state highways and bridges on state highways.

AWARDING OF CONTRACTS TO OCCUPATIONAL SAFETY AND HEALTH LAW VIOLATORS PROHIBITED

The contractor shall comply with the provisions of Section 31-57b of the General Statutes of the State of Connecticut, as revised, a part of which is quoted as follows:

No contract shall be awarded by the state or any of its political subdivisions to any person or firm or any firm, corporation, partnership or association in which such persons or firms have an interest (1) which has been cited for three or more wilful or serious violations of any occupational safety and health act or of any standard, order or regulation promulgated pursuant to such act, during the three-year period preceding the bid, provided such violations were cited in accordance with the provisions of any state occupational safety and health act or the occupational safety and health act of 1970, and not abated within the time fixed by the citation and such citation has not been set aside following appeal to the appropriate agency or court having jurisdiction or (2) which has received one or more criminal convictions related to the injury or death of any employee in the three-year period preceding the bid. Any person who knowingly provides false information concerning the information required pursuant to this section shall be assessed a civil penalty of not less than five hundred dollars nor more than five thousand dollars and shall be disqualified from bidding on or participating in a contract with the state or any of its political subdivisions for five years from the date of the final determination that the information is false. Any political subdivision or any state agency receiving false information pursuant to this section shall notify the commissioner of administrative services and, upon receipt of such notice, the commissioner shall conduct a hearing in accordance with the provisions of chapter 54. Upon a determination that false information was provided, the commissioner shall impose a civil penalty in accordance with the provisions of this section. Such civil penalty shall be paid to the treasurer or to an official of the political subdivision, as the case may be. Any civil penalty imposed pursuant to this section may be collected in a civil proceeding by any official of a political subdivision authorized to institute civil actions or, in the case of the state, by the attorney general, upon complaint of the commissioner of administrative services.

STATE OF CONNECTICUT

BY HIS EXCELLENCY

THOMAS J. MESKILL

GOVERNOR

EXECUTIVE ORDER NO. THREE

WHEREAS, sections 4-61d (b) and 4-114a of the 1969 supplement to the general statutes require nondiscrimination clauses in state contracts and subcontracts for construction on public buildings, other public works and goods and services and

WHEREAS, section 4-61e (c) of the 1969 supplement to the general statutes requires the labor department to encourage and enforce compliance with this policy by both employers and labor unions, and to promote equal employment opportunities, and

WHEREAS, the government of this state recognizes the duty and desirability of its leadership in providing equal employment opportunity, by implementing these laws,

NOW, THEREFORE, I, THOMAS J. MESKILL, Governor of the State of Connecticut, acting by virtue of the authority vested in me under section twelve of article fourth of the constitution of the state, as supplemented by section 3-1 of the general statutes, do hereby ORDER and DIRECT, as follows, by this Executive Order:

I

The labor commissioner shall be responsible for the administration of this Order and shall adopt such regulations as he deems necessary and appropriate to achieve the purposes of this Order. Upon the promulgation of this Order, the commissioner of finance and control shall issue a directive forthwith to all state agencies, that henceforth all state contracts and subcontracts for construction on public buildings, other public works and goods and services shall contain a provision rendering such contract or subcontract subject to this Order, and that such contract or subcontract may be cancelled, terminated or suspended by the labor commissioner for violation of or noncompliance with this Order or state or federal laws concerning nondiscrimination, notwithstanding that the labor commissioner is not a party to such contract or subcontract.

II

Each contractor having a contract containing the provisions prescribed in section 4-114a of the 1969 supplement to the general statutes, shall file, and shall cause each of his subcontractors to file, compliance reports with the contracting agency or the labor commissioner, as may be directed. Such reports shall be filed within such times and shall contain such information as to employment policies and statistics of the contractor and each subcontractor, and shall be in such form as the labor commissioner may prescribe. Bidders or prospective

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contractors or subcontractors may be required to state whether they have participated in any previous contract subject to the provisions of this Order or any preceding similar Order, and in that event to submit on behalf of themselves and their proposed subcontractors compliance reports prior to or as an initial part of their bid or negotiation of a contract.

III

Whenever the contractor or subcontractor has a collective bargaining agreement or other contract or understanding with a labor organization or employment agency as defined in section 31-122 of the general statutes, the compliance report shall identify the said organization or agency and the contracting agency or the labor commissioner may require a compliance report to be filed with the contracting agency or the labor commissioner, as may be directed, by such organization or agency, signed by an authorized officer or agent of such organization or agency, with supporting information, to the effect that the signer's practices and policies, including but not limited to matters concerning personnel, training, apprenticeship, membership, grievance and representation, and upgrading, do not discriminate on grounds of race, color, religious creed, age, sex or national origin, or ancestry of any individual, and that the signer will either affirmatively cooperate in the implementation of the policy and provisions of this Order, or that it consents and agrees that recruitment, employment and the terms and conditions of employment under the proposed contract shall be in accordance with the purposes and provisions of the Order.

IV

The labor commissioner may by regulation exempt certain classes of contracts, subcontracts or purchase order from the implementation of this Order, for standard commercial supplies or raw materials, for less than specified amounts of money or numbers of workers or for subcontractors below a specified tier. The labor commissioner may also provide by regulation for the exemption of facilities of a contractor which are in all respects separate and distinct from activities of the contractor related to the performance of the state contract, provided only that such exemption will not interfere with or impede the implementation of this Order, and provided further, that in the absence of such an exemption, all facilities shall be covered by the provisions of this Order.

V

Each contracting agency shall be primarily responsible for obtaining compliance with the regulations of the labor commissioner with respect to contracts entered into by such agency or its contractors. All contracting agencies shall comply with the regulations of the labor commissioner in discharging their primary responsibility for securing compliance with the provisions of contracts and otherwise with the terms of this Order and of the regulations of the labor commissioner issued pursuant to this Order. They are directed to cooperate with the labor commissioner and to furnish the labor commissioner such information and assistance as he may require in the performance of his functions under this Order. They are further directed to appoint or designate from among the personnel of each agency, compliance officers, whose duty shall be to seek compliance with the objectives of this Order by conference, conciliation, mediation, or persuasion.

VI

The labor commissioner may investigate the employment practices and procedures of any state contractor or subcontractor and the practices and policies of any labor organization or employment agency hereinabove described, relating to employment under the state contract, as concerns nondiscrimination by such organization or agency as hereinabove described, or the labor commissioner may initiate such investigation by the appropriate contract agency, to determine whether or not the contractual provisions hereinabove specified or statutes of the state respecting them have been violated. Such investigation shall be conducted in accordance with the procedures established by the labor commissioner and the investigating agency shall report to the labor commissioner any action taken or recommended.

VII

The labor commissioner shall receive and investigate or cause to be investigated complaints by employees or prospective employees of a state contractor or subcontractor or members or applicants for membership or apprenticeship or training in a labor organization or employment agency hereinabove described, which allege discrimination contrary to the contractual provisions specified hereinabove or state statutes requiring nondiscrimination in employment opportunity. If this investigation is conducted for the labor commissioner by a contracting agency, that agency shall report to the labor commissioner what action has been taken or is recommended with regard to such complaints.

VIII

The labor commissioner shall use his best efforts, directly and through contracting agencies, other interested federal, state and local agencies, contractors and all other available instrumentalities, including the commission on human rights and opportunities, the executive committee on human rights and opportunities, and the apprenticeship council under its mandate to provide advice and counsel to the labor commissioner in providing equal employment opportunities to all apprentices and to provide training, employment and upgrading opportunities for disadvantaged workers, in accordance with section 31-51(d) of the 1969 supplement to the general statutes, to cause any labor organization or any employment agency whose members are engaged in work under government contracts or referring workers or providing or supervising apprenticeship or training for or in the course of work under a state contract or subcontract to cooperate in the implementation of the purposes of this Order. The labor commissioner shall in appropriate cases notify the commission on human rights and opportunities or other appropriate state or federal agencies whenever it has reason to believe that the practices of any such organization or agency violate equal employment opportunity requirements or state or federal law.

IX

The labor commissioner or any agency officer or employee in the executive branch designated by regulation of the labor commissioner may hold such hearings, public or private, as the labor commissioner may deem advisable for compliance, enforcement or educational purposes under this Order.

X

(a) The labor commissioner may hold or cause to be held hearings, prior to imposing ordering or recommending the imposition of penalties and sanctions under this Order. No order for disbarment of any contractor from further state contracts shall be made without affording the contractor an opportunity for a hearing. In accordance with such regulations as the labor commissioner may adopt, the commissioner or the appropriate contracting agency may

(1) Publish or cause to be published the names of contractors or labor organizations or employment agencies as hereinabove described which it has concluded have complied or failed to comply with the provisions of this Order or the regulations of the labor commissioner in implementing this Order.

(2) Recommend to the commission on human rights and opportunities that in cases in which there is substantial or material violation or threat thereof of the contractual provision or related state statutes concerned herein, appropriate proceedings be brought to enforce them, including proceedings by the commission on its own motion under chapter 563 of the general statutes and the enjoining, within the limitations of applicable law, of organizations, individuals or groups who prevent directly or indirectly or seek to prevent directly or indirectly compliance with the provisions of this Order.

(3) Recommend that criminal proceedings be brought under chapter 939 of the general statutes.

(4) Cancel, terminate, suspend or cause to be cancelled, terminated, or suspended in accordance with law any contract or any portion or portions thereof for failure of the contractor or subcontractor to comply with the nondiscrimination provisions of the contract. Contracts may be cancelled, terminated, suspended absolutely or their continuance conditioned upon a program for future compliance approved by the contracting agency.

(5) Provide that any contracting agency shall refrain from entering into any further contracts or extensions or modifications of existing contracts with any contractor until he has satisfied the labor commissioner that he has established and will carry out personnel and employment policies compliant with this Order.

(6) Under regulations prescribed by the labor commissioner each contracting agency shall make reasonable efforts within a reasonable period of time to secure compliance with the contract provisions of this Order by methods of conference, conciliation, mediation or persuasion, before other proceedings shall be instituted under this Order or before a state contract shall be cancelled or terminated in whole or in part for failure of the contractor or subcontractor to comply with the contract provisions of state statute and this Order.

(b) Any contracting agency taking any action authorized by this Order, whether on its own motion or as directed by the labor commissioner or pursuant to his regulations shall promptly notify him of such action. Whenever the labor commissioner makes a determination under this Order, he shall promptly notify the appropriate contracting agency and other interested federal, state and local agencies of the action recommended. The state and local agency or agencies shall take such action and shall report the results thereof to the labor commissioner within such time as he shall specify.

XI

If the labor commissioner shall so direct, contracting agencies shall not enter into contracts with any bidder or prospective contractor unless he has satisfactorily complied with the provisions of this Order, or submits a program for compliance acceptable to the labor commissioner, or if the labor commissioner so authorizes, to the contracting agency.

XII

Whenever a contracting agency cancels or terminates a contract, or a contractor has been disbarred from further government contracts because of noncompliance with the contract provisions with regard to nondiscrimination, the labor commissioner or the contracting agency shall rescind such disbarment, upon the satisfaction of the labor commissioner that the contractor has purged himself of such noncompliance and will thenceforth carry out personnel and employment policies of nondiscrimination in compliance with the provision of this Order.

XIII

The labor commissioner may delegate to any officer, agency or employee in the executive branch any function or duty of the labor commissioner under this Order except authority to promulgate regulations of a general nature.

XIV

This Executive Order supplements the Executive Order issued on September 28, 1967. All regulations, orders, instructions, designations and other directives issued heretofore in these premises, including those issued by the heads of various departments or agencies under or pursuant to prior order or statute, shall remain in full force and effect, unless and until revoked or superseded by appropriate authority, to the extent that they are not inconsistent with this Order.

This Order shall become effective thirty days after the date of this Order.

Dated at Hartford, Connecticut, this 16th day of June, 1971.

Thomas J. Meskill

GOVERNOR

GUIDELINES AND RULES
OF STATE LABOR COMMISSIONER
IMPLEMENTING GOVERNOR'S EXECUTIVE
ORDER NO. THREE

SEC. 1. PERSONS AND FIRMS SUBJECT TO EXECUTIVE ORDER NO. THREE AND GUIDELINES AND RULES.

a. Every contractor, or subcontractor as defined in Sec. 2 hereof, supplier of goods or services, vendor, bidder and prospective contractor or subcontractor, having ten or more employees as defined in Sec. 3 of these Guidelines, having or entering into or bidding to enter into any type of contractual relationship with the State of Connecticut or any of its agencies, boards, commissions, departments or officers, and if the consideration, cost, subject matter or value of the goods or services exceeds $5,000.00, shall be subject to the Governor's Executive Order No. Three and these Guidelines and Rules.

b. A copy of the Governor's Executive Order No. Three and of these Guidelines and Rules shall be available to each said contractor, subcontractor, supplier, vendor, bidder and prospective contractor and subcontractor, and the said Executive Order No. Three and these Guidelines and Rules shall be incorporated by reference and made a part of the contract, purchase order, agreement or document concerned. A copy of the Executive Order and of these Guidelines and Rules shall be furnished to a contracting party or bidder on request.

c. All persons, partnerships, associations, firms, corporations and other entities having less than ten employees as defined in Sec. 3 at the time of the bid and execution of the contract and continuing through the performance of the contract are exempt from the provisions of the said Executive Order and these Guidelines and Rules. All contracts, subcontracts, purchase orders and agreements wherein the consideration is $5,000.00 or less shall be exempt from Executive Order No. Three and from these Guidelines and Rules.

SEC. 2. SUBCONTRACTORS.

As used herein, subcontractors are persons, partnerships, associations, firms or corporations or other entities having contractual relationship with a contractor who in turn has a contract with the State of Connecticut or any of its agencies, boards, commissions or departments. Subcontractors below this tier are exempt from the Executive Order and from these Guidelines and Rules.

SEC. 3. EMPLOYEES.

As used herein, employees are persons working full or part-time irrespective of personnel classification whose wages, salaries, or earnings are subject to the Federal Insurance Contribution Act and/or to Federal Withholding Tax as a matter of law (whether in fact or not any actual withholding

occurs in a given case), in an employee-employer relationship at the time of bid, contract execution, or offer or acceptance, and/or during any time thereafter during the existence of the performance period of the contract to the conclusion thereof.

SEC. 4. REPORTS.

a. Prior to the execution of the contract or prior to acceptance of a bid, as the case may be, the contractor, subcontractor, bidder or vendor shall file a report with the State Labor Commissioner, which report shall be complete and contain all of the information therein prescribed. The report shall be on Form E.O. 3-1, a facsimile of which is attached hereto and made a part hereof, or in lieu thereof the contractor, subcontractor, bidder or vendor shall submit a detailed report containing all of the information required in Form E.O. 3-1.

b. The Labor Commissioner may require the filing of additional reports prior to final payment or prior to any renewal or extension of the contract and during the duration of the contract at such times as the Commissioner may, in his discretion, from time to time deem necessary. The Labor Commissioner may require the filing of additional information or reports, and the contractor, subcontractor, bidder or vendor shall furnish said information or reports within the times prescribed by the Labor Commissioner.

c. The Labor Commissioner may, at his discretion, also require timely statistical reports on the number of minority employees employed or to be employed in the performance of the contract, and the Labor Commissioner may define such minority groups or persons.

d. Reports filed pursuant to these Guidelines and Rules in inplementation of Executive Order No. Three are not public records subject to public inspection, but may be inspected only by federal and state officials having jurisdiction and authority to investigate matters of this type. All federal and state agencies empowered by law to investigate matters relating to Executive Order No. Three shall have access to these reports for inspection or copying during regular business hours.

e. Any person who wilfully, wantonly or through negligence destroys or permits to be destroyed, alters or allows to be altered after filing, any reports submitted in compliance herewith shall be subject to penalties as prescribed by law.

SEC. 5. MANDATORY CLAUSES IN DOCUMENTS.

a. All contracts shall contain the following provisions verbatim:

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill promulgated June 16, 1971 and, as such, this contract may be cancelled, terminated or suspended by the state labor commissioner for violation of or nonconpliance with said Executive Order No. Three, or any state or federal law concerning

nondiscrimination, notwithstanding that the labor commissioner is not a party to this contract. The parties to this contract, as part of the consideration hereof, agree that said Executive Order No. Three is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the state labor commissioner shall have continuing jurisdiction in respect to contract performance in regard to nondiscrimination, until the contract is completed or terminated prior to completion.

The (contractor), (subcontractor), (bidder), (vendor) agrees, as part consideration hereof, that this (order) (contract) is subject to the Guidelines and Rules issued by the state labor commissioner to implement Executive Order No. Three, and that he will not discriminate in his employment practices or policies, will file all reports as required, and will fully cooperate with the State of Connecticut and the state labor commissioner.

These provisions are in addition to and not in lieu of other clauses required by law.*

* N.B. The above paragraphs contain requirements additional to those set forth in the July 16, 1971 directive to state agencies.

b. Every purchase order or like form submitted by a vendor or bidder, as applicable, shall contain the following clause verbatim:

Vendor agrees, as part of the consideration hereof, that this order is subject to the provisions of Executive Order No. Three and the Guidelines and Rules issued by the Labor Commissioner implementing said Order as to nondiscrimination, and vendor agrees to comply therewith.

c. Where preprinted contract forms have been prescribed by federal authority and the rules of the federal agency prohibit the alteration thereof, the compliance officer of the State agency concerned shall submit to the Labor Commissioner a suggested short form or addendum acceptable to the federal agency, and in such cases, after approval by the Labor Commissioner, said clause may be substituted.

SEC. 6. COOPERATION OF STATE AGENCIES, BOARDS AND COMMISSIONS.

Every agency, board, commission and department of the State of Connecticut shall cooperate with the Labor Commissioner in the implementation of Executive Order No. Three and shall furnish such information and assistance as the Labor Commissioner may from time to time request.

SEC. 7 INVESTIGATIONS, COMPLAINTS.

The Labor Commissioner may initiate an investigation upon receipt

of a complaint alleging discrimination. The Labor Commissioner may request that an investigation be conducted by the State agency which is the party to the contract in question. Investigations shall be conducted in accordance with acceptable legal standards, safeguarding the rights of all parties involved, and obtaining all of the relevant facts necessary for a complete determination of the issues. If the Labor Commissioner is not satisfied with the investigation or any part thereof he may order it to continue or to proceed further.

SEC. 8. HEARINGS.

The Labor Commissioner or officers designated by the heads of the State agencies, boards and commissions may conduct hearings on complaints filed. Hearings shall be held only after a report of the complaint has been filed with the Labor Commissioner and after a hearing on the complaint has been authorized or directed by the Labor Commissioner. Hearings shall be conducted in accordance with the accepted principles of administrative law. All parties shall be afforded the opportunity to a full, fair, impartial and complete hearing, the opportunity to examine and cross examine witnesses and to be present at all sessions of the hearing. If any party is vulnerable to a charge of a violation of the law, he shall be afforded the opportunity to procure counsel who may be present at the hearing.

SEC. 9. EQUAL EMPLOYMENT OPPORTUNITIES.

All State contracting agencies, employers, and labor unions shall use their best efforts to provide equal employment opportunities to all apprentices and to provide training, employment and upgrading opportunities for disadvantaged workers in accordance with section 31-51(d) of the General Statutes.

SEC. 10. DUTIES OF CONTRACTING AGENCIES.

All State contracting agencies shall be responsible for compliance with said Executive Order and with all state and federal laws relating to equal employment opportunities. All contracting agencies conducting investigations for the Labor Commissioner pursuant to Executive Order No. Three and these Guidelines and Rules shall report to the Labor Commissioner the action taken or recommended with regard to each complaint filed. Each officer of the executive department, every commissioner, and each executive head of each State agency, board and commission in the executive branch of the State government is expected to assume the responsibility of seeing to complete compliance with the Governor's Executive Order No. Three and shall forthwith take steps to assure and guarantee that there shall be no discrimination within their departments, agencies, boards or commissions in the performance of any state contract or subcontract on the basis of race, creed, color, sex, age, national origin or national ancestry, or in any way in violation of any state or federal law relating thereto.

BY VIRTUE OF THE AUTHORITY VESTED IN ME PURSUANT TO EXECUTIVE ORDER NO. THREE EFFECTIVE JULY 16, 1971, AND THE GENERAL STATUTES OF CONNECTICUT.

Dated at Wethersfield, Connecticut this 19th day of Nov., 1971.

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Jack A. Fusari

JACK A. FUSARI

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STATE OF CONNECTICUT

BY HIS EXCELLENCY

THOMAS J. MESKILL

GOVERNOR

EXECUTIVE ORDER NO. SEVENTEEN

WHEREAS, Section 31-237 of the General Statutes of Connecticut as amended requires the maintaining of the established free services of the Connecticut State Employment Service to both employers and prospective employees and

WHEREAS, Section 31-5 of the General Statutes of Connecticut requires that no compensation or fee shall be charged or received directly or indirectly for the services of the Connecticut State Employment Service and

WHEREAS, large numbers of our citizens who have served in the Armed Forces of our nation are returning to civilian life in our state and seeking employment in civilian occupations and

WHEREAS, we owe a duty as well as gratitude to these returning veterans including the duty to find suitable employment for them and

WHEREAS, many of our handicapped citizens are fully capable of employment and are entitled to be placed in suitable employment and

WHEREAS, many of the citizens of our state who are unemployed are unaware of the job openings and employment opportunities which do in fact exist in our state and

WHEREAS, notwithstanding the free services of the Connecticut State Employment Service, many of our Connecticut employers do not use its free services or do not avail themselves fully of all of the services offered.

NOW, THEREFORE, I, THOMAS J. MESKILL, Governor of the State of Connecticut, acting by virtue of the authority vested in me under the fourth article of the Constitution of the State and in accordance with Section 3-1 of the General Statutes, do hereby ORDER and DIRECT, as follows, by this Executive Order:

I

The Labor Commissioner shall be responsible for the administration of this Order and shall do all acts necessary and appropriate to achieve its purpose. Upon promulgation of this Order, the Commissioner of Finance and Control shall issue a directive forthwith to all state agencies that henceforth all state contracts and subcontracts for construction on public buildings, other public works and goods and services shall contain a provision

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rendering such contract or subcontract subject to this Order, and that such contract or subcontract may be cancelled, terminated or suspended by the Labor Commissioner for violation of or noncompliance with this Order, notwithstanding that the Labor Commissioner is not a party to such contract or subcontract.

II

Every contractor and subcontractor having a contract with the state or any of its agencies, boards, commissions, or departments, every individual partnership, corporation, or business entity having business with the state or who or which seeks to do business with the state, and every bidder or prospective bidder who submits a bid or replies to an invitation to bid on any state contract shall list all employment openings with the office of the Connecticut State Employment Service in the area where the work is to be performed or where the services are to be rendered.

III

All state contracts shall contain a clause which shall be a condition of the contract that the contractor and any subcontractor holding a contract directly under the contractor shall list all employment openings with the Connecticut State Employment Service. The Labor Commissioner may allow exceptions to listings of employment openings which the contractor proposes to fill from within its organization from employees on the rolls of the contractor on the date of publication of the invitation to bid or the date on which the public announcement was published or promulgated advising of the program concerned.

IV

Each contracting agency of the state shall be primarily responsible for obtaining compliance with this Executive Order. Each contracting agency shall appoint or designate from among its personnel one or more persons who shall be responsible for compliance with the objectives of this Order.

V

The Labor Commissioner shall be and is hereby empowered to inspect the books, records, payroll and personnel data of each individual or business entity subject to this Executive Order and may hold hearings or conferences, formal or informal, in pursuance of the duties and responsibilities hereunto delegated to the Labor Commissioner.

VI

The Labor Commissioner or any agency officer or employee in the executive branch designated by regulation of the Labor Commissioner may hold such hearings, public or private, as the Labor Commissioner may deem advisable for compliance, enforcement or educational purposes under this Order.

VII

(a) The Labor Commissioner may hold or cause to be held hearings, prior to imposing, ordering, or recommending the imposition of penalties and sanctions under this Order. In accordance herewith, the Commissioner or the appropriate contracting agency may suspend, cancel, terminate, or cause to be suspended, cancelled, or terminated in accordance with law any contract or any portion or portions thereof for failure of the contractor or subcontractor to comply with the listing provisions of the contract. Contracts may be cancelled, terminated, suspended absolutely or their continuance conditioned upon a program for future compliance approved by the contracting agency.

(b). Any contracting agency taking any action authorized by this Order, whether on its own motion or as directed by the Labor Commissioner, shall promptly notify him of such action. Whenever the Labor Commissioner makes a determination under this Order, he shall promptly notify the appropriate contracting agency of the action recommended. The agency shall report the results to the Labor Commissioner promptly.

VIII

If the Labor Commissioner shall so direct, contracting agencies shall not enter into contracts with any bidder or prospective contractor unless he has satisfactorily complied with the provisions of this Order.

This Order shall become effective sixty days after the date of this Order.

Dated at Hartford, Connecticut, this 15th day of February, 1973.

GOVERNOR

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AFFIRMATIVE ACTION REQUIREMENTS
A(76)

It is the intent of these Affirmative Action Requirements to provide compliance standards for employee-hours in each craft utilized in the transportation construction industry on transportation construction projects. This provision affects contractors and their subcontractors while under contract with the Connecticut Department of Transportation. It is not the intent of these Affirmative Action Requirements to cause personnel displacement in order to hire qualified minorities and women. They are however designed to ensure that equal employment opportunity is being provided and discriminatory employment practices are not being exercised. The actual number of minority and female employee hours worked in each craft, compared to the labor market goals, will determine project compliance.

General Contract Provision

The contractor or subcontractor shall comply with this provision or provide adequate documentation of "good faith efforts" in attempting to comply with this provision.

The employee hours for minorities and females should be substantially uniform throughout the length of the contract for each of the trades. The time-table for meeting the project goals extends through the duration of the contract.

For the purpose of this provision, "minority" is defined as; Blacks, includes all persons having origins in any of the black racial groups; Hispanics, includes all persons of Mexican, Puerto Rican, Cuban, Central or South American, or Spanish Culture, except Portuguese; Asians, includes all persons having origins in any of the original peoples of the Far East, Southeast Asia, or Pacific Islands; and American Indians, all persons having origins in any of the original peoples of North America.

The percentage goals for minority employee-hour utilization and female employee hour utilization are based on Connecticut Labor Market statistics. The labor market goals for minorities and females are separate goals. Employees should not be counted in both the minority and female categories. The goal requirements are listed in Appendix A of this provision. The employee-hour percentages are expressed in terms of training and employment hours in proportion to the total employee-hours worked by the contractor's and/or subcontractor's entire work force in that trade or craft. The transfer of minorities, females or trainees from employer to employer, or from project to project, for the sole purpose of meeting the labor market goal, is a violation of this contract provision.

In no event may a contractor or subcontractor utilize the goals, time-tables, or affirmative action steps, required by these provisions in such a manner as to cause or result in discrimination against any person on the basis of race, color, religion, sex,

age, marital status, national origin, ancestry, present or past history of mental disorder, mental retardation, learning disability or physical disability, including, but not limited to, blindness.

Compliance and Enforcement

Contractors are responsible for informing their subcontractor(s) (regardless of tier) as to their respective obligations under these provisions. Any contractor or subcontractor who fails to meet the stipulation(s) prescribed in this provision, and/or fails to provide adequate documentation of affirmative actions and "good faith efforts", shall be deemed to be in noncompliance with this provision, as well as; Presidential Executive Order 11246 as amended, the Governor's Executive Order #3, Connecticut's EEO Special Provisions and Equal Opportunity Clause of its contract.

If the contractor and/or subcontractor is deemed to be in non-compliance, then he shall be subject to sanctions and penalties for violation of Connecticut's Specific Equal Employment Opportunity Responsibilities Contract Provision (April 1994), Presidential Executive Order 11246 as amended and/or the Governor's Executive Order #3. These sanctions and penalties shall include but not be limited to suspension, termination, and/or cancellation of existing contracts and/or subcontracts (subcontract agreements).

Procedures

In determining whether a contractor or subcontractor has met the goals, the agency will consider the contractor's and/or subcontractor's utilization of minority and female participation per craft (hourly). If the contractor or subcontractor meets the goals, or can demonstrate and document that every good faith effort was made to meet the goals, the contractor or subcontractor shall be presumed to be in compliance with this contract provision. Formal sanctions or proceedings will not be instituted unless the agency otherwise determines that the contractor or subcontractor is in violation of this provision.

In the event a noncompliance finding is made, the contractor shall receive an informal letter informing him/her of the noncompliance finding and a request for corrective action relative to this finding. If no response is received, or if the response is unsatisfactory, the contractor shall receive a registered show-cause notice requesting specific action to be taken by the contractor, and an explanation of what actions may be taken against the contractor if a satisfactory solution is not reached.

If a show cause notice is issued, then the formal process begins, and proceeds with such formal actions as prescribed by the sanctions and penalties described herein; the burden of proving the noncompliance of these provisions lies with the agency. However, the contractor's or subcontractor's failure to meet his goals shall shift to him to present evidence to show that he has met the "good faith effort" requirement of these provisions.

In respect to matters not covered in this provision, nothing herein is intended to relieve any contractor or subcontractor from compliance with all applicable federal and state laws, regulations, Executive Orders and/or Special Provisions concerning equal employment opportunity, affirmative action, nondiscrimination and related subjects during the term of its contract on this project.

Records and Reports

It is required of the successful bidder and each approved subcontractor to submit to the Division of Contract Compliance for review and approval an affirmative action plan. *On federal-aid projects, this requirement (Affirmative Action Plan) is waived if the contract or subcontract is under $10,000 (unless an Affirmative Action Plan is determined necessary by the contracting agency). *On completely state-funded projects, the Affirmative Action Plan requirement is waived on contracts or subcontracts under $5,000 (unless an Affirmative Action Plan is determined necessary by the contracting agency).

This provision will supplement Connecticut's Required Contract Provision, entitled "Specific Equal Employment Opportunity Responsibilities" in all contracts including federally-aided contracts as applicable.

APPENDIX A
(LABOR MARKET GOALS)

LABOR MARKET AREA	% MINORITY GOAL	% FEMALE GOAL
Bridgeport Ansonia-Beacon Falls-Bridgeport-Derby-Easton-Fairfield-Milford-Monroe-Oxford-Seymour-Shelton-Stratford-Trumbull	14	6.9
Danbury Bethel-Bridgewater-Brookfield Danbury-Kent-New Fairfield-New Milford-Newtown-Redding-Ridgefield-Roxbury-Sherman-Washington	4	6.9
Danielson Brooklyn-Eastford-Hampton-Killingly-Pomfret-Putnam-Scotland-Sterling-Thompson-Voluntown-Union-Woodstock	2	6.9
Hartford Andover-Ashford-Avon-Barkhamsted-Berlin-Bloomfield-Bolton-Bristol-Burlington-Canton-Chaplin-Colchester-Columbia-Coventry-Cromwell-Durham-East Granby-East Haddam-East Hampton-East Hartford-East Windsor-Ellington-Enfield-Farmington-Glastonbury-Granby-Haddam-Hartford-Harwington-Hebron-Lebanon-Manchester-Mansfield-Marlborough-Middlefield-Middletown-Newington-Plainville-Plymouth-Portland-Rocky Hill-Simsbury-Somers-South Windsor-Southington-Stafford-Suffield-Tolland-Vernon-West Hartford-Wethersfield-Willington-Winchester-Windham-Windsor-Windsor Locks	15	6.9

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Lower River Chester-Deep River-Essex-Lyme-Westbrook	2	6.9
New Haven Bethany-Branford-Cheshire-Clinton-East Haven-Guilford-Hamden-Killingworth-Madison-Meriden-New Haven-No. Branford-North Haven-Orange-Wallingford-West Haven-Woodbridge	14	6.9
New London Bozrah-Canterbury-East Lyme-Franklin-Griswold-Groton-Ledyard-Lisbon-Montville-New London-North Stonington-Norwich-Old Lyme-Old Saybrook-Plainfield-Preston-Salem-Sprague-Stonington-Waterford-Hopkinton RI-Westerly RI	8	6.9
Stamford Darien-Greenwich-New Canaan-Norwalk-Stamford-Weston-Westport-Wilton	17	6.9
Torrington Canaan-Colebrook-Cornwall-Goshen-Hartland-Kent-Litchfield-Morris-Norfolk-North Canaan-Salisbury-Sharon-Torrington-Warren	2	6.9
Waterbury Bethelehem-Middlebury-Naugatuck-Prospect-Southbury-Thomaston-Waterbury-Watertown-Wolcott-Woodbury	10	6.9

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EDUCATION, WELFARE AND PUBLIC HEALTH TAX

(SALES AND USE TAX)

The Contractor's attention is called to Regulation No. 12-426-18 as amended promulgated by the Sales and Use Tax Division of the State Department of Revenue Services, which provided for the Exemption of the Sales and Use Tax on the purchase of such materials and supplies as are to be physically incorporated in and become a permanent part of the project being performed under this contract. The Contractor or Subcontractor shall furnish his suppliers with a completed certificate, in the following prescribed form:

The Contractor hereby acknowledges and agrees to comply with Chapter 219 of the Connecticut General Statutes pertaining to tangible personal property or services rendered that is/are subject to sales tax. The attached copy of the "Governmental Agency Exemption Certificate" is hereby made a part hereof."

* * * *

CONTRACTOR'S
EXEMPT PURCHASE CERTIFICATE

Project No. _____

Town _____

Route or Road _____

I hereby certify under the penalties of (FALSE STATEMENTS) that I am engaged in the performance of a construction contract on a project for the following named exempt agency or organization.

CONNECTICUT
Department of Transportation
2800 Berlin Turnpike, Newington, Connecticut 06111 - 4116

That such agency is to the best of my knowledge and belief exempt from the Education, Welfare and Public Health Tax (Sales and Use Tax) because it is a Branch of the State Government, in accordance with Regulation No. 12-426-18 of the Department of Revenue Services.

That this certificate is issued to cover all purchases of materials and supplies to be physically incorporated in and become a permanent part of the project referred to above.

Permit No. _____ (Signed) _____
Print No. or "None" Written Signature of Contractor

Date _____ _____
Name of Firm

Place _____ _____
Address

* * * *

(Copy of this certificate may be reproduced by the Contractor)

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CONNECTICUT

REQUIRED CONTRACT PROVISION

CONSTRUCTION SAFETY AND HEALTH STANDARDS

It is a condition of this contract, and shall be made a condition of each subcontract entered into pursuant to this contract, that the contractor and any subcontractor shall not require any laborer or mechanic employed in performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety, as determined under construction safety and health standards (Title 29, Code of Federal Regulations, Part 1926, formerly Part 1518, as revised from time to time), promulgated by the United States Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (83 Stat. 96).

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CONNECTICUT

November 1980

REQUIRED CONTRACT PROVISION

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY

CONSTRUCTION CONTRACT SPECIFICATION

(EXECUTIVE ORDER 11246)

1. Appendix A and Appendix B referred to below and attached hereto express goals and timetables for the utilization of females and minorities respectively on all federally assisted construction projects advertised by the Connecticut Department of Transportation.

Appendix A establishes the goal for female utilization in all crafts statewide. Appendix B refers to minority utilization for each trade in designated areas.

2. The goals for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

FEMALES	MINORITIES
See Appendix A	See Appendix B

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

3. The Contractor's compliance with the Executive Order and the regulations in 41-CFR Part 60-4 shall be based on its implementation of the specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a) and its efforts to meet the goals established for the geographical area where the contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

4. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted.

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.

c. "Employer Identification Number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941.

d. "Minority" includes:

1. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin):

2. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or Origin, regardless of race):

3. Asian or Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands: and

4. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

5. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications which contains the applicable goals for minority and female participation.

6. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's of subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

7. The Contractor shall implement the specific affirmative action standards provided in paragraphs 10a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs (OFCCP) Office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

8. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractors obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

9. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.

10. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities:

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the Union or Unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the Union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on the job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 10b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy

manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO Policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO Policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment, decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foreman, etc. prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

-6-

11. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (10 a through p). The efforts of a contractor association, joint contractor union, contractor community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 10 a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

12. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

13. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

14. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

15. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

16. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 10 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

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17. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assinged, social security number, race, sex, status, (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

18. Nothing herein provided shall be construed as a limitation upon the application of their laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program.)

19. The Director of the Office of Federal Contract Compliance Programs, from time to time, shall issue goals and timetables for minority and female utilization which shall be based on appropriate workforce, demographic or other relevant data and which shall cover construction projects or construction contracts performed in specific geographical areas. The goals, which shall be applicable to each construction trade in a covered contractor's or subcontractor's entire workforce which is working in the area covered by the goals and timetables, shall be published as notices in the Federal Register, and shall be inserted by the contracting officers and applicants, as applicable, in the Notice required by 41 C.F.R. 60-4.2. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed.

November 1980

Appendix A

Female Coal	6.9%

APPENDIX B

Until further notice, the following goals for minority utilization in each construction craft and trade shall be included in all Federal or federally assisted construction contracts and subcontracts in excess of $10,000 to be performed in the respective geographical areas. The goals are applicable to each nonexempt contractor's total onsite construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally assisted or nonfederally related project, contract or subcontract.

006 Hartford - New Haven - Springfield, CT-MA:

Standard Metropolitan Statistical Area Counties

3283 Hartford - New Britain - Bristol, CT CT Hartford, CT Middlesex, CT, Tolland	6.9
5483 New Haven - Waterbury - Meriden, CT CT New Haven	9.0
5523 New London - Norwich, CT CT New London	4.5
6323 Pittsfield, MA MA Berkshire	1.6
8003 Springfield - Chicopee - Holyoke, MA CT MA Hampden, MA Hampshire	4.8
Non Standard Metropolitan Statistical Area Counties	5.9

CT Litchfield, CT, Windham, MA - Franklin, NH
Cheshire, VT - Windham

State of Connecticut – Department of Transportation Requirements

Most of the work associated with this project is within the State of Connecticut Highway right-of-way. The contractor shall be responsible for obtaining and paying for a DOT Encroachment permit from the District II Office. In order to obtain this permit the contractor will be required to meet the DOT's insurance requirements and to pay for and provide a Permit Bond.

The forms for: Application for Permit, Certificate of Insurance, and Permit Bond are attached for informational purposes. Specific questions regarding these forms and to obtain originals may be made to the District II office, 171 Salem Turnpike, Norwich, CT 06360, phone (860) 823-3230.

Date:	PMT-1 Rev.5/91 State of Connecticut Department of Transportation **APPLICATION FOR PERMIT** Printed on Recycled or Recovered Paper	Application form must be filled in completely and mailed or delivered to the Bureau of Highways District Office
Fee: (for DOT use)		

LOCATION OF PROPOSED WORK:

(a) Town:_____ (b)Rt:_____ (c) Street Name & No. _____

(d) Circle One) N. S. E. W. side of Highway. (e) Located Between Utility Poles No._____ & No._____

(f) Distance and direction from nearest intersecting road. _____ Miles (N. S. E. W.) of _____(St/Rd)

Application is hereby made to: (Describe fully & include sketch or attach plans) _____

_____

_____

Dept. of Transportation
District 2 Permits
171 SalemTurnpike
Norwich, CT 06360

PERMIT FEE can be paid only by check or money order payable to Treasurer – State of Conn.

Name of Surety Company & amount of Bond	Permit to be issued to: Name _____ & _____ Address _____ Town, State _____Zip_____
Party to whom Bond is issued: Print Name _____ Signed _____Phone_____	
Party to whom Insurance is issued: Print Name _____ Signed _____Phone_____	The owner of the property for whom this work is being performed agrees to accept all maintenance responsibility for the work specified in the permit. Print Owner's Name_____ Address _____ Town , State_____Zip_____ Signed _____Phone_____
Approximate Time Required Desired Starting Date	
Complete Plans and Specifications must be submitted for major Encroachment permits. On other work a careful sketch shall be shown in Space above or on back side application.	

59A

A STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION CERTIFICATE OF INSURANCE (FORM CON-32, REVISED 7/02) IS THE ONLY ACCEPTABLE FORM FOR PROOF OF INSURANCE

COVERAGE AND LIMITS OF LIABILITY FOR THE CERTIFICATE OF INSURANCE ARE AS FOLLOWS:

BODILY INJURY LIABILITY AND PROPERTY DAMAGE LIABILITY

EACH ACCIDENT OR OCCURRENCE:	$1,000,000.00
AGGREGATE:	$2,000,000.00

ITEM A (REQUIRED)	$1,000,000.00	$2,000,000.00
ITEM B (REQUIRED)	$1,000,000.00	$2,000,000.00
ITEM C (IF REQUIRED)	$1,000,000.00	$2,000,000.00
ITEM H (IF REQUIRED)	$1,000,000.00	$2,000,000.00

ITEM I IF ITEM I DOES NOT APPLY TYPE N/A

MUST HAVE EFFECTIVE DATES AND POLICY NUMBERS.

*POLICY NUMBERS FOR ITEM A & ITEM B CAN NOT BE THE SAME.

THIS FORM MUST BE TYPED. IT CAN NOT BE HAND WRITTEN.

IF UMBRELLA COVERAGE IS NEEDED TO MEET THE INSURANCE REQUIREMENTS FOR THE ENCROACHMENT PERMIT, THE AMOUNT MUST BE 5,000,000.00 AND MUST NAME THE STATE OF CONNECTICUT AS ADDITIONAL INSURED.

CON-32 REV. 11/07
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CERTIFICATE OF INSURANCE

This is to certify that the Insurance Company named herein has issued to the named insured the policies listed below, that these policies are written in accordance with the Insurance Company's standard policies and endorsements, except as indicated below or as noted in the attachments hereto, which policies and endorsements will be made available to the Department of Transportation upon request, that they provide coverages and limits of liability shown with respect to the hazards indicated, that they are in force on this date, and that this Certificate is furnished in accordance with and for the purpose of satisfying the requirements of the Department of Transportation in connection with the award and the performance of any contract or agreement, or the issuance of any permit or authorization by the Transportation Commissioner or duly authorized agent.

The Insurance Company has a right and duty to defend the insured against any suit seeking damages (or under Workers' Compensation benefits) to which the referenced insurance policy applies and may investigate and settle any claim or suit as they deem appropriate. The Insurance Company's duty to defend or settle any claim or suit ends when the applicable limit of liability has been exhausted in the payment of judgments or settlements.

NAME OF INSURED _____

ADDRESS _____ CITY _____ STATE _____

	HAZARDS	POLICY NUMBER	EFFECTIVE DATE	EXPIRATION DATE	COVERAGES AND LIMITS OF LIABILITY BODILY INJURY LIABILITY AND PROPERTY DAMAGE LIABILITY	
					ALL PERSONS / ALL DAMAGES EACH ACCIDENT or OCCURRENCE	AGGREGATE
A	OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY FOR AND IN THE NAME OF THE STATE OF CONN. (1)(2) SEE BELOW					
*B	COMMERCIAL GENERAL LIABILITY (1) SEE BELOW					
*C	EXPLOSION, COLLAPSE, OR UNDERGROUND DAMAGE LIABILITY (1) SEE BELOW					
*D	AUTOMOBILE LIABILITY OWNED AUTOMOBILES HIRED AUTOMOBILES NON-OWNED AUTOMOBILES (1) SEE BELOW					
*E	RAILROAD PROTECTIVE LIABILITY (1) (2) SEE BELOW					
*F	EXCESS/UMBRELLA LIABILITY (1) SEE BELOW					
G	VALUABLE PAPERS and RECORDS	XXXXXXXXXXXXX	XXXXXXXX	XXXXXXXX	POSSESSION	ALL OTHER
	VALUABLE PAPERS and RECORDS					
H	BLASTING (1) SEE BELOW					
I	** WORKERS' COMPENSATION				STATUTORY COVERAGES AND LIMITS	
J						

* State of Connecticut Is Named as Additional Insured.

** Compensation Commissioner's Certificate shall be supplied herewith by self-insured party.

Note: If Excess/Umbrella Liability Insurance is needed to meet the Agreement/Contract, etc. minimum requirements, complete Section F above.

Check This Certificate is issued in accordance with the terms of:

☐ Construction Contracts ☐ Lease Agreement Rights of Way ☐ Demolition Contracts

☐ Permit Work No. _____ ☐ Agree No. _____

☐ Engineering ☐ Project No. _____ ☐ Other Specify & including all operations incidental thereto.

PARTY FOR NOTICE Bureau: *Unit:* *Name:*

(1) It is agreed that the herein named Insurance Company will not use the defense of sovereign immunity in the adjustment of claims or in the defense of any suit brought against the State, unless requested to do so in writing by the State.

(2) It is agreed that the Insurance Company will bill premiums and audit charges earned under the protective liability policy(ies) to the above named insured; however, if named insured is different from the vendor, consultant, contractor or party of record, the vendor, consultant, contractor or party of record will be billed.

IN THE EVENT OF ANY REDUCTION IN LIMITS, CANCELLATION OF OR FAILURE TO RENEW ANY ONE OR MORE OF SAID POLICIES THE _____ (INSURANCE COMPANY) SHALL GIVE NOT LESS THAN THIRTY DAYS WRITTEN NOTICE TO THE PARTY FOR NOTICE TO WHOM THIS CERTIFICATE IS ISSUED OF SUCH REDUCTION IN LIMITS, CANCELLATION, OR FAILURE TO RENEW.

DATED THIS _____ DAY OF _____ _____

(Insurance Company)

(Address)

(Agency)

(Address)

(Authorized Agent's Name & Signature)

ISSUED TO: CONNECTICUT DEPARTMENT OF TRANSPORTATION
CONTRACT ADMINISTRATION
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

Printed on recycled or recovered paper.

59C

THIS FORM TO BE USED IN CONNECTION WITH EACH PERMIT, FOR WHICH A BOND IS REQUIRED FOR THE PERFORMANCE OF ALL THE TERMS, CONDITIONS, OF SAID PERMIT.	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION BUREAU OF ENGINEERING & HIGHWAY OPERATIONS CLA-5 REV. 8/00 (302-06-0087) **PERMIT BOND**	NAME OF PERMIT HOLDER BOND NUMBER

Know all Men by these Presents,

That we, ... of the Town of ....., County of
(Permittee)

....., and State of Connecticut, as Principal, and .....,
(Bonding Company)

of the State of ..... having an office and place of business at.....

....., as surety, are held and firmly bound unto the State of

Connecticut, in the sum of ..... DOLLARS, lawful money of the United States, to be paid to assure completion of all work for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators and assigns, jointly and severally by these presents, the said bond and surety to continue to be holden to the State of Connecticut until consent to the cancellation thereof is given in writing by the Commissioner of Transportation of Connecticut or his authorized agent

The condition of this obligation is such, that

WHEREAS, the above named Principal has received, or may, upon his application, receive a permit or permits from the State of Connecticut to perform work on, about or adjacent to a highway or for the use of the state highway right of way, on, over, or below, within said State of Connecticut as is or may be particularly specified in said permit or permits, to which permit or permits reference is hereby made and are made a part hereof; and

WHEREAS, the said Principal has undertaken and does hereby agree to comply with all the rules, regulations and restrictions of said State of Connecticut in regard to said permit or permits.

NOW THEREFORE, if the said Principal fails to complete the required work described in the permit, it will be the responsibility of the bonding company to arrange for the completion of all necessary work as required, to the satisfaction of the State and, if the said Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements specified in said permit or permits, and shall well and truly save harmless and indemnify the said State of Connecticut and the Commissioner of Transportation of said State, or either of them, from damages and costs that the State of Connecticut of the Commissioner of Transportation may suffer, be liable for, or be compelled to pay, or in fact does pay, for any injuries or damages which may be caused by any action or work being carried on either by the said Principal, his servants, agents or employees, under any permit or permits issued or which may be issued by said State of Connecticut or its authorized agent, or by reason of negligence or violation of any law on the part of said Principal, his servants, agents, or employees, and, further, idemnify said State of Connecticut for any expenses that said State of Connecticut or the Commissioner of Transportation may suffer, be liable for, or be compelled to pay, or in fact does pay for any required adjustments to the highway and its facilities to a comparable condition, including but not limited to refilling openings or excavations, removing cable guide railings, removing trees, tree stumps and other obstructions, replacing drainage involving driveways and restoring pavements open or excavated, satisfactory to the State, as existed prior to the initiation of the work by said principal, his servants, agents or employees, then his obligation shall be void; otherwise to remain in full force and effect.

All of the provisions of the foregoing are to be subject to the present statute laws of the State of Connecticut and to any change, alteration or repeal of any existing laws as may be enacted by any future session of the Legislature of the State of Connecticut.

IN WITNESS WHEREOF, we have hereunto set our hands and seals the ..... day of

....., in the year two-thousand.....

Witness to Permittee's Signature

.... L. S.
Permittee's Signature

..... L. S.
Bond Company Name

.....
Bond Company Address

..... L. S.
Agent Representing Bond Company

59D

General Decision Number: CT100003 03/12/2010 CT3

Superseded General Decision Number: CT20080003

State: Connecticut

Construction Type: Highway

County: New London County in Connecticut.

HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010

* BRCT0001-003 10/05/2009

	Rates	Fringes
BRICKLAYER		
BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, PLASTERERS, STONE MASONS....	$ 32.18	19.79

CARP0024-002 05/04/2009

	Rates	Fringes
Carpenters:		
Carpenters, Piledrivers.....	$ 29.00	17.80
Diver Tenders.....	$ 29.00	17.80
Divers.....	$ 37.46	17.80

ELEC0035-003 06/01/2009

	Rates	Fringes
Electricians:		
Bozrah, Colchester, Franklin, Griswold, Lebanon, Ledyard, Lisbon, Montville, North Stonington, Norwich, Preston, Salem, Sprague, Stonington and Voluntown....	$ 35.40	19.51

ELEC0090-003 06/01/2009

East Lyme, Groton, New London, Old Lyme, Waterford, plus the part of Ledyard wherein the property of the Submarine Base is located

	Rates	Fringes
ELECTRICIAN	$ 34.95	19.50

ENGI0478-002 04/05/2009

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 34.05	17.75+a
GROUP 2	$ 33.73	17.75+a
GROUP 3	$ 32.99	17.75+a
GROUP 4	$ 32.60	17.75+a
GROUP 5	$ 32.01	17.75+a
GROUP 6	$ 31.70	17.75+a
GROUP 7	$ 31.36	17.75+a
GROUP 8	$ 30.96	17.75+a
GROUP 9	$ 30.53	17.75+a
GROUP 10	$ 28.49	17.75+a
GROUP 11	$ 28.49	17.75+a
GROUP 12	$ 28.43	17.75+a
GROUP 13	$ 29.96	17.75+a
GROUP 14	$ 27.85	17.75+a
GROUP 15	$ 27.54	17.75+a
GROUP 16	$ 26.71	17.75+a
GROUP 17	$ 26.30	17.75+a
GROUP 18	$ 25.65	17.75+a

Hazardous waste premium $3.00 per hour over classified rate.

Crane with 150 ft. boom (including jib): $1.50 extra.
Crane with 200 ft. boom (including jib): $2.50 extra.
Crane with 250 ft. boom (including jib): $5.00 extra.
Crane with 300 ft. boom (including jib): $7.00 extra.
Crane with 400 ft. boom (including jib); $10.00 extra.

a. PAID HOLIDAYS: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas

Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Crane Handling or Erecting Structural Steel or tone; Hoisting Engineer (2 drums or over); Front End Loader (7 cubic yards or over) Work Boat 26 ft. & over.

GROUP 2: Cranes (100 ton rated capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer).

GROUP 3: Excavator; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes. shaping, laser or GPS, etc.)

GROUP 4: Trenching machines; Lighter Derrick; Concrete Finishing Machine, cmi Machine or Similar; Koehring Loader Skooper).

GROUP 5: Specialty Railroad Equipment; Asphalt Spreader; Asphalt Reclaiming achine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell); Side Boom; Combination Hoe and Loader; Directional Driller.

GROUP 6: Front End Loader (3 cu. yds. up to 7 cubic yards); Bulldozer (Rough grade dozer).

GROUP 7: Asphalt Roller; Concrete Saws and Cutters (Ride on Types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).

GROUP 8: Mechanic; Grease Truck Operator; Hydroblaster; Barrier Mover; Power Stone Spreader; Welder; Work Boat Under 26 ft.; Transfer Machine.

GROUP 9: Front End Loader (under 3 cubic yards); Skid Steer Loader (regardless of attachments); (Bobcat or similar);

Fork Lift; Power Chipper; Landscape Equipment (including Hydroseeder).

GROUP 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.

GROUP 11: Conveyor; Earth Roller; Power Pavement Breaker (Whiphammer); Robot Demolition Equipment.

GROUP 12: Wellpoint Operator.

GROUP 13: Portable Asphalt Plant Operator; Portable Concrete Plant Operator; Portable Crusher Plant Operator.

GROUP 14: Compressor Battery Operator.

GROUP 15: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (Minimum for any job requiring a CDL License)

GROUP 16: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).

GROUP 17: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater operator.

GROUP 18: Maintenance Engineer.

IRON0015-003 06/29/2009

	Rates	Fringes
Ironworkers: (Reinforcing & Structural)	$ 32.75	25.08+a

a. PAID HOLIDAY: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

LABO0056-003 04/05/2009

	Rates	Fringes
Laborers:		
(1)	$ 24.25	14.45
(2)	$ 24.50	14.45
(3)	$ 24.75	14.45
(4)	$ 26.00	14.45

(5).....$ 16.00 14.45

LABORERS CLASSIFICATIONS

(1) Laborers (Unskilled).

(2) Chain saw operators, fence and guard rail erectors, pneumatic tool operators and powdermen.

(3) Jackhammer/Pavement breaker (handheld), mason tenders/catch basin builders, asphalt rakers, air track operators, block pavers and curb setters.

(4) Blasters

(5) Traffic control signalmen.

PAIN0011-002 06/01/2009

	Rates	Fringes
Painters:		
Blast and Spray	$ 31.17	14.55
Brush and Roll	$ 28.17	14.55
Tanks, Towers, Swing	$ 30.17	14.55

PAIN0011-003 06/01/2008

	Rates	Fringes
Painters: (BRIDGE CONSTRUCTION)		
Brush, Roller, Blasting (Sand, Water, etc.) Spray	$ 37.65	14.20

TEAM0064-003 04/05/2009

	Rates	Fringes
Truck drivers:		
2 Axle Ready Mix	$ 27.08	13.48+a
2 Axle	$ 26.98	13.48+a
3 Axle Ready Mix	$ 27.13	13.48+a
3 Axle	$ 27.08	13.48+a
4 Axle Ready Mix	$ 27.23	13.48+a
4 Axle	$ 27.18	13.48+a
Heavy Duty Trailer 40 tons		

and over	$ 27.43	13.48+a
Heavy Duty Trailer up to 40 tons	$ 27.18	13.48+a
Specialized (Earth moving equipment other than conventional type on-the-road trucks and semi-trailers, including Euclids)	$ 27.23	13.48+a

Hazardous waste removal work receives additional $1.25 per hour.

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination

* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

Certified Payroll Form WWS - CPI

Last Updated:

In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.

Note: Once you have downloaded these forms and are ready to print them out, set the print function on your PC to the horizontal print orientation.

Note2: Please download both the Payroll Certification for Public Works Projects **and** the Certified Statement of Compliance for a complete package. The Certified Statement of Compliance appears on the same page as the Fringe Benefits Explanation page.

Announcement: The Certified Payroll Form WWS-CPI can now be completed on-line!

- Certified Payroll Form WWS-CPI (PDF, 727KB)
- Sample Completed Form (PDF, 101KB)

- Special Notice -

To All State and Political Subdivisions,Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the ***contractor's*** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

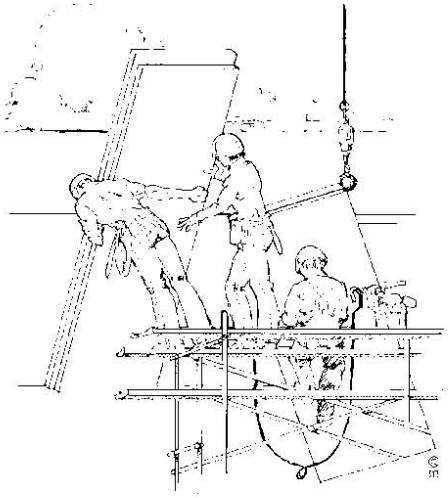
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "**Contracting Agency Certification Form**" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860)263-6543.



November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007*, where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53.

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification.

Below are additional clarifications of specific job duties performed for certain classifications:

Asbestos Insulator

- Handle, install, apply, fabricate, distribute, prepare, alter, repair, or dismantle heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

Carpenter

- Assembly and installation of modular fumiture/fumiture systems.
  [New] a. Free-standing furniture is not covered. This includes: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two- position information access station, file cabinets, storage cabinets, tables, etc.
- Applies fire stopping materials on fire resistive joint systems only.
- Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings.
- Installation of curtain/window walls only where attached to wood or metal studs.

Cleaning Laborer

- The clean up of any construction debris and the general cleaning, including sweeping, wash down, mopping, wiping of the construction facility, washing, polishing, dusting, etc., prior to the issuance of a certificate of occupancy falls under the *Labor classification.*

Delivery Personnel (Revised)

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.
- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer/tradesman and not a delivery personnel.

Electrician

- Installation or maintenance of telecommunication, LAN wiring or computer equipment.
- Low voltage wiring.

Fork Lift Operator

- Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.
- Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

Glaziers

- Installs light metal sash, head sills, and 2-story aluminum storefronts.
- Installation of aluminum window walls and curtain walls is the 'Soidtwork of the Glaziers and Ironworkers classification which requires either a blended rate or equal composite workforce.

Ironworkers

- Handling, sorting, and installation of reinforcing steel (rebar).
- Installation of aluminum window walls and curtain walls is the "joint work" of the Glaziers and Ironworkers classification which requires either a blended rate or equal composite workforce. Insulated metal and insulated composite panels are still installed by the Ironworker.
- Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation.

Insulator

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings. Past practice using the applicable licensed trades, Plumber, Sheet Metal, Sprinkler Fitter, and Electrician, is not inconsistent with the Insulator classification and would be permitted.

Lead Paint Removal

- Painter Rate
    1. Removal of lead paint from bridges.
    2. Removal of lead paint as preparation of any surface to be repainted.
    3. Where removal is on a Demolition project prior to reconstruction.
- Laborer Rate
    1. Removal of lead paint from any surface NOT to be repainted.
    2. Where removal is on a *TOTAL* Demolition project only.

Roofers

- Preparation of surface, tear-off and/or removal of any type of roofing, and/or clean-up of any areas where a roof is to be relaid.

Sheet Metal Worker

- Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, wall panel siding, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Insulated metal and insulated composite panels are still installed by the Iron Worker. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers.

Truck Drivers

- Truck Drivers delivering asphalt are covered under prevailing wage while on the site and directly involved in the paving operation.
- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as hs is part of the construction process.

✎ Any questions regarding the proper classification should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd, Wethersfield, CT 06 109 at (860) 263-6543.

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers (including caulking), Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Bricklayer (Residential- Fairfield County)

a. Paid Holiday: If an employee works on Christmas Eve until noon he shall be paid for 8 hours.

Electricians
Fairfield County: West of the Five Mile River in Norwalk

a. $2.00 per hour not to exceed $14.00 per day.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

I,_____of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

Subscribed and sworn to before me this _____ day of _____,_____.

_____
Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine

Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative — title

for _____, located at _____,
contracting agency — address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number — address

shall be $_____, which includes all work, regardless of whether such project

consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

Project: Downtown Mystic Streetscapes

Minimum Rates and Classifications
for Heavy/Highway Construction

H 13448

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: | Project Town: Groton
FAP Number: | State Number:
Project: Downtown Mystic Streetscapes

CLASSIFICATION	Hourly Rate	Benefits
01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 7**		
1) Boilermaker	$33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	$32.18	19.79
2) Carpenters, Piledrivermen	$29.00	17.80
2a) Diver Tenders	$29.00	17.80

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3) Divers	$37.46	17.80
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	$37.65	14.20
4a) Painters: Brush and Roller	$28.17	14.55
4b) Painters: Spray Only	$31.17	14.55
4c) Painters: Steel Only	$30.17	14.55
4d) Painters: Blast and Spray	$31.17	14.55
4e) Painters: Tanks, Tower and Swing	$30.17	14.55
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	$34.95	19.50

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6) Ironworkers: (Ornamental, Reinforcing, Structural, and Precast Concrete Erection	$32.75	25.08 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	$36.32	21.26

----LABORERS----

8) Group 1: Laborer (Unskilled); Common or General	$24.25	14.45
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen, air tool operator	$24.50	14.45
10) Group 3: Pipelayers (Installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license)- Last updated 4/8/09	$24.75	14.45
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block pavers and curb setters	$24.75	14.45
12) Group 5: Toxic waste workers (non-mechanical systems) - Last updated 4/8/09	$26.25	14.45

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13) Group 6: Blasters	$26.00	14.45
Group 7: Asbestos Removal, non-mechanical systems (does not include leaded joint pipe) - Last updated 4/8/09	$25.25	14.45
Group 8: Traffic control signalmen	$16.00	14.45

----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.---- Last updated 4/5/09----

13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	$28.58	14.45 + a
13b) Brakemen, Trackmen	$27.75	14.45 + a

----CLEANING, CONCRETE AND CAULKING TUNNEL----Last updated 4/5/09----

14) Concrete Workers, Form Movers, and Strippers	$27.75	14.45 + a

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15) Form Erectors	$28.03	14.45 + a

----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----Last updated 4/5/09----

16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	$27.75	14.45 + a
17) Laborers Topside, Cage Tenders, Bellman	$27.65	14.45 + a
18) Miners	$28.58	14.45 + a

----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----Last updated 4/5/09----

18a) Blaster	$34.19	14.45 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	$34.02	14.45 + a

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20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	$32.30	14.45 + a
21) Mucking Machine Operator	$34.70	14.45 + a

----TRUCK DRIVERS----(*see note below)

Two axle trucks	$26.98	13.48 + a
Three axle trucks; two axle ready mix	$27.08	13.48 + a
Three axle ready mix	$27.13	13.48 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	$27.18	13.48 + a
Four axle ready-mix	$27.23	13.48 + a

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Heavy duty trailer (40 tons and over)	$27.43	13.48 + a
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	$27.23	13.48 + a

----POWER EQUIPMENT OPERATORS----

Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over. (Trade License Required)	$34.05	17.75 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer). (Trade License Required)	$33.73	17.75 + a
Group 3: Excavator; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	$32.99	17.75 + a
Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper)	$32.60	17.75 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	$32.01	17.75 + a

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Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	$32.01	17.75 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	$31.70	17.75 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).	$31.36	17.75 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	$30.96	17.75 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	$30.53	17.75 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	$28.49	17.75 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	$28.49	17.75 + a
Group 12: Wellpoint Operator.	$28.43	17.75 + a

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Group 13: Compressor Battery Operator.	$27.85	17.75 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	$26.71	17.75 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	$26.30	17.75 + a
Group 16: Maintenance Engineer/Oiler	$25.65	17.75 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	$29.96	17.75 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	$27.54	17.75 + a

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----Last updated 4/17/09----

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Project: Downtown Mystic Streetscapes

20) Lineman, Cable Splicer, Dynamite Man	$35.65	10.70 + 6.25%
21) Heavy Equipment Operator	$22.09	10.70 + 6.25%
22) Equipment Operator, Tractor Trailer Driver, Material Men	$30.30	10.70 + 6.25%
23) Driver Groundmen	$26.74	10.70 + 6.25%

----LINE CONSTRUCTION----Last updated 4/17/09----

24) Driver Groundmen	$30.92	6.5% + 9.70
25) Groundmen	$22.67	6.5% + 6.20
26) Heavy Equipment Operators	$37.10	6.5% + 10.70

As of: Monday, March 29, 2010

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27) Linemen, Cable Splicers, Dynamite Men	$41.22	6.5% + 12.20
28) Material Men, Tractor Trailer Drivers, Equipment Operators	$35.04	6.5% + 10.45

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Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.*

***Note: Hazardous waste premium $3.00 per hour over classified rate*

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work ~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

As of: Monday, March 29, 2010

Project: Downtown Mystic Streetscapes

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: Monday, March 29, 2010

Schedule 1

SPECIAL PROVISIONS
DISADVANTAGED BUSINESS ENTERPRISES
FOR FEDERAL FUNDED PROJECTS

(For Municipal Advertised and Awarded Projects Only)

Revised – February 26, 2009

NOTE: Certain of the requirements and procedures stated in this Special Provisions are applicable prior to the award and execution of the Contract document.

I. ABBREVIATIONS AND DEFINITIONS AS USED IN THIS SPECIAL PROVISION

A. "ConnDOT" means the Connecticut Department of Transportation.

B. "DOT" means the U.S. Department of Transportation, including the Office of the Secretary, the Federal Highway Administration ("FHWA"), the Federal Transit Administration ("FTA"), and the Federal Aviation Administration ("FAA").

C. "Broker" means a party acting as an agent for others in negotiating Contracts, Agreements, purchases, sales, etc., in return for a fee or commission.

D. "Contract," "Agreement" or "subcontract" means a legally binding relationship obligating a seller to furnish supplies or services (including, but not limited to, construction and professional services) and the buyer to pay for them. For the purposes of this provision, a lease for equipment or products is also considered to be a Contract.

E. "Contractor," means a prime contractor, consultant, second party or any other entity doing business with or engaged by the Municipality or, as the context may require, with or by another Contractor.

F. "Disadvantaged Business Enterprise" ("DBE") means a small business concern:

1. That is at least fifty-one percent (51%) owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which fifty-one percent (51%)of the stock of which is owned by one or more such individuals; and

2. Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

G. "DOT-assisted Contract" means any Contract between a recipient and a Contractor (at any tier) funded in whole or in part with DOT financial assistance, including letters of credit or loan guarantees.

H. "Good Faith Efforts" means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement. Refer to Appendix A of 49 Code of Federal Regulation ("CFR") Part 26 – "Guidance Concerning Good Faith Efforts," a copy of which is attached to this provision, for guidance as to what constitutes good faith efforts.

I. "Small Business Concern" means, with respect to firms seeking to participate as DBEs in DOT-assisted Contracts, a small business concern as defined pursuant to Section 3 of the Small Business Act and Small Business Administration ("SBA") regulations implementing it (13 CFR Part 121) that also does not exceed the cap on average annual gross receipts specified in 49 CFR Part 26, Section 26.65(b).

J. "Socially and Economically Disadvantaged Individuals" means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is—

1. Any individual who ConnDOT finds on a case-by-case basis to be a socially and economically disadvantaged individual.

2. Any individuals in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

   i. "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;

   ii. "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

   iii. "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

   iv. "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kirbati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;

   v. "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;

   vi. Women;

   vii. Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

II. GENERAL REQUIREMENTS

A. The Contractor, sub-recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted Contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy, as the Municipality and ConnDOT deem appropriate.

B. The Contractor shall cooperate with the Municipality, ConnDOT and DOT in implementing the requirements concerning DBE utilization on this Contract in accordance with Title 49 of the Code of Federal Regulations, Part 26 entitled "Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs" ("49 CFR Part 26"), as revised. The Contractor shall also cooperate with the Municipality, ConnDOT and DOT in reviewing the Contractor's activities relating to this Special Provision. This Special Provision is in addition to all other equal opportunity employment requirements of this Contract.

C. The Contractor shall designate a liaison officer who will administer the Contractor's DBE program. Upon execution of this Contract, the name of the liaison officer shall be furnished in writing to the Municipality.

D. For the purpose of this Special Provision, DBEs to be used to satisfy the DBE goal must be certified by ConnDOT's Division of Contract Compliance for the type(s) of work they will perform.

E. If the Contractor allows work designated for DBE participation required under the terms of this Contract and required under III-B to be performed by other than the named DBE organization without concurrence from the Municipality, the Municipality will not pay the Contractor for the value of the work performed by organizations other than the designated DBE.

F. At the completion of all Contract work, the Contractor shall submit a final report to the Municipality indicating the work done by, and the dollars paid to DBEs. If the Contractor does not achieve the specified Contract goals for DBE participation, the Contractor shall also submit written documentation to the Municipality detailing its good faith efforts to satisfy the goal that were made during the performance of the Contract. Documentation is to include, but not be limited to the following:

1. A detailed statement of the efforts made to select additional subcontracting opportunities to be performed by DBEs in order to increase the likelihood of achieving the stated goal.

2. A detailed statement, including documentation of the efforts made to contact and solicit bids with ConnDOT certified DBEs, including the names, addresses, dates and telephone numbers of each DBE contacted, and a description of the information provided to each DBE regarding the scope of services and anticipated time schedule of work items proposed to be subcontracted and nature of response from firms contacted.

3. Provide a detailed statement for each DBE that submitted a subcontract proposal, which the Contractor considered not to be acceptable stating the reasons for this conclusion.

4. Provide documents to support contacts made with ConnDOT requesting assistance in satisfying the Contract specified goal.

5. Provide documentation of all other efforts undertaken by the Contractor to meet the defined goal.

G. Failure of the Contractor, at the completion of all Contract work, to have at least the specified percentage of this Contract performed by DBEs as required in III-B will result in the reduction in Contract payments to the Contractor by an amount determined by multiplying the total Contract value by the specified percentage required in III-B and subtracting from that result, the dollar payments for the work actually performed by DBEs. However, in instances where the Contractor can adequately document or substantiate its good faith efforts made to meet the specified percentage to the satisfaction of the Municipality and ConnDOT, no reduction in payments will be imposed.

H. All records must be retained for a period of three (3) years following acceptance by the Municipality of the Contract and shall be available at reasonable times and places for inspection by authorized representatives of the Municipality, ConnDOT and Federal agencies. If any litigation, claim, or audit is started before the expiration of the three (3) year period, the records shall be retained until all litigation, claims, or audits findings involving the records are resolved.

I. Nothing contained herein, is intended to relieve any Contractor or subcontractor or material supplier or manufacturer from compliance with all applicable Federal and State legislation or provisions concerning equal employment opportunity, affirmative action, nondiscrimination and related subjects during the term of this Contract.

III. SPECIFIC REQUIREMENTS:

In order to increase the participation of DBEs, the Municipality requires the following:

A. The Contractor shall assure that certified DBEs will have an opportunity to compete for subcontract work on this Contract, particularly by arranging solicitations and time for the preparation of proposals for services to be provided so as to facilitate the participation of DBEs regardless if a Contract goal is specified or not.

B. The DBE contract goal percentage for the Project is _____ (Construction) and _____ (Construction Inspection). The goal shall be shall be based upon the total contract value. Compliance with this provision may be fulfilled when a DBE or any combination of DBEs perform work under contract in accordance with 49 CFR Part 26, Subpart C Section 26.55, as revised. **Only work actually performed by and/or services provided by DBEs which are certified for such work and/or services can be counted toward the DBE goal. Supplies and equipment a DBE purchases or leases from the prime Contractor or its affiliate cannot be counted toward the goal.**

If the Contractor does not document commitments, by subcontracting and/or procurement of material and/or services that at least equal the goal, it must document the good faith efforts that outline the steps it took to meet the goal in accordance with VII.

C. Within 7 days after the bid opening, the low bidder shall indicate in writing to the Municipality, on the forms provided, the DBE(s) it will use to achieve the goal indicated in III-B. The submission shall include the name and address of each DBE that will participate in this Contract, a description of the work each will perform, the dollar amount of participation, and the percentage this is of the

bid amount. This information shall be signed by the named DBE and the low bidder. The named DBE shall be from a list of certified DBEs available from ConnDOT. **In addition, the named DBE(s) shall be certified to perform the type of work they will be contracted to do.**

D. The prime Contractor shall submit to the Municipality all requests for subcontractor approvals on the standard forms provided by the Municipality.

If the request for approval is for a DBE subcontractor for the purpose of meeting the Contract DBE goal, a copy of the legal Contract between the prime and the DBE subcontractor must be submitted along with the request for subcontractor approval. Any subsequent amendments or modifications of the Contract between the prime and the DBE subcontractor must also be submitted to the Municipality with an explanation of the change(s). The Contract must show items of work to be performed, unit prices and, if a partial item, the work involved by all parties.

In addition, the following documents are to be attached:

1. An explanation indicating who will purchase material.

2. A statement explaining any method or arrangement for renting equipment. If rental is from a prime, a copy of the Rental Agreement must be submitted.

3. A statement addressing any special arrangements for manpower.

E. The Contractor is required, should there be a change in a DBE they submitted in III-C, to submit documentation to the Municipality which will substantiate and justify the change (i.e., documentation to provide a basis for the change for review and approval by the Municipality) prior to the implementation of the change. The Contractor must demonstrate that the originally named DBE is unable to perform in conformity to the scope of service or is unwilling to perform, or is in default of its Contract, or is overextended on other jobs. **The Contractor's ability to negotiate a more advantageous Agreement with another subcontractor is not a valid basis for change.** Documentation shall include a letter of release from the originally named DBE indicating the reason(s) for the release.

F. Contractors subcontracting with DBEs to perform work or services as required by this Special Provision shall not terminate such firms without advising the Municipality in writing, and providing adequate documentation to substantiate the reasons for termination if the DBE has not started or completed the work or the services for which it has been contracted to perform.

G. When a DBE is unable or unwilling to perform, or is terminated for just cause, the Contractor shall make good faith efforts to find other DBE opportunities to increase DBE participation to the extent necessary to at least satisfy the goal required by III-B.

H. In instances where an alternate DBE is proposed, a revised submission to the Municipality together with the documentation required in III-C, III-D, and III-E, must be made for its review and approval.

I. Each quarter after execution of the Contract, the Contractor shall submit a report to the Municipality indicating the work done by, and the dollars paid to the DBE for the current quarter and to date.

J. Each contract that the Municipality signs with a Contractor and each subcontract the Contractor signs with a subcontractor must include the following assurance: *The contractor, sub recipient*

or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

IV. MATERIAL SUPPLIERS OR MANUFACTURERS

A. If the Contractor elects to utilize a DBE supplier or manufacturer to satisfy a portion or all of the specified DBE goal, the Contractor must provide the Municipality with:

1. An executed "Affidavit for the Utilization of Material Suppliers or Manufacturers" (sample attached), and

2. Substantiation of payments made to the supplier or manufacturer for materials used on the project.

B. Credit for DBE suppliers is limited to 60% of the value of the material to be supplied, provided such material is obtained from a regular DBE dealer. A regular dealer is a firm that owns, operates, or maintains a store, warehouse or other establishment in which the materials or supplies required for the performance of the Contract are bought, kept in stock and regularly sold or leased to the public in the usual course of business. To be a regular dealer, the firm must engage in, as its principal business, and in its own name, the purchase and sale of the products in question. A regular dealer in such bulk items as steel, cement, gravel, stone and petroleum products, need not keep such products in stock if it owns or operates distribution equipment. Brokers and packagers shall not be regarded as material suppliers or manufacturers.

C. Credit for DBE manufacturers is 100% of the value of the manufactured product. A manufacturer is a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Municipality, Department of Transportation or Contractor.

V. NON-MANUFACTURING OR NON-SUPPLIER DBE CREDIT:

A. Contractors may count towards their DBE goals the following expenditures with DBEs that are not manufacturers or suppliers:

1. Reasonable fees or commissions charged for providing a bona fide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment materials or supplies necessary for the performance of the Contract, provided that the fee or commission is determined by the Municipality to be reasonable and consistent with fees customarily allowed for similar services.

2. The fees charged for delivery of materials and supplies required on a job site (but not the cost of the materials and supplies themselves) when the hauler, trucker, or delivery service is a DBE but is not also the manufacturer of or a regular dealer in the materials and supplies, provided that the fees are determined by the Municipality to be reasonable and not excessive as compared with fees customarily allowed for similar services.

3. The fees or commissions charged for providing bonds or insurance specifically required for the performance of the Contract, provided that the fees or commissions are determined by the

Municipality to be reasonable and not excessive as compared with fees customarily allowed for similar services.

VI. BROKERING

A. Brokering of work by DBEs who have been approved to perform subcontract work with their own workforce and equipment is not allowed, and is a Contract violation.

B. DBEs involved in the brokering of subcontract work that they were approved to perform may be decertified.

C. Firms involved in the brokering of work, whether they are DBEs and/or majority firms who engage in willful falsification, distortion or misrepresentation with respect to any facts related to the project shall be referred to the U.S. Department of Transportation's Office of the Inspector General for prosecution under Title 18, U.S. Code, Section 10.20.

VII. REVIEW OF PRE-AWARD GOOD FAITH EFFORTS

A. If the Contractor does not document pre-award commitments by subcontracting and/or procurement of material and/or services that at least equal the goal stipulated in III-B, the Contractor must document the good faith efforts that outline the specific steps it took to meet the goal. The Contract will be awarded to the Contractor if its good faith efforts are deemed satisfactory and approved by ConnDOT. To obtain such an exception, the Contractor must submit an application to the Municipality, which documents the specific good faith efforts that were made to meet the DBE goal. **Application form for Review of Pre-Award Good Faith Efforts is attached hereto.**

The application must include the following documentation:

1. a statement setting forth in detail which parts, if any, of the Contract were reserved by the Contractor and not available for bid by subcontractors;

2. a statement setting forth all parts of the Contract that are likely to be sublet;

3. a statement setting forth in detail the efforts made to select subcontracting work in order to likely achieve the stated goal;

4. copies of all letters sent to DBEs;

5. a statement listing the dates and DBEs that were contacted by telephone and the result of each contact;

6. a statement listing the dates and DBEs that were contacted by means other than telephone and the result of each contact;

7. copies of letters received from DBEs in which they declined to bid;

8. a statement setting forth the facts with respect to each DBE bid received and the reason(s) any such bid was declined;

9. a statement setting forth the dates that calls were made to ConnDOT's Division of Contract Compliance seeking DBE referrals and the result of each such call; and

10. any information of a similar nature relevant to the application.

The review of the Contractor's good faith efforts may require an extension of time for award of the Contract. In such a circumstance, and in the absence of other reasons not to grant the extension or make the award, the Municipality will agree to the needed extension(s) of time for the award of the Contract, provided the Contractor and the surety also agree to such extension(s).

B. Upon receipt of the submission of an application for review of pre-award good faith efforts, the Municipality shall submit the documentation to ConnDOT initiating unit for submission to the ConnDOT Division of Contract Compliance. ConnDOT Division of Contract Compliance will review the documents and determine if the package is complete, accurate and adequately documents the Contractor's good faith efforts. Within fourteen (14) days of receipt of the documentation, the ConnDOT Division of Contract Compliance shall notify the Contractor by certified mail of the approval or denial of its good faith efforts.

C. If the Contractor's application is denied, the Contractor shall have seven (7) days upon receipt of written notification of denial to request administrative reconsideration. The Contractor's request for administrative reconsideration should be sent in writing to the Municipality. The Municipality will forward the Contractor's reconsideration request to the ConnDOT initiating unit for submission to the DBE Screening Committee. The DBE Screening Committee will schedule a meeting within fourteen (14) days from receipt of the Contractors request for administrative reconsideration and advise the Contractor of the date, time and location of the meeting. At this meeting, the Contractor will be provided with the opportunity to present written documentation and/or argument concerning the issue of whether it made adequate good faith efforts to meet the goal. Within seven (7) days following the reconsideration meeting, the chairperson of the DBE Screening Committee will send the Contractor, via certified mail, a written decision on its reconsideration request, explaining the basis of finding either for or against the request. The DBE Screening Committee's decision is final. **If the reconsideration is denied, the Contractor shall indicate in writing to the Municipality within fourteen (14) days of receipt of the written notification of denial, the DBEs it will use to achieve the goal indicated in III-B.**

D. Approval of pre-award good faith efforts does not relieve the Contractor from its obligation to make additional good faith efforts to achieve the DBE goal should contracting opportunities arise during actual performance of the Contract work.

APPENDIX A TO 49 CFR PART 26 -- GUIDANCE CONCERNING GOOD FAITH EFFORTS

I. When, as a recipient, you establish a Contract goal on a DOT-assisted Contract, a bidder must, in order to be responsible and/or responsive, make good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if it doesn't meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took all necessary and reasonable steps to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

II. In any situation in which you have established a Contract goal, Part 26 requires you to use the good faith efforts mechanism of this part. As a recipient, it is up to you to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important for you to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE Contract goal. Mere pro forma efforts are not good faith efforts to meet the DBE Contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm's good faith efforts is a judgment call: meeting quantitative formulas is not required.

III. The Department also strongly cautions you against requiring that a bidder meet a Contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a Contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits you from ignoring bona fide good faith efforts.

IV. The following is a list of types of actions which you should consider as part of the bidder's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the Contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out Contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation.

D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional Agreements could not be reached for DBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as Contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the Contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime Contractor to perform the work of a Contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime Contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women Contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

V. In determining whether a bidder has made good faith efforts, you may take into account the performance of other bidders in meeting the Contract. For example, when the apparent successful bidder fails to meet the Contract goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts.

AFFIDAVIT FOR THE UTILIZATION OF MATERIAL SUPPLIERS OR MANUFACTURERS

This affidavit must be completed by the Municipality Contractor's DBE notarized and attached to the Contractor's request to utilize a DBE supplier or manufacturer as a credit towards its DBE Contract requirements; failure to do so will result in not receiving credit towards the Contract DBE requirement.

State Project No.

Federal Aid Project No.

Description of Project

I, _____, acting in behalf of _____
(Name of person signing Affidavit) (DBE person, firm, association or organization)
of which I am the _____ certify and affirm that _____
(Title of Person) (DBE person, firm, association or organization)

is a certified Connecticut Department of Transportation DBE. I further certify and affirm that I have read and understand 49 CFR, Sec. 26.55(e)(2), as the same may be revised.

I further certify and affirm that _____ will assume the actual and
(DBE person, firm, association or organization)

contractual responsibility for the provision of the materials and/or supplies sought by _____.
(Municipality Contractor)

If a manufacturer, I produce goods from raw materials or substantially alter them before resale, or if a supplier, I perform a commercially useful function in the supply process.

I understand that false statements made herein are punishable by Law (Sec. 53a-157), CGS, as revised).

_____
(Name of Organization or Firm)

_____
(Signature & Title of Official making the Affidavit)

Subscribed and sworn to before me, this _____ day of _____ 20 _____.

Notary Public (Commissioner of the Superior Court)

My Commission Expires

CERTIFICATE OF CORPORATION

I, _____, certify that I am the _____ (Official) of the Organization named in the foregoing instrument; that I have been duly authorized to affix the seal of the Organization to such papers as require the seal; that _____, who signed said instrument on behalf of the Organization, was then _____ of said Organization; that said instrument was duly signed for and in behalf of said Organization by authority of its governing body and is within the scope of its organizational powers.

_____
(Signature of Person Certifying) (Date)

CONNECTICUT DEPARTMENT OF TRANSPORTATION
(OFFICE OF CONSTRUCTION)
BUREAU OF ENGINEERING AND HIGHWAY OPERATIONS

This affidavit must be completed by the State Contractor's DBE notarized and attached to the contractor's request to utilize a DBE supplier or manufacturer as a credit towards its DBE contract requirements; failure to do so will result in not receiving credit towards the contract DBE requirement.

State Project No.

Federal Aid Project No.

Description of Project

I, _____ , acting in behalf of
_____ (Name of person signing Affidavit) (DBE person, firm, association or corporation)
of which I am the _____ certify and affirm that
_____
(Title of Person) (DBE person, firm, association or corporation)
is a certified Connecticut Department of Transportation DBE. I further certify and affirm that I have read and understand 49 CFR, Sec. 26.55(e)(2), as the same may be revised.

I further certify and affirm that
_____ will assume the actual and
(DBE person, firm, association or Corporation)

for the provision of the materials and/or supplies sought by
_____ .
(State Contractor)
If a manufacturer, I produce goods from raw materials or substantially alter them before resale, or if a supplier, I perform a commercially useful function in the supply process.

I understand that false statements made herein are punishable by Law (Sec. 53a-157), CGS, as revised).

(Name of Corporation or Firm)

(Signature & Title of Official making the Affidavit)

Subscribed and sworn to before me, this _____ day of _____ 20 _____.

Notary Public (Commissioner of the Superior Court)

My Commission Expires

CERTIFICATE OF CORPORATION

I, _____ , certify that I am the
(Official)
of the Corporation named in the foregoing instrument; that I have been duly authorized to affix the seal of the Corporation to such papers as require the seal; that _____, who signed said instrument on behalf of the Corporation, was then _____ of said corporation; that said instrument was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporation powers.

_____ _____
(Signature of Person Certifying) (Date)

NOTICE TO CONTRACTOR

ARRA REPORTING REQUIREMENTS

For the purposes of this Notice, "Contractor" means any prime contractor, consulting engineer, or other entity contracting with the State of Connecticut Department of Transportation ("DOT") or a Municipality undertaking a project ("Project") funded under the American Recovery and Reinvestment Act of 2009 ("Act"). Additionally, to the extent that a Municipality is employing its own staff to undertake work on the Project, solely with respect to such work by its staff, the Municipality itself is likewise subject to the requirements herein that are imposed on the Contractor. A Project undertaken by a Municipality is identified herein as a "Municipality-administered Project," and a Project undertaken by DOT is identified herein as a "DOT-administered Project."

1. The Contractor agrees to accurately and timely record and report, in accordance with the requirements of the Act and additional guidelines, policies and regulations issued or promulgated pursuant to the Act, information regarding jobs or positions created or retained in Connecticut, the United States and outlying areas as a result of funding provided through the Act for the Project, including, but not limited to, the following requirements:

A. The Contractor shall accurately complete and submit to DOT or the Municipality, as applicable, on a monthly basis from commencement through completion of its work on the Project, an employment report using Form FHWA-1589 available at:http://www.fhwa.dot.gov/economicrecovery/forms/fhwa1589.xls ("Monthly Employment Report").

B. No later than the 3rd day of each month the Contractor shall:

(i) With respect to DOT-administered Projects, submit the completed Monthly Employment Report in Microsoft Excel file format to DOT by e-mail to: Theodore.Szymanski@ct.gov, with a copy to Philip.Scarrozzo@ct.gov; and also submit a hard copy, to the applicable DOT District office for inclusion in the Project file, signed by an authorized representative of the Contractor;

(ii) With respect to Municipality-administered Projects, submit the completed Monthly Employment Report in Microsoft Excel file format to the Municipality's designated employee by email or other electronic means as instructed by the Municipality; and

(iii) Provide a consistent filename for each Monthly Employment Report in the format ContractNumberMonthYear.xls (e.g., ######MAY09.xls);

C. Each of the Contractor's subcontractors and second-tier subcontractors shall submit an employment report using Form FHWA-1589 ("Monthly Subcontractor Employment Report") in Microsoft Excel file format to the Contractor on a monthly basis within sufficient time to enable the Contractor, in turn, to submit such Monthly Subcontractor Employment Report(s) to DOT or the Municipality, as applicable, by the Contractor's Seven (7) Day Submission Requirement. Failure by the collective subcontractors to timely submit such Monthly Subcontractor Employment Report(s) to the Contractor does not excuse the Contractor's obligation to submit its Monthly Employment Report within the required time.

2. Receipt of funds pursuant to the Act under this Contract is contingent upon the Contractor meeting the reporting requirements of this Contract and any additional reporting requirements of the Act as may be required by the appropriate federal agency through its issuance of guidelines or promulgation of regulation(s).

(a). The Contractor agrees that at any time during the Project, the Federal Highway Administration ("FHWA") and/or DOT, after notice, may change the reporting requirements herein. In that event, the Contractor and its subcontractor(s) and second-tier subcontractor(s) shall comply with such requirements.

(b). DOT or the Municipality may take any action that FHWA authorizes for non-compliance with the reporting requirements set forth in Section 2 above.

3. The Contractor agrees to comply with Sections 1605 and 1606 of the Act and any additional federal guidelines or regulations issued or promulgated thereunder.

4. The following language is made a part of this Contract and shall be made part of all subcontracts and second tier subcontracts:

A. Access of United States Government Accountability Office, Section 902 of Title IX of Division A of the Act.

Pursuant to Section 902 of Title IX of Division A of the Act, the United States Comptroller General and its representatives may:

(1) examine any records of the Contractor or any of its subcontractors, or any State or local agency administering such Contract, that directly pertains to, and involve transactions relating to, the Contract or Subcontract; and

(2) interview any officer or employee of the Contractor or any of its subcontractors, or of any State or local government agency administering the Contract, regarding such transactions.

Nothing in Section 902 shall be interpreted to limit or restrict in any way any other statutory or regulatory authority of the United States Comptroller General.

B. Office of the Inspector General's Authority, Section 1515 of Title XV of Division A of the Act.

Pursuant to Section 1515, of Title XV of Division A of the Act, the United States Office of the Inspector General or any of its representatives may:

(1) examine any records of the Contractor or grantee, any of its subcontractors or subgrantees, or any State or local agency administering such Contract, that pertain to, and involve transactions relating to the Contract, subcontract, grant, or subgrant; and

(2) interview any officer or employee of the Contractor, grantee, subgrantee or agency regarding such transactions.

Nothing in Section 1515 shall be interpreted to limit or restrict in any way any other statutory or regulatory authority of the Inspector General.

C. Whistleblower Protections. Section 1553 of Title XV of Division A of the Act prohibits all non-federal recipients of Act funds from discharging, demoting or otherwise discriminating against an employee for disclosures by the employee that the employee reasonably believes are evidence of (1) gross mismanagement of a contract or grant relating to Act funds; (2) a gross waste of Act funds; (3) a substantial and specific danger to public health or safety related to the implementation or use of Act funds; (4) an abuse of authority related to implementation or use of Act funds; or (5) a violation of law, rule, or regulation related to an agency contract (including the competition for or negotiation of a contract) or grant, awarded or issued relating to Act funds. The recipient of Act funds must post notice of the rights and remedies available to employees under Section 1553 of Title XV of Division A of the Act.

D. False Claims Act. The recipient of Act funds shall promptly refer to an appropriate federal inspector general any credible evidence that a principal, employee, agent, contractor, sub-grantee, subcontractor or other person has committed a false claim under the False Claims Act or has committed a criminal or civil violation of laws pertaining to fraud, conflict of interest, bribery, gratuity, or similar misconduct involving those funds.

NOTICE TO CONTRACTOR – ARCHEOLOGICAL MONITORING

The entire project area is within historic districts and is an archeologically sensitive area. Refer to Section 1.10.06 Protection of Archeological and Paleontological Remains and Materials for further information on procedures should archeological resources be discovered.

At least one week before on-site work begins, Contractor shall meet with Engineer and Archeological Monitor to discuss Work Schedule and equipment and special methods to be used in archeologically sensitive areas. Contractor shall ensure that approved Work Schedule is followed throughout construction. Archeological Monitor will observe all ground-disturbing site work, including construction of temporary facilities, at all archeologically sensitive areas, from a safe location mutually agreed on by Contractor and Monitor. As new ground is broken, Monitor will examine excavated materials, using construction layout centerline and perimeter staking as a reference point to record locations of findings.

If Archeological Monitor discovers resources, immediate relocation of the work to a non-sensitive area may be required to allow Monitor to take soil samples and record resources. While Archeological Monitor is documenting resources in sensitive areas, Contractor shall relocate work to non-sensitive areas where monitoring is not normally required.

NOTICE TO CONTRACTOR - TRAFFIC DRUMS AND TRAFFIC CONES

Traffic Drums and 42-inch (1 m) Traffic Cones shall have four six-inch (150 mm) wide stripes (two - white and two - orange) of flexible bright fluorescent sheeting.

The material for the stripes shall be one of the following, or approved equal:

- 3M Scotchlite Diamond Grade Flexible Work Zone Sheeting, Model 3910 for the white stripes and Model 3914 for the orange stripes,

- Avery Dennison WR-7100 Series Reboundable Prismatic Sheeting, Model WR-7100 for the white stripes and Model WR-7114 for the orange stripes.

NOTICE TO CONTRACTOR - NCHRP 350 REQ. FOR WORK ZONE TRAFFIC CONTROL DEVICES

CATEGORY 1 DEVICES (traffic cones, traffic drums, tubular markers, flexible delineator posts)

Prior to using the Category 1 Devices on the project, the Contractor shall submit to the Engineer a copy of the manufacturer's self-certification that the devices conform to NCHRP Report 350.

CATEGORY 2 DEVICES (construction barricades, construction signs and portable sign supports)

Prior to using Category 2 Devices on the project, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices (both sign and portable support tested together) conform to NCHRP Report 350 (TL-3).

Specific requirements for these devices are included in the Special Provisions.

Information regarding NCHRP Report 350 devices may be found at the following web sites:

FHWA: http://safety.fhwa.dot.gov/roadway_dept/road_hardware/index.htm

ATSSA: http://www.atssa.com/resources/NCHRP350Crashtesting.asp

NOTE: The portable wooden sign supports that have been traditionally used by most contractors in the State of Connecticut do NOT meet NCHRP Report 350 criteria and shall not be utilized on any project advertised after October 01, 2000.

CATEGORY 3 DEVICES (Truck-Mounted Attenuators & Work Zone Crash Cushions)

Prior to using Category 3 Devices on the project, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices conform to NCHRP Report 350.

NOTICE TO CONTRACTOR - SUPERPAVE DESIGN LEVEL INFORMATION

Hot-Mix Asphalt (HMA) constructed according to the Superpave mix-design system is required to attain a Superpave Design Level and is required to use a Performance Graded (PG) binder. The Superpave Design Levels required for this project are listed in Table 1. The required PG binder is indicated for each mix with an "X" in the appropriate box in Table 1.

TABLE 1 – Superpave Design Level and Performance Graded (PG) Binder

Project No. (F.A.P. NO. H018(013)) will require the following Superpave Design Level(s):				
Mix Designation	**PG Binder**	**Route _____1_and 215_____ _____**	**Side Streets _____ _____**	**Route _____ _____**
	PG64-22	**Design Level**	**Design Level**	**Design Level**
HMA S0.25	x	2	2	-
HMA S0.375	x	2	2	-
HMA S0.5	x	2	2	-
HMA S1	x	2	2	-

NOTICE TO CONTRACTOR-GROUND WATER ELEVATION

In December 2007, a ground water monitoring well as installed at the corner of Main Street and Gravel Street in Mystic. Readings taken over a period of 41 days indicated that the groundwater is not significantly affected by the tide. The elevation of the groundwater is based on NGVD Datum and ranged from El. 1.73 to El. 1.02.

NOTICE TO CONTRACTOR -SECTION 12.08 – SIGN FACE-SHEET ALUMINUM

Work under this item shall conform to the requirements of Section 12.08 amended as follows:

General: Delete all references to parapet mounted sign supports.

Article M.18.15 – Sign Mounting Bolts: *Replace with the following*:

Bolts used for sign mounting shall be stainless steel and conform to ASTM F593, Group 1 or 2 (Alloy Types 304 or 316). Locking nuts shall be stainless steel and shall conform to ASTM F594 (Alloy Types 304 or 316). Washers shall also be stainless steel and shall conform to ASTM A240 (Alloy Types 304 or 316).

SECTION 1.03 - AWARD AND EXECUTION OF CONTRACT

Article 1.03.07 – Insurance:

Add the following after the second paragraph:

The Contractor shall produce, within five (5) business days, a copy or copies of all applicable insurance policies when requested by the State. In providing said policies, the Contractor may redact provisions of the policy that are proprietary. This provision shall survive the suspension, expiration or termination of this Contract.

Replace the like named paragraph with the following:

4. Engineer's and Contractor's Protective Liability Insurance for and in the Name of the State:

With respect to the Contractor's Project operations and also those of its subcontractors, the Contractor shall carry, for and on behalf of the State, insurance which shall provide coverage of at least $1,000,000 for each accident or occurrence resulting in damages from (1) bodily injury to or death of persons and/or (2) injury to or destruction of property. Subject to that limit per accident or occurrence, the policy shall provide an aggregate coverage of at least $2,000,000 for all pertinent damages arising during the policy period.

Delete subsections 8, 9 and 10 and replace them with the following:

8. Compensation:

There shall be no direct compensation allowed the Contractor on account of any premium or other charge necessary to obtain and keep in effect any insurance or bonds in connection with the Project, but the cost thereof shall be considered included in the general cost of the Project work.

9. Protection and Indemnity Insurance for Marine Construction Operations in Navigable Waters:

If a vessel of any kind will be involved in Project work, the Contractor shall obtain the following additional insurance coverage:
A. Protection and Indemnity Coverage of at least $300,000 per vessel or equal to at least the value of hull and machinery, whichever is greater.
B. If there is any limitation or exclusion with regard to crew and employees under the protection and indemnity form, the Contractor must obtain and keep in effect throughout the Project a workers' compensation policy, including coverage for operations under admiralty jurisdiction, with a limit of liability of at least $300,000 per accident or a limit

equal to at least the value of the hull and machinery, whichever is greater, or for any amount otherwise required by statute.

SECTION 1.04 - SCOPE OF THE WORK

Section 1.04 is supplemented and amended as follows:

Throughout this section, make the following substitutions for all occurrences of the word(s) identified below for substitution

Substitute “Town’s Representative” for “Department’s Assistant District Engineer”
Substitute “Town” for “Department” and for “State”

SECTION 1.05 - CONTROL OF THE WORK

Article 1.05.02 - Plans, Working Drawings and Shop Drawings is supplemented as follows:

Subarticle 1.05.02 - (2) is supplemented by the following:

When required by the contract documents or when ordered by the Engineer, The Contractor shall prepare and submit nine (9) sets of catalog cuts and or shop drawings for all traffic signal items to the Division of Traffic for approval before fabrication.

Please forward to:

Transportation Supervising Engineer
Connecticut Department of Transportation
Division of Traffic Engineering – Electrical (Unit #1406)
2800 Berlin Turnpike
P.O. Box 317546
Newington, Connecticut 06131-7546
(860) 594-2740

Article 1.05.08 - Schedules and Reports

1. Baseline Bar Chart Construction Schedule**:** The Contractor will develop a comprehensive bar-chart construction schedule for the project based on the following guidelines:

1. The bar chart schedule will contain a list of activities that represents the major elements of the project. At a minimum, this list should include a breakdown by individual structure or stage, including major components of each. The following is provided as an example only and is not meant to be all-inclusive (or all-applicable):

Project Management items
- -Winter shutdown
- -Environmental permit “window” periods
- -Milestones
- -Third Party approvals
- -Long lead time items
- -Fabrication of major elements (Structural steel, precast units, span poles etc.)
- -Adjacent Work by others

Award
Notice to Proceed
Signing (Construction, temporary, permanent by location)

Mobilization
Permit Acquisition
Field Office
Utility Relocations
Submittals/shop drawings/working drawings/product data
Material procurement/fabrication

Construction of Waste Stock pile area
Earthwork (Borrow, earth ex, rock ex etc.)
TPCBC
Temporary markings
Roadway Construction (Breakdown into excavation, fill, subbase, pavement, curbing, sidewalk, etc.)
Drainage (Breakdown into excavation, bedding, pipe, manholes, catch basins, backfill etc.)

Illumination
Pavement Markings
Plantings
Turf Establishment
Clean-up

Traffic signal, incident management, lighting, planting and guiderail projects will be driven more by multiple locations, than multiple operations. Therefore, the list of major elements should be broken down first by location, then by operation e.g. Route 2 and 165 – "Trenching and backfilling", Rte 12 and Rte 184 – "Span pole installation". Other major elements of these types of projects should include, but are not limited to:

Material submittals
Material procurement/fabrication
Installation of anchors
Driving posts
Foundations
Trenching and Backfilling
Installation of luminaries
Hanging heads
Energized by power company
Pavement markings
Fertilization

2. The comprehensive bar-chart construction schedule will be compiled using this list of major activities. It will be the responsibility of the contractor to identify all milestones, environmental permit "window" periods, winter

shutdowns etc. and include them on their schedule under the corresponding dates.

3. If the Department determines that additional detail is necessary, the contractor will provide it.

4. Each activity shall have a separate schedule bar. The schedule timeline shall be broken into weekly time periods with a vertical line to identify the first working day of each week and shall be detailed to show all elements of the Project.

5. The schedule shall show relationships among activities. The critical path for the Project shall be clearly defined on the schedule. The schedule shall show milestones for major elements of work. Prepare the schedule on a sheet, or series of sheets of sufficient width to show data for the entire construction period**.**

6. Project work shall be scheduled to ensure that a Construction Completion Date for the Project will be obtained prior to expiration of the Contract time.

7. Following the Engineer's acceptance of the initial submittal, the Contractor shall distribute copies of the schedule (as and whenever it may be revised) to the Engineer, and the Contractor's subcontractors.

8. Whenever and however often the schedule is revised, the Contractor shall distribute the latest schedule in the manner described above.

9. There will be no direct payment for furnishing schedules, the cost thereof shall be considered as included in the general cost of the work.

2. Monthly Updates**:** No later than the 10th day of each month, unless directed otherwise by the Engineer, the Contractor shall deliver to the Engineer 3 copies of the schedule to show the work actually accomplished during the preceding month, the actual time spent on each activity, and the estimated time needed to complete any activity which has been started but not completed. Each time bar shall indicate, in 10% increments, the estimated percentage of that activity which remains to be completed. As the Project progresses, the Contractor shall place a contrasting mark in each bar to indicate the actual percentage of the activity that has been completed.

The monthly update shall include revisions of the schedule necessitated by revisions to the Project directed by the Engineer (including, but not limited to extra work), during the month preceding the update. Similarly, any changes of the schedule required due to changes in the Contractor's planning or progress shall also be included within the schedule.

Any schedule revisions shall be identified and explained in a cover letter accompanying the monthly update. The Engineer reserves the right to approve or reject any such

revisions. The letter shall also describe in general terms the progress of the Project since the last schedule update and shall identify any items of special interest. If the schedule revisions extend the contract completion date, due to extra or added work or delays beyond the control of the Contractor, the Contractor must submit a request in writing for an extension of time in accordance with Article 1.08.08. This request should be supported by the schedules submitted previously.

If the Contractor fails to provide monthly schedule updates, the Engineer has the right to hold 10% of the monthly estimated payment, or $5,000, whichever is less, until such time as an acceptable update has been provided..

3. Biweekly Schedules**:** Each week, the Contractor shall be required to produce and submit to the Engineer a biweekly schedule. This short-term schedule may be handwritten but shall clearly indicate all work planned for the following two week period.

3. Recovery Schedules**:** If the Engineer determines that the updated schedule indicates that the Contractor has fallen behind schedule, absent a justifiable time extension, the Contractor shall immediately institute steps acceptable to the Engineer to improve its progress of the Project. In such a case, the Contractor shall submit a revised plan, as may be deemed necessary by the Engineer, to demonstrate the manner in which an acceptable rate of progress will be regained.

1.05.02(3)-Shop Drawings: is amended as follows:

Delete the first sentence in the first paragraph and substitute the following:

When required by the Contract or when ordered by the Engineer, the Contractor shall prepare and submit nine (9) copies of the shop drawings related to the traffic warning gate and traffic signal mast arm foundation to the Engineer for review and approval prior to fabrication:

Transystems Corp.
Attn: Mr. J. Brian McGovern, P.E.
76 Westbury Park Road
Watertown, CT 06795
(860) 274-7544

SECTION 1.06 - CONTROL OF MATERIALS

Article 1.06.05 - Shipping Materials: Add the following:

All vehicles transporting materials on highways and bridges in the State shall comply with all the vehicle regulations of the Connecticut General Statutes and regulations of Connecticut State Agencies as they apply to vehicle length, width, height and weight.

Any vehicle, either loaded or unloaded, will not be allowed to travel across any bridge or on any highway when such vehicle exceeds the legal limits or posted limits of such bridge or highway without a permit. The owner of the vehicle must apply to the Department for a permit for such travel, as provided in the statutes.

The General Statutes include the following limitations:

Vehicle Width (Section 14-262(a)(1)) - The width of a vehicle and combination vehicle and trailer, including its load, is limited to 8 feet 6 inches, without a permit.

Vehicle Length (Section 14-262(c)) - The length of the semitrailer portion of a tractor-trailer unit, including its load, is limited to 48 feet, without a permit.

Vehicle Height (Section 14-264) - The height of a vehicle, with its load, is limited to 13 feet 6 inches, without a permit.

Vehicle Weight (Section 14-267a(b)(7)) - The gross vehicle weight (weight of vehicle including its load) is limited to 80,000 pounds on 5 axles for vehicles with a 51 foot wheelbase, without a permit.

Axle Weights of Vehicles (Section 14-267a) - For the above five axle vehicle, weight on a single axle may not exceed 22,400 pounds or in the case of axles spaced less than 6 feet apart, 18,000 pounds.

On Department projects, in accordance with the Commissioner's policy, any member or component, either temporary or permanent, that measures 120 feet or less and weighs no greater than 120,000 pounds, is transportable via an authorized permit route established by the Department provided the individual axle weights on the vehicle and trailer transporting the member or component do not exceed 20,000 pounds.

<u>Members and components, shown in the contract documents, that exceed the above length and weight limits have been reviewed by the Department's Oversize and Overweight Permits Section and are transportable via an authorized permit route established by the Department provided the individual axle weights on the vehicle and trailer transporting the member or component do not exceed 20,000 pounds.</u>

All permits to transport materials are subject to shipping times established by the Department's Oversize and Overweight Permits Section.

Applications for permits, required to transport materials, shall be submitted a minimum of two weeks prior to their required use, to the Department's Oversize and Overweight Permits Section.

Article 1.06.07 - Certified Test Reports and Materials Certificates:

1) For the materials in the following items, a Certified Test Report will be required confirming their conformance to the requirements set forth in these plans or specifications or both. Should the consignee noted on a Certified Test Report be other than the Prime Contractor, then Materials Certificates shall be required to identify the shipment.

Item #	Item
0406321	HMA Longitudinal Joint Sealant Materials: Sealant

2) For the materials in the following items, a Materials Certificate will be required confirming their conformance to the requirements set forth in these plans or specifications or both.

Item #	Item
0921001A	"Concrete sidewalk"
0921013A	"Concrete driveway apron"
0976002	"Barricade warning lights-high intensity" Materials: Warning Lights
0977001	"Traffic cone" Materials: Cone Reflective Sheeting
0978002	"Traffic drum" Materials: Drum Reflective Sheeting
0979003A	" Construction barricade type III"

Materials: Barricade
Reflective Sheeting

0992090A "Bench"

Materials: Wood
Granite
Stainless steel

0992135A "Flagpole socket"

Materials: PVC Pipe
Cap

1004934A "High pressure sodium luminaire with integral ballast"

Materials: Luminaire

1208922 "Sign face-sheet aluminum (type I reflective sheeting"

Materials: Sign Face-Sheet Aluminum
Sign Post

1210101 "4" white epoxy resin pavement markings"
1210102 "4" yellow epoxy resin pavement markings"
1210105 "Epoxy resin pavement markings, symbols and legends"

Materials: Paint-Epoxy Pavement Markings

1220011A "Construction signs-type III reflective sheeting"

Materials: Construction Signing

1208967A "Wayfinding signage"

Materials: Steel
Sign base
Paint materials

SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES

Article 1.07.13 - Contractor's Responsibility for Adjacent Property and Services is supplemented as follows:

The following company and representative shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities:

Mr. Richard Russo (Acting)
District 2 Electrical Supervisor
Department of Transportation
Montville, Connecticut
(860) 848-0008/7608

Rick Nendze, New Service Supervisor
Connecticut Light & Power
63R Myrock Road
Waterford, CT 06385
(860) 447-5735
nendzrw@nu.com

Article 1.08.03 - Prosecution of Work:

Add the following:

The Contractor shall notify ConnDOT District 2 office at Telephone # (860) 823-3248 forty-five (45) days prior to starting work on the traffic signals. The Contractor shall be responsible for any timely updates that need to be reported to the District 2 office for the successful coordination of work by others.

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.04 - Limitation of Operations - Add the following:

TIME RESTRICTIONS

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be allowed to perform any work that will interfere with existing traffic operations on all project roadways as follows:

On the following State observed Legal Holidays:
New Year's Day*
Good Friday, Easter***
Memorial Day*
Independence Day*
Labor Day*
Columbus Day
Thanksgiving Day**
Christmas Day*

A Holiday marked with an * also designates the following restrictions:

On the day before and the day after any of the above Legal Holidays.

On the Friday, Saturday and Sunday immediately preceding any of the above Holidays celebrated on a Monday.

On the Saturday, Sunday and Monday immediately following any of the above Holidays celebrated on a Friday.

** From 6:00 a.m. the Wednesday before the Holiday to 8:00 p.m. the Monday after the Holiday.

*** From 6:00 p.m. the Thursday before the Holiday to 8:00 p.m. the Monday after the Holiday.

LIMITATION OF OPERATIONS

Between the Friday before Memorial Day to the Sunday after Labor Day (inclusive), the Contractor shall adhere to the following limitation of operations on West Main Street:

The Contractor must provide and maintain pedestrian and vehicular access to all business and residences at all times. Any means used to provide and maintain access shall be approved by the Engineer. The Contractor shall install pavement markings to delineate 2-11 foot (min.) lanes along West Main Street and provide for on-street parking.

The Contractor is advised that on-street parking within and around the project limits is critical to the various businesses adjoining the project. The Contractor shall limit the impacts to the on-street parking loss to the extent possible. The Contractor shall coordinate temporary "No Parking" zones, as necessary, with the Engineer and the Town to accommodate construction.

The Contractor may submit a written request to the Engineer for permission to perform construction operations on a four day work week during this period. Under this scenario the Contractor would work Monday through Thursday for ten hours each day. Approval of such request is not guaranteed however the Town would like to minimize the impact during those periods which see the highest volume of pedestrian and vehicular traffic (Friday through Sunday during this period).

The Contractor shall adhere to the following limitation of operations for West Main Street between the Monday after Labor Day and the Thursday before Memorial Day (inclusive) and for all other project roadways (year round) during construction:

The Contractor may work throughout the winter season on construction operations that are not restricted due to inclement weather. For example, the Contractor will not be allowed to perform paving or concrete operations when weather conditions do not permit it. Should the Contractor elect to work during the winter season all pedestrian and vehicular access to businesses and residences shall be maintained within the current work zone, this maintenance includes but is not limited to snow removal and treatments for icing conditions.

Weekdays 6:00 am to 9:00 am & 3:30 pm to 6:00 pm
Friday 6:00 pm to Monday 6:00 am:
The Contractor shall maintain one (1) lane of traffic in each direction on all project roadways. The Contractor may not interfere or at any time further restrict traffic

during this time nor perform any construction activities along the roadway. Minimum lane widths shall be as noted below. A written request may be submitted to the engineer for permission to perform specific construction operations during this time. Approval of such requests is not guaranteed.

Weekdays 9:00 am to 3:30 pm:
When actively working, the Contractor shall maintain at least one lane of traffic in each direction as detailed in the staged maintenance and protection of traffic plans and as specified within the contract specifications. Minimum lane widths shall be as noted. The Contractor may, with prior approval from the Engineer, maintain alternating one-way traffic (min. 12' lane) for a maximum length of 400 feet of roadway and as specified within "Maintenance and Protection of Traffic" section of the contract specifications. During this time alternating one-way traffic will not be permitted on West Main Street East of Water Street.

Night Time Weekdays 8:00 pm to 6:00 am:
For milling and overlay operations the contractor may, with prior approval from the engineer, maintain alternating one-way traffic (min. 12' lane) as specified within the "maintenance and protection of traffic" section of the contract specifications for a one block section of roadway.

Friday 6:00 pm to Monday 6:00 am:
The Contractor may not perform any construction work on the project roadways or further restrict traffic during this time. A written request may be submitted to the Engineer for permission to perform specific construction operations during this time. Approval of such requests is not guaranteed.

The minimum allowable lane widths during staged operations shall be:

West Main Street and Water Street - 11 feet
All other sideroads - 10 feet
Alternating one-way traffic operations shall have a minimum lane width of 12 feet

The construction work zone along West Main Street shall be limited to a maximum of 400 feet in length, excluding tapers, at any one time except as noted for night time construction. Sidewalks must be restored to a safe and a passable condition prior to moving the work zone. The Contractor shall not disturb or otherwise impede any section of sidewalk along West Main Street which spans two crosswalk locations. Pedestrian access to all buildings must be provided and maintained at all times. Vehicular access to all driveways must be provided and maintained at all times. Any means used to provide and maintain access shall be approved by the Engineer.

The Town may be open to the closure of Town owned side streets if needed to accelerate the project schedule. Should the Contractor want to close any Town owned

roadways they may submit a written request to the Town and the Engineer. Approval of such request is not guaranteed.

It is anticipated that work on adjacent projects may be ongoing simultaneously with this project. The Contractor shall be aware of those projects so that coordination is maintained for proper traffic flow at all times on all project roadways and this coordination is acceptable to the Engineer.

TRAFFIC SIGNAL WORK

The Contractor will be allowed to halt traffic on any roadway to adjust the traffic signal equipment, with the permission of the Engineer, for a period of time not to exceed 10 minutes, between 12:01 a.m. and 5:00 a.m. on all days.

OTHER LIMITATIONS

Contractor shall have developed, submitted and obtained approval from the Engineer of the Sequence of Operations plan prior to proceeding with any construction. All adjustments to the Sequence of Operations plan must be brought to the Engineers attention and approved prior to implementation in the field.

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed except during the allowable periods.

Only one alternating one-way traffic operation will be permitted at one time along a roadway.

No roadway, with the exception of transition areas, shall be open to traffic unless the appropriate pavement markings have been installed. The transition areas shall have pavement markings applied immediately upon opening to traffic.

Longitudinal dropdowns greater than 3 inches will not be allowed during those periods when the maximum number of lanes of through traffic are required. The Contractor shall temporarily provide a 4:1 traversable slope of suitable material in those areas where a longitudinal dropdown exists. The cost of furnishing, installing and removing this material shall be included in the contract lump sum for “Maintenance and Protection of Traffic.”

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway (bridge) section by the end of a workday (worknight). All transverse height differentials on all roadway surfaces shall be tapered to negate any "bump" to traffic as specified elsewhere in this contract or as approved by the Engineer. Material for this taper shall be as approved by the Engineer.

All temporary concrete barriers, other protective systems and traffic control devices as called for by the contract or ordered by the Engineer must be on-hand and available in sufficient quantity for immediate installation prior to any stage change.

The construction work zone along West Main Street shall be limited to a maximum of 400 feet in length, excluding tapers, at any one time.

The Contractor shall not disturb or otherwise impede any section of sidewalk along West Main Street that spans two crosswalk locations.

Pedestrian access to all buildings and businesses must be provided for at all times. The cost of all materials, labor and equipment necessary to provide for pedestrian access shall be included in the contract lump sum for “Maintenance and Protection of Traffic.”

Section 1.09 – measurement and payment

Section 1.09 is supplemented and amended as follows:

Throughout this section, make the following substitutions for all occurences of the word(s) identified below for substitution:

“Town” for “Department” and for “State”
“Engineer” for “Commissioner”

SECTION 10.00 - GENERAL CLAUSES FOR HIGHWAY ILLUMINATION AND TRAFFIC SIGNAL PROJECTS

Article 10.00.12 - Negotiations with utility company: Add the following:

The contractor shall give notice to utility companies a minimum of 30 days prior to required work or services to the utility company. The following list of utility companies and representatives may be used for the convenience of the contractor.

Rick Nendze, New Service Supervisor
Connecticut Light & Power
63R Myrock Road
Waterford, CT 06385
(860) 447-5735
nendzrw@nu.com

All work shall be in conformance with Rules and Regulations of PUCA concerning Traffic Signals attached to Public Service Company Poles. The Contractor is cautioned that there may be energized wires in the vicinity of the specified installations. In addition to ensuring compliance with NESC and OSHA regulations, the Contractor and/or its Sub-Contractors should coordinate with the appropriate utility company for securing/protecting the site during the installation of traffic signal mast arms, span poles or illumination poles.

SECTION 1.11 - CLAIMS

1.11.01 – General: When filing a formal claim under Section 4-61 (referred to as "Section 4-61" below) of the Connecticut General Statutes (as revised), either as a lawsuit in the Superior Court or as a demand for arbitration, the Contractor must follow the procedures and comply with the requirements set forth in this Section of the Specifications. This Section does not, unless so specified, govern informal claims for additional compensation which the Contractor may bring before the Department. The Contractor should understand, however, that the Department may need, before the Department can resolve such a claim, the same kinds of documentation and other substantiation that it requires under this Section. It is the intent of the Department to compensate the Contractor for actual increased costs caused by or arising from acts or omissions on the part of the Department that violate legal or contractual duties owed to the Contractor by the Department.

1.11.02 – Notice of Claim: Whenever the Contractor intends to file a formal claim against the Department under Section 4-61, seeking compensation for additional costs, the Contractor shall notify the Commissioner in writing (in strict compliance with Section 4-61) of the details of said claim. Such written notice shall contain all pertinent information described in Article 1.11.05 below.

Once formal notice of a claim under C.G.S. Section 4-61 (b) (as revised) has been given to the Commissioner, the claimant may not change the claim in any way, in either concept or monetary amount, (1) without filing a new notice of claim and demand for arbitration to reflect any such change and (2) without the minimum period of six months after filing of the new demand commencing again and running before any hearing on the merits of the claim may be held. The only exception to this limitation will be for damages that continue to accrue after submission of the notice, in ways described and anticipated in the notice.

1.11.03 – Record Keeping: The Contractor shall keep daily records of all costs incurred in connection with its construction-related activities on behalf of the Department. These daily records shall identify each aspect of the Project affected by matters related to any claim for additional compensation that the Contractor has filed, intends to file, or has reason to believe that it may file against the Department; the specific Project locations where Project work has been so affected; the number of people working on the affected aspects of the Project at the pertinent time(s); and the types and number of pieces of equipment on the Project site at the pertinent time(s). If possible, any potential or anticipated effect on the Project's progress or schedule which may result in a claim by the Contractor should also be noted contemporaneously with the cause of the effect, or as soon thereafter as possible.

1.11.04 – Claim Compensation: The payment of any claim, or any portion thereof, that is deemed valid by the Engineer shall be made in accordance with the following provisions of this Article:

(a) Compensable Items: The liability of the Department for claims will be limited to the following specifically-identified items of cost, insofar as they have not otherwise been paid for by the Department, and insofar as they were caused solely by the actions or omissions of the Department or its agents (except that with regard to payment for extra work, the Department will pay to the Contractor the mark-ups provided for in Article 1.04.05.):

(1) Additional Project-site labor expenses.
(2) Additional costs for materials.
(3) Additional, unabsorbed Project-site overhead (**e.g.**, for mobilization and demobilization).
(4) Additional costs for active equipment.
(5) For each day of Project delay or suspension caused solely by actions or omissions of the Department, either

(i) an additional ten percent (10%) of the total amount of the costs identified in Subarticles (1) through (4) above; except that if the delay or suspension period prevented the Contractor from incurring enough Project costs under Subarticles (1) through (4) during that period to require a payment by the Department that would be greater than the payment described in subparagraph (ii) below, then the payment for affected home office overhead and profit shall instead be made in the following *per diem* amount:

(ii) six percent (6%) of the original total Contract amount divided by the original number of days of Contract time.

Payment under either (i) or (ii) hereof shall be deemed to be complete and mutually-satisfactory compensation for any unabsorbed home office overhead and any profit related to the period of delay or suspension.

(6) Additional equipment costs. Only actual equipment costs shall be used in the calculation of any compensation to be made in response to claims for additional Project compensation. Actual equipment costs shall be based upon records kept in the normal course of business and in accordance with generally-accepted accounting principles. Under no circumstances shall Blue Book or other guide or rental rates be used for this purpose (unless the Contractor had to rent the equipment from an unrelated party, in which case the actual rental charges paid by the Contractor, so long as they are reasonable, shall be used). Idle equipment, for instance, shall be paid for based only on its actual cost to the Contractor.
(7) Subcontractor costs limited to, and determined in accordance with, Subarticles (1), (2), (3), (4), and (5) above and applicable statutory and case law. Such subcontractor costs may be paid for by the Department only (a) in the

context of an informal claims settlement or (b) if the Contractor has itself paid or legally-assumed, present unconditional liability for those subcontractor costs.

(b) Non-Compensable Items: The Department will have no liability for the following specifically-identified non-compensable items:

(1) Profit, in excess of that provided for herein.
(2) Loss of anticipated profit.
(3) Loss of bidding opportunities.
(4) Reduction of bidding capacity.
(5) Home office overhead in excess of that provided for in Article 1.11.04(a)(5) hereof.
(6) Attorneys fees, claims preparation expenses, or other costs of claims proceedings or resolution.
(7) Any other consequential or indirect expenses or costs, such as tort damages, or any other form of expense or damages not provided for in these Specifications or elsewhere in the Contract.

1.11.05 – Required Claim Documentation: All claims shall be submitted in writing to the Commissioner, and shall be sufficient in detail to enable the Engineer to ascertain the basis and the amount of each claim, and to investigate and evaluate each claim in detail. As a minimum, the Contractor must provide the following information for each and every claim and sub-claim asserted:

(a) A detailed factual statement of the claim, with all dates, locations and items of work pertinent to the claim.
(b) A statement of whether each requested additional amount of compensation or extension of time is based on provisions of the Contract or on an alleged breach of the Contract. Each supporting or breached Contract provision and a statement of the reasons why each such provision supports the claim, must be specifically identified or explained.
(c) Excerpts from manuals or other texts which are standard in the industry, if available, that support the Contractor's claim.
(d) The details of the circumstances that gave rise to the claim.
(e) The date(s) on which any and all events resulting in the claim occurred, and the date(s) on which conditions resulting in the claim first became evident to the Contractor.
(f) Specific identification of any pertinent document, and detailed description of the substance of any material oral communication, relating to the substance of such claim.
(g) If an extension of time is sought, the specific dates and number of days for which it is sought, and the basis or bases for the extension sought. A critical path method, bar chart, or other type of graphical schedule that supports the extension must be submitted.

(h) When submitting any claim over $50,000, the Contractor shall certify in writing, under oath and in accordance with the formalities required by the contract, as to the following:

(1) That supporting data is accurate and complete to the Contractors best knowledge and belief;

(2) That the amount of the dispute and the dispute itself accurately reflects what the Contractor in good faith believes to be the Departments liability;

(3) The certification shall be executed by:

a. If the Contractor is an individual, the certification shall be executed by that individual.

b. If the Contractor is not an individual, the certification shall be executed by a senior company official in charge at the Contractor's plant or location involved or an officer or general partner of the Contractor having overall responsibility for the conduct of the Contractors affairs.

1.11.06 – Auditing of Claims: All claims filed against the Department shall be subject to audit by the Department or its agents at any time following the filing of such claim. The Contractor and its subcontractors and suppliers shall cooperate fully with the Department's auditors. Failure of the Contractor**,** its subcontractors, or its suppliers to maintain and retain sufficient records to allow the Department or its agents to fully evaluate the claim shall constitute a waiver of any portion of such claim that cannot be verified by specific, adequate, contemporaneous records, and shall bar recovery on any claim or any portion of a claim for which such verification is not produced. Without limiting the foregoing requirements, and as a minimum, the Contractor shall make available to the Department and its agents the following documents in connection with any claim that the Contractor submits:

(1) Daily time sheets and foreman's daily reports.
(2) Union agreements, if any.
(3) Insurance, welfare, and benefits records.
(4) Payroll register.
(5) Earnings records.
(6) Payroll tax returns.
(7) Records of property tax payments.
(8) Material invoices, purchase orders, and all material and supply acquisition contracts.
(9) Materials cost distribution worksheets.
(10) Equipment records (list of company equipment, rates, etc.).
(11) Vendor rental agreements
(12) Subcontractor invoices to the Contractor, and the Contractor's certificates of payments to subcontractors.
(13) Subcontractor payment certificates.
(14) Canceled checks (payroll and vendors).

(15) Job cost reports.
(16) Job payroll ledger.
(17) General ledger, general journal (if used), and all subsidiary ledgers and journals, together with all supporting documentation pertinent to entries made in these ledgers and journals.
(18) Cash disbursements journals.
(19) Financial statements for all years reflecting the operations on the Project.
(20) Income tax returns for all years reflecting the operations on the Project.
(21) Depreciation records on all company equipment, whether such records are maintained by the company involved, its accountant, or others.
(22) If a source other than depreciation records is used to develop costs for the Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents.
(23) All documents which reflect the Contractor's actual profit and overhead during the years that the Project was being performed, and for each of the five years prior to the commencement of the Project.
(24) All documents related to the preparation of the Contractor's bid, including the final calculations on which the bid was based.
(25) All documents which relate to the claim or to any sub-claim, together with all documents that support the amount of damages as to each claim or sub-claim.
(26) Worksheets used to prepare the claim, which indicate the cost components of each item of the claim, including but not limited to the pertinent costs of labor, benefits and insurance, materials, equipment, and subcontractors' damages, as well as all documents which establish the relevant time periods, individuals involved, and the Project hours and the rates for the individuals.
(27) The name, function, and pertinent activity of each Contractor's or subcontractor's official, or employee involved in or knowledgeable about events that give rise to, or facts that relate to, the claim.
(28) The amount(s) of additional compensation sought and a break-down of the amount(s) into the categories specified as payable under Article 1.11.04 above.
(29) The name, function, and pertinent activity of each Department official, employee or agent involved in or knowledgeable about events that give rise to, or facts that relate to, the claim.

GENERAL PROVISIONS FOR ELECTRICAL LIGHTING WORK

PART 1 GENERAL

1.01 REFERENCES

A. The General Conditions and General Requirements Apply to this Section.

1.02 DESCRIPTION

A. WORK INCLUDED

1. The scope of the work includes but is not limited to the following:

   a. Post top luminaires and poles and pole foundations.

   b. Conduits, hand holes and topping boxes.

   c. Wires, cables and fuses (waterproof in-line type).

   d. Street lighting and receptacles and their circuits.

1.03 INTENT

A. The showing and/or specifying of materials and/or installation on the drawings and/or the specifications requires that the Contractor furnish and install the material and/or installation including all incidentals required, provide all tools as required and provide finished, tested systems ready for operation.

B. Work by others shall include installation of the street lighting system and meter by the electric utilities company. Contractor shall be responsible for all utility company assessments, permits, requirements at no additional cost to Owner.

1.04 DRAWINGS

A. Drawings are diagrammatic and do not show all minor items of equipment necessary for complete installation of system.

B. Install equipment substantially as shown on the drawings except that Contractor is permitted to adjust locations of equipment as required by the field conditions and as permitted by the engineer.

C. Engineer may, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other Divisions or for proper execution of the work.

D. Where variances occur between the drawings and the specifications, or within either document itself, refer to General Conditions.

E. Do not scale drawings.

1.05 EXAMINATION OF SITE AND DRAWINGS

A. Before submitting a proposal, Bidders shall examine the site of the proposed work to determine the existing conditions that may affect the work, as they will be held responsible for any assumptions made in regard thereto.

B. Examine drawings related to the work of all Divisions and become fully informed as to the extent and character of work required and its relation to all other Divisions.

C. No consideration or allowance will be granted for any alleged misunderstanding of materials to be furnished or work to be done; it being agreed that tender of proposal carries with it agreement to items and conditions referred to herein or indicated on the drawings.

1.06 SURVEYS AND MEASUREMENTS

A. All measurements both horizontal and vertical, shall be from established bench marks. All work shall agree with these established lines and levels. Verify all measurements at site and check the correctness of same as related to the work.

B. Any discrepancy between actual measurements and those indicated, which prevent following good practice or the intent of the drawings and specifications, shall require notification to the Engineer and work shall not proceed without instructions from the Engineer.

1.07 LAWS, ORDINANCES, PERMITS, FEES

A. Work under each Section of this Division shall include all necessary notices, obtaining and paying for all permits, paying all governmental taxes, fees and other costs in connection with the work; filing all necessary plans, preparation of all documents and obtaining all necessary approvals of all governmental departments having jurisdiction; obtaining all required Certificates of Inspection for the work and delivery of same to the Owner before request for acceptance and final payment.

1.08 EQUIPMENT

A. Furnish and install all miscellaneous steel required for supporting equipment furnished under this Division. Furnish and install all attachments, including welding, as directed in the field.

1.09 PAINTING

A. Paint all unpainted, galvanized or non-galvanized, ferrous metal surfaces of conduits, equipment, fixtures, and accessories as follows:

1. Exposed: One prime coat of gray nonlead paint.
2. Concealed: One coat of black asphaltum paint.
3. Underground: Two coats of black asphaltum paint.
4. Luminaire poles & Arm Brackets: As indicated in special provision.

1.10 RECORD DRAWINGS

A. Concurrently with the progress of the work, keep a set of "as-built" Record Drawings, consisting of a reproducible, marked set of drawings with additional sketches as required, denoting and dimensioning accurately all changes in elevations, location and size of material deviating from the drawings. Upon completion of work, the Contractor shall deliver to the Engineer an up-to-date set of these "as-built" Record Drawings.

1.11 MATERIALS

A. All materials shall be new.

B. All materials shall be Underwriters' Laboratories listed.

PART 2 PRODUCTS

None

PART 3 EXECUTION

None

PART 4 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

None

0000547A – 2X3 (6" SCHEDULE 40 PVC) DUCTBANK

0000580A – 1X1 (4" SCHEDULE 40 PVC) DUCTBANK

0000581A – 1X2 (4" SCHEDULE 40 PVC) DUCTBANK

Description:

Scope

A. This Section specifies the furnishing, installation, connection, of concrete-encased duct banks and conduit in trench as indicated on the Plans. Marker tape and duct bank markers shall be part of these specifications.

B. The Contractor shall perform additional underground exploratory investigations as indicated on the Plans (i.e. utility detection services, etc.) to determine a clear path/space for all new underground duct banks. Revisions are to be made to relevant Plans by the Contractor based on the underground exploratory investigations. These alterations are to be submitted to the Engineer, along with the accompanying duct bank profile and detail drawings, for approval prior to proceeding with the work in the field.

Related Sections

Related requirements are included in, but not limited to the following:

A. "Trenching and Backfilling".

B. Special Provisions for 600V copper wire and bare copper grounding.

References

All work furnished under this Sections shall be in accordance with Form 816 and National Electrical Code with regard to material, design, construction and testing, except for any specific variations provided in this Section.

Submittals

The Contractor shall submit the following:

A. Catalog data on conduit and all conduit couplings and fittings necessary for the complete installation.

B. Marker tape.

Materials:

Underground Duct Work

A. All underground duct bank conduit work shall be schedule 40 PVC unless noted otherwise. All stub-up conduit sweeps shall be PVC coated steel, except the stub-up conduit sweeps for the high mast poles which shall be RGSC conduit and shall be paid under the high mast foundation item.

B. Duct bank sizes shall be as indicated on the Plans.

C. Reinforcement is required continuously for entire run of duct bank as shown on the plans.
This material shall conform to the requirements of Article M.06.01

D. Concrete Encasement: Concrete encasement around the duct banks shall be as shown on Plans and shall have a compressive strength at age 28 days of not less than 3000 psi. The maximum size of aggregate shall be ½ inch. Sump shall be between four (4) and six (6) inches. Forming material is not required during the construction of duct banks. The Contractor shall use any means deemed acceptable by the Engineer to construct the duct bank to the dimensions and grades as shown on the Plans. Trench forming will be considered an acceptable method.

E. Conduits: PVC, PVC coated steel, RGSC, and appropriate fittings for each type of conduit shall be as specified herein. Asbestos cement conduit or fittings are prohibited.

F. Separators: Conduit separators or spacers shall be non-metallic and of the type recommended by the conduit manufacturer.

G. Marker Tape: non-metallic.

Backfill

A. Backfill material shall be in accordance with applicable parts of the Contract Documents and approved by the Engineer.

Marker

A. The location of the ends of all ducts shall be marked by a concrete slab marker 2 feet square and 4 inches thick extending approximately 1 inch above the surface. The markers shall be located above the ends of all ducts or duct banks, except where ducts terminate in a hand hole.

B. The Installer shall impress the word “duct” on each marker slab. He shall also impress on the slab the number and size of ducts beneath the marker. The

letters shall be 4 inches high and 3 inches wide with width of stroke 1/2 -inch and 1/4 –inch deep or as large as the available space permits.

Construction Methods:

Excavation and Backfill

A. Excavation and backfill shall be performed in accordance with the Contract Documents and approved by the Engineer.

Installation of Conduits and Duct Banks

A. Conduits shall be installed as shown on the Plans. Duct bank configuration may be adapted to route obstructions such as underground utilities per the Engineer's approval; such adaptations may include rotating and fanning out of ducts.
B. Conduits: Minimum burial depth of duct bank from final grade to top of concrete shall be as shown on Plans. Minimum burial depth of conduit in trench with no encasement from final grade to top of conduit shall be 24 inches. The Contractor shall coordinate installation of conduits with the Engineer.
C. The manufacturer's directions shall be followed in placing all conduits, fittings, supports and spacers, and in compensating for temperature effects.
D. Spacers shall be placed at not greater than five (5) foot intervals on center. Use of metallic spacers will not be permitted. Spacer system shall be designed to support duct bank longitudinal reinforcing bars. The duct bank details shall be as shown on the Plans.
E. For concrete-encased duct banks, the contractor shall completely encase the duct bank without disturbing its vertical or horizontal alignment or damaging the conduits.
F. The exposed surface of duct encasement concrete shall be floated smooth after placement and an approved curing compound shall be applied in conformance with the concrete manufacturer's recommendations.
G. At all stages of the work, the Contractor shall exercise care to prevent foreign materials from entering the ducts.
H. Following installation, each conduit shall be thoroughly cleaned and then tested by the successful pulling of a brush and mandrel approved by the Engineer. The mandrel shall be not less than 1/4 inch smaller than the inside nominal diameter of the conduit. The Contractor shall give the Engineer (24) hours notice prior to witness the cleaning and testing.
I. A 1/8-inch nylon pull rope shall be installed in each conduit run and secured at each end.
J. All conduit terminations shall be plugged using approved removable plugs.

K. Warning tape is to be installed in the fill over all duct banks at a depth of approximately one (1) foot below finished grade. This tape shall be over the longitudinal centerline of the duct banks and shall have appropriate language written on the tape that warns of the presence of cable duct banks below the tape and to not proceed with any excavation in the area.

L. Pulling tension of cable shall not exceed the cable manufacturer's recommendations.

M. Partially Completed Duct Banks: During construction, wherever a construction joint is necessary in a duct bank, without exceptions always prevent debris such as mud, sand, and dirt from entering ducts by providing suitable conduit plugs. Fit concrete envelope of a partially completed duct bank with reinforcing steel extending a minimum of twenty-four (24) inches back into the envelope and a minimum of twenty-four (24) inches beyond the end of the envelope.

N. Conduit Plugs and Pull Rope: New conduit indicated as being unused or empty shall be provided with plugs on each end. Plugs shall contain a weephole or screen to allow water drainage. Provide a plastic pull rope having thirty-six (36) inches of slack at each end of unused or empty conduits.

O. Duct bank and conduits shall slope down to prevent collection of water inside the conduit.

Method of Measurement:

A. Conduit and Duct Banks will be measured on a per "linear foot" basis. Measurement shall not occur until the task is completed, backfilled, proofed, and pull-strings installed.

Basis of Payment:

A. Conduit and Duct Banks will be paid for at the Contract unit price bid and shall include marker type and duct bank markers. This price shall be full compensation for all labor, equipment, materials and tools required to perform this work.

B. Trenching and Backfilling shall be paid separately under the applicable items.

ITEM # 0100151 A- WATER AND WASTEWATER FACILITIES

General

The Control House Renovations for the the Mystic River Bascule Bridge requires connecting sanitary sewer and water utility services to the Town of Groton municipal sewer and water utility system (Aquarion Water Company). Work under this item shall include the installation of PVC conduits for future connections to the sewer and water utilities. It is proposed that all such required services be included as part of the construction of the Downtown Mystic Streetscapes Project proposed by the Town of Groton.

Conduits shall be installed from terminal locations on West Main Street/Gravel Street (Town of Groton) to the east face of the bridge end floorbeam at the west abutment (through the existing stone/sea wall, west abutment backwall and end floor beam) for future installation of sewer and water pipes within the conduits.

Materials

All pipe and conduit material shall be class 15 (SDR-18) PVC Pipe.

General Scope of work

The Scope of work includes installation of sanitary sewer and water conduits and sanitary sewer lines as follows:

PART 1 - Sanitary sewer, laterals and manholes beginning on West Main Street near the bridge west abutment to an existing manhole on Gravel Street.

PART 2 - Conduit for sanitary sewer service between a proposed manhole closest to the bridge to the east face of the bridge end floorbeam at the west abutment.

PART 3 - Conduit for water service to an existing water manhole closest to the bridge to the east face of the bridge end floorbeam at the west abutment.

All items shown on contract drawings LP-1 and LP-2 are included as part of the Scope of work.

The document entitled “Department of Public Works, Town of Groton, Sewer Construction Standards, Non-Contract”, including the LATEST revisions and amendments are hereby made part of this contract as modified by these Special Provisions.

The document entitled “State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, and Incidental Construction, Form 816, 2004”, including the LATEST Supplemental Specifications are hereby made part of this contract as modified by these Special Provisions.
The contractor shall coordinate the connection of 8 inch PVC conduit in the water manhole with Aquarian Water Company and shall obtain all necessary permits or licenses for the work.

All existing utility services to the bridge must remain operational until proposed connections are completed.

Method of Measurement:

This work being paid on lump sum basis, will not be measured for payment.

Basis of Payment:

This work will be paid for at contract lump sum price for “Water and Wastwater Facilities”, which price shall include all materials related to the installation of the sewer and water utilities only, including trench excavation (3 feet in width), excavation behind the stonewall (seawall) for core drilling holes through the stonewall, back fill, disposal of surplus excavated material, ¾ inch stone, sand, concrete for sewer stub connection support, manholes, PVC pipes, conduits and reinforcing liners and equipment, tools and labor incidental thereto.

Excavation for installation of PVC conduits behind the bridge abutment only will be paid under item “Structure Excavation-Earth (Complete)”. Removal of the buried concrete pavement which may be encountered during trench excavation on West Main Street will be paid under item “Removal of Concrete Pavement”. Core drilling of holes through the existing stonewall, abutment backwall, water manhole wall and steel floorbeam will be paid under the item “Drilling Holes”. Replacement of excavated portion of roadway pavement will be paid under items “Subbase” Superpave 0.50 inch and Superpave 1.0 inch".

ITEM # 0177151A – ARCHITECTURAL REPAIRS

Description: This item shall consist of completing architectural repairs to existing buildings following the removal of overhead utilities as shown on the Contract Documents and as directed by the Engineer.

Materials:

1) Lumber for replacement of existing lumber shall be D select grade, S4S, kiln dried with a maximum 15% moisture content, eastern white pine or other approved species. Dimensions of lumber shall match in thickness, width and length the lumber being replaced. Knot and finger jointing are not allowed.
2) Nails to fasten lumber shall be stainless steel ring shank nails.

3) Caulk for filling holes up to ½" diameter shall be exterior paintable acrylic latex caulk. Color shall be matched to the paint color of the surrounding area either by integral sealant color or painting over the sealant. Caulk shall be manufactured by DAP or an approved equal.
4) Primer shall be Benjamin Moore Fresh Start All Purpose Alkyd Primer, by Benjamin Moore or approved equal. Color tint primer as needed based on the desired top coat colors.
5) Paint top coating shall be 100% acrylic exterior latex finish by Benjamin Moore, Sherwin Williams, Glidden Company or approved equal. Custom colors as selected by the Engineer.
6) Submittals:
   a) Manufacturer's literature for painting systems, and sealant systems.

Construction Methods:

1) Intent
   Architectural repairs are proposed to make repairs to the existing buildings following removal of overhead utilities i.e. electric, telephone, cable, and fire alarm. The plans indicate what utility components are being removed and what repair work is required. Each location will be unique and may require different repair needs i.e. different replacement lumber sizes, different color paint, etc. The Contractor is responsible to review each location as indicated on the plans to verify the extent of work required. When complete the repairs shall closely match the existing materials and paint color.
2) Work area access and staging
   The Contractor is responsible for all staging, ladders and other equipment required to access the various repair areas. Warning signage and barricades should be placed on public sidewalks protecting the work area.
3) Selective Demolition
   The plans identify wood trim pieces or other components to be removed. These pieces should be removed with extreme care to not damage other components of the building.

4) Disposal
   All materials identified for removal shall be legally disposed of off-site.
5) Preparation
   Areas identified to be caulked, or primed shall be prepared, meaning all debris, loose materials or paint be removed, and then cleaned to removed any dust or residue that would prevent could adhesion of the primer.
6) Lead Paint
   The Contractor shall assume lead paint is present in any of the repair areas and shall be responsible for following all applicable laws related to the work.
7) Caulking
   Caulk may be used to fill any hole up to ½" in diameter. Typically these holes would be from remove bolts, eye bolts, wire access, etc. Caulk over nail holes on new lumber.
8) Priming
   Prime prepared surfaces using the specified primer. Primer shall be color tinted if the topcoat color to be matched is dark enough to require tinting. Contractor shall verify moisture content of all areas to be primed is acceptable prior to priming. Primer shall be applied to only the areas being repaired. Follow manufacturer's recommendations for application particularly in respect to air temperature for application. Prime all surfaces of new lumber installed.
9) Painting
   Submit color chips for each repair area for approval by the Engineer. Apply two topcoats to all primed areas completely covering the primer. Follow manufacturer's recommendations for application particularly in respect to air temperature for application

Method of Measurement: The method of measurement shall be in Lump Sum unit 'Architectural Repairs.'

Basis of Pavement: Payment for this work will be made at the contract unit price lump sum as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

Pay Item	**Pay Unit**
Architectural Repairs	LS.

ITEM # 0201019A – REMOVAL OF WOOD PLANTERS

Description: This item shall consist of removal of wood planters in locations as shown on the Contract Documents and as directed by the Engineer.

Materials: Wood planters at the Gravel Street pump station.

This item DOES NOT include the wood planters sponsored by the garden club that are found on the West Main Street sidewalks.

Construction Methods: Remove the wood planters from the work area and dispose of them off site.

Method of Measurement: The method of measurement shall be in units of one wood planter removed.

Basis of Payment: Payment for this work will be made at the contract unit price per planter removal as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all transport, equipment, tools, machinery, and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
0201019A	REMOVAL OF WOOD PLANTERS	EA.

ITEM # 0201323A – REMOVAL OF BENCH

Description: This item shall consist of removal of wood and concrete benches in locations as shown on the Contract Documents and as directed by the Engineer.

Materials: Existing benches

Construction Methods: Remove the benches from the work area and dispose of them off site. Remove any fasteners anchoring the bench to the concrete sidewalk.

Method of Measurement: The method of measurement shall be in units of one bench removed.

Basis of Payment: Payment for this work will be made at the contract unit price per bench removal as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all transport, equipment, tools, machinery, and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
0201323A	REMOVAL OF BENCH	EA.

ITEM # 0201324A – REMOVAL OF BICYCLE RACK

Description: This item shall consist of removal of bicycle rack in locations as shown on the Contract Documents and as directed by the Engineer.

Materials: Existing bicycle rack

Construction Methods: Remove the bicycle rack from the work area and dispose of them off site.

Method of Measurement: The method of measurement shall be in units of one bicycle rack removed.

Basis of Payment: Payment for this work will be made at the contract unit price per bicycle rack removal as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all transport, equipment, tools, machinery, and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
0201324A	REMOVAL OF BICYCLE RACK	EA.

ITEM #0219005A – DEBRIS CONTROL NETTING

Debris control netting shall be constructed in accordance with Article 2.19, supplemented as follows:

Article 2.19.01 - Description: Amend as follows
This work shall consist of furnishing, placing, maintaining, and removing debris control netting to prevent construction materials and debris from entering the Mystic River, as shown on the plans and as directed by the Engineer. Maintenance of debris control netting shall include the cleanout and proper disposal of accumulated sediment and debris.

Article 2.19.03 - Construction Methods: Amend as follows:
Debris control netting shall be installed by the Contractor at locations shown on the plans or as directed by the Engineer. Debris control netting shall be installed above the high tide line and in such a way that the netting remains out of the water during high tide when debris is caught in the netting.

Maintenance of the debris control netting, including the repair or replacement of damaged netting, is the responsibility of the Contractor. If, in the opinion of the Engineer, the debris control netting requires repairs or replacement, the Engineer shall notify the Contractor and the Contractor shall stop work until the netting is restored to good working order. The Contractor shall clean out all accumulated sediment, debris, and construction material on a minimum of a weekly basis or as directed by the Engineer.

Article 2.19.04 - Method of Measurement: Amend as follows:
This work will be measured for payment by the linear feet of “Debris Control Netting” installed and accepted in place. Maintenance of the debris control netting shall not be measured for payment, but the cost of such work shall be included in the price bid for “Debris Control Netting.”

Basis of Payment: Amend as follows:
Payment for this work will be made at the contract unit price per linear foot of “Debris Control Netting,” complete in place, which price shall include all materials, equipments, tools, and labor incidental to the installation, maintenance, replacement, removal and disposal of the netting and surplus material. No additional payment shall be made for the cleanout of accumulated sediment or debris or for the repair or replacement of damaged netting.

ITEM #0202129A – EARTH EXCAVATION (SPECIAL)

This work shall be in conformance with the relevant provisions of Section 2.02 of the Standard Specifications, Form 816, and the following:

2.02.01--Description: Earth Excavation (Special) shall consist of the following:

> Removal and satisfactory disposal, in the manner herein required, of the fill behind the existing wall and the stones at the top of the wall, to the dimensions and limits shown on the plans.
>
> All sawcutting necessary to complete the removal of the sidewalk in the vicinity of the wall rehabilitation.

1--Classification: For the purposes of payment, excavation of the earth behind the existing wall and the removal of stones at the top of the existing wall to accommodate the proposed concrete cap shall be classified as “Earth Excavation (Special)” and sawcutting shall be classified as “Cut Concrete Pavement”.

2.02.03--Construction Methods: Excavation shall be made in conformity with the requirements of the plans and as ordered by the Engineer. All materials removed during the excavation shall become the property of the Contractor and shall be disposed of by him, away from the work site, and in accordance with Subarticle 2.02.03-10.

Before the excavation work can begin, the Contractor shall remove and stack the existing plywood wall located at the back edge of sidewalk. After the wall rehabilitation and sidewalk reconstruction is complete, the Contractor shall then reset the plywood wall, and shall brace it in a similar fashion as the existing plywood wall in order to avoid anchoring into the new sidewalk.

Excavation behind the stone wall shall extend as low an elevation as possible, as to maximize the height of wall protected by the “Filter Fabric”. However, in order to eliminate the need for water control operations, excavation behind the stone wall shall not extend below the high tide elevation.

The Contractor shall exercise due care not to permit any items of the existing wall or sidewalk to fall into the water. Any materials that are dropped into the water shall be removed immediately by the Contractor, without additional compensation.

In the area above the existing stone wall, the Contractor shall use extreme care when removing the existing sidewalk. As noted on the plans, the Contractor shall perform a full-depth sawcut of the existing sidewalk over the length of the wall, carefully break the bond between the top of the wall and the sidewalk, and remove the sidewalk in segments without damaging the existing wall. Any damage to the portions of the existing wall scheduled to remain shall be repaired by the Contractor without additional compensation. During the prosecution of the work, the Engineer may reject the use of

any method or equipment which causes undue vibration or possible damage to existing wall or any adjacent properties.

2.02.04--Method of Measurement: The amount of excavation will be determined by the method of average end areas. Payment lines for “Earth Excavation (Special)” shall be as shown on the plans. “Earth Excavation (Special)” will be measured for payment by the volume in cubic yards. “Cut Concrete Pavement” will be measured for payment by the linear foot.

2.02.05--Basis of Payment: Earth Excavation (Special) shall be paid for at the contract unit price per cubic yard for "Earth Excavation (Special)”. The prices shall include all equipment, tools and labor incidental to the completion of the excavation, the disposal of surplus or unsuitable material in accordance with the provisions of the plans and of these specifications, and all other items necessary to complete the work to the satisfaction of the Engineer.

The work of sawcutting the concrete sidewalk will be paid for at the contract unit price per foot for “Cut Concrete Pavement.”

The work of forming and placing the repair concrete and the reinforced concrete cap and preformed rubber joint filler will be paid for at the contract unit price per cubic yard for “Class ‘A’ Concrete”.

The steel rebar associated with the reinforced concrete cap will be paid for at the contract unit price per pound for “Deformed Steel Bars”.

Installation of the filter fabric will be paid for at the contract unit price per square yard for “Filter Fabric”.

The work of backfilling behind the wall will be paid for at the contract unit price per cubic yard for “Pervious Structure Backfill”.

The removal/stack/reset of the existing plywood wall will not be measured for payment, but will be incidental to “Earth Excavation (Special)”.

Pay Item	Pay Unit
EARTH EXCAVATION (SPECIAL)	CY

ITEM #0202452A – TEST PIT

DESCRIPTION

The work covered under this item includes furnishing all labor, equipment, materials, and incidentals necessary to perform all operations in connection with excavating and backfilling by machine and/or by hand exploratory test pits at locations indicated or directed by the Engineer. The purpose of the test pits is for locating and examining soils, groundwater, drains, pipes, rocks, utilities, structure foundations, or any other obstacles.

CONSTRUCTION METHODS

Test pit excavations shall have neat, clean-cut, and vertical sides; hand-digging shall be employed when required by the Engineer. Sawcuts shall be performed where necessary and as directed by the Engineer.

It shall be agreed that the Contractor entered into this contract with full knowledge that in any work involving excavation, operation in public highways or adjacent to other developments, obstacles, difficulties, unforeseen soil or groundwater conditions, etc., may be encountered, and that the Contractor has included in the bid and contract obligations the assumptions of the risks and costs to which such obstacles, etc., may be present.

Perform all work in conformance with local, state, and federal codes.

Dig test pits so as to ensure that underground utilities or structures are not damaged. It shall be the Contractor's sole responsibility for any damages incurred during excavation operations. Any damages shall be repaired or replaced by the Contractor to the satisfaction as directed by the Engineer at the Contractor's own expense.

Contractor shall notify the Engineer of any revealed conflicts which may require design revisions, relocations, and/or adjustments as early as possible to avoid unnecessary delays. The Engineer shall be allowed sufficient time to perform all necessary design revisions. No work shall be started within areas of conflict until so authorized.

Protect each pit with steel plates, other coverings, fences, barriers, or other appropriate materials as deemed necessary. Do not backfill pits until authorized. Compact backfill materials 95% to the sub-grade elevation or as otherwise directed.

The surface of test pit areas shall be restored to a condition equal or better than original as approved by the Engineer. Test pits throughout the project area are to be completed prior to beginning actual construction activities.

METHOD OF MEASUREMENT

Test pits will be measured for payment by the number of each test pit dug within the limits and to the depths as ordered and approved by the Engineer.

BASIS OF PAYMENT

Payment for “TEST PIT” shall be made at the contract unit price per each “TEST PIT,” which price shall include the excavation of all materials as required. Included in the unit price bid for Test Pits will be excavation, saw cutting, sheeting, shoring, dewatering, backfill, compacting, and all other materials, equipment, tools, labor, and work incidental to or necessary for the completion of the work.

ITEM NO.	DESCRIPTION	UNIT
ITEM #202452A	TEST PIT	EA

ITEM #0202453A – PAVEMENT CORING

DESCRIPTION

The work covered under this item includes furnishing all labor, equipment, materials, and incidentals necessary to perform all operations in connection with coring bituminous concrete pavement directed by the Engineer. The purpose of the pavement coring is to confirm the thickness of bituminous concrete that overlays a concrete subbase.

CONSTRUCTION METHODS

Contractor shall perform pavement coring in locations identified by the Engineer. Cores shall be between 2” and 4” in diameter and shall determine the thickness of bituminous concrete above the concrete subbase. Each core hole shall be filled with bituminous concrete and compacted. The Contractor shall provide the results of the pavement coring in a spreadsheet listing the station and offset of each core, existing elevation at the location of the core, and thickness in feet of the bituminous concrete.

METHOD OF MEASUREMENT

Pavement coring will be measured for payment by the number of each pavement core as ordered and approved by the Engineer.

BASIS OF PAYMENT

Payment for “PAVEMENT CORING” shall be made at the contract unit price per each “PAVEMENT CORING,” which price shall include the excavation of all materials as required. Included in the unit price bid for Pavement Coring will be coring, disposal of pavement, filling the core hole with suitable bituminous concrete, surveying, tabulation of results, all other materials, equipment, tools, labor, and work incidental to or necessary for the completion of the work.

ITEM NO.	DESCRIPTION	UNIT
ITEM #202453A	PAVEMENT CORING	EA

ITEM #0202491A – REMOVAL OF GRANITE STONE CURBING

BASIS OF PAYMENT

Payment for “REMOVAL OF GRANITE STONE CURBING” shall be made at the contract unit price per linear foot, which price shall include the excavation of all materials as required. Included in the unit price bid will be excavation, saw cutting, and all other materials, equipment, tools, labor, and work incidental to or necessary for the completion of the work.

ITEM NO.	DESCRIPTION	UNIT
0202491A	REMOVAL OF GRANITE STONE CURBING	LF

ITEM #0202503A – REMOVAL OF CONCRETE CURBING

BASIS OF PAYMENT

Payment for “REMOVAL OF CONCRETE CURBING” shall be made at the contract unit price per linear foot, which price shall include the excavation of all materials as required. Included in the unit price bid will be excavation, saw cutting, and all other materials, equipment, tools, labor, and work incidental to or necessary for the completion of the work.

ITEM NO.	DESCRIPTION	UNIT
0202503A	REMOVAL OF CONCRETE CURBING	LF

ITEM # 0202504A – REMOVAL OF CONCRETE PLANTERS

Description: This item shall consist of removal of concrete planter in locations as shown on the Contract Documents and as directed by the Engineer.

Materials: Existing concrete planter

Construction Methods: Remove the concrete planter from the work area and dispose of them off site.

Method of Measurement: The method of measurement shall be in units of one concrete planter removed.

Basis of Payment: Payment for this work will be made at the contract unit price per concrete planter removal as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all transport, equipment, tools, machinery, and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
0202504A	REMOVAL OF CONCRETE PLANTER	EA.

ITEM #0219011A - SEDIMENT CONTROL SYSTEM AT CATCH BASIN

Description: This work shall consist of furnishing, placing, maintaining and removing sedimentation control systems at catch basins as shown on the plans and as directed by the Engineer. Maintaining shall include the cleanout and proper disposal of accumulated sediment.

Materials: Geotextile for this work shall conform to Section 7.55 and M.08.

Construction Methods: Sediment Control System at Catch Basin shall be installed by the Contractor at locations shown on the plans or as directed by the Engineer in accordance with the applicable sections of Section 2.19 of the Standard Specifications and the details in the plans.

Method of Measurement: This work will be measured for payment by the actual number of catch basins installed and accepted with a Sediment Control System at Catch Basin installation.

Basis of Payment: This work will be paid for at the contract unit price each for 'Sediment Control System at Catch Basin' complete in place, which price shall include all materials, equipments, tools, and labor incidental to the installation, maintenance, replacement, removal and disposal of the system an surplus material. No payment shall be made for the cleanout of accumulated sediment.

ITEM #0401152A - CONCRETE PAVEMENT REPAIR AT STORM DRAIN TRENCHES

Article 4.01.01 - Description:

Delete the entire article and add the following:

This work shall consist of replacing full-depth concrete pavement at locations as designated by the Engineer.

Article 4.01.02 - Materials:

After the last sentence add the following:

Mix I: The Contractor shall design and submit a portland cement concrete mix to the Engineer for approval. Mix I shall be used only when the ambient air temperature is 65 degrees F or higher, and where there is unlimited cure time.

Mix II: The Contractor shall design and submit a high-early strength portland cement concrete mix to the Engineer for approval. Mix II shall be used only when the ambient air temperature is 65 degrees F or higher, and where there is restricted cure time.

Mix III: The Contractor shall submit a proprietary, rapid-setting concrete mix or Mix IV to the Engineer for approval. These mixes are to be used when the ambient air temperature at the time of placement falls between the range of 30 to 65 degrees F.

Mix IV: The Contractor shall design and submit a high-early, cold weather concrete mix to the Engineer for approval. The aggregate sizes shall be designed by the Contractor so as to function properly given the job conditions. This mix shall be used in conjunction with the requirements as detailed under Section 19, "Cold Weather Concreting," of the Construction Methods detailed herein. Prior to approval, the Contractor shall demonstrate his ability to successfully utilize this mix.

Additional Materials:
Insulating material shall conform to the requirements of ASTM C578.
Expansion joint material shall conform to AASHTO M153, Type 2.

Article 4.01.03 - Construction Methods:

Delete Subarticle F-2 and H-1; add the following:

Construction Methods not specifically covered in this specification shall conform to 4.01.03:

1. COMPOSITION:

The Contractor shall submit a mix design to the Engineer for each of the mixes listed below. The mix design calculations shall include certified test results documenting the strength requirements relative to temperature restrictions for the available cure time.

These designs must be submitted at least 30 days prior to the start of the contract.

Mix I shall be composed of portland cement, fine and coarse aggregate, water, and approved concrete admixtures.

Mix II shall be composed of portland cement, fine and coarse aggregate, water and approved concrete admixtures. Accelerators shall be non-chloride, and shall conform to AASHTO M-194. Accelerators shall be used in strict accordance with the manufacturer's recommendations and procedures. Precautions shall be taken to ensure compatibility of the air-entraining and non-chloride accelerating admixtures. High range water reducing agents (superplasticizers) may be used in the mix design if approved by the Engineer. The maximum allowable slump shall be increased to 7 inches when superplasticizers are used, provided that the water-cement ratio is not exceeded and the mix does not exhibit segregation. The specified air content shall also be increased to 8 ± 1 percent when superplasticizers are included in the mix. The superplasticizers shall be added on-site to avoid rapid slump loss. Slump measurements shall be taken before and after the addition of the superplasticizer. Additional superplasticizer may be added to the mix with approval of the Engineer.

Mix III shall strictly follow the manufacturer's recommendations with regard to the composition of the concrete mix. The mix shall contain an air-entraining agent, and the percentages of entrained air shall be maintained at 6-1/2 ± 1-1/2 percent. The percentage of required entrained air in the mix may be reduced by the Engineer, providing that the product manufacturer can demonstrate that the durability of the material is satisfactory when the amount of entrained air is reduced. The Contractor shall submit substantive testing documentation, that verifies the above requirement, to the Engineer for approval.

Mix IV shall be of the same composition as Mix II, with the following additional requirements:

1. Only Type III portland cement shall be utilized in the mix, with its minimum content being 850 pounds per cubic yard of concrete.

2. The temperature of the concrete, as delivered, shall be within the range of 70 to 95 degrees F.

Mixes II, III, and IV shall develop a minimum compressive strength of 1,800 psi in a maximum period of 6 hours. This is the minimum strength necessary to open to traffic.

2. INSPECTION OF THE CONCRETE SLABS:

Before any existing concrete is removed, the Engineer shall perform an inspection of the concrete slabs and designate areas where concrete removal is required. The lateral limits of each area to be removed and replaced shall be marked with paint by the Engineer. In no case shall the minimum length of the patch be less than 6 feet, or less than 12 feet in width.

3. SAWING OF THE CONCRETE PAVEMENT:

The existing pavement to be removed shall be sawed full-depth along the transverse and longitudinal boundaries designated by the Engineer.

The equipment shall be capable of sawing neat vertical faces along the patch boundaries. Saw cuts with a toothed wheel saw blade shall **ONLY** be permitted inside the patch boundaries to facilitate the concrete removal operation. In this case, however, a minimum 3-inch clearance must be maintained between the internal cuts and the boundaries of the patch. If the Contractor oversaws with a toothed wheel into the adjacent concrete slabs, then the Contractor shall replace said slabs at no cost to the State.

Oversawing into the adjacent slabs or shoulders to ensure that full-depth cuts have been achieved in the corners shall be minimized. All oversawed areas shall be thoroughly cleaned and filled with approved crack sealant.

The sawing operation may be performed in advance of the concrete-removal operation. However, it shall be limited to a distance not to exceed the amount of patching that can be completed during the next five (5) working days. This distance shall be determined by the Engineer, based on past performance of the Contractor.

4. REMOVAL OF DETERIORATED CONCRETE:

Concrete slab removal shall be limited to the amount of pavement that can be removed and replaced during the allowable working period. All deteriorated concrete shall be removed within the limits marked by paint or where designated by the Engineer.

The concrete slabs shall be lifted out by means of chains, lift-pins, or other approved devices. In-place breaking of concrete shall not be permitted. During the removal operation, utmost care shall be exercised to minimize disturbance and damage to the subbase, adjacent pavement, or bituminous shoulder. Any areas damaged during either the concrete sawing or removal operations shall be repaired by extending the patch boundary. These repairs shall be made under the direction of the Engineer, at no cost to the State.

5. BITUMINOUS CONCRETE REMOVAL:

Where existing bituminous material is to be replaced with concrete, the adjacent concrete pavement shall be cut full-depth and removed. Utmost care shall be exercised to minimize disturbance and damage to the subbase, adjacent pavement, or bituminous shoulder. Adjacent concrete edges shall be cleaned and exhibit a vertical face. Unacceptable concrete surfaces shall be re-cut as directed by the Engineer.

6. SUBBASE/SUBGRADE PREPARATION:

After the concrete has been removed, all disturbed or loose subbase/subgrade material shall be carefully removed. Protection of the subbase/subgrade following the concrete removal shall be the responsibility of the Contractor and no additional payment will be allowed for repairs of the subbase/subgrade not so protected.

When, in the opinion of the Engineer, the subbase/subgrade is in a saturated condition or not suitable for concrete placement, the Contractor shall be required to excavate an additional depth as designated by the Engineer. Subbase replacement material shall meet the requirements for graded aggregate subbase in accordance with M.02. Construction methods for this material shall be in accordance with 2.12.03. The Engineer may also require that the Contractor install underdrains in accordance with 7.51.

7. HOLE DRILLING REQUIREMENTS:

The face of the existing pavement shall be drilled for insertion of the deformed epoxy coated steel bars at locations shown on the contract drawings. The use of hand held drills shall not be permitted. The holes shall be drilled with a drilling machine meeting the following requirements:

a. The machine shall produce holes such that each individual dowel's longitudinal axis is aligned parallel to the longitudinal axis of the pavement slabs.

b. The forward and reverse travel of the drills shall be controlled by mechanically applied pressure. The drills shall be equipped with tungsten carbide bits. Drill guide bushings will be required to prevent eccentricity of the drilled holes.

c. The drill and the pressure mechanism shall be matched to drill the holes for the dowels in 30 seconds or less.

d. The drills, pressure mechanisms, guide bushings, centralizer collars, and drill feeds shall be gang mounted and shall consist of not less than three (3) independently powered and driven drills. The drill feeds shall be constructed such that all drill bits shall be parallel to one another. Each drill bitshall pass through a

centralizer collar which shall be replaced as wear demands. The driven drill bits shall impart a pressure against the face of the concrete not to exceed 40 psi.

The drilling machine should be mounted on a tractor or other suitable piece of equipment so that it can be easily transported and quickly positioned at each repair location. The drilling machine shall be approved by the Engineer prior to actual use.

When in the opinion of the Engineer drill wear is such that the hole diameter exceeds the diameter of the deformed bar by 1/4 of an inch, the Contractor shall replace the drill bits and/or guides. The holes and face of the existing concrete shall be cleaned with compressed air after drilling is complete.

8. DOWEL BAR INSTALLATION:

Dowel bars shall be #4 deformed epoxy coated steel bars and shall be used in all fixed transverse joints. All dowel bars shall be 18 inches in length, and embedded a distance of 9 inches into the adjacent slabs.

Chemical anchor material shall be used to secure the dowel bars in place as shown on the contract drawings. Chemical anchor material shall be placed by using a flexible long-nose tube that injects the material into the back of the hole in accordance with the manufacturer's recommendations.

Under no circumstances will the practice of dipping the dowel bars in the chemical anchorage material be permitted.

The bar shall be inserted into the hole while being rotated at least one complete revolution so that the material in the bottom of the hole is forced up and around the bar. A retention disk shall be placed on the leading end of the bar before it is inserted into the hole so that as the bar is inserted and rotated, only the excess chemical anchorage material is allowed to escape. The space around the bar shall be completely filled with chemical anchorage material and shall be free of voids.

Retention disks shall be polymeric material or aluminum with a non-reactive flexible gasket material and shall be approved for use by the Engineer. The design and installation of the retention disk shall be such that there will be no metal to metal contact between the retention disk and the deformed bars.

9. FORMS FOR SLAB REPLACEMENTS ADJACENT TO SHOULDER:

Forms shall be utilized on the bituminous shoulder side of the patch. In order to accommodate the side forms, the Contractor shall saw cut full-depth and excavate 6 inches beyond the lateral width of the form into the adjacent shoulder. Forms shall extend longitudinally along the existing shoulder pavement a minimum of 1 foot beyond the transverse limits of the patch. The forms shall be secured to prevent movement during

concrete placement. After the removal of the form, the excavated portion of the shoulder shall be replaced with Bituminous Concrete Class 1, or the HMA S* (SUPERPAVE) mix designated on the project, in accordance with Section 4.06 and shall be true to the line and grade of the new patch and existing shoulder.

10. POLYETHYLENE SHEET:

A 4 mil thick polyethylene sheet, whose all around dimensions are 3 inches less than those of the repair area, shall be secured to the subbase prior to placement of the concrete.

11. REINFORCEMENT:

Smooth welded steel wire fabric shall be used in full-depth patches. Placement of the fabric reinforcement shall conform to Standard Drawing 401-B.

12. CONCRETE PLACEMENT:

It shall be the responsibility of the Contractor to arrange the construction schedule so that the required operations are performed without causing a delay in work.

Concrete placement operations for Mixes I and II may commence only when the air temperature is in the range of 65 to 95 degrees F and when the anticipated minimum and maximum temperatures for the 48 hours immediately after placement of concrete shall be within the range of 40 to 95 degrees F.

When the air temperature is below 65 degrees F, or when the anticipated temperature is expected to fall below 40 degrees F within 48 hours of the concrete placement, **ONLY** Mixes III or IV shall be used.

Placement of concrete shall not be permitted if the air temperature is, or can be expected to lie outside the range specified for that particular mix design. The anticipated minimum and maximum temperatures shall
be based upon national weather service reports which the Contractor shall obtain on a daily basis. All temperatures shall be measured in the shade.

Concrete shall not be placed when it is raining or when rain is forecast within two hours of placement.

Vibration shall be used to thoroughly consolidate the concrete throughout the entire patch area. Approved spud-type vibrators whose head diameters shall not be less than two (2) inches shall be used to consolidate the concrete. Vibrators shall be capable of transmitting 10,000 to 15,000 vibrations per minute. The vibrators shall be held vertically and vibration shall be done full-depth through the reinforcing mesh over the entire area in

a uniform pattern. Utmost care shall be exercised to ensure that the concrete around the dowel bars and slab edges has been properly consolidated.

13. JOINTS:

When an existing transverse contraction or expansion joint falls within the limits of a patch, the contraction or expansion joint shall be replaced with a joint of the same type, along the same plane as the adjacent transverse joint, in accordance with Standard Sheets 401-A and 401-E. **Payment for the expansion or contraction joints will be included in the cost of the work.**

Finished joints shall not deviate more than 1/4 inch in the horizontal alignment.

Transverse contraction joints shall consist of planes of weakness created by forming or cutting grooves in the surface of the pavement. Formed grooves shall be made by depressing an approved tool or device into the plastic concrete. The tool or device shall remain in-place until the concrete has attained its initial set and shall then be removed without disturbing the adjacent concrete, unless the device is designed to remain in the joint.

Sawed contraction joints shall be created by sawing grooves in the surface of the pavements of the dimensions shown on the plans with an approved concrete saw.

Sawing of the joints shall commence as soon as the concrete has hardened sufficiently to permit sawing without excessive raveling, usually 4 to 24 hours. All joints shall be sawed before uncontrolled shrinkage cracking takes place.

The expansion joint material shall conform to AASHTO M153, Type 2.

14. FINISHING:

After the concrete has been placed to a level slightly above the existing concrete pavement surface, a vibrating plate or screed shall be drawn over the surface at a uniform speed, without stopping, in order to strike-off the patch surface even with the adjacent concrete surface. The patch shall then be floated to a smooth finish. The type of screed or plate shall be approved by the Engineer.

The addition of water to facilitate the finishing of the patch surface shall **NOT** be permitted. Finishing operations shall be completed before initial set takes place. Patches less than 10 feet in length shall be screeded parallel to the centerline. Patches greater than 10 feet in length shall be screeded perpendicular to the centerline.

The surface of the patch shall not vary more than 1/8 inch in a distance of 10 feet when a 10-foot-long straightedge is placed on the surface at any angle. Sags or depressions in the surface of the patch area that exceed the 1/8-inch tolerance shall be repaired at the

expense of the Contractor. Upward deviations in the hardened patch surface shall be ground down, at the expense of the Contractor, by approved machinery as directed by the Engineer.

15. CURING:

As soon as initial set of the concrete has occurred in Mixes I and II, curing mediums shall be applied. Initial set is defined as having occurred when no cement paste is lifted from the repair when the surface is lightly rubbed with the fingers of one's hand.

Mix I Curing: Liquid curing compound, conforming to 4.01.03-F7a, shall be used. When the ambient temperature is anticipated to fall below 50 degrees F, insulation curing material, as described below, shall be utilized.

Mix II Curing: Liquid curing compound, conforming to 4.01.03-F7a, shall be used. In addition, a sheet of 4 mil polyethylene shall be placed over the repair area, in conjunction with insulating curing material. This material shall be a minimum of 2 inch thick closed cell extruded polystyrene insulation board that conforms to the requirements of ASTM C578. It shall have a minimum certified R value of ten (10). The insulating material shall extend at least 12 inches beyond the limits of the repair area, and shall be kept in intimate contact with the pavement surrounding the patch area to prevent wind intrusion beneath. It shall be weighted down with sand bags weighing a minimum of 15 pounds each. The sand bags shall be placed a minimum of two (2) feet on center around the patch area.

Mix III Curing: Curing shall be in accordance with the manufacturer's recommendations.

Mix IV Curing: The curing methods for this mix shall be the same as those requirements for Mix II, with the exception that liquid curing compound shall not be used. Any variations to this prescribed method of curing shall be approved in writing by the Engineer prior to its use.

16. INSPECTION:

Any pavement defects or shrinkage cracks resulting from improper placement or curing methods shall be repaired, or the patch replaced by the Contractor at no cost to the State.

17. TESTING:

The Contractor shall make test cylinders under the supervision of the representative of the Department. The dimensions, type of cylinder mold and number of cylinders shall be specified by the Engineer.

A portable compression testing machine shall be provided by the Contractor and available on site for cylinder testing. All testing and equipment shall conform to ASTM

C39. NOTE: This compression machine must be calibrated in accordance with the provisions of Section 5, ASTM C39.

18. TIME SCHEDULE:

Traffic will be allowed on areas of the roadway where the Contractor has placed and finished the full-depth patches (with bituminous cover if required), after the attainment of 1,800 psi compressive strength.

If the concrete has not attained the above compressive strength requirements within 6 hours, the Contractor shall remove and replace the concrete patch, including any additional saw cutting, drilling and bar installation at his own expense during the next working day.

If the Contractor does not complete replacement operations within the given traffic lane closure time period, then he shall provide at his own expense, a full-depth bituminous concrete patch, or a temporary wood/concrete platform, to allow full traffic operations over these areas. Steel plates may be used in lieu of bituminous concrete to span excavations that are 10 feet or less in length and if vehicle speed limits are not to exceed 25 miles per hour. These plates shall be secured to the existing slabs to prevent movement, as directed by the Engineer. Bituminous concrete shall be placed to provide a taper onto and off of the steel plates.

The plate, platform or bituminous patch shall be removed and all work shall be completed on the patch during the next scheduled work period. Installation and removal shall be done as directed by and to the satisfaction of the Engineer.

19. TEMPORARY WOOD/CONCRETE PLATFORMS:

Temporary Wood/Concrete Platforms may be used, as shown on the contract drawings, to allow full traffic operations (as outlined above), or to enhance the production schedule.

20. COLD WEATHER CONCRETING:

When Mix IV is utilized for cold weather concreting as described herein, the following additional requirements shall apply:

a. The polyethylene sheeting referred to under Section 10 shall be eliminated.

b. During cold weather, only those chemical anchoring materials whose cure time is not affected by cold temperatures shall be used.

c. Just prior to the placement of the Mix IV concrete, the subbase and surrounding patch interfaces shall be thoroughly wetted with hot water having a minimum temperature of 175 degrees F. This wetting shall be continued until these

interfaces are substantially heated, but in no case shall the residual ponding of water be allowed to occur within the patch area. The method of wetting the patch area shall be approved by the Engineer prior to its use.

Immediately after the wetting operation is concluded, the Mix IV concrete shall be placed into the patch area. Due to the fact that rapid wetting, material placement, consolidation and finishing are paramount to the success of this operation, the failure of the Contractor to follow the prescribed, approved methods shall be grounds for the rejection of those materials in place.

Article 4.01.04 - Method of Measurement:

Delete the entire article and substitute the following:

This work shall be measured for payment by the actual number of cubic yards of concrete placed in acceptable patches.

Expansion and contraction joints shall not be measured for payment.

Removal of unsuitable subbase material shall be measured on the basis of cubic yards of material excavated, as directed by the Engineer.

Replacement of unsuitable subbase material shall be measured on the basis of cubic yards of subbase material placed and accepted by the Engineer.

Subgrade drains shall be measured on the basis of lineal feet of underdrain installed as directed by the Engineer.

Patching of the shoulder pavement that was removed to install the side forms shall be measured on the basis of the number of tons of Bituminous Concrete Class 1 material placed, or the SUPERPAVE mix designated on the project, compacted and accepted by the Engineer.

If the existing roadway is composite pavement (bituminous over concrete), replacement of the bituminous directly above the new concrete patch shall be measured on the basis of the number of tons of Bituminous Concrete Class 1 material placed, or the SUPERPAVE mix designated on the project, compacted and accepted by the Engineer. Material for Tack Coat shall be measured as outlined in 4.06.04-7.

Article 4.01.05 - Basis of Payment:

Delete the entire article and substitute the following:

This work shall be paid for at the contract unit price per cubic yard of "Concrete Pavement Repair at Storm Drain Trenches," complete in place. This price shall include

removal and disposal of all materials including but not limited to deteriorated concrete, bituminous pavement, steel reinforcement, and transverse joints. The price shall also include any required sawing of concrete and bituminous pavement, preparation of the patch area, furnishing, placement, finishing and curing of the concrete, subbase preparation, all drilling, furnishing and installation of the dowel bars, retention disks, steel reinforcement, Transverse Expansion Joints, Transverse Contraction Joints, insulating material, 4 mil polyethylene sheets, chemical anchoring material, and all tools and materials incidental thereto. The cost of furnishing, installing, and removal of the Temporary Wood/Concrete Platforms shall also be included.

No direct payment will be made for the concrete testing equipment, the instruction in its use, in-situ testing, the concrete in or curing of the required cylinders as specified hereinbefore, but the cost of this work shall be considered included in the general cost of the work.

Removal of unsuitable subbase material shall be paid for at the contract unit price per cubic yard for "Earth Excavation."

Replacement of unsuitable subbase material shall be paid for at the contract unit price per cubic yard for "Subbase."

Installation of subgrade drains shall be paid for at the contract unit price per lineal foot for "Underdrain."

Patching of the shoulder to facilitate placement of the side forms shall be paid for at the contract unit price per ton for "Bituminous Concrete Class 1" or “SUPERPAVE.”

If the existing roadway is composite pavement (bituminous over concrete), replacement of the bituminous directly above the new concrete patch shall be paid for at the contract unit price per ton for "Bituminous Concrete Class 1" or “SUPERPAVE.” Material for tack coat shall be paid for at the contract unit price per gallon for "Material for Tack Coat."

ITEM # 0402890A - IRREGULAR GRANITE PAVERS

ITEM # 0402891A – SLOPED IRREGULAR GRANITE PAVERS

4.02.01 – Description: This item shall consist of furnishing and installation of irregular granite pavers on aggregate setting bed in locations as shown on the Contract Documents and as directed by the Engineer.

4.02.02 – Materials:

1) Granite pavers shall have irregularly shaped split sides. Angles between sizes shall not be 90 degrees. Top surfaces shall be regular and generally within a tolerance of 0.5 inches in thickness of any given stone. Top surfaces of stones shall not hold water in cups or depressions.

2) Unless otherwise indicated, exposed surfaces shall have a non-slip surface.

3) Paver sizes shall be as indicated on the Contract Documents.

4) Setting bed shall be a crushed stone product meeting the following sieve requirements:

Sieve Size	% Passing by Weight
3/8”	85-100
#4	40-100
#16	10-55
#50	00-35

5) Joint filler between paver joints shall be a stone dust of decomposed granite or trap rock meeting the following gradation:

Sieve Size	% Passing by Weight
# 8	90-100
#40	20-40
#100	10-30
#200	0-20

6) Concrete base shall conform to the requirements of Item #0921001A – Concrete Sidewalks, herein, including expansion dowels and welded wire mesh.

7) Dowel system at expansion joints shall be round smooth down and plastic sleeve system specifically designed for dowelled expansion joints and shall meet the following requirements:

a) Dowel size: 0.625 inch
b) Rebar size: #4 bar
c) Dowel length: 18 inches
d) Sleeve length: 9 inches
e) Matching base

8) Contractor to submit the following:

a) 3 paver samples showing the finish, shape and size

4.02.03 – Construction Methods:

1) Concrete slab base shall be installed in accordance with the requirements of Item #0921001A – Concrete Sidewalks herein.

2) Install expansion dowels and sleeves in accordance with manufacturer's recommendations.

3) Aggregate base shall be spread over concrete subbase as a setting bed for pavers. Aggregate shall be spread and leveled to required slope and grade. Minimum thickness of aggregate shall be 1 inches after leveling. Bed shall not be compacted until pavers are installed.

4) Surface tolerance shall be within 1/4 inch of required grade as measured with a 10-foot straightedge in both the transverse and longitudinal directions.

5) Setting bed shall be protected from damage prior to setting pavers.

6) Setting shall be done by competent workmen under adequate supervision, and in accordance with manufacturer's recommendations. Pavers shall be placed on the setting bed, to true line and plane and in required position.

7) Pavers with chips, cracks, or other structural or aesthetic defects shall not be used.

8) Pavers shall be set true to the required lines and grades in the pattern detailed on the Contract Documents. Pavers shall be open jointed to receive stone dust joint filler.

9) After a sufficient area of pavers has been installed, stones shall be set to their final level. After setting stones in setting bed, joints of pavers shall be filled by sweeping stone dust into the joints. When joints are filled, paver surfaces shall be misted with a fine spray to settle joint material. After joint material has dried, repeat joint filling and sweeping process.

10) Where required, pavers shall be accurately cut with a masonry or concrete saw. Cut edges shall be plumb and straight. Scoring and breaking will not be acceptable.

11) Cleaning and protection of stone surfaces: After completion of paving, surfaces shall be carefully cleaned, removing all dirt and stains using the approved masonry cleaner. Follow the manufacturer's directions for use. Apply masonry cleaner within the time frame noted in the manufacturer's literature.

a) Test suitability of masonry cleaner on a test area for approval by the Engineer. All test area to dry for the appropriate time period as described by Manufacturer's product literature.
b) Protect all adjacent architecture, pavement, lawns and planting from damage by masonry cleaner. Employ waterproof tarps and other appropriate barriers to prevent damage to adjacent materials.

4.02.04 – Methods of Measurement: This work will be measured for payment as follows:

1) Irregular granite pavers: This work will be measured by the actual number of square feet of completed and accepted irregular granite pavers.

2) Excavation: Excavation, backfilling, disposal of surplus material will not be measured for payment, but the cost shall be included in the price bid for the irregular granite pavers.

3) Concrete sub-base: concrete sub-base will not be measured for payment, but the cost shall be included in the price bid for the irregular granite pavers.

4) Gravel: gravel will not be measured for payment, but the cost shall be included in the price bid for the irregular granite pavers.

4.02.05 – Basis for Payment: This work will be paid for at the contract unit price per square foot for granite pavers complete in place, which price shall include all excavation as specified above, backfill, disposal of surplus material, gravel, granite pavers, setting bed and jointing materials, equipment, tools, materials and labor incidental thereto as described in this specification and as shown on the drawings.

Pay Item	**Pay Unit**
Irregular Granite Pavers	S.F.
Sloped Irregular Granite Pavers	S.F.

ITEM # 0402898A – REMOVE AND RESET BRICK PAVEMENT
ITEM # 0402899A – REMOVE AND RESET GRANITE COBBLESTONE PAVEMENT

This Section specifies requirements for removing and resetting existing granite cobblestone pavement or brick on a sand setting bed in accordance with these specifications and in close conformity with the lines and grades shown on the plans or established by the Engineer.

Materials

Sand shall be clean well graded mason's sand, conforming to ASTM C144.

Construction Methods

Cobblestone and Brick Installation

1. Lay existing cobblestones in a full setting bed at the proper level and pitch, in the pattern matching the existing.

2. Solidly fill vertical joints with joint material specified to full depth of cobblestones or brick and compact with a small tool to assure full solid joint. Fog lightly with water and refill all joints with joint material; repeat a minimum of 3 times until joints are compacted and full.

Method of Measurement

REMOVE AND RESET GRANITE COBBLESTONE PAVEMENT and REMOVE AND RESET BRICK PAVEMENT will be measured by the actual number of SQUARE FEET removed and reset.

Basis for Payment

REMOVE AND RESET BRICK PAVEMENT will be measured by the SQUARE FOOT installed complete-in-place including sand setting bed, and swept joints, all which price and payment shall constitute full compensation for complete compliance with requirements of this item, including all labor, equipment, materials, tools, incidental work, and construction methods.

REMOVE AND RESET GRANITE COBBLESTONE PAVEMENT will be measured by the SQUARE FOOT installed complete-in-place including sand setting bed, and swept joints, all which price and payment shall constitute full compensation for complete compliance with requirements of this item, including all labor, equipment, materials, tools, incidental work, and construction methods.

ITEM # 0402902A - GRANITE PAVERS

4.02.01 – Description: This item shall consist of furnishing and installation of granite pavers on mortar setting bed in locations as shown on the Contract Documents and as directed by the Engineer.

4,02.02 – Materials:

1) Granite shall be Midnight Grey by New England Stone, 285 Smith Street, North Kingston, RI, 02852 or approved equal.

2) Granite pavers shall be sawn on six sides and shall allow a tolerance of plus or minus 1/16 inch in horizontal directions but shall be gauged at a consistent thickness.

3) Unless otherwise indicated, exposed surfaces shall have a thermal finish; all other surfaces shall be sawn.

4) Paver sizes shall be as indicated on the Contract Documents.

5) Setting bed mortar shall be a mixture of a premixed, prepackaged sand/cement dry mix and a latex polymer additive as follows:

   a) Sand cement mixture shall be Laticrete 226 manufactured by Laticrete International, Inc., Bethany, CT 06524 or approved equal. Deliver Laticrete 226 to the job site in unopened bags.
   b) Latex polymer additive shall be equal to Laticrete 3701 setting liquid, manufactured by Laticrete International, Inc., Bethany, CT 06524 or approved equal. Mix according to manufacturer's instructions. Add latex polymer additive to sand/cement mixture to achieve the desired consistency.

6) High strength bond coat shall be a mixture of the following ingredients:

   a) Laticrete 211 Crete Powder manufactured by Laticrete International, Inc., Bethany, CT 06524 or approved equal.
   b) Laticrete 4237 manufactured by Laticrete International, Inc., Bethany, CT 06524 or approved equal

7) Mortar grout for pointing of joints shall consist of the following components:

   a) Laticrete 500 Series Sanded Grout with color-fast pigments. Color of grout shall be selected by the Engineer.
   b) Latex polymer additive shall be equal to Laticrete 3701 setting liquid, manufactured by Laticrete International, Inc., Bethany, CT 06524 or approved equal. Mix according to manufacturer's instructions.

8) Expansion joints shall be closed cell polymer foam meeting requirements of ASTM D 1752, Sections 3.1 to 3.4, based on compression requirement of 10 pounds per square inch minimum and 25 pounds per square inch maximum. Recovery rate following 50 percent compression shall exceed 99 percent recovery, per ASTM D 545. Foam shall be equal to Ceramar Foam Filler, manufactured by W.R. Meadows. Inc., or an approved equal. Expansion joint filler shall have a removable cap cover for the joint filler with integral permanent plastic bond breaker such as Snap-Cap from Seal Tight manufactured by W.R. Meadows, Inc., or approved equal. Cover width shall be sized to match width of joint filler.

9) Joint sealant and primer shall be polyurethane-based, one component, elastomeric sealants, complying with Fed. Spec. TT-S-00230C, Class A Type 1. Color shall be as selected by the Engineer. Sealants shall be self-leveling pour grade type.

a) Vulkem 45, as manufactured by Mameko International, 4475 East 175th Street, Cleveland Ohio 44182, (800) 321-6412.
b) Urexpan NR-210, as manufactured by Pecora Corporation, 165 Wambold Road, Harleysville, PA 10348, (215) 723-6051
c) PSI 951, as manufactured by Polymeric Systems Inc., Phoenixville, PA, (800) 228-5548 or approved equal.

10) Concrete base shall conform to the requirements of Item #0921001A – Concrete Sidewalks, herein and shall be paid for under the Granite Pavers item.

11) Stainless steel pins shall be 316 stainless steel. Pins shall be ½" diameter and 12" long.

12) Masonry cleaner shall be a product specifically designed to remove excess mortar and grout, rust, job dirt, and all construction stains during a final cleandown of new granite paving surfaces and leave those granite paving surfaces uniformly clean. Masonry cleaner shall be formulated to avoid damaging or staining of granite surfaces, damage to mortar joints, and alteration of the color of the mortar joints. Masonry cleaner shall be an environmentally safe product that can be flushed into a storm sewer system without damage to that system.

13) The Contractor shall submit the following:

a) Schedule showing the quantity of overall pavers and by paver size.
b) Manufacturer's literature for mortar.
c) Granite samples showing the specified finish (12"x12" sample)

4.02.03 – Construction Methods:

1) Setting Pavers

a) Saw cut granite pavers in the field to meet requirements of the Contract Documents.
b) Concrete slab under pavers shall be placed in accordance with the requirements of Item #0921001A – Concrete Sidewalks, herein. Concrete slab shall be poured separate from adjacent concrete sidewalk. Placement of stainless steel pins shall be as specified under #0921001A – Concrete Sidewalks in locations shown on the plans.
c) No pavers shall be laid in inclement weather or when the temperature is 36 degrees Fahrenheit, and dropping, nor shall any work be done on rising temperatures until the temperature reaches 32 degrees Fahrenheit. Frozen mortar materials shall not be used.
d) Granite pavers shall be set on a mortar setting bed over a prepared concrete base slab. All setting shall be done by competent masons under adequate supervision. Do any cleaning necessary to cement concrete base to provide a clean base surface, free from dust, oil, grease, other impurities, or loose or friable particles.

e) Damp the surface immediately before placing the mortar setting bed, but do not allow free water to remain on the surface.Granite pavers with chips, cracks, stains, or other defects that might be visible in the finished work shall not be used. 2) Mortar Placement:

a) Bond coat shall be applied to concrete base slab as a slurry by using flat side of a trowel. Thickness of bond coat shall be approximately 1/16 inch. Press bond coat firmly into the base slab. Apply as much bond coat as can be covered with mortar setting bed in 15 to 20 minutes.

b) Mortar bed of Laticrete 226 and 3701 shall be spread evenly over the troweled bond coat. Mortar setting shall be 1/2-inch thick, minimum. Screed mortar setting bed to a smooth and consistent surface. Let mortar bed harden sufficiently to walk upon, typically 24 hours. A second application of the bond coat mixture shall be applied to mortar setting bed using flat trowel to thickness of 1/16 inch. Comb on additional bond coat with notched sides of trowel. Back butter pavers with bond coat to ensure a full bond between pavers and setting bed.

c) Before setting, the back of each piece of granite shall be dampened. Each piece shall be carefully bedded into a wet, sticky bond coat mixture and tapped home to a full and solid bearing. Particular care shall be exercised to equalize bed and joint openings and eliminate the need for redressing of exposed surfaces.

d) Granite pavers shall be set true to the required lines and grades in the pattern detailed on the Contract Documents. Granite pavers shall be neatly cut and fitted at all perimeters and closures to fit neatly and closely, with joints uniform in thickness. Pavers shall be cut with a water-cooled, cut-off wheel masonry saw using a diamond carbide blade.

e) Exposed surfaces of pavers shall be kept free from bed mortar at all times. Any bed mortar smears shall be immediately removed with a clean sponge and clean water before latex modified mortar can set.

f) After pavers have been placed level the pavers with a suitable straight edge in a circular motion over the pavers to confirm that there is a continuous and even alignment between payers. If pavers are not in the required alignment, remove and reset as required to bring them to the required lines and grades. Leveling of the pavers shall be done as the setting operation proceeds so that it is not necessary to disturb the payers set earlier.

3) Joints: Unless otherwise indicated, joints between granite pavers shall be 3/8 inch (9.5 mm) wide.

a) Initial grout placement shall occur after bond coat has substantially set, typically no sooner than 24 hours after placement of granite paver on bond coat. Joints shall be dry and free of standing water. Joints shall be free of dust and debris. If joints have collected dust or debris between placement of pavers and installation of grout, blow joints free with compressed air system approved by the Engineer.

b) Dry sweep joints full with dry mortar grout and follow by spraying with water to compact mortar in joints. Final grouting of joints as specified shall be done in accordance with the following paragraph.
c) Grout Mix — Mix mortar grout to the standard stiff, workable grout (a slurry of medium consistency). With a rigid squeegee or trowel, spread joint filler back and forth across the paver faces until the joints are filled and firmly packed. Broadcast dry grout mix over filled joints and burlap or sponge in traditional manner. Once joint filler has taken a firm set, clean with burlap or sponge. Following burlap treatment, paver joints should be slightly concave. Minimum one week later, clean with approved acid-free masonry cleaner. Dilute and apply masonry cleaner per manufacturer's instructions.
d) Expansion joints shall be cleaned of all mortar and left ready for sealing of joints.
e) Expansion joints in granite banding shall be aligned to match the expansion joint in the concrete base course.
f) Under work of granite paving, set boxes for valves and gates to final grade that is flush with adjacent pavement.
g) Upon completion of granite paver work, surfaces shall be left in a clean, unsoiled condition, acceptable to the Engineer.
h) Cure joints for at least 7 days after installing by covering with curing paper or other non-staining material approved by the Engineer.

4) Adjust and Clean:
a) Remove and replace granite pavers that have been broken, chipped, stained, or otherwise damaged. Remove and replace units which are misaligned or not to grade or do not match adjoining granite work. Provide new matching units, install as specified and fill joints to eliminate evidence of replacement. Repair defective and unsatisfactory joints as required to provide a neat, uniform appearance.
b) After completion of granite paving, surfaces shall be carefully cleaned, removing all dirt, excess mortar, filler, and stains using the approved masonry cleaner. Follow the manufacturer's directions for use. Apply masonry cleaner within the time frame noted in the manufacturer's literature.
   1. Test suitability of masonry cleaner on a test area for approval by the Engineer. All test area to dry for the appropriate time period as described by Manufacturer's product literature.
   2. Protect all adjacent architecture, pavement, lawns and planting from damage by masonry cleaner. Employ waterproof tarps and other appropriate barriers to prevent damage to adjacent materials.
   3. After cleaning, rinse thoroughly with clean water per manufacturer's written directions.
c) Expansion joints and other joints to receive sealant shall be cleaned of all mortar and left ready for sealing of joints.

4.02.04 – Methods of Measurement: This work will be measured for payment as follows:

1) Granite pavers: This work will be measured by the actual number of square feet of

completed and accepted granite pavers.

4.02.05 – Basis for Payment: This work will be paid for at the contract unit price per square foot for “Granite Pavers” complete in place, which price shall include all excavation, disposal of surplus material, gravel subbase, concrete setting bed, pins, mortar, granite pavers, cleaning, equipment, tools, materials and labor incidental thereto as described in this specification and as shown on the drawings.

Pay Item	Pay Unit
Granite Pavers	S.F.

ITEM #0406270A - MILLING OF BITUMINOUS CONCRETE - (0 to 6 inches)

Description: This work shall consist of the milling, removal, and disposal of existing bituminous concrete pavement. It shall be performed in accordance with these specifications and in conformity with the line, grade, and typical cross-section shown on the plans.

Unless otherwise specified, the milled material shall become the property of the Contractor.

Milling Equipment: The equipment for milling the pavement surface shall be designed and built for milling flexible pavements and shall have a minimum 6 foot cutting width. It shall be self propelled with sufficient power, traction, and stability to maintain depth and slope and shall be capable of removing the existing bituminous concrete pavement to the line, grade, and typical cross-section shown on the plans.

The milling machine shall be equipped with a built in automatic grade control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results. The longitudinal controls shall be capable of operating from any longitudinal grade reference, including string line, ski (30 feet minimum), mobile string line (30 foot minimum), or matching shoe. The transverse controls shall have an automatic system for controlling cross-slope at a given rate.

The machine shall be capable of operating at a minimum speed of 10 feet per minute and be able to provide a 0 to 4 inch deep cut (minimum) in one pass. It shall be designed so that the operator can at all times observe the milling operation without leaving the control area of the machine.

The teeth on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.

The machine shall be equipped with an integral pickup and conveying device to immediately remove material being milled from the surface of the roadway and discharge the millings into a truck, all in one operation. The machine shall also be equipped with a means of effectively limiting the amount of dust escaping from the milling and removal operation in accordance with local, State, and Federal air pollution control laws and regulations.

When milling smaller areas or areas where it is impractical to use the above described equipment, the use of a smaller or lesser equipped milling machine may be permitted when approved by the Engineer.

A sweeper equipped with a water tank, spray assembly to control dust, a pick-up broom, a dual gutter broom, and a dirt hopper shall be provided by the Contractor. The sweeper shall be capable of removing millings and loose debris from the textured

pavement. Other sweeping equipment may be provided in lieu of the sweeper when approved by the Engineer.

Construction Methods: The pavement surface shall be removed to the line, grade, and typical cross-section shown on the plans. The milling operation shall proceed in accordance with the requirements of the “Maintenance and Protection of Traffic” and “Prosecution and Progress” specifications.

The milled surface shall provide a satisfactory riding surface with a uniform textured appearance. The milled surface shall be free from gouges, excessive longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, improper use of equipment, or poor workmanship. Any unsatisfactory surfaces produced are the responsibility of the Contractor and shall be corrected at the Contractor’s expense and to the satisfaction of the Engineer.

When removing a bituminous concrete pavement from an underlying Portland cement concrete pavement, all of the bituminous concrete pavement shall be removed to the greatest extent practicable, leaving a uniform surface of Portland cement concrete, unless otherwise directed by the Engineer.

Unless otherwise specified, milling shall be done to improve rideability and/or cross-slope. The existing pavement shall be removed to the average depth shown on the plans, in a manner that will restore the pavement surface to a uniform cross-section and longitudinal profile. The longitudinal profile of the milled surface shall be established by a stringline, mobile stringline, or mobile ski. The cross-slope of the milled surface shall be established by a second sensing device or by an automatic cross-slope control mechanism. The Contractor will be responsible for providing all grades necessary to remove the material to the proper line, grade, and typical cross-section shown on the plans. The Engineer may waive the requirement for automatic grade or slope controls where the situation warrants such action.

Protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor’s responsibility and shall be repaired at the Contractor’s expense.

To prevent the infiltration of milled material into the storm sewer system the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that has fallen into inlet openings or inlet grates shall be removed at the Contractor’s expense.
At all permanent limits of milling, a clean vertical face shall be established prior to paving. No vertical faces, transverse or longitudinal, shall be left exposed to traffic. If any vertical face is formed in an area exposed to traffic a temporary paved transition will be established conforming to the requirements for “Section 4.06 – Bituminous Concrete and Superpave, Transitions for Roadway Surface”. If a vertical face is not formed and

the milling machine is used to temporarily transition the milled pavement surface to the existing pavement surface, the length of the temporary transition shall conform to the requirements for “Section 4.06 – Bituminous Concrete and Superpave, Transitions for Roadway Surface”.

Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a sweeper or other approved equipment to remove, to the greatest extent practicable, material which will become airborne under traffic. This operation shall be conducted in a manner so as to minimize the potential for creation of a traffic hazard and to comply with local, State, and Federal air pollution control laws and regulations. Any damage done to traffic as a result of milled material becoming airborne is the responsibility of the Contractor and shall be repaired at the Contractor’s expense.

The milled surface will be tested with a 10 foot straightedge furnished by the Contractor. The variation of the top of ridges from the testing edge of the straightedge, between any two ridge contact points, shall not exceed 3/8 inch. The variation of the top of any ridge from the bottom of the groove adjacent to that ridge shall not exceed 3/8 inch. Any point in the surface not meeting these requirements shall be corrected as directed by the Engineer at the Contractor’s expense.

The Contractor may be waived of the straightedge surface requirements stated in the preceding paragraph in areas where a surface lamination between bituminous concrete layers or a surface lamination of bituminous concrete on Portland cement concrete causes a non-uniform texture to occur. This is subject to the approval of the Engineer.

Method of Measurement: This work will be measured for payment by the number of square yards of area from which the milling of asphalt has been completed and the work accepted. No area deductions will be made for minor unmilled areas such as catch basin inlets, manholes, utility boxes and any similar structures.

Basis of Payment: This work will be paid for at the contract unit price per square yard for “Milling of Bituminous Concrete, (0 to 6 inches) .”This price shall include all equipment, tools, labor, and materials incidental thereto.

No additional payments will be made for multiple passes with the milling machine to remove the bituminous surface.

No separate payments will be made for cleaning the pavement prior to paving; providing protection and doing handwork removal of bituminous concrete around catch basin inlets, manholes, utility valve boxes and any similar structures; repairing surface defects as a result of the Contractors negligence; providing protection to underground utilities from the vibration of the milling operation; removal of any temporary milled transition; removal and disposal of millings; furnishing a sweeper and sweeping after milling. The costs for these items shall be included in the contract unit price.

ITEM NO.	DESCRIPTION	UNIT
0406270A	MILLING OF BITUMINOUS CONCRETE - (0 TO 6 INCHES)	S.Y.

SECTION 4.06 BITUMINOUS CONCRETE

Section 4.06 is being deleted in its entirety and replaced with the following:

4.06.01—Description
4.06.02—Materials
4.06.03—Construction Methods
4.06.04—Method of Measurement
4.06.05—Basis of Payment

4.06.01—Description: Where reference is made to bituminous concrete, it shall also refer to hot-mix asphalt (HMA) mixtures using the Marshall or Superpave mix-design method.

Work under this section shall consist of the production, delivery and placement of a non-segregated, smooth and dense bituminous concrete mixture brought to proper grade and cross section. This section shall also include the method and construction of longitudinal joints. The Contractor shall furnish Quality Control Plans for both plant production and placement of HMA mixtures.

The terms listed below as used in this specification are defined as:

Course: A lift or multiple lifts comprised of the same HMA mixture placed as part of the pavement structure.

Dispute Resolution: A procedure used to resolve conflicts resulting from discrepancies between the Engineer and the Contractor's density results that may affect payment.

Hot Mix Asphalt (HMA): A bituminous concrete mixture.

Disintegration: Wearing away or fragmentation of the pavement. Disintegration will be evident in the following forms: Polishing, weathering-oxidizing, scaling, spalling, raveling, potholes or loss of material.

Lift: A single HMA mixture placed at a defined thickness.

Marshall: A HMA mixture design designated as "Bituminous Concrete Class ( )."

Superpave: A HMA mixture design designated as "HMA S*." Where "S" indicates Superpave and * indicates the sieve related to the nominal maximum aggregate size of the mix. For example Superpave 0.50 inch is now designated as HMA S0.5.

Segregation: A non-uniform distribution of a HMA mixture in terms of volumetrics, gradation or temperature.

Quality Assurance (QA): All those planned and systematic actions necessary to provide confidence that a product or facility will perform as designed.

Quality Control (QC): The sum total of activities performed by the vendor (producer, manufacturer, and contractor) to ensure that a product meets contract specification requirements.

4.06.02—Materials: All materials shall conform to the requirements of Section M.04.

1. Materials Supply: The HMA mixture must be from one source of supply and originate from one HMA Plant unless authorized by the Engineer.

2. Recycle Option: The Contractor has the option of recycling reclaimed asphalt pavement (RAP) or Crushed Recycled Container Glass (CRCG) in HMA mixtures in accordance with Section M.04. CRCG shall not be used in the final lift of the surface course.

4.06.03—Construction Methods:

1. Material Documentation: All vendors producing bituminous concrete must have their truck-weighing scales, storage scales, and mixing plant automated to provide a detailed ticket.

Delivery tickets must include the following information:

a. State of Connecticut printed on ticket.
b. Name of producer, identification of plant, and specific storage bin (silo) if used.
c. Date and time of day.
d. Mixture Designation (If RAP is used, the plant printouts shall include RAP dry weight, percentage and daily moisture content.) Class 3 mixtures for machine-placed curbing must state "curb mix only".
e. Net weight of mixture loaded into truck (When RAP is used, RAP moisture shall be excluded from mixture net weight).
f. Gross weight (Either equal to the net weight plus the tare weight or the loaded scale weight).
g. Tare weight of truck – Daily scale weight.
h. Project number, purchase order number, name of contractor (if contractor other than producer).
i. Truck number for specific identification of truck.
j. Individual aggregate, RAP, and virgin asphalt high/target/low weights shall be printed on batch plant tickets (For drum plants and silo loadings, the plant printouts shall be printed out at 5 minute intervals maintained by the vendor for a period of three years after the completion of the project).

The net weight of mixture loaded into the truck must be equal to the cumulative measured weight of its components.

The Contractor must notify the Engineer immediately if, during the production day, there is a malfunction of the weighing or recording system in the automated plant or truck-weighing scales. Manually written tickets containing all required information will be allowed for one hour, but for no longer, provided that each load is weighed on State-approved scales. At the Engineer's sole discretion, trucks may be approved to leave the plant if a State inspector is present to monitor weighing. If such a malfunction is not fixed within forty-eight hours, mixture will not be approved to leave the plant until the system is fixed to the Engineer's satisfaction. No damages will be considered should the State be unable to provide an inspector at the plant.

The State reserves the right to have an inspector present to monitor batching and /or weighing operations.

2. Transportation of Mixture: Trucks with loads of bituminous concrete being delivered to State projects must not exceed the statutory or permitted load limits referred to as gross vehicle weight (GVW). The Contractor shall furnish a list of all vehicles and allowable weights transporting mixture.

The State reserves the right to check the gross and tare weight of any delivery truck. A variation of 0.4 percent or less in the gross or tare weight shown on the delivery ticket and the certified scale weight shall be considered evidence that the weight shown on the delivery ticket is correct. If the gross or tare weight varies from that shown on the delivery ticket by more than 0.4 percent, the Engineer will recalculate the net weight. The Contractor shall take action to correct discrepancy to the satisfaction of the Engineer.

If a truck delivers mixture to the project and the ticket indicates that the truck is overweight, the load will not be rejected but a "Measured Weight Adjustment" will be taken in accordance with Sub-article 4.06.04.

The mixture shall be transported from the mixing plant in trucks that have previously been cleaned of all foreign material and that have no gaps through which mixture might inadvertently escape. The use of kerosene, gasoline, fuel oil, or similar products for the coating of the inside of truck bodies is prohibited.

Truck body coating and cleaning agents must not have a deleterious effect on the transported mixture. When acceptable coating or agents are applied, truck bodies shall be raised immediately prior to loading to remove any excess agent in an environmentally acceptable manner. The Contractor shall take care in loading trucks uniformly so that segregation is minimized.

Loaded trucks shall be tightly covered with waterproof covers acceptable to the Engineer. Mesh covers are prohibited. The front and rear of the cover must be fastened to minimize air infiltration. The Contractor shall assure that all trucks are in

conformance with this specification. Trucks found not to be in conformance shall not be allowed to be loaded until re-inspected to the satisfaction of the Engineer.

3. Paving Equipment: The Contractor shall have the necessary paving and compaction equipment at the project site to perform the work. All equipment shall be in good working order and any equipment that is worn, defective or inadequate for performance of the work shall be repaired or replaced by the Contractor to the satisfaction of the Engineer. The use of solvents or fuel oil as a release agent on any paving equipment (i.e., rollers, pavers, transfer devices, etc.) is strictly prohibited.

Refueling of equipment is prohibited in any location on the paving project where fuel might come in contact with bituminous concrete mixtures already placed or to be placed. Solvents for use in cleaning mechanical equipment or hand tools shall be stored clear of areas paved or to be paved. Before any such equipment and tools are cleaned, they shall be moved off the paved or to be paved area; and they shall not be returned for use until after they have been allowed to dry.

Pavers: Each paver shall have a receiving hopper with sufficient capacity to provide for a uniform spreading operation and a distribution system that places the mix uniformly, without segregation. The paver shall be equipped with and use a vibratory screed system with heaters or burners. The screed system shall be capable of producing a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Pavers with extendible screed units as part of the system shall have auger extensions and tunnel extenders as necessary. Automatic screed controls for grade and slope shall be used at all times unless otherwise authorized by the Engineer. The controls shall automatically adjust the screed to compensate for irregularities in the preceding course or existing base. The controls shall maintain the proper transverse slope and be readily adjustable, and shall operate from a fixed or moving reference such as a grade wire or floating beam.

Rollers: All rollers shall be self-propelled and designed for compaction of bituminous concrete. Rollers types shall include steel-wheeled, pneumatic or a combination there of and may be capable of operating in a static or dynamic mode. Rollers that operate in a dynamic mode shall have drums that use a vibratory or oscillatory system or combination of. The vibratory system achieves compaction through vertical amplitude forces. Rollers with this system shall be equipped with indicators that provide the operator with amplitude, frequency and speed settings/readouts to measure the impacts per foot during the compaction process. The oscillatory system achieves compaction through horizontal shear forces. Rollers with this system shall be equipped with frequency indicators. Rollers can operate in the dynamic mode using the oscillatory system on concrete structures such as bridges and catch basins if at the lowest frequency setting.

Pneumatic tire rollers shall be self-propelled and equipped with wide-tread compaction tires capable of exerting an average contact pressure from 60 to 90 pounds per square

inch uniformly over the surface, adjusting ballast and tire inflation pressure as required. The Contractor shall furnish evidence regarding tire size; pressure and loading to confirm that the proper contact pressure is being developed and that the loading and contact pressure are uniform for all wheels.

Lighting: For paving operations, which will be performed during hours of darkness, the paving equipment shall be equipped with lighting fixtures as described below, or with approved lighting fixtures of equivalent light output characteristics. A sufficient number of spare lamps shall be available on site as replacements in the event of failures. The Contractor shall provide brackets and hardware for mounting light fixtures and generators to suit the configuration of the rollers and pavers. Mounting brackets and hardware shall provide for secure connection of the fixtures, minimize vibration, and allow for adjustable positioning and aiming of the light fixtures. Lighting shall be aimed to maximize the illumination on each task and minimize glare to passing traffic. The Contractor shall provide generators on rollers and pavers of the type, size, and wattage, to adequately furnish 120 V AC electric power to operate the specified lighting equipment. A sufficient amount of fuel shall be available on site. There shall be switches to control the lights. Wiring shall be weatherproof and installed to all applicable codes. The minimum lighting requirements are:

Paver Lighting

Fixture	Quantity	Remarks
Type A	3	Mount over screed area
Type B (narrow) or Type C (spot)	2	Aim to auger and guideline
Type B (wide) or Type C (flood)	2	Aim 25 feet behind paving machine

Roller Lighting

Fixture	Quantity
Type B (wide)	2
Type B (narrow)	2
OR	
Type C (flood)	2
Type C (spot)	2

All fixtures shall be mounted above the roller. Aim floodlights and wide beam lights 50 feet in front of and behind roller; aim spotlights and narrow beam lights 100 feet in front of and behind roller.

Type A: Fluorescent fixture shall be heavy-duty industrial type. It shall be enclosed and gasketed to seal out dirt and dampness. It shall be UL listed as suitable for wet locations. The fixture shall contain two 4-foot long lamps - Type

"F48T12CWHO". The integral ballast shall be a high power factor, cold weather ballast, and 120 volts for 800 MA HO lamps. The housing shall be aluminum, and the lens shall be acrylic with the lens frame secured to the housing by hinging latches. The fixture shall be horizontal surface mounting, and be made for continuous row installation.

Type B: The floodlight fixture shall be heavy-duty cast aluminum housing, full swivel and tilt mounting, tempered-glass lens, gasketed door, reflector to provide a wide distribution or narrow distribution as required, mogul lamp socket for 250 watt Metal Halide lamp, 120 volt integral ballast, suitable for wet locations.

Type C: The power beam holder shall have ribbed die cast aluminum housing and a clear tempered-glass lens to enclose the fixture. There shall be an arm fully adjustable for aiming, with a male-threaded mount with serrated teeth and lock nuts. There shall be a 120-volt heatproof socket with extended fixture wiring for an "Extended Mogul End Prong" lamp base. The fixture shall have gaskets, and shall be UL listed as suitable for wet locations. The lamps shall be 1000-watt quartz PAR64, both Q1000PAR64MFL (flood) and Q1000PARNSP (spot) will be required.

Material Transfer Vehicle (MTV): A MTV shall be used when placing a HMA surface course that is greater than 5,000 feet in length and 28 feet in width unless otherwise restricted as noted herein. A surface course is defined as the total thickness of the same HMA mix that extends up to and includes the final wearing surface whether it is placed in a single or multiple lifts, and regardless of any time delays between lifts.

The MTV must be a self-propelled vehicle specifically designed for the purpose of delivering the HMA mixture from the delivery truck to the paver. The MTV must have the capability to remix the bituminous concrete mixture.

The use of a MTV will be subject to the requirements stated in Article 1.07.05- Load Restrictions. The Engineer may limit the use of the vehicle if it is determined that the use of the MTV may damage highway components, utilities, or bridges. The Contractor shall submit to the Engineer at time of pre-construction the following information:

- The make and model of the MTV to be used.
- The axle weights and axle spacing for each separate piece of paving equipment (haul vehicle, MTV and paver).
- A working drawing showing the axle spacing in combination with all three pieces of equipment that will comprise the paving echelon.

4. Seasonal Requirements: Paving shall be divided into two seasons, In-Season and Extended Season; In-Season shall be from May 1 – September 30, and Extended Season shall be from October 1- April 30. In no case shall the final lift of HMA be placed during the extended season unless otherwise authorized or directed by the Engineer. No HMA mixes shall be placed when the air or base temperature is below

32°F. HMA for temporary pavement will be subject to the seasonal requirements unless otherwise authorized or directed by the Engineer.

Additional Requirements for Extended Season:

- The minimum mixture temperature for all HMA mixtures in the delivery truck prior to discharge into the paver or transfer vehicle hopper shall be 290°F. The temperature will be taken from the initial discharge of mixture from the truck. If found to be below the minimum requirement, the truck will not be allowed to unload remaining mixture.

- The Contractor shall use a minimum of 3 rollers with operators for paving lengths greater than 1000 feet. Two rollers must be capable of operating in the dynamic mode.

- The Contractor's Quality Control Plan shall include a section on Extended Season Paving and address paver speed, roller patterns and balancing mixture delivery and placement operations to meet specification requirements.

5. Superpave Test Section: The Engineer may require the Contractor to place a test section whenever the requirements of this specification or M.04 are not met.

The Contractor shall submit the quantity of mixture to be placed and the location of the test section for review and acceptance by the Engineer. The equipment used in the construction of a passing test section shall be used throughout production.

If a test section fails to meet specifications, the Contractor shall stop production, make necessary adjustments to the job mix formula, plant operations, or procedures for placement and compaction. The Contractor shall construct test sections, as allowed by the Engineer, until all the required specifications are met. All test sections shall also be subject to removal as set forth in Section 1.06.04.

6. Transitions for Roadway Surface: Transitions shall be formed at any point on the roadway where the pavement surface deviates, vertically, from the uniform longitudinal profile as specified on the plans. Whether formed by milling or by bituminous concrete mixture, all transition lengths shall conform to the criteria below unless otherwise specified.

Permanent Transitions: A permanent transition is defined as any transition that remains as a permanent part of the work. All permanent transitions, leading and trailing ends shall meet the following length requirements:

a) Roadways greater than 35 MPH = 30 feet per inch of vertical change (thickness)
b) Roadways 35 MPH or less = 15 feet per inch of vertical change (thickness).
c) Bridge Overpass and underpass transition length will be 75 feet either
    (1) Before and after the bridge expansion joint, or
    (2) Before or after the parapet face of the overpass.

In areas where it is impractical to use the above described permanent transition lengths the use of a shorter permanent transition length may be permitted when approved by the Engineer.

Temporary Transitions: A temporary transition is defined as a transition that does not remain a permanent part of the work. All temporary transitions shall meet the following length requirements:

a) Roadways greater than 35 MPH
   (1) Leading Transitions = 15 feet per inch of vertical change (thickness)
   (2) Trailing Transitions = 6 feet per inch of vertical change (thickness)
b) Roadways 35 MPH or less
   (1) Leading and Trailing = 4 feet per inch of vertical change (thickness)

Note: Any temporary transition to be in-place over the winter shutdown period, holidays, or during extended periods of inactivity (more than 7 calendar days) shall conform to the "Permanent Transition" requirements shown above.

7. Spreading and Finishing of Mixture: Prior to the placement of the bituminous concrete, the underlying base course shall be brought to the plan grade and cross section within the allowable tolerance. Immediately before placing the mixture, the area to be surfaced shall be cleaned by sweeping or by other means acceptable to the Engineer. The HMA mixture shall not be placed whenever the surface is wet or frozen. The temperature of the mix at time of placement must be between 265°F and 325°F. The Engineer will verify the mix temperature by means of a probe or infrared type of thermometer. Rejection of mixture based on temperature will only be allowed if verified by means of a probe type thermometer.

Placement: The HMA mixture shall be placed and compacted to provide a smooth, dense surface with a uniform texture and no segregation at the designed thickness and dimensions indicated in the plans and specifications. The maximum paver speed during placement shall not exceed 40 ft/min unless authorized by the Engineer.

When unforeseen weather conditions prevent further placement of the mix, the Engineer is not obligated to accept or place the bituminous concrete mixture that is in transit from the plant.

In advance of paving, traffic control requirements shall be set up daily, maintained throughout placement, and shall not be removed until all associated work including density testing is completed.

The Contractor shall inspect the newly placed pavement for defects in the mixture or placement before rolling is started. Any deviation from standard crown or section shall be immediately remedied by placing additional mixture or removing surplus mixture. Such defects shall be corrected to the satisfaction of the Engineer.

Where it is impractical due to physical limitations to operate the paving equipment, the Engineer may permit the use of other methods or equipment. Where hand spreading is permitted, the mixture shall be placed by means of suitable shovels and other tools, and in a uniformly loose layer at a thickness that will result in a completed pavement meeting the designed grade and elevation.

Placement Tolerances: Each lift of HMA placed at a uniform design thickness shall meet the following requirements for thickness and area. Any pavement exceeding these limits shall be subject to an HMA adjustment or removal. Lift tolerances will not relieve the Contractor from meeting the final designed grade. Lifts of designed non-uniform thickness, i.e. wedge or shim course, shall not be subject to thickness and area adjustments.

a) Thickness- Where the total thickness of the lift of mixture exceeds that shown on the plans beyond the tolerances shown in Table 2, the longitudinal limits of such variation including locations and intervals of the measurements will be documented by the Engineer for use in calculating a HMA adjustment in 4.06.04-2.

TABLE 2 - Thickness Tolerances

Mixture Designation	Lift Tolerance
Class 4 and HMA S1	+/- $^{3}/_{8}$ inch
Class 1, 2 and 12 and HMA S0.25, S0.375, S0.5	+/- ¼ inch

Where the thickness of the lift of mixture is less than that shown on the plans beyond the tolerances shown in Table 2, the Contractor, with the approval of the Engineer, shall take corrective action in accordance with this specification.

b) Area- Where the width of the lift exceeds that shown on the plans by more than the designed thickness of each lift, the longitudinal limits of such variation including locations and intervals of the measurements will be documented by the Engineer for use in calculating a HMA adjustment in 4.06.04-2.

c) Delivered Weight of Mixture - When the delivery ticket shows that the truck exceeds the allowable gross weight for the vehicle type the quantity of tons representing the over weight will be documented by the Engineer for use in calculating a HMA adjustment in 4.06.04-2.

Transverse Joints: All transverse joints shall be formed by saw-cutting a sufficient distance back from the previous run, existing bituminous concrete pavement or bituminous concrete driveways to expose the full thickness of the lift. A brush of tack

coat shall be used on any cold joint immediately prior to additional bituminous concrete mixture being placed.

Tack Coat Application: A thin uniform coating of tack coat shall be applied to the pavement immediately before overlaying and be allowed sufficient time to break (set). All surfaces in contact with the HMA that have been in place longer than 3 calendar days shall have an application of tack coat. The tack coat shall be applied by a non-gravity pressurized spray system that results in uniform overlapping coverage at a target application rate of 0.07 ± 0.02 gallons per square yard for a non-milled surface and a target application rate of 0.12 ± 0.02 gallons per square yard for a milled surface. For areas where both milled and un-milled surfaces occur, the tack coat shall be a target application rate of 0.07 ± 0.02 gallons per square yard. The Engineer must approve the equipment and the method of measurement prior to use. The material for tack coat shall not be heated in excess of 160°F and shall not be further diluted.

Compaction: The Contractor shall compact the mixture to meet the density requirements as stated in Section 4.06.03-11 and eliminate all roller marks without displacement, shoving, cracking, or aggregate breakage.

The Contractor shall only operate rollers in the dynamic mode using the oscillatory system at the lowest frequency setting on concrete structures such as bridges and catch basins. The use of the vibratory system on concrete structures is prohibited.

Rollers operating in the dynamic mode shall be shut off when reversing directions.

If the Engineer determines that the use of compaction equipment in the dynamic vibratory mode may damage highway components, utilities, or adjacent property, the Contractor shall provide alternate compaction equipment. The Engineer may allow the Contractor to operate rollers in the dynamic mode using the oscillatory system at the lowest frequency setting.

These allowances will not relieve the Contractor from meeting pavement compaction requirements.

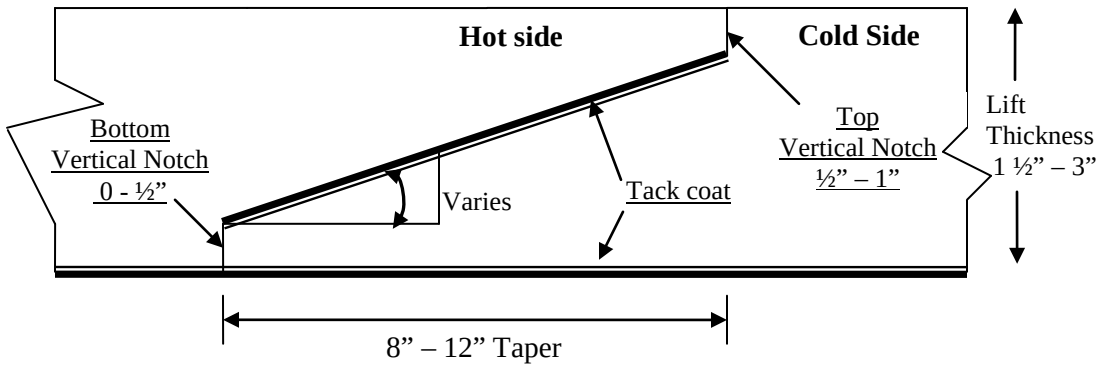
Surface Requirements: The pavement surface of any lift shall meet the following requirements for smoothness and uniformity. Any irregularity of the surface exceeding these requirements shall be corrected by the Contractor.

a) Smoothness- Each lift of the surface course shall not vary more than ¼ inch from a Contractor-supplied 10 foot straightedge. For all other lifts of HMA, the tolerance shall be $^{3}/_{8}$ inch. Such tolerance will apply to all paved areas.

b) Uniformity- The paved surface shall not exhibit segregation, rutting, cracking, disintegration, flushing or vary in composition as determined by the Engineer.

8. HMA Longitudinal Joint Construction Methods: Unless noted on the plans or the contract documents or directed by the Engineer, the Contractor shall use Method I-Notched Wedge when constructing longitudinal joints where lift thicknesses are between 1½ and 3 inches. Method II shall be used for lifts less than 1½ inches or greater than 3 inches. During placement of multiple lifts of HMA, the longitudinal joint shall be constructed in such a manner that it is located at least 6 inches from the joint in the lift immediately below. The joint in the final lift shall be at the centerline or at lane lines.

Method I - Notched Wedge Joint:



A notched wedge joint shall be constructed, as shown in the figure using a device attached to the paver screed that is capable of producing a uniform slope.

The taper portion of the joint must be placed over the longitudinal joint in the lift immediately below. The top vertical notch must be located at the centerline or lane line in the final lift. The requirement for paving full width "curb to curb" as described in Method II will be waived in those areas where the notched wedge joint is utilized.

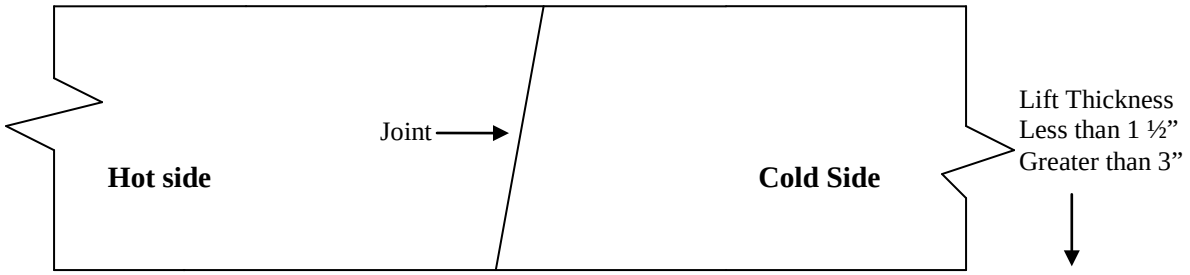
The taper portion of the wedge joint shall be compacted and not be exposed to traffic for more than 5 calendar days.

The existing pavement surface under the wedge joint must have an application of tack coat material. Prior to placing completing pass (hot side), an application of tack coat must be applied to the tapered section.

Any exposed wedge joint must be located to allow for the free draining of water from the road surface.

The Engineer reserves the right to define the paving limits when using a wedge joint that will be exposed to traffic.

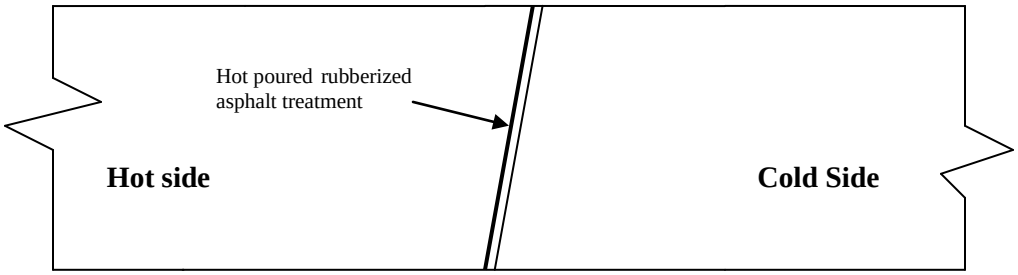
Method II - Butt Joint:



When adjoining HMA passes are placed, the Contractor shall utilize equipment that creates a near vertical edge (refer to figure). The completing pass (hot side) shall have sufficient mixture so that the compacted thickness is not less than the previous pass (cold side). The end gate on the paver should be set so there is an overlap onto the cold side of the joint.

The Contractor shall not allow any butt joint to be incomplete at the end of a work shift unless otherwise allowed by the Engineer. When using this method, the Contractor is not allowed to leave a vertical edge exposed at the end of a work shift and must complete paving of the roadway full width “curb to curb.”

Method III- Butt Joint with Hot Poured Rubberized Asphalt Treatment: When required by the contract or allowed by the Engineer, Method III may be used.



All of the requirements of Method II must be met with Method III. In addition, the longitudinal vertical edge must be treated with a hot poured rubberized asphalt material prior to placing a completing pass. The rubberized asphalt material shall be applied in

accordance with the manufacturer's recommendation so as to provide a uniform coverage and avoid excess bleeding onto the newly placed pavement.

9. Contractor Quality Control (QC) Requirements for HMA Placement: A Quality Control Plan (QCP) shall be required for any project that has a total of 2500 tons or more of HMA.

Quality Control is defined as all those planned and specified actions or operations necessary to produce bituminous concrete that will meet contract specification requirements. The Contractor shall be responsible for quality control throughout the production and placement operations. Therefore, the Contractor must ensure that the materials, mixture and work provided by Subcontractors, Suppliers and Producers also meet contract specification requirements.

Quality Control Plan: Prior to placement and production, the Contractor shall submit a QCP to the Engineer for approval. The QCP shall include separate sections for HMA Plant Production and for HMA Placement which shall describe the organization and procedures which the Contractor shall use to administer quality control. The QCP shall include the procedures used to control the HMA production and placement process, to determine when immediate changes to the processes are needed, and to implement the required changes. The QCP must address the actions, inspection, sampling and testing necessary to keep the production and placement operations in control, to determine when an operation has gone out of control and to respond to correct the situation and bring it back into control.

The QCP shall also include the name and qualifications of a Quality Control Manager. The Quality Control Manager shall be responsible for the administration of the QCP, including compliance with the plan and any plan modifications. The Quality Control Manager shall be directly responsible to the Contractor and shall have the authority to make decisions where the quality of the work or product is concerned. All sampling, inspection and test reports shall be reviewed and signed by the Quality Control Manager prior to submittal to the Engineer.

Approval of the QCP will be based on the inclusion of all of the required information. Approval of the QCP does not imply any warranty by the Engineer that adherence to the plan will result in production of HMA that complies with these specifications. It shall remain the responsibility of the Contractor to demonstrate such compliance. The Contractor may propose in writing a supplement to the QCP as work progresses and must propose a supplement whenever there are changes in production or placement of HMA or to quality control procedures or personnel. HMA production and placement may be suspended by the Engineer until the revisions to the QCP have been put into effect.

The Quality Control Plan shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor.

Quality Control Inspection, Sampling and Testing: The Contractor shall perform all quality control sampling and testing, provide inspection, and exercise management control to ensure that HMA production and placement conforms to the requirements as outlined in its QCP during all phases of the work.

a) Control Charts: The Contractor shall develop and maintain control charts and shall be distributed as directed by the Engineer. The control charts shall identify the project, test number, test parameter, applicable upper and lower specification limits, and test data. The control charts shall be used as part of the quality control system to document variability of the HMA production and placement process. The control charts shall be kept current. The control charts shall be updated each day of HMA production, and up-to-date copies shall be distributed prior to the beginning of the next day's production of HMA.

b) Records of Inspection and Testing: For each day of HMA production and placement, the Contractor shall document all test results and inspections on forms approved by the Engineer. The document shall be certified by the Quality Control Manager or his representative that the information in the document is accurate, and that all work complies with the requirements of the contract.

The Contractor shall submit sampling, testing and inspection documents to the Engineer within 24 hours or by noon of the next day's HMA production. If the document is incomplete or in error, a copy of the document will be returned to the Contractor with the deficiencies noted by the Engineer. The Contractor shall correct the deficiencies and return the updated document to the Engineer by the start of the following working day. When errors or omissions in the sampling, inspection or testing documents repeatedly occur, the Contractor shall correct the procedures by which the documents are produced.

If control charts, sampling, testing and inspection documents are not distributed or provided as required within the time specified the Engineer may require work to be suspended until the missing documents have been provided.

Additional requirements for HMA plant production are defined in Section M.04.

10. **Core Correlation Procedure for Density Testing of HMA:** Core correlation is required for all limited access highways and any other roadways in which 10,000 tons or more HMA mixture is placed**.**

This procedure describes the frequency and the method the Contractor shall use to obtain pavement cores from the project. Coring shall be performed the first time a HMA lift requiring density testing is placed. Prior to receiving core results, the HMA density acceptance will be determined using a nuclear density gauge correlated to the standard block located at the Department's Material Testing Laboratory. The gauge will be correlated to the core results once they are known.

The Contractor shall provide a minimum of one set of cores (5 cores per set) for each lift that will be tested for density. The Contractor may be required to provide additional sets of cores under the following conditions:

a) A change in source of component aggregates.
b) Any change in the average Gmm greater than 0.030 as indicated in the plant test results representing cored mixture.
c) Change in materials supplied in Section 4.06.02-1.

The Contractor shall extract 5 cores (6 inch diameter-wet sawed) from sampling locations determined by the Engineer. The Engineer will witness the extraction and labeling of cores. The cores shall be labeled by the Contractor with number, location, date and delivered in a safe manner to ensure no damage occurs (i.e., core 1M for first mat core; core 1J for first joint core, etc) to Department personnel as directed by the Engineer. The cores will be tested by the Engineer in accordance with AASHTO T 331(M).

Any cores that are damaged or obviously defective while being obtained will be replaced with new cores from a location within a 2 foot radius.

Core holes shall be filled immediately upon core extraction by removing any free water, applying tack coat to the cut surface, filling with same HMA mixture, and compacting with hand compactor or other mechanical means to the maximum compaction possible. The field mixture shall be compacted to $^{1}/_{8}$ inch above the finished pavement prior to opening the roadway to traffic.

11. Acceptance Inspection, Sampling and Testing: Inspection, sampling, and testing to be used by the Engineer shall be performed at the minimum frequency specified in Section M.04 and stated herein.

Sampling for acceptance shall be established using a statistically based procedure of random sampling approved by the Engineer.

HMA Plant Material Acceptance: The Contractor shall provide the required acceptance sampling, testing and inspection during all phases of the work in accordance with Section M.04.

HMA Density Acceptance: All acceptance testing will be performed by the Engineer for the completed pavement course on roadways and bridges in accordance with the Department's density testing procedures. Each lift designed to a compacted lift of 1½ inches or more shall have the HMA pavement including the longitudinal joints compacted to 94.5 +/- 2.5 percent of the maximum theoretical gravity. Bituminous Concrete Class 4 and HMA S1 are excluded from the longitudinal joint density requirements.

12. Density Dispute Resolution Process: The Contractor and Engineer will work in partnership to avoid potential conflicts and to resolve any differences that may arise during quality control or acceptance testing for density. Both parties will review their sampling and testing procedures and results and share their findings. If the Contractor disputes the Engineer's test results, the Contractor must submit in writing a request to initiate the Dispute Resolution Process within 10 calendar days of the placement of the mixture. No request for dispute resolution will be allowed unless the Contractor provides quality control results supporting its position. Should the dispute not be resolved through evaluation of existing testing data or procedures, the Engineer may authorize the Contractor to obtain representative core samples of the pavement. The core samples must be extracted no later than 30 calendar days from the date of Engineer's authorization. Core samples shall be located using the stratified random sampling procedure in accordance with ASTM D 3665 as determined by the Engineer. Core samples shall be extracted and filled using the procedure outlined in the Core Correlation Procedure. The densities from the 5 representative cores will be averaged for determining the final HMA density acceptance including any payment adjustments, in accordance with Section 4.06.04-2, that may apply.

13. Corrective Work Procedures: Any portion of the completed pavement that does not meet the requirements of the specification shall be corrected at the expense of the Contractor. Any corrective courses placed as the final wearing surface shall not be less than 1½ inches in thickness after compaction.

If pavement placed by the Contractor does not meet the specifications, and the Engineer requires its replacement or correction, the Contractor shall:

a) Propose a corrective procedure to the Engineer for review and approval prior to any corrective work commencing. The proposal shall include:

- Limits of pavement to be replaced or corrected, indicating stationing or other landmarks that are readily distinguishable.
- Proposed work schedule.
- Construction method and sequence of operations.
- Methods of maintenance and protection of traffic.
- Material sources.
- Names and telephone numbers of supervising personnel.

b) Perform all corrective work in accordance with the Contract and the approved corrective procedure.

14. Protection of the Work: The Contractor shall protect all sections of the newly finished pavement from damage that may occur as a result of the Contractor's operations for the duration of the Project. Prior to the Engineer's authorization to open the pavement to traffic, the Contractor is responsible to protect the pavement from damage.

15. Joints and Cracks in Bituminous Concrete Pavement: Work under this section shall consist of constructing new joints or repairing existing joints and cracks.

Equipment: All equipment necessary for the work shall meet the following requirements:

a) Kettle: The unit shall be a combination melter and pressurized applicator of a double-boiler type with space between the inner and outer shells filled with oil or other material not having a flash point of less than 600°F. The kettle shall include a temperature control indicator and mechanical agitator. The kettle shall be capable of maintaining the material at a temperature within 15°F of the manufacturer's recommended temperature.

b) Compressor: The compressor shall have a sufficient capacity and length of hose to enable a continuous sealing operation.

c) Saw: The saw shall be capable of providing a straight cut of uniform depth and width.

Joint Seal Material: Material that is heated or cooled beyond the manufacturer's recommended temperature range shall be discarded.

Sawing and Sealing Joints in Bituminous Concrete Pavement: Work under this item shall consist of making a straight-line saw cut transversely across the final lift of HMA pavement directly over the new and existing Portland Cement concrete (PCC) transverse joints. The sawing and sealing of joints shall be completed for HMA pavements with a total depth of 3 inches or greater. The saw cut shall be immediately cleaned and sealed with a joint seal material. The sawing and sealing shall commence

within one week of the completion of the final lift of pavement and be a continuous operation until all joints have been completed.

Prior to the paving operation, the Contractor shall establish sufficient controls to locate each transverse joint. This work shall include setting markers at each joint to reference its location and alignment, and having each of these markers tied and referenced. A written procedure for this work shall be submitted to the Engineer for review prior to commencement of such work.

The saw cut will be made by using diamond saw blades with a gang blade arrangement in order to achieve the joint detail as shown on the plans. The saw cut will be in a straight line across the pavement directly over the joint. Transverse joints shall extend to a point 2 feet beyond the underlying PCC pavement. The sawed joints shall be cleaned with compressed air to the satisfaction of the Engineer.

Immediately following the cleaning, the joint seal material shall be installed. When cooled, the top of the sealant material shall be recessed a minimum of $^{1}/_{16}$ inch but not greater than $^{1}/_{8}$ inch below the adjacent pavement surface. The roadway shall not be opened to traffic until the material has become tack free. Any depression in the sealer greater than $^{1}/_{8}$ inch shall be brought up to the specified limit by further addition of joint seal material. Care shall be taken during the sealing operation to ensure that overfilling and spilling of material is avoided.

Any reflective cracking attributable to improper joint referencing or construction shall be repaired at the expense of the Contractor, in a manner approved by the Engineer for a period of one year from the date of completion of any sawed and sealed portion of final pavement.

<u>Cleaning and Sealing Joints and Cracks in Pavement</u>: Work under this item shall consist of cleaning existing joints and cracks of all dirt, dust, loose joint material, and all deleterious matter with compressed air as directed by and to the satisfaction of the Engineer. After a sufficient number of joints and cracks have been cleaned so as to ensure a continuous operation, all joints and cracks shall be sealed with joint seal material.

<u>Cutting and Sealing Joints in the Bituminous Concrete Shoulder</u>: When PCC pavement is the final wearing surface a longitudinal saw cut at the interface of the bituminous concrete shoulder and PCC pavement shall be made. The saw cut shall be made in the bituminous concrete shoulder to expose the abutting edge of the PCC pavement. The size of the saw cut shall be ½ inch wide by 1½ inches deep.

<u>Kerf Cut in Bituminous Concrete Pavement</u>: If the final lift of pavement will not be completed prior to winter shutdown, each exposed course shall have a ¼ inch by ¼ inch kerf cut above the new and existing transverse joints. The kerf shall be cut with a saw or abrasive wheel approved by the Engineer. The kerf cut shall not be sealed.

16. Cut Bituminous Concrete Pavement: Work under this item shall consist of making a straight-line cut in the bituminous concrete pavement to the lines delineated on the plans or as directed by the Engineer. The cut shall provide a straight, clean, vertical face with no cracking, tearing or breakage along the cut edge.

4.06.04—Method of Measurement:

1. Bituminous Concrete Class ( ) or HMA S* : The quantity of bituminous concrete measured for payment will be determined by the documented net weight in tons accepted by the Engineer in accordance with this specification and Section M.04.

2. HMA Adjustments: Adjustments may be applied to bituminous concrete quantities and will be measured for payment using the following formulas:

Yield Factor for Adjustment Calculation = 0.0575 Tons/SY/inch

Actual Area = [(Measured Length (ft)) x (Avg. of width measurements (ft))]

Actual Thickness (t) = Total tons delivered / [Actual Area (SY) x 0.0575 Tons/SY/inch]

a) Area: If the average width exceeds the allowable tolerance, an adjustment will be made using the following formula. The tolerance for width is equal to the designed thickness (in.) of the lift being placed.

Tons Adjusted for Area (T_A) = [(L x W_{adj})/9] x (t) x 0.0575 Tons/SY/inch = (-) Tons

Where: L = Length (ft)
(t) = Actual thickness (inches)
W_{adj} = (Designed width (ft) + tolerance /12) - Measured Width)

b) Thickness: If the actual thickness is less than the allowable tolerance, the Contractor shall submit a repair procedure to the Engineer for approval. If the actual thickness exceeds the allowable tolerance, an adjustment will be made using the following formula:

Tons Adjusted for Thickness (T_T) = A x t_{adj} x 0.0575 = (-) Tons

Where: A = Area = {[L x (Designed width + tolerance (lift thickness)/12)] / 9}
t_{adj} = Adjusted thickness = [(Dt + tolerance) - Actual thickness]
Dt = Designed thickness (inches)

c) Weight: If the quantity of bituminous concrete representing the mixture delivered to the project is in excess of the allowable gross vehicle weight (GVW) for each vehicle, an adjustment will be made using the following formula:

Tons Adjusted for Weight (T_W) = GVW – DGW= (-) Tons

Where: DGW = Delivered gross weight as shown on the delivery ticket or measured on a certified scale.

d) Mixture Adjustment: If the quantity of bituminous concrete representing the produced mixture exceeds one or more of the production tolerances for Marshall (Table 3) or Superpave mix designs (Table 3A & 3B) , an adjustment will be made using the following formulas. The Department's Division of Material Testing will calculate the daily adjustment values for T_{MD} and T_{SD}.

(1) *Marshall Design*- The tolerances shown in Table 3 for gradation and binder content will be used to determine whether a mixture adjustment will apply. If the mixture does not meet the requirements of Section M.04, an adjustment will be computed using the following formula:

Tons Adjusted for Marshall Design (T_{MD}) = M x 0.10

Where: M= Tons of bituminous concrete mixture exceeding tolerances in Table 3

TABLE 3
TOLERANCES FOR CONSECUTIVE TESTS (MARSHALL)

Classes	Criteria	% Tolerances (+/-)
-	Binder	0.4
1, 2, 4, 5, 5A & 5B	#200	2.0
1, 2, 4	#50	4
1, 2, 5, 5A & 5B	#30	5
1, 2, 4, 5, 5A & 5B	#8	6
1, 2, 4, 5, 5A & 5B	#4	7
1, 2, 4, 5, 5A & 5B	$^3/_8$ & ½ inch	8

(2) *Superpave Design*- The adjustment values in Table 3A & 3B shall be calculated for each sub lot based on the Air Void and Liquid Binder Content test results for that sub lot. The total adjustment for each day's production (lot) will be computed using tables and the following formulas:

Tons Adjusted for Superpave Design (T_{SD}) = (AVa + APb) x Tons

Adjustment for Air Void = AVa = $[(Va_1 + Va_2 + Va_i + \ldots + Va_n)] / n$

Where: Va = Total air void adjustment value for the lot
Va_i = Adjustment value from Table 3A resulting from each sub lot
n = number of air void tests in a production lot

TABLE 3A
ADJUSTMENT VALUES FOR AIR VOIDS (SUPERPAVE)

Adjustment Value (AVa) **(%)**	**HMA S0.25, S0.375, S0.5, S1 Air Voids (Va)**
+2.5	3.5 - 4.5
0.0	3.0 - 3.4 or 4.6 - 5.0
- 5.0	2.7 - 2.9 or 5.1 - 5.3
- 10.0	2.3 – 2.6 or 5.4 – 5.7
-20.0	$\leq$ 2.2 or $\geq$ 5.8

Adjustment for Liquid Binder = APb

$= [(APb_1 + APb_2 + APb_i + \ldots + APb_n)] / n$

Where: APb = Total liquid binder adjustment value for the lot
APb_i = Adjustment value from Table 3B resulting from each sub lot
n = number of binder tests in a production lot

TABLE 3B
ADJUSTMENT VALUES FOR LIQUID BINDER (SUPERPAVE)

Adjustment Value(APb) **(%)**	**HMA S0.25, S0.375, S0.5, S1 Pb (refer to Table M.04.03-5)**
0.0	Equal to or above the min. liquid content
- 10.0	Below the min. liquid content

e) Density Adjustment: The quantity of bituminous concrete measured for payment for a designed compacted lift of pavement 1½ inches or greater may be adjusted for density. Separate density adjustments will be made for each lot and will not be combined to establish one density adjustment.

Tons Adjusted for Density (T_D) = $\{[PA_M \times .40] + [PA_J \times .60]\}$ X Tons accepted

Where: T_D = Total tons adjusted for density for each lot
PA_M = Mat density percent adjustment from Table 4
PA_J = Joint density percent adjustment from Table 4

TABLE 4
ADJUSTMENT VALUES FOR PAVEMENT DENSITY

Average % Density	% Adjustment for non-bridge lots	% Adjustment for bridge lots
97.1 – 100	-2.5	- 2.5
94.5 – 97.0	+2.5	+2.5
92.0 – 94.4	0.0	0.0
91.0 – 91.9	-2.5	- 10.0
89.1 – 90.9	-15.0	- 30.0
87.0 – 89.0	-30.0	- 50 or Remove and Replace
86.9 or less	Remove and Replace	Remove and Replace

3. Transitions for Roadway Surface: The installation of permanent transitions shall be measured under the appropriate item used in the formation of the transition.

- The quantity used for the installation of temporary transitions shall be measured for payment under the appropriate HMA item used in the formation of the transition. The installation and removal of a bond breaker, and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is not measured for payment.

4. Cut Bituminous Concrete Pavement: The quantity of bituminous concrete pavement cut will be measured in accordance with Article 2.02.04.

5. Sawing and Sealing Joints: The quantity of sawed and sealed joints measured for payment will be the actual number of linear feet of joints sawed and sealed in the bituminous concrete pavement surface approved by the Engineer.
6. Kerf Cut in Bituminous Concrete Pavement: The quantity of kerf cuts measured for payment will be the actual number of linear feet of kerf cuts in the bituminous concrete pavement surface approved by the Engineer.

7. Cleaning and Sealing Joints and Cracks: The quantity of cleaned and sealed joints and cracks measured for payment will be the actual number of pounds of joint seal material accepted by the Engineer. Weights as marked on the shipping containers shall be used; or if directed by the Engineer, scales shall be furnished by and at the expense of the Contractor, and the joint seal material weighed in a manner satisfactory to the Engineer.

8. Cutting and Sealing Joint in the Bituminous Concrete Shoulder: The quantity of cut and sealed joints measured for payment will be the actual number of linear feet of joints cut and sealed in the bituminous concrete shoulder and approved by the Engineer.

9. Material for Tack Coat: The quantity of tack coat will be measured for payment by the number of gallons furnished and applied on the Project and approved by the Engineer.

Method of Measurement:

a. Container Method- Material furnished in a container will be measured to the nearest ½ gallon. The volume will be determined by either measuring the volume in the original container by a method approved by the Engineer or using a separate graduated container capable of measuring the volume to the nearest ½ gallon. The container in which the material is furnished must include the description of material, including lot number or batch number and manufacturer or product source.

b. Truck Method- The Engineer will establish a weight per gallon of the bituminous material based on the specific gravity at 60ºF for the material furnished. The number of gallons furnished will be determined by weighing the material on scales furnished by and at the expense of the Contractor.

10. Material Transfer Vehicle (MTV) - The furnishing and use of a MTV will be measured separately for payment based on the actual number of tons of HMA surface course delivered to a paver using the MTV.

4.06.05—Basis of Payment:

1. Bituminous Concrete Class ( ), HMA S*: The furnishing and placing of bituminous concrete will be paid for at the Contract unit price per ton for "Bituminous Concrete, Class ( )" or “HMA S* ( ).”

- All costs associated with providing illumination of the work area are included in the general cost of the work.
- All costs associated with constructing the notched wedge joint are included in the general cost of the work.
- All costs associated with obtaining cores for core correlation and dispute resolution are included in the general cost of the work.

2. **HMA Adjustment Cost**: The “HMA Adjustment Cost" will be calculated using the formula shown below if all of the measured adjustments in 4.06.04 do not equal a value of zero. A payment will be made for an increase in costs. A deduction from monies due the Contractor will be made for a decrease in costs.

Formula: $[T_T + T_A + T_W + (T_{MD}$ or $T_{SD}) + T_D]$ x Unit Price = Est.

Where: Unit Price = Contract unit price per ton per type of mixture
T_T = Total tons of each adjustment calculated in 4.06.04
Est. = Pay Unit represented in dollars representing HMA incentive or disincentive.

The estimated cost figure if included in the bid proposal or estimate is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be disregarded and the original cost figure will be used to determine the amount of the bid for the Contract.

3. Transitions for Roadway Surface: The installation of permanent transitions shall be paid under the appropriate item used in the formation of the transition. The quantity used for the installation of temporary transitions shall be paid under the appropriate HMA item used in the formation of the transition. The installation and removal of a bond breaker, and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is included in the general cost of the work.

4. The cutting of bituminous concrete pavement will be paid in accordance with Article 2.02.05.

5. The sawing and sealing of joints will be paid for at the Contract unit price per linear foot for "Sawing and Sealing Joints".

6. Kerf cuts will be paid for at the Contract unit price per linear foot for "Kerf Cut in Bituminous Concrete Pavement".

7. The cleaning and sealing of joints and cracks will be paid for at the Contract unit price per pound for "Cleaning and Sealing Joints and Cracks".

8. The cutting and sealing of joints in the bituminous concrete shoulders will be paid for at the Contract unit price per linear foot for "Cutting and Sealing Joint in the Bituminous Concrete Shoulder".

9. Material for tack coat will be paid for at the Contract unit price per gallon for "Material for Tack Coat".

10. The Material Transfer Vehicle (MTV) will be paid at the Contract unit price per ton for a "Material Transfer Vehicle".

Pay Item*	Pay Unit*
Bituminous Concrete, Class ( )	ton
HMA S*	ton

HMA Adjustment Cost	est.
Sawing and Sealing Joints	l.f.
Kerf Cut in Bituminous Concrete Pavement	l.f.
Cleaning and Sealing Joints and Cracks	lb.
Cutting and Sealing Joint in the Bituminous Concrete Shoulder	l.f.
Material for Tack Coat	gal.
Material Transfer Vehicle	ton

*For contracts administered by the State of Connecticut, Department of Administrative Services, the pay items and pay units are as shown in contract award price schedule.

ITEM #0507097A – TYPE “C” CATCH BASIN (4’ SUMP)
ITEM #0507124A – TYPE “C” CATCH BASIN DOUBLE GRATE – TYPE II (4’ SUMP)
ITEM #0507155A - TYPE “C-L” OFFSET SUMP CATCH BASIN
ITEM #0507156A - TYPE “C” OFFSET SUMP CATCH BASIN

Work under this item shall conform to the requirements of Section 5.07 which is amended as follows:

Article 5.07.01 – Description:

Add the following:

Work under this item shall include the construction of catch basins, of the type specified, with 4-foot-deep sumps at the locations indicated on the plans and as directed by the Engineer.

Article 5.07.05 – Basis of Payment:

Add the following:

Offset sump catch basins will be paid for at the contract unit price each for the type specified which price shall include all materials, equipment, tools, and labor incidental thereto to construct the catch basin complete as detailed including the manhole frame and cover.

Pay Item	Pay Unit
TYPE “C” CATCH BASIN (4’ SUMP)	EA
TYPE “C” CATCH BASIN DOUBLE GRATE – TYPE II (4’ SUMP)	EA
TYPE “C-L” OFFSET SUMP CATCH BASIN	EA
TYPE “C” OFFSET SUMP CATCH BASIN	EA

ITEM #0507171A – HYDRODYNAMIC SEPARATOR (SITE NO. 1)

Work under this item shall conform to the requirements of Section 5.07 which is amended as follows:

Article 5.07.01 – Description:

Add the following:
Work under this item shall include the construction of a hydrodynamic separators of the type specified in conformance with the details, at the locations indicated on the plans and as directed by the Engineer.

Article 5.07.02 – Materials:

Add the following:
The hydrodynamic separator shall be a storm water treatment system Vortechs Model 9000 as manufactured by Vortechnics in Portland, ME (207-878-3662) or approved equal.

Article 5.07.03 – Construction Methods:

Add the following:
Contractor shall install the hydrodynamic separator as required by manufacturer recommendations.

Article 5.07.04 – Method of Measurement:

Add the following:
Construction of a hydrodynamic separator of shall be measured as units each.

Article 5.07.05 – Basis of Payment:

Add the following:
Hydrodynamic Separator will be paid for at the contract unit price each for 'Hydrodynamic Separator (Site No. 1)', complete in place, which price shall include all materials, equipment, tolls and labor incidental thereto.

Trench Excavation of the type required shall be measured and paid for in accordance with the provision of Article 2.05.05.

Pay Item	Pay Unit
HYDRODYNAMIC SEPARATOR (SITE NO. 1)	EA

ITEM #0507800A – CONVERT CB TO TYPE "C" CATCH BASIN DOUBLE GRATE - TYPE II WITH DIVERSION WEIR

Work under this item shall conform to the requirements of Section 5.07 which is amended as follows:

Article 5.07.01 – Description:

Add the following:
Work under this item shall include the conversion of an existing catch basin to the type specified and the construction of a diversion weir inside the existing catch basin in conformance with the details and as directed by the Engineer.

Article 5.07.02 – Materials:

Add the following:
Materials for the construction of the diversion weir shall be as indicated on the plans. Contractor measure the existing catch basin and shall submit shop drawings for the diversion weir prior to construction.

Article 5.07.04 – Method of Measurement:

Add the following:
Conversion of the existing catch basin to a Type 'C' catch basin double grate Type II with diversion weir shall be measured as units each.

Article 5.07.05 – Basis of Payment:

Add the following:
Convert Existing Catch Basin to Type 'C' Catch Basin Double Grate – Type II with Diversion Weir will be paid for at the contract unit price each for 'Convert Existing Catch Basin to Type 'C' Catch Basin Double Grate – Type II with Diversion Weir', complete in place, which price shall include all materials, equipment, tolls and labor incidental thereto. There shall be no additional payment for the new top, modifications required to the existing catch basin to accommodate the new top or the diversion weir installation, but this work shall be included in the unit cost bid for this item.

Pay Item	Pay Unit
CONVERT EXISTING CATCH BASIN TO TYPE 'C' CATCH BASIN DOUBLE GRATE – TYPE II WITH DIVERSION WEIR	EA

Item #0601001 – Class “A” Concrete
This work shall be in conformance with the relevant provisions of Section 6.01 of the Standard Specifications, Form 816, and the following:

6.01.04--Method of Measurement:

Add the following:

The work of forming and placing the repair concrete and the reinforced concrete cap and preformed rubber joint filler will be paid for at the contract unit price per cubic yard for “Class ‘A’ Concrete”.

6.01.05--Basis of Payment:

Add the following:

The work of forming and placing the repair concrete and the reinforced concrete cap and preformed rubber joint filler will be paid for at the contract unit price per cubic yard for “Class ‘A’ Concrete”.

Pay Item	Pay Unit
Class “A” Concrete	CY

ITEM # 0601109A – GRANITE STEPS

6.01.01 - Description: This item shall consist of furnishing and installation of granite steps on concrete foundation in locations as shown on the Contract Documents and as directed by the Engineer.

6.01.02 – Materials:

1) Granite for stair treads shall be Midnight Grey by New England Stone, 285 Smith Street, North Kingston, RI, 02852 or approved equal.
2) Concrete for foundations shall be Class F concrete per Section 6.01 and Section M.03. Reinforcing steel for foundations shall conform to Section M.06.
3) Setting bed mortar shall be a mixture of a premixed, prepackaged sand/cement dry mix and a latex polymer additive as follows:
   a) Sand cement mixture shall be Laticrete 226 manufactured by Laticrete International, Inc., Bethany, CT 06524 or approved equal. Deliver Laticrete 226 to the job site in unopened bags.
   b) Latex polymer additive shall be equal to Laticrete 3701 setting liquid, manufactured by Laticrete International, Inc., Bethany, CT 06524 or approved equal. Mix according to manufacturer's instructions. Add latex polymer additive to sand/cement mixture to achieve the desired consistency.
4) High strength bond coat shall be a mixture of the following ingredients:
   a) Laticrete 211 Crete Powder manufactured by Laticrete International, Inc., Bethany, CT 06524 or approved equal.
   b) Laticrete 4237 manufactured by Laticrete International, Inc., Bethany, CT 06524.
5) Mortar grout for pointing of joints shall consist of the following components:
   a) Laticrete 500 Series Sanded Grout with color-fast pigments. Color of grout shall be selected by the Engineer.
   b) Latex polymer additive shall be equal to Laticrete 3701 setting liquid, manufactured by Laticrete International, Inc., Bethany, CT 06524 or approved equal. Mix according to manufacturer's instructions.
6) The Contractor shall submit shop drawings, manufacturer's literature and

   samples and for all components of granite step system as follows:

   a)Shop drawings for granite treads, including locations and sizes of cored holes to receive steel hand rails in locations shown on the Contract Documents.
   b) Shop drawings for reinforcing steel.
   c) Manufacturer's literature bed mortars, bond coats and pointing mortar grout.
7) Gravel backfill shall be bank run gravel.

6.01.03 – Construction Methods:

1) Granite fabrications:
   a) Fabricate granite treads to the dimensions and thermal and sawn finishes shown on the Contract Documents. Provide tread nosing to radius shown on the Contract Documents.

b) Granite faces which will be concealed in the finished work shall be sawn to approximately true planes. Maximum variation in thickness shall be 1/16 inch. Sawn surfaces shall be cleaned of rust stains and iron particles.

c) All faces shall be at right angles to the plane of the top.

d) Granite shall be cut accurately to required shapes and dimensions.

e) Holes, cut-outs, sinkages and openings in granite work for hand rails and lifting devices, shall be accurately cut or drilled to required dimensions, as shown on the approved Shop Drawings, and as necessary to secure granite treads in place to insure correct location and accurate fit of all fixtures.

2) Install aggregate base in accordance with Section 3.04 of the Standard Specification.

3) Install concrete foundations as shown on the Contract Documents and in accordance with the requirements of Section 6.01 of the Standard Specifications.

4) Install granite steps in the locations shown on the Contract Documents. Final field adjustments required to bring the stairs and stair treads into conformance with the requirements of the Contract Documents shall proceed as directed by the Engineer. Stair treads shall have level noses with treads sloped to drain.

5) Setting Treads

a) No tread shall be laid in inclement weather or when the temperature is 36 degrees Fahrenheit, and dropping, nor shall any work be done on rising temperatures until the temperature reaches 32 degrees Fahrenheit. Frozen mortar materials shall not be used.

b) Granite treads shall be set on a mortar setting bed over the prepared concrete foundation. All setting shall be done by competent masons under adequate supervision. Do any cleaning necessary to cement concrete foundation to provide a clean base surface, free from dust, oil, grease, other impurities, or loose or friable particles.

c) Damp the surface immediately before placing the mortar setting bed, but do not allow free water to remain on the surface.

d) Granite treads with chips, cracks, stains, or other defects that might be visible in the finished work shall not be used.

6) Mortar Placement:

a) Bond coat shall be applied to concrete foundation as a slurry by using flat side of a trowel. Thickness of bond coat shall be approximately 1/16 inch. Press bond coat firmly into the foundation. Apply as much bond coat as can be covered with mortar setting bed in 15 to 20 minutes.

b) Mortar bed of Laticrete 226 and 3701 shall be spread evenly over the troweled bond coat. Mortar setting shall be 1/2-inch thick, minimum. Screed mortar setting bed to a smooth and consistent surface. Let mortar bed harden sufficiently to walk upon, typically 24 hours. A second application of the bond coat mixture shall be applied to mortar setting bed using flat trowel to thickness of 1/16 inch. Comb on additional bond coat with notched sides of trowel.

c) Before setting, the back of each piece of granite tread shall be dampened. Each piece shall be carefully bedded into a wet, sticky bond coat mixture and tapped home to a full and solid bearing. Particular care shall be exercised to

equalize bed and joint openings and eliminate the need for redressing of exposed surfaces.

d) Granite treads shall be set true to the required lines and grades in the pattern detailed on the Contract Documents.

e) Exposed surfaces of treads shall be kept free from bed mortar at all times. Any bed mortar smears shall be immediately removed with a clean sponge and clean water before latex modified mortar can set.

7) Joints: Provide no mortar joints between the granite treads, the granite treads should rest on each other. Mortar setting beds below and behind each granite tread are required.

a) Initial grout placement shall occur after bond coat has substantially set, typically no sooner than 24 hours after placement of tread on bond coat. Joints shall be dry and free of standing water. Joints shall be free of dust and debris. If joints have collected dust or debris between placement of treads and installation of grout, blow joints free with compressed air system approved by the Engineer.

b) Grout Mix — Mix mortar grout to the standard stiff, workable grout (a slurry of medium consistency). Point mix into horizontal joints until joints are firmly packed. Once joint filler has taken a firm set, clean with burlap or sponge. Following burlap treatment, paver joints should be slightly concave. Minimum one week later, clean with approved acid-free masonry cleaner. Dilute and apply masonry cleaner per manufacturer's instructions.

c) Upon completion of granite tread work, surfaces shall be left in a clean, unsoiled condition, acceptable to the Engineer.

8) Clean:

a) After completion of hand rail installation, surfaces shall be carefully cleaned, removing all dirt, excess mortar, filler, and stains using the approved masonry cleaner. Follow the manufacturer's directions for use. Apply masonry cleaner within the time frame noted in the manufacturer's literature.

1) Test suitability of masonry cleaner on a test area for approval by the Engineer. All test area to dry for the appropriate time period as described by Manufacturer's product literature.

2) Protect all adjacent architecture, pavement, lawns and planting from damage by masonry cleaner. Employ waterproof tarps and other appropriate barriers to prevent damage to adjacent materials.

3) After cleaning, rinse thoroughly with clean water per manufacturer's written directions.

b) Expansion joints and other joints to receive sealant shall be cleaned of all mortar and left ready for sealing of joints.

6.01.04 – Method of Measurement: The method of measurement shall be in lump sum units.

6.01.05 – Basis of Pavement: Payment for this work will be made at the contract unit price lump sum as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include excavation, disposal of surplus material, gravel, concrete base, mortar setting bed, granite treads, cleaning, and all material, transport, equipment, tools, machinery, and

labor incidental thereto as described in this specification and as shown on the drawings.

Pay Item	**Pay Unit**
Granite Steps	L.S.

ITEM # 0602903A- DRILLING HOLES

Description:

Work under this item shall consist of drilling, coring or a combination of coring and drilling holes in the existing bridge abutment backwall, seawall (stonewall), water manhole wall, existing sanitary sewer manhole wall and end steel floorbeam at the locations and to the dimensions and details shown on the plans and the installation of grouted PVC pipe sleeves for electrical rigid metal conduits and excluding grouted PVC reinforcing liners for sewer and water PVC conduits.

Materials:

The materials used in this work shall be of a quality and design satisfactory for the purpose intended and shall be approved by the Engineer.

Non-shrink grout shall conform to Article M.03.01-12

Construction Methods:

Holes shall be core-drilled unless otherwise indicated on the plans. Holes shall be of the size and length shown on the plans. Existing substructure reinforcement, if encountered during the drilling or the coring operation, may be bent or cut as necessary. The holes shall not be relocated under any circumstances and without the prior approval of the Engineer. The Contractor is fully responsible for the type of drilling equipment used. Drilling methods shall not cause cracking, spalling, or other damage to the concrete. The Contractor shall take adequate precaution to prevent any damage to adjacent buildings, foundations and existing utilities. Any damage to the existing structure shall be repaired by the Contractor at his own expense and in a manner suitable to the Engineer.

Each finished hole shall be blown clean with an air jet prior to the installation of the PVC pipe sleeve and reinforcing liner. The space between the cored hole and pipe sleeve/ reinforcing liner shall be grouted in accordance with the recommendations of the grout manufacturer.

Method of Measurement:

This work being paid for by the number of holes drilled and accepted at the locations shown on the plans.

Basis of Payment:

This work will be paid for at the contract unit price each for “Drilling Holes”, which price shall include drilling or coring and preparing holes, all materials, including hardware, PVC pipe sleeves (for traffic warning gates and traffic signal mast arm only), grout, and all equipment, tools and labor incidental thereto. PVC reinforcing liners for the sewer and water utilities shall be paid under item “Water and Wastewater Facilities”.

ITEM # 0708002A – DAMPPROOFING AND EDPM SEAL

This item shall consist of furnishing and installation of dampproofing at the existing Mystic River Bridge backwall in locations where utilities will penetrate the wall and EPDM seals where utilities penetrate the wall as shown on the Contract Documents and as directed by the Engineer.

EPDM seals shall be Link Seal as manufactured by Pipe line Seal and Insulator, Inc., Houston, TX or an approved equal.

Dampproofing shall be a clear penetrating sealer suitable for application on granite masonry and mortar. Product shall have 0% VOC content.

Dampproofing shall be manufactured by DECO Products, Denver, CO or an approved equal.

Follow manufacturer's instructions for installation.

Dampproofing and EPDM seals shall be measured at the contract unit price lump sum.

ITEM #0812200A – 4” GRANITE STONE CURBING

ITEM #0813021A – 6” GRANITE STONE CURBING

ITEM #0813031A – 6” GRANITE CURVED STONE CURBING

ITEM #0813046A –GRANITE MOUNTABLE CURBING

ITEM #0813451A – GRANITE STONE TRANSITION CURBING

Granite stone curbing shall conform to the requirements of Section 8.13, supplemented as follows:

Article 8.13.01 – Description: Add the following:

Curbing shall consist of approved stone, furnished in accordance with the dimensions and details of the plan and consisting of 6” granite stone curbing, flush granite curbing at handicapped access curb cuts, granite transition curbing, 4” granite stone curb, granite curb corners and mountable granite curbing.

Article 8.13.02 – Materials: Add the following:

Granite shall be "New England" structural granite conforming to ASTM C 615, Class I Engineering Grade, suitable for curbstone use. Curb shall be light gray, free from seams which impair structural integrity, and with percentage of wear less than 32 percent, as determined by ASTM C 131.

1. Granite curb shall be of 3 dimensions and shall be located as shown on the Contract Documents. 6” Granite stone curbing, curved stone curbing, transition curbing, mountable curbing and flush curbing shall have the following dimensions: minimum length = 6 feet (3.94 feet for flush curb), width at top = 6 inches, depth = 17 inches - 19 inches; straight and curved pieces as shown on the Contract Documents. Mountable curb, straight and curved pieces, shall have the same dimensions as granite curbing except for a diagonal face cut and thermal finished into the exposed face of the curb to dimensions shown on the Contract Documents. Granite edge stone shall have the following dimensions: minimum length = 4 feet, width at top = 4 inches, depth = 12 inches.
2. Granite curb corners shall be 3 feet radius with 6 inches, width at matching joint as shown on the Construction Documents.
3. 4” granite stone curbing shall have the following dimensions: minimum length = 3 feet (width at top = 4 inches, depth = 11 inches - 13 inches; straight and curved pieces as shown on the Contract Documents.

4. Top surface of all granite curbing and curb corners shall be sawn to an approximately true plane, having no projections or depressions greater than 0.125 inches and shall be thermal finished to create a non-slip surface.
5. Front and back arris lines shall be cut straight and true. There shall be no projection on the back surface for 3 inches down from the top that would exceed a batter of 4 inches in 12 inches. Where the top surface and front arris meet, this ninety degree edge shall be thermal finished to ease the sharp edge.
6. Front face for granite curbing, flush and transition curbing, curb corners and granite edge stones shall be at right angles to the planes of the top and ends, and shall be smooth quarry split, free from drill holes and with no projection of more than 1 inches, and no depression of more than 1/2 inches, measured from the vertical plane of the face through the arris line for a distance down from the top of 8 inches, For the remaining distance there shall be no projection or depression greater than 1 inches measured in the same manner. Mountable curbing shall be dimensioned as shown on the contract documents.
7. Except at transition curbing, the ends of stones shall be squared with the planes of the top and face so that when the stones are placed end to end as closely as possible, no space shall show in the joint at the top and face of more than 1/4 inches, for the full width of the top and for 8 inches down on the face, after which the end may break back not over 8 inches, from the plane of the joint. The arris formed by the intersection of the plane of the joint with the planes of the top and exposed faces shall have no variation from the plane of the top and exposed faces greater than 1/8 inches.

Mortar for pointing joints between curbstones shall be a cement mortar composed of one part Portland cement and two parts sand, by volume with sufficient water to form a workable, stiff mixture.

Concrete for Backing up all Granite Curb types: Concrete where designated for backing up curb shall be Class “F” concrete.

Submittals: Submit sample of granite for granite curb to Engineer for approval. Sample shall be representative of curb units. Sample size shall be 12 inches long, minimum. Submit name of granite quarry supplying granite curbing for approval by the Engineer.
Submit complete shop drawings of granite curbing for Engineer 's approval

1. Shop drawings shall indicate size, dimension, and finish of each curb type.
2. Submit a complete schedule for quantity, lengths, and size for all curbing on the project.

Submit concrete design mix for concrete cradle at curb.

Article 8.13.03 – Construction Methods: Add the following:

Vertical face of all curbing shall be plumb, with curb top parallel to adjacent surface.

Curb shall be set accurately to line and grade. Curb alignment shall be uniform, with smooth and continuous arris lines. Radius curbs shall meet with a common tangent. Curb units shall be fitted together as closely as possible.

After proper alignment of curbing and concrete foundation have been established, place additional concrete surround, of wetter consistency, to extend concrete up each face of curbing as detailed on the Contract Documents.

Backfill material on each side of curb and curb cradle shall be as specified for adjacent surface and shall be thoroughly compacted by means of power tampers. Extreme care shall be taken not to destroy curb alignment. Curb sections disturbed during backfilling or otherwise shall be reset to line and grade, and properly backfilled.

8.13.04 - Method of Measurement: Add the following:

This work will be measured for payment by the actual number of linear feet of 6” granite stone curbing, 6” granite curved stone curbing, flush granite curbing, granite transition curbing, mountable granite curbing, 4”granite stone curb, and individual pieces of granite curb corners installed and accepted.

8.13.05 – Basis of Payment: Add the following:

Payment for this work will be made at the contract unit price per linear foot for 6”granite stone curbing, 6”curved granite stone curbing, flush granite curbing, 4” granite stone curbing and granite transition stone curbing. Payment for the work of granite curb corners will be made at the contract unit price each for each unit. Payment for all will be made for the type, size and kind specified, complete in place, which price shall include all materials, equipment, tools and labor incidental thereto, and all excavation, back filling, disposal or surplus material and all drainage openings. There will be no direct payment for furnishing, placing, and compacting granular base, placing 4000 psi concrete backing/cradle, and pointing the joints with mortar; but the cost of the work shall be considered as included in the general cost of the work.

Pay Item	Pay Unit
6” Granite Stone Curbing	L.F.
6” Granite Curved Stone Curbing	L.F.
Granite Stone Transition Curbing	L.F.
4” Granite Stone Curbing	L.F.
Granite Mountable Curbing	L.F.

ITEM #0814002A – RESET GRANITE STONE CURBING

Reset granite stone curbing shall conform to the requirements of Section 8.14, supplemented as follows:

To the extent possible, all existing straight granite curb shall be removed and reset. All radius granite stone curb shall be removed and disposed.

Excessively chipped or broken curbs will not be reused. The Engineer will determine which curbs shall be reused.

Salvaged curb shall be used in continuous runs where possible to avoid mixing salvaged materials with new materials.

Salvaged curb shall be cleaned to remove dirt, debris and paint.

ITEM NO.	DESCRIPTION	UNIT
0814002A	RESET GRANITE STONE CURBING	L.F.

ITEM #0815091A – REMOVAL OF BITUMINOUS CONCRETE LIP CURB

BASIS OF PAYMENT

Payment for “REMOVAL OF BITUMINOUS CONCRETE LIP CURB” shall be made at the contract unit price per linear foot, which price shall include the excavation of all materials as required. Included in the unit price bid will be excavation, saw cutting, and all other materials, equipment, tools, labor, and work incidental to or necessary for the completion of the work.

ITEM NO.	DESCRIPTION	UNIT
0815091A	REMOVAL OF BITUMINOUS CONCRETE LIP CURB	LF

ITEM # 0901003A –STEEL BOLLARD

9.01.01 - Description: This item shall consist of furnishing and installation of new galvanized and painted steel bollards in locations as shown on the Contract Documents and as directed by the Engineer.

9.01.02 – Materials:

1) Steel

2)Galvanizing shall comply with ASTM A123M-97A, A153/A153M-98, ASTM A385-00 as applicable.

3) Concrete for footing and infill of bollard shall

) Paint shall be a two coat system.

a. Prime coat for shop painting on galvanized surfaces shall be an epoxy or urethane coating: Amercoat 385, by Ameron International; Pitt-Guard 97-946 Series All Weather Direct-to-Rust Epoxy Coatings, by PPG Architectural Finishes, Inc.; Macropoxy 646 Fast Cure Epoxy by Sherwin-Williams Company or an approved equal.
b. Finish over epoxy or urethane coating shall be an aliphatic urethane coating. Recommended Dry Film Thickness shall be as recommended by manufacturer and approved by Engineer. Finish coat shall be compatible with prime coat and manufactured by: Amercoat 450HS by Ameron International; Pitthane II by PPG Architectural Finishes, Inc.; Acrolon 218 HS Acrylic Polyurethane by Sherwin-Williams Company or an approved equal. Color shall be gloss dark green.

6)

7) The Contractor shall submit shop drawings, manufacturer's literature and samples and for all components of bollard.

8) Field touch up of painted surfaces

Touch-up and repair finishes that, for any reason, have been damaged during construction work.

Field application of coatings shall be in accordance with the manufacturer's written application guidelines and these specifications. All areas cleaned to bare metal must be coated with a zinc-rich primer before any visible rust back occurs. The topcoat material for field touch-up painting and additional field topcoat application shall be from the same lot and batch used in the shop provided its shelf life has not expired. If the shelf life has expired, the same material of the same color from a different lot and batch shall be used. The materials used for the field primer and intermediate coat must be compatible with the shop primer and intermediate coats.

All rust, scale, dirt, grease, concrete splatter and other foreign material on connections, bolts, nuts and around field welds shall be completely removed by

power tool cleaning per SSPC-SP 11. Areas cleaned to SSPC-SP 11 shall have a 1-3 mil profile and must be primed prior to rusting. All debris generated from cleaning operations must be contained and properly disposed of.

Field welded areas shall be treated in the same manner as shop welded areas, including special treatment requirements.

At damaged areas that extend back to the steel surface (such as scratches, gouges or nicks), the entire three-coat system shall be locally reapplied after power tool cleaning to bare metal in accordance with SSPC-SP 11. The coating system adjacent to the damage shall be feathered back to increase the surface area for touch up painting. The area cleaned to SSPC-SP 11 shall be primed with a zinc-rich primer before rustback occurs. The coating manufacturer shall be consulted to determine the appropriate zinc-rich primer to use. Application of the zinc-rich primer shall be in accordance with the coating manufacturers written instructions. The specified intermediate and topcoats shall be reapplied in accordance with the manufacturer's written instructions.

At damaged areas that extend back only to the prime or intermediate coat, the area shall have the topcoat applied. Application of the touch-up materials in these damaged areas shall be performed by brush only.

Tarps shall be used to collect all surface preparation debris. The Contractor shall be responsible for disposing of all removed materials, including tarps.

9.01.03 – Construction Methods:

1)

9.01.04 – Method of Measurement: The method of measurement shall be in units of one steel bollard fully installed and complete.

9.01.05 – Basis of Pavement: Payment for this work will be made at the contract unit price each fully completed, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto as described in this specification and as shown on the drawings.

Pay Item	**Pay Unit**
Steel Bollard	Each

ITEM # 0901005A - BOLLARD CHAIN

9.01.01 - Description: This item shall consist of furnishing and installation of new galvanized and painted chain between existing granite bollards in locations as shown on the Contract Documents and as directed by the Engineer.

9.01.02 – Materials:

1) Chain shall be System 3 Proof coil chain, 3/8 inch trade size, 0.397 inch wire diameter, 1.38 inch x 0.59 inch inside dimensions. Chain shall be hot dipped galvanized and painted.

2) Connecting links shall be 3/8 inch trade size 1.125 inch x 0.56 inch inside dimension, low carbon steel, bright zinc finished, painted.

3) Eye bolts shall be 3/8 inch shank diameter, 6 inch overall length, 0.75 inch eye opening, hot dipped galvanized, painted.

4) Galvanizing shall comply with ASTM A123M-97A, A153/A153M-98, ASTM A385-00 as applicable.

5) Paint shall be a two coat system.

a. Prime coat for shop painting on galvanized surfaces shall be an epoxy or urethane coating: Amercoat 385, by Ameron International; Pitt-Guard 97-946 Series All Weather Direct-to-Rust Epoxy Coatings, by PPG Architectural Finishes, Inc.; Macropoxy 646 Fast Cure Epoxy by Sherwin-Williams Company or an approved equal.

b. Finish over epoxy or urethane coating shall be an aliphatic urethane coating. Recommended Dry Film Thickness shall be as recommended by manufacturer and approved by Engineer. Finish coat shall be compatible with prime coat and manufactured by: Amercoat 450HS by Ameron International; Pitthane II by PPG Architectural Finishes, Inc.; Acrolon 218 HS Acrylic Polyurethane by Sherwin-Williams Company or an approved equal. Color shall be gloss dark green.

6) Grout as required for anchoring eye bolts into bollards shall be a quick setting, non-metallic and non-shrinking grout formulated for use for damp-pack installation on vertical surfaces.

7) The Contractor shall submit shop drawings, manufacturer's literature and samples and for all components of bollard chain system:

a) Manufacturer's literature for chain, connecting link, eye bolt and for non-shrink grout.

b) Sample of chain, connecting link, eye bolt.

8) Field touch up of painted surfaces

Touch-up and repair finishes that, for any reason, have been damaged during construction work.

Field application of coatings shall be in accordance with the manufacturer's written application guidelines and these specifications. All areas cleaned to bare metal must be coated with a zinc-rich primer before any visible rust back occurs. The topcoat material for field touch-up painting and additional field topcoat

application shall be from the same lot and batch used in the shop provided its shelf life has not expired. If the shelf life has expired, the same material of the same color from a different lot and batch shall be used. The materials used for the field primer and intermediate coat must be compatible with the shop primer and intermediate coats.

All rust, scale, dirt, grease, concrete splatter and other foreign material on connections, bolts, nuts and around field welds shall be completely removed by power tool cleaning per SSPC-SP 11. Areas cleaned to SSPC-SP 11 shall have a 1-3 mil profile and must be primed prior to rusting. All debris generated from cleaning operations must be contained and properly disposed of.

Bolts, nuts and washers shall receive brush applications of intermediate and topcoat after final tensioning. Careful attention shall be given to bolted connections to insure that all bolts, nuts and washers are fully coated and that no gaps are left unfilled and uncoated.

Field welded areas shall be treated in the same manner as shop welded areas, including special treatment requirements.

At damaged areas that extend back to the steel surface (such as scratches, gouges or nicks), the entire three-coat system shall be locally reapplied after power tool cleaning to bare metal in accordance with SSPC-SP 11. The coating system adjacent to the damage shall be feathered back to increase the surface area for touch up painting. The area cleaned to SSPC-SP 11 shall be primed with a zinc-rich primer before rustback occurs. The coating manufacturer shall be consulted to determine the appropriate zinc-rich primer to use. Application of the zinc-rich primer shall be in accordance with the coating manufacturers written instructions. The specified intermediate and topcoats shall be reapplied in accordance with the manufacturer's written instructions.

At damaged areas that extend back only to the prime or intermediate coat, the area shall have the topcoat applied. Application of the touch-up materials in these damaged areas shall be performed by brush only.

Tarps shall be used to collect all surface preparation debris. The Contractor shall be responsible for disposing of all removed materials, including tarps.

9.01.03 – Construction Methods:

1) For existing granite bollards: remove all existing lead grout from inside existing holes.

2) Prepare inside surfaces of holes in granite bollards using approved muriatic acid product or other deemed suitable for removal of residual lead or other historic grouting stains.

3) Install eye bolts with epoxy grout. Leave grout to fully set in accordance with

manufacturer's guidelines.

4) Chain shall be shop painted in accordance with manufacturer's instructions. Adjust positioning of chain during painting operations to ensure full coverage to recommended DFT of prime and finish coats on all parts of chain.

5) Install chain between bollards to ensure consistent catenary droop below horizontal. Peen pins of connecting links to completely fill eye of mated halves.

6) Touch up all exposed metal surfaces with approved touch up paint compatible with approved paint system.

9.01.04 – Method of Measurement: The method of measurement shall be in units of one existing bollard prepped and eye bolts fully installed; linear feet of chain fully galvanized, painted and installed complete with connecting links.

9.01.05 – Basis of Pavement: Payment for this work will be made at the contract unit price per linear foot of chain fully prepared, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto as described in this specification and as shown on the drawings.

Pay Item	**Pay Unit**
Bollard Chain	L.F.

ITEM # 0913068A – TEMPORARY 6’ HT. CHAIN LINK FENCE

Description: This item shall consist of furnishing and installation of temporary chain link fence to protect pedestrians in locations as shown on the Contract Documents and as directed by the Engineer.

Materials:
Temporary chain link fence shall be movable fence panels placed in weighted bases set on the existing pavement surface. Fence shall be 6’ tall chain link. Panels with

Construction Methods:
Install the fence panels as directed by the Engineer to separate pedestrians from the excavation for the retaining wall repair or in other locations. Remove the fence once the work is complete.

Methods of Measurement:
The method of measurement shall be by the linear foot of chain link fence along the top surface.

Basis for Payment: Payment for this work will be made at the contract unit price per linear foot of chain link fence as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

Pay Item	**Pay Unit**
Temporary 6’ ht. chain link fence	L.F.

ITEM # 0914001A – STAIR HANDRAILS

9.14.01 – Description: This item shall consist of furnishing and installation of stair handrails in locations as shown on the Contract Documents and as directed by the Engineer.

9.14.02 – Materials:

1) Moulded handrail, volute and base shoe shall be as shown on the drawings manufactured by Julius Blum, Wood-Ridge, New Jersey or an approved equal.
2) Flat bar and channel stock shall conform to ASTM A36/A36M-00 or AISI M1020.
3) Welding shall be in conformance with AWS codes. All connections shall be formed with full seam welded, ground smooth and sanded.
4) Galvanizing shall comply with ASTM A123M-97A, A153/A153M-98, ASTM A385-00 as applicable.
5) Granite steps installed under Item # 0601109A, herein. Concrete sidewalk installed under Item # #0921001A, herein.
6) Grout as required for anchoring shall be a pourable, quick setting, non-metallic and non-shrinking hydraulic cement grout equal to Five Star Grout by U.S. Grout Corporation; Sika Grout 212 by Sika Corporation; or Harris Construction Grout by AH Harris & Sons.
7) Joint sealant and primer shall be polyurethane-based, one component, elastomeric sealants, complying with Fed. Spec. TT-S-00230C, Class A Type 1. Color shall be as selected by the Engineer. Sealants shall be self-leveling pour grade type.
   a) Vulkem 45, as manufactured by Mameko International, 4475 East 175th Street, Cleveland Ohio 44182, (800) 321-6412.
   b) Urexpan NR-210, as manufactured by Pecora Corporation, 165 Wambold Road, Harleysville, PA 10348, (215) 723-6051
   c) PSI 951, as manufactured by Polymeric Systems Inc., Phoenixville, PA, (800) 228-5548.
   8) Backer rod shall be closed cell polymer foam meeting requirements of ASTM D 1752, Sections 3.1 to 3.4, based on compression requirement of 10 pounds per square inch minimum and 25 pounds per square inch maximum. Recovery rate following 50 percent compression shall exceed 99 percent recovery, per ASTM D 545. Foam shall be equal to Ceramar Foam Filler, manufactured by W.R. Meadows. Inc., or an approved equal.
8) Paint shall be a two coat system.
   a) Prime coat for shop painting on galvanized surfaces shall be an epoxy or urethane coating: Amercoat 385, by Ameron International; Pitt-Guard 97-946 Series All Weather Direct-to-Rust Epoxy Coatings, by PPG Architectural Finishes, Inc.; Macropoxy 646 Fast Cure Epoxy by Sherwin-Williams Company.
   b) Finish over epoxy or urethane coating shall be an aliphatic urethane coating. Recommended Dry Film Thickness shall be as recommended by manufacturer and approved by Engineer. Finish coat shall be compatible

with prime coat and manufactured by: Amercoat 450HS by Ameron International; Pitthane II by PPG Architectural Finishes, Inc.; Acrolon 218 HS Acrylic Polyurethane by Sherwin-Williams Company. Color shall be gloss dark green for stair handrail.

9) Submittals:
   a) Submit complete shop drawings for stair handrails. Include plans, sections and details as required to show all materials, layout, dimensions, jointing and connections for all items required.
   b) Manufacturer's literature for painting system, non-shrink grout and sealant systems.

9.14.03 – Construction Methods:

1) Fabricate stair handrails to the dimensions shown on the Contract Documents.
2) Take all measurements required at the work site. Check measurements, compare dimensions and other data with various trades installing adjoining work to assure proper coordination.
3) Welding shall be in conformance with AWS codes. All connections shall be formed with joints full seam welded, ground smooth and sanded. Welding shall be continuous except where tack welding is specifically permitted. Tack welding will not be permitted on exposed surfaces. All exposed welds shall be ground smooth.
4) Prior to galvanizing, all specified metal items shall be cleaned (pickled) in accordance with SSPC-SP8. Cleaning shall remove all rust, scale, and coating surface must be clean, dry, undamaged and free of all loose rust, dirt, grease, or other contaminants including salt deposits. Specified metal items calling for galvanizing shall be hot-dipped galvanized after fabrication and chromated after galvanizing by dipping in a 0.15 percent chromic acid solution. Galvanizing bath shall contain 0.05 – 0.09 percent nickel.
5) After galvanizing operation and prior to painting, fill all vent holes with an approved epoxy body putty.
6) Stair handrails shall be shop painted in accordance with manufacturer's instructions. Do not apply finish coat to bottom 12 inches of handrail posts to ensure full adhesion of non-shrink grout to primer coat.
7) Granite steps installed under Item # 0601109A, herein.
8) Concrete sidewalk installed under Item #0921001A.
9) Install stair handrails level and plumb in locations shown on the Contract Documents. Core drill holes in stair treads and concrete pavement to receive stair handrails. Fill void between inside face of cored hole and steel pipe with non-shrink grout. Clean all grout from concrete sidewalk, stair treads and handrails immediately.
10) Sealants:
   a) Force sealant into joints to provide uniform, dense, continuous ribbons free from gaps and air pockets.
   b) Except in hot weather, make sealant surface slightly concave. Install sealants

so that compressed sealants do not protrude from joints. Dry tool sealants to form a smooth dense surface.

c) Provide sealants to depths indicated, or if not indicated, follow manufacturer's recommendations.

11) Field touch up of painted surfaces

Touch-up and repair finishes that, for any reason, have been damaged during construction work.

Field application of coatings shall be in accordance with the manufacturer's written application guidelines and these specifications. All areas cleaned to bare metal must be coated with a zinc-rich primer before any visible rust back occurs. The topcoat material for field touch-up painting and additional field topcoat application shall be from the same lot and batch used in the shop provided its shelf life has not expired. If the shelf life has expired, the same material of the same color from a different lot and batch shall be used. The materials used for the field primer and intermediate coat must be compatible with the shop primer and intermediate coats.

All rust, scale, dirt, grease, concrete splatter and other foreign material on connections, bolts, nuts and around field welds shall be completely removed by power tool cleaning per SSPC-SP 11. Areas cleaned to SSPC-SP 11 shall have a 1-3 mil profile and must be primed prior to rusting. All debris generated from cleaning operations must be contained and properly disposed of.

Bolts, nuts and washers shall receive brush applications of intermediate and topcoat after final tensioning. Careful attention shall be given to bolted connections to insure that all bolts, nuts and washers are fully coated and that no gaps are left unfilled and uncoated.

Field welded areas shall be treated in the same manner as shop welded areas, including special treatment requirements.

At damaged areas that extend back to the steel surface (such as scratches, gouges or nicks), the entire three-coat system shall be locally reapplied after power tool cleaning to bare metal in accordance with SSPC-SP 11. The coating system adjacent to the damage shall be feathered back to increase the surface area for touch up painting. The area cleaned to SSPC-SP 11 shall be primed with a zinc-rich primer before rustback occurs. The coating manufacturer shall be consulted to determine the appropriate zinc-rich primer to use. Application of the zinc-rich primer shall be in accordance with the coating manufacturers written instructions. The specified intermediate and topcoats shall be reapplied in accordance with the manufacturer's written instructions.

At damaged areas that extend back only to the prime or intermediate coat, the area shall have the topcoat applied. Application of the touch-up materials in these damaged areas shall be performed by brush only.

Tarps shall be used to collect all surface preparation debris. The Contractor shall be responsible for disposing of all removed materials, including tarps.

9.14.04 – Methods of Measurement:

1) The method of measurement shall be by the linear foot of handrail along the top surface.
2) Core drilling, grouting and sealing will not be measured for payment, but the costs shall be included in the price bid for the stair handrail.
3) Concrete sidewalk, granite steps fully installed will not be measured for payment. Costs shall be paid for under the work of Items # 0601109A and #0921001A, herein.

9.14.05 – Basis for Payment: Payment for this work will be made at the contract unit price per linear foot of stair handrail as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

Pay Item	**Pay Unit**
Stair Handrails	L.F.

ITEM # 0914002A – RAIL ON EXISTING WALL

9.14.01 – Description: This item shall consist of furnishing and installation of railing on existing wall in locations as shown on the Contract Documents and as directed by the Engineer.

9.14.02 – Materials:

1) Cast iron fittings shall be as shown on the drawings and as approved on the shop drawings to match the various conditions required for the work.
2) Channel stock for the steel mesh paneland steel pipe for rails and posts shall conform to ASTM A36/A36M-00 or AISI M1020.
3) Woven welded mesh shall be a 3" x3" mesh with ¼" diameter wire.
4) Welding shall be in conformance with AWS codes. All connections shall be formed with full seam welded, ground smooth and sanded.
5) Galvanizing shall comply with ASTM A123M-97A, A153/A153M-98, ASTM A385-00 as applicable.
6) Grout as required for anchoring shall be a pourable, quick setting, non-metallic and non-shrinking hydraulic cement grout equal to Five Star Grout by U.S. Grout Corporation; Sika Grout 212 by Sika Corporation; or Harris Construction Grout by AH Harris & Sons.
7) Joint sealant and primer shall be polyurethane-based, one component, elastomeric sealants, complying with Fed. Spec. TT-S-00230C, Class A Type 1. Color shall be as selected by the Engineer. Sealants shall be self-leveling pour grade type.
   a) Vulkem 45, as manufactured by Mameko International, 4475 East 175th Street, Cleveland Ohio 44182, (800) 321-6412.
   b) Urexpan NR-210, as manufactured by Pecora Corporation, 165 Wambold Road, Harleysville, PA 10348, (215) 723-6051
   c) PSI 951, as manufactured by Polymeric Systems Inc., Phoenixville, PA, (800) 228-5548.
   8) Backer rod shall be closed cell polymer foam meeting requirements of ASTM D 1752, Sections 3.1 to 3.4, based on compression requirement of 10 pounds per square inch minimum and 25 pounds per square inch maximum. Recovery rate following 50 percent compression shall exceed 99 percent recovery, per ASTM D 545. Foam shall be equal to Ceramar Foam Filler, manufactured by W.R. Meadows. Inc., or an approved equal.
8) Paint shall be a two coat system.
   a) Prime coat for shop painting on galvanized surfaces shall be an epoxy or urethane coating: Amercoat 385, by Ameron International; Pitt-Guard 97-946 Series All Weather Direct-to-Rust Epoxy Coatings, by PPG Architectural Finishes, Inc.; Macropoxy 646 Fast Cure Epoxy by Sherwin-Williams Company.
   b) Finish over epoxy or urethane coating shall be an aliphatic urethane coating. Recommended Dry Film Thickness shall be as recommended by manufacturer and approved by Engineer. Finish coat shall be compatible

with prime coat and manufactured by: Amercoat 450HS by Ameron International; Pitthane II by PPG Architectural Finishes, Inc.; Acrolon 218 HS Acrylic Polyurethane by Sherwin-Williams Company. Color shall be silver for the post and rails and silver for the mesh panel for the rail on existing wall.

9) Submittals:
   a) Submit complete shop drawings for stair handrails and rail on existing wall. Include plans, sections and details as required to show all materials, layout, dimensions, jointing and connections for all items required.
   b) Manufacturer's literature for painting system, non-shrink grout and sealant systems.

9.14.03 – Construction Methods:

1) Fabricate rail on existing wall to the dimensions shown on the Contract Documents.
2) Take all measurements required at the work site. Check measurements, compare dimensions and other data with various trades installing adjoining work to assure proper coordination.
3) Remove existing railing completely including all rails, posts, base plates, and anchorages. Remove railings embedded in concrete wall and fill the holes in the concrete wall with an appropriate masonary repair material as approved by the Town Representative. Dispose of all removed materials off site. Any cracks in the existing wall cap shall be repaired as well.
4) Welding shall be in conformance with AWS codes. All connections shall be formed with joints full seam welded, ground smooth and sanded. Welding shall be continuous except where tack welding is specifically permitted. Tack welding will not be permitted on exposed surfaces. All exposed welds shall be ground smooth.
5) Prior to galvanizing, all specified metal items shall be cleaned (pickled) in accordance with SSPC-SP8. Cleaning shall remove all rust, scale, and coating surface must be clean, dry, undamaged and free of all loose rust, dirt, grease, or other contaminants including salt deposits. Specified metal items calling for galvanizing shall be hot-dipped galvanized after fabrication and chromated after galvanizing by dipping in a 0.15 percent chromic acid solution. Galvanizing bath shall contain 0.05 – 0.09 percent nickel.
6) After galvanizing operation and prior to painting, fill all vent holes with an approved epoxy body putty.
7) Rail on existing wall shall be shop painted in accordance with manufacturer's instructions. Do not apply finish coat to bottom of handrail posts to be embedded in non-shrink grout to ensure full adhesion of grout to primer coat.
8) Install posts plumb in locations and rails to follow the grade of the existing wall. Core drill holes in existing concrete wall cap to receive posts. Fill void between inside face of cored hole and steel pipe with non-shrink grout. Clean all grout from concrete and posts immediately.
9) Sealants:

a) Force sealant into joints to provide uniform, dense, continuous ribbons free from gaps and air pockets.
b) Except in hot weather, make sealant surface slightly concave. Install sealants so that compressed sealants do not protrude from joints. Dry tool sealants to form a smooth dense surface.
c) Provide sealants to depths indicated, or if not indicated, follow manufacturer's recommendations.

10) Field touch up of painted surfaces

Touch-up and repair finishes that, for any reason, have been damaged during construction work.

Field application of coatings shall be in accordance with the manufacturer's written application guidelines and these specifications. All areas cleaned to bare metal must be coated with a zinc-rich primer before any visible rust back occurs. The topcoat material for field touch-up painting and additional field topcoat application shall be from the same lot and batch used in the shop provided its shelf life has not expired. If the shelf life has expired, the same material of the same color from a different lot and batch shall be used. The materials used for the field primer and intermediate coat must be compatible with the shop primer and intermediate coats.

All rust, scale, dirt, grease, concrete splatter and other foreign material on connections, bolts, nuts and around field welds shall be completely removed by power tool cleaning per SSPC-SP 11. Areas cleaned to SSPC-SP 11 shall have a 1-3 mil profile and must be primed prior to rusting. All debris generated from cleaning operations must be contained and properly disposed of.

Bolts, nuts and washers shall receive brush applications of intermediate and topcoat after final tensioning. Careful attention shall be given to bolted connections to insure that all bolts, nuts and washers are fully coated and that no gaps are left unfilled and uncoated.

Field welded areas shall be treated in the same manner as shop welded areas, including special treatment requirements.

At damaged areas that extend back to the steel surface (such as scratches, gouges or nicks), the entire three-coat system shall be locally reapplied after power tool cleaning to bare metal in accordance with SSPC-SP 11. The coating system adjacent to the damage shall be feathered back to increase the surface area for touch up painting. The area cleaned to SSPC-SP 11 shall be primed with a zinc-rich primer before rustback occurs. The coating manufacturer shall be consulted to determine the appropriate zinc-rich primer to use. Application of the zinc-rich primer shall be in accordance with the coating manufacturers written

instructions. The specified intermediate and topcoats shall be reapplied in accordance with the manufacturer's written instructions.

At damaged areas that extend back only to the prime or intermediate coat, the area shall have the topcoat applied. Application of the touch-up materials in these damaged areas shall be performed by brush only.

Tarps shall be used to collect all surface preparation debris. The Contractor shall be responsible for disposing of all removed materials, including tarps.

9.14.04 – Methods of Measurement:

1) The method of measurement shall be by the linear foot of rail measured along the top surface.
2) Core drilling, grouting and sealing will not be measured for payment, but the costs shall be included in the price bid for the rail.
3) Removal of the existing railing, and repair of the concrete surfaces shall be considered incidental to the work of this item and not paid for separately.

9.14.05 – Basis for Payment: Payment for this work will be made at the contract unit price per linear foot of rail as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

Pay Item	**Pay Unit**
Rail on Existing Wall	L.F.

ITEM #0921001A - CONCRETE SIDEWALK

ITEM #0921013A-CONCRETE DRIVEWAY APRON

Concrete sidewalks and driveway ramps shall be constructed in accordance with Article 9.21, supplemented as follows:

Article 9.21.01-Description: This item shall consist of concrete sidewalks, curb ramps with detectable warning tiles, and driveway ramps constructed on a gravel or reclaimed miscellaneous aggregate base course in the locations and to the dimensions and details shown on the plans or as ordered in accordance with these specifications.

Article 9.21.02 – Materials: Add the following:

For all concrete sidewalks and sub-base for detectable warning tiles on this project concrete shall conform to the requirements of Article M.03.01 for Class "F" Concrete.

Dowel system at expansion joints shall be round smooth down and plastic sleeve system specifically designed for dowelled expansion joints and shall meet the following requirements:

f) Dowel size: 0.625 inch
g) Dowel length: 24 inches
h) Sleeve length: 12 inches

Stainless steel pins to attach concrete subbase for granite pavers to adjacent concrete (in applicable locations) shall be ½" diameter 12" long 316 stainless steel.

Grout to anchor stainless pins shall be non-shrink grout.

Welded wire mesh shall conform to the requirements of Section M.06.1.3 and as shown on the Contract Documents.

Expansion joints shall be closed cell polymer foam meeting requirements of ASTM D 1752, Sections 3.1 to 3.4, based on compression requirement of 10 pounds per square inch minimum and 25 pounds per square inch maximum. Recovery rate following 50 percent compression shall exceed 99 percent recovery, per ASTM D 545. Foam shall be equal to Ceramar Foam Filler, manufactured by W.R. Meadows. Inc., or an approved equal. Expansion joint filler shall have a removable cap cover for the joint filler with integral permanent plastic bond breaker such as Snap-Cap from Seal Tight manufactured by W.R. Meadows, Inc., or approved equal. Cover width shall be sized to match width of joint filler.

Joint sealant and primer shall be polyurethane-based, one component, elastomeric sealants, complying with Fed. Spec. TT-S-00230C, Class A Type 1. Color shall be as selected by the Engineer. Sealants shall be self-leveling pour grade type.

1. Vulkem 45, as manufactured by Mameko International, 4475 East 175th Street, Cleveland Ohio 44182, (800) 321-6412.
2. Urexpan NR-210, as manufactured by Pecora Corporation, 165 Wambold Road, Harleysville, PA 10348, (215) 723-6051
3. PSI 951, as manufactured by Polymeric Systems Inc., Phoenixville, PA, (800) 228-5548.

The Detectable Warning Strip shall be a prefabricated detectable warning surface tile as manufactured from Engineered Plastics Inc. 300 International Drive, Suite 100 Williamsville, NY 14221, telephone number (800) 682-2525 or the approved equal from ADA Fabricators, INC. P.O Box 179 North Billerica, MA 01862 telephone number (978) 262-9900. The tile shall conform to the dimensions shown on the plans and have a dark gray homogeneous color throughout or approved equal.

Submittals: Description of Methods and Sequence of Placement. For each type of specially-finished concrete provide description of methods and sequence of placement.

Submit manufacturer's product data for the following:

1. Form release agent.
2. Prefabricated control joint.
3. Preformed joint filler.
4. Sealants.
5. Welded wire mesh
6. Detectable warning tiles

Construct Concrete Sample Panels:

1. Construct 6 foot x 6 foot sample panels of finished concrete sidewalk, for approval, at least 15 days prior to final concrete paving work. Samples shall not be constructed in an area of proposed finish work. Samples shall be constructed within the vicinity of the proposed finish work to facilitate comparisons during construction. The samples shall demonstrate the typical installation of concrete, including score lines, expansion joint and sealant, curing and finishing material, surface texture, color, and edge treatment. The accepted sample, upon approval, shall be maintained as the standard of minimal quality for approval of all proposed concrete sidewalk work required for the project. If the original sample panel is not approved, the Contractor shall provide additional sample panels, as required, at no additional cost to the Engineer until an approved sample is obtained. Unacceptable sample panels shall immediately be removed from the site.

Article 9.21.03 – Construction Methods: Add the following:

Placement of welded wire mesh (under benches, and in ramps)

Place welded wire mesh only in concrete sidewalks that are curb ramps or under the proposed benches. For benches, the mesh shall be placed so that the mesh extends five feet beyond the bench in each direction.

Before being placed in position, welded wire mesh shall be thoroughly cleaned of loose mill and rust scale, dirt, ice, and other foreign material which may reduce the bond between the concrete and reinforcing. Where there is delay in placing concrete after reinforcement is in place, mesh shall be re-inspected and cleaned when necessary.

Welded Wire Mesh: Wire mesh used for reinforcement shall be spread flat before placing concrete. Mesh reinforcement shall be held firmly in place against vertical or transverse movement by means of satisfactory devices. Where mesh reinforcement is spliced, it shall be lapped at least 12 inches (300 mm).

1. Unless designated otherwise on the Contract Documents, wire mesh shall be placed midway within the depth, and parallel to the finished surface of concrete sidewalks.

2. Do not pour concrete over top of reinforcement unless it is supported underneath.

3. Contractor shall pull reinforcement up immediately after pouring concrete to make sure that the reinforcement is in the middle of the slab and not sitting on the bottom.

Expansion joints shall be 1/2 inches wide and shall be as located on the Contract Documents. Expansion joint shall be formed in the concrete to required width with preformed joint filler in place. Joint filler shall extend the full depth of the slab. Joint filler shall extend the full length of the expansion joint.

Place expansion joints spaced on 20-foot centers unless otherwise shown on the Contract Documents. When provided, clarification documents that show specific locations of expansion joints shall direct the Contractor where to place expansion joints. Such clarification documents may place joints closer than 20-foot centers.

Contractor shall request the presence of the Engineer to review the layout of expansion joints prior to pouring the concrete.

Follow the manufacturer's application recommendations for joint filler and sealer.

Joint alignment shall be straight and true.

Install expansion dowels and sleeves in accordance with manufacturer's recommendations.

Unless otherwise indicated, horizontal surfaces of concrete sidewalk that will be exposed shall be given a light broomed finish, with direction of grooves in concrete surface perpendicular to length of concrete sidewalk. After concrete has set sufficiently to prevent coarse aggregate from being torn from surface, but before it has completely set, brooms shall be drawn across it to produce a pattern of small parallel grooves. Broomed surface shall be uniform, with no smooth, unduly rough or porous spots, or other irregularities. Coarse aggregate shall not be dislodged by brooming operation.

Immediately following finishing operations, arrises at edges and both sides of expansion joints shall be rounded to a 1/4 inches radius.

Unless otherwise indicated, control joints shall be tooled into the concrete slab, with 2 inches wide border and troweled edges, in pattern indicated on the Contract Documents, or every 5 feet on center maximum. Joint shall be made after concrete is finished and when the surface is stiff enough to support the weight of workmen without damage to the slab, but before slab has achieved its final set.

Expansion Joints: Provide backer rods for joint sealants except where specifically recommended against by sealant manufacturers. Prevent three-sided adhesion by use of bond breaker tapes or backer rods. Force sealant into joints to provide uniform, dense, continuous ribbons free from gaps and air pockets. Completely wet both joint surfaces equally on opposite sides. Except in hot weather, make sealant surface slightly concave. Install sealants so that compressed sealants do not protrude from joints. Dry tool sealants to form a smooth dense surface. At horizontal joints form a slight cove to prevent trapping water. Provide sealants to depths indicated, or if not indicated, follow manufacturer's recommendations.

The Detectable Warning Strip shall be set directly in poured concrete according to the plans and the manufacturer's specifications or as directed by the Engineer. The contractor shall place two 25 pound concrete blocks or sandbags on each tile to prevent the tile from floating after installation in wet concrete.

Acceptance Standards: The following acceptance standards shall be applied to this Contract. These standards are considered superior to typical industry standards. Any portion of the concrete paving that does not come up to these required acceptance standards shall be removed at the direction of the Engineer. Saw cut sidewalk at nearest adjacent tooled joint, remove concrete sidewalk and discard off site in a legal manner and replace with new concrete sidewalk.

1. Sidewalk surfaces shall be free of all cracking.
2. Sidewalk surfaces shall not pond water.
3. Sidewalk surfaces shall be free of visible high and low spots.

4. Steel mesh reinforcing shall not penetrate the surfaces or sides of the concrete slab.
5. Tooled joints and all expansion joints shall be straight, true, uniform in width and free from twists, bends, kinks and misalignments.
6. Tooled edges and the associated edging patterns shall be consistent, true, crisp and complete.
7. Broom finish shall not be too coarse in the opinion of the Engineer.
8. Broom finish shall be constant and complete between joints without bare spots, lifts or disconnections in broom pattern.
9. Sidewalk shall show no graffiti. Sidewalk shall show no rubbed surfaces indicative of attempts to erase graffiti.
10. Expansion joints and score joints shall be placed as required by the Contract Documents.
11. Concrete surfaces shall be free of all stains, including those created during the course of the construction by the Contractor, caused by natural events, or caused by vandalism.
12. All tooled joints and expansion joints shall be flush.
13. Stains from construction or from natural causes
14. Pours without expansion joints cast into them.
15. Pours not conforming to the Contract Documents.

9.21.04-Measurement and payment: Add the following:

Detectable warning tiles shall not be measured for payment, but the cost shall be considered as included in the price bid for concrete sidewalk.

Welded wire mesh under benches, driveway aprons, and in curb ramps shall not be measured for payment, but the cost shall be considered as included in the price bid for concrete sidewalk.

Removal of the Mystic Garden club wooden planters and other site furnishings not anchored to the sidewalk is considered incidental to the work of concrete sidewalks. As the stage of the work requires, the Contractor shall remove the planter or other site furnishings from the work area, store them in an area where they can be protected, and then replace them in their original location or location directed by the Town Representative following the completion of that stage of work.

9.21.05-Basis of payment: Add the following:

This work will be paid for at the contract unit price per square foot for “concrete sidewalk,” complete in place, which price shall include all excavation as specified above, backfill, disposal of surplus material, gravel or reclaimed miscellaneous

aggregate base, welded wire mesh, expansion joint materials, detectable warning tiles, resetting of concrete pavers, equipment, tools, labor and incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
0921001A	CONCRETE SIDEWALK	S.F.
0921013A	CONCRETE DRIVEWAY APRON	S.F.

ITEM # 0926001A – GRAVEL DRIVEWAY

Description: This item shall consist of furnishing and installing gravel driveway in the locations shown on the Contract Documents and as directed by the Engineer.

Materials:

Gravel M.02 Crushed Stone Grading "C" per M.02.06 Gradation. Color shall be selected by the Engineer.

Submittals : submit a one quart sample of the crushed stone for approval by the Engineer.

Construction Methods: Compact the subbase as indicated on the contract documents. Place gravel and compact to the depth shown on the contract documents.

Method of Measurement: This work will be measured for payment by the number of square feet of are on which the installation of gravel driveway has been completed and the work accepted.

Basis of Payment: The work shall be paid at the contract unit price per square foot for "Gravel Driveway" which price shall include all materials, equipment, tools, labor, and work incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
0926001A	GRAVEL DRIVEWAY	S.F.

ITEM # 0944001A – FURNISHING AND PLACING TOPSOIL

Article 9.44.01 – Description: Amend as follows: The topsoil shall be placed to a depth of 6 inches (100 mm) unless stated otherwise in the contract.

Article 9.44.0 – Materials: Amend as follows:

M.13.01—Topsoil: The term topsoil used herein shall mean a soil meeting the soil textural classes established by the USDA Classification System based upon the proportion of sand, silt, and clay size particles after passing a No. 10 (2 millimeter) sieve and subjected to a particle size analysis. The topsoil shall not contain less than 3% nor more than 6% organic matter as determined by loss on ignition of oven-dried samples dried at 221° F (105° C).

The following textural classes shall be acceptable:

Loamy sand, including coarse, loamy fine, and loamy very fine sand
Sandy loam, including coarse, fine and very fine sandy loam

The topsoil to be furnished by the Contractor shall be loose and friable and free from refuse, stumps, roots, brush, weeds, rocks and stones over 3/4 inches in diameter.

1. Planting Soil: Soil Material to be used for plant backfill shall be one of the following textural classes:

Loamy sand, with not more than 80% sand
Sandy loam
Loam

Planting soil shall be made loose and friable, shall be free from refuse, stumps, roots, brush, weeds, rocks and stones 1 inch in diameter

Peat moss shall be composed of the partly decomposed stems and leaves of any of several species of sphagnum moss. It shall be free from wood, decomposed colloidal residue and other foreign matter. It shall have an acidity range of 3.3 pH to 5.5 pH as determined in accordance with the methods of testing of A.O.A.C., latest edition. Its water absorbing ability shall be a minimum of 1,100% by weight on an oven-dry basis.

Bone meal shall be fine ground, steam-cooked, packing house bone with a minimum analysis of 23 percent phosphoric acid and one percent nitrogen.

Commercial fertilizer shall be a product complying with the State and United States fertilizer laws. Deliver fertilizer to the site in the original unopened containers bearing

the manufacturer's certificate of compliance covering analysis and which shall be furnished to the Engineer’s Representative. Fertilizer shall contain not less than the percentages of weight of ingredients as recommended by the soil analysis.

a) Fertilizer for planting shall be formulated for top-dressing, soil surface application to plants. Fertilizer shall be designed and certified by the manufacturer to provide controlled release of fertilizer continuously for not less than 9 months. One hundred percent of the nitrogen content shall be derived from organic materials. Nitrogen source shall be coated to ensure slow release. Fertilizer percentages of weight of ingredients shall be as recommended by the soil testing and analysis specified, performed, and paid for under this Section 9.44.

ITEM # 0945060A – PINE BARK MULCH

9.45.01-Description: This item shall consist of furnishing and installing pine bark mulch in the locations shown on the Contract Documents and as directed by the Engineer.

9.45.02-Materials: Submit a one cubic foot sample for the Engineer's approval. Mulch shall be high quality, double-ground, premium bark mulch of 70 percent hemlock bark with the balance spruce and pine bark. Mulch shall have been aged for a minimum of six months and not longer than two years. Bark mulch shall be shredded to a uniform size; free of dirt, debris and foreign matter; with pieces no thicker than 1/4 in (6 mm). Mulch must be free of stringy material or chunks over 3 inches (75 mm) in size and shall not contain, in the judgment of the Engineer, an excess of fine particles.

9.45.03-Construction Methods: Mulch material shall be placed over the entire area indicated on the Contract Documents to a depth of 3 inches after settlement.

9.45.04-Method of Measurement: This work will be measured for payment by the number of square yards of are on which the placing of pine bark mulch has been completed and the work accepted.

9.45.05-Basis of Payment: The work shall be paid at the contract unit price per square yard for “Pine Bark Mulch” which price shall include all materials, equipment, tools, labor, and work incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
0945060A	PINE BARK MULCH	SY

ITEM # 0947207A – BICYCLE RACK

9.47.01-Description: This item shall consist of furnishing and installation of steel bicycle racks in locations as shown on the Contract Documents and as directed by the Engineer.

9.47.02 – Materials:

1) Steel pipe for all sections of bicycle racks shall be schedule 40, circular steel pipe in accordance with ASTM A53/A53M-99B, Type E, Grade B. Size of pipe and dimensions shall be shown on the Contract Documents.
2) Galvanizing shall comply with ASTM A123M-97A, A153/A153M-98, ASTM A385-00 as applicable.
3) Prior to galvanizing, all specified metal items shall be cleaned (pickled) in accordance with SSPC-SP8. Cleaning shall remove all rust, scale, and coating surface must be clean, dry, undamaged and free of all loose rust, dirt, grease, or other contaminants including salt deposits. Specified metal items calling for galvanizing shall be hot-dipped galvanized after fabrication and chromated after galvanizing by dipping in a 0.15 percent chromic acid solution. Galvanizing bath shall contain 0.05 – 0.09 percent nickel.. Galvanize all ferrous fasteners, clips, sleeves, anchors and accessories in contact with galvanized items.
4) Concrete for foundations shall be Class F concrete per Section 6.01 and Section M.03.
5) Grout as required for anchoring shall be a pourable, quick setting, non-metallic and non-shrinking hydraulic cement grout equal to Five Star Grout by U.S. Grout Corporation; Sika Grout 212 by Sika Corporation; or Harris Construction Grout by AH Harris & Sons.
6) Joint sealant and primer shall be polyurethane-based, one component, elastomeric sealants, complying with Fed. Spec. TT-S-00230C, Class A Type 1. Color shall be as selected by the Engineer. Sealants shall be self-leveling pour grade type.
   a) Vulkem 45, as manufactured by Mameko International, 4475 East 175th Street, Cleveland Ohio 44182, (800) 321-6412.
   b) Urexpan NR-210, as manufactured by Pecora Corporation, 165 Wambold Road, Harleysville, PA 10348, (215) 723-6051
   c) PSI 951, as manufactured by Polymeric Systems Inc., Phoenixville, PA, (800) 228-5548.
7) Paint shall be a two coat system.
   a) Prime coat for shop painting on galvanized surfaces shall be an epoxy or urethane coating: Amercoat 385, by Ameron International; Pitt-Guard 97-946 Series All Weather Direct-to-Rust Epoxy Coatings, by PPG Architectural Finishes, Inc.; Macropoxy 646 Fast Cure Epoxy by Sherwin-Williams Company.
   b) Finish over epoxy or urethane coating shall be an aliphatic urethane coating. Recommended Dry Film Thickness shall be as recommended by

manufacturer and approved by Engineer. Finish coat shall be compatible with prime coat and manufactured by: Amercoat 450HS by Ameron International; Pitthane II by PPG Architectural Finishes, Inc.; Acrolon 218 HS Acrylic Polyurethane by Sherwin-Williams Company. Color shall be gloss dark green.

8) Submittals:
   a) Submit complete shop drawings for bicycle rack. Include plans, sections and details as required to show all materials, layout, dimensions, jointing and connections for all items required.
   b) Manufacturer's literature non-shrink grout and sealant systems.

9.47.03 – Construction Methods:

1) Fabricate bicycle racks to the dimensions shown on the Contract Documents.
2) Take all measurements required at the work site. Check measurements, compare dimensions and other data with various trades installing adjoining work to assure proper coordination.
3) Welding shall be continuous except where tack welding is specifically permitted. Tack welding will not be permitted on exposed surfaces. All exposed welds shall be ground smooth.
4) Install all supports and anchors for metal work except those to be cast into concrete or built into masonry as indicated.
5) Bicycle rack shall be shop painted in accordance with manufacturer's instructions. Do not apply finish coat to bottom 12 inches of pipe rack to ensure full adhesion of non-shrink grout to primer coat.
6) Install concrete foundation in accordance with the requirements of Section 6.01.
7) Concrete sidewalk installed under Item #0921001A.
8) Install bicycle racks level and plumb in locations shown on the Contract Documents. Core drill holes in concrete sidewalk and footing to receive bicycle rack. Cored holes shall extend through full depth of concrete footing to gravel base below. Fill void between inside face of cored hole and steel pipe with non-shrink grout. Clean all grout from concrete sidewalk and bicycle rack immediately.
9) Sealants:
   a) Force sealant into joints to provide uniform, dense, continuous ribbons free from gaps and air pockets.
   b) Except in hot weather, make sealant surface slightly concave. Install sealants so that compressed sealants do not protrude from joints. Dry tool sealants to form a smooth dense surface.
   c) Provide sealants to depths indicated, or if not indicated, follow manufacturer's recommendations.

10) Field touch up of paint

Touch-up and repair finishes that, for any reason, have been damaged during construction work.

Field application of coatings shall be in accordance with the manufacturer's

written application guidelines and these specifications. All areas cleaned to bare metal must be coated with a zinc-rich primer before any visible rust back occurs. The topcoat material for field touch-up painting and additional field topcoat application shall be from the same lot and batch used in the shop provided its shelf life has not expired. If the shelf life has expired, the same material of the same color from a different lot and batch shall be used. The materials used for the field primer and intermediate coat must be compatible with the shop primer and intermediate coats.

9.47.04 – Method of Measurement:

1) The method of measurement shall be in units of one bicycle rack as applicable.
2) Excavation: Excavation, backfilling, disposal of surplus material will not be measured for payment, but the cost shall be included in the price bid for the bicycle rack.
3) Concrete footing: concrete footing will not be measured for payment, but the cost shall be included in the price bid for the bicycle rack.
4) Gravel: gravel will not be measured for payment, but the cost shall be included in the price bid for the bicycle rack.

9.47.05 – Basis of Payment: Payment for this work will be made at the contract unit price per bicycle rack as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
0947207A	Bicycle Rack	EA.

ITEM #0949004A TO #094998A

Plant material shall be furnished and installed in accordance with Article 9.49, supplemented as follows:

Article 9.21.02 – Materials: Add the following:

1) The work of these items shall consist of providing all labor, equipment, materials, incidental work, and construction methods necessary to perform all planting work and related items as indicated on the Contract Documents and includes, but is not limited to, the following:
   a) Planting trees, shrubs, vines, ground cover, bulbs, and perennials.
   b) Staking, guying, and anchoring trees.
   c) Planting maintenance.
   d) One year guarantee period for all plants.
   e) Providing and placing backfill mix.

Article 9.49.02 – Materials: Add the following:

1) References
   a) The following standards shall apply to the work of this Section.
      1. Hortus III, 1976, L. H. Bailey Hortorium.
      2. Tree and Shrub Transplanting Manual, E.B. Himelick, 1991, International Society of Arboriculture.
      3. American National Standards Institute (ANSI):
         Z60.1 American Standard for Nursery Stock,, latest edition, published by American Association of Nurserymen, (AAN).
2) Examination of Conditions:
   a) All areas to be planted shall be inspected by the Contractor before starting work and any defects such as incorrect grading or inadequate drainage shall be reported to the Engineer prior to beginning this work.
   b) The Contractor shall be solely responsible for judging the full extent of work requirements involved, including but not limited to the potential need for storing and maintaining plants temporarily and/or rehandling plants prior to final installation.
   c) All plants are the full responsibility of the Contractor between the time of digging at the nursery and final acceptance.
3) Quality Assurance:
   a) Qualification of Landscape Contractor: The work of this Division 2 Section, PLANTING, shall be performed by a landscape contracting firm which has successfully installed work of a similar quality, schedule requirement, and construction detailing with a minimum of five years experience. Proof of this experience shall be submitted per SUBMITTALS paragraph of this Division 2 Section, PLANTING.
   b) Qualification of Arborist: All work of pruning shall be performed by an arborist certified by the International Society of Arboriculture.

4)Topsoil:

a) Topsoil for planting shall be specified under Item #944001A Furnishing and Placing Topsoil. Payment for topsoil related to planting shall be included in the contract unit price per each plant.

5) Soil Additives:

a) Soil additives shall be specified, provided, installed and paid for under Item #944001A, herein.

6)Grades and Standards of Plants:

a) The Contractor shall furnish all plants shown on the Contract Documents, as specified, and in quantities listed on the PLANT LIST. No substitutions will be permitted, without written approval by the Engineer. All plants shall be nursery grown unless specifically authorized to be collected as noted on the PLANT LIST.

b) All plants shall be typical of their species or variety and shall have a normal habit of growth and be legibly tagged with the proper name. Only plant stock grown within Hardiness Zones 1 through 6b, as established by the USDA Plant Hardiness Zone Map, latest edition, will be accepted.

c) Plants shall be in accordance with ASNS Standards of the American Association of Nurserymen except as noted in this Division 2 Section, PLANTING. Botanical plant names shall be in accordance with plant designations included in Hortus III.

7) All deciduous trees shall meet the following standards:

a) Trees shall have a single, straight trunk, well formed, and sturdy. No part of the trunk shall be conspicuously crooked as compared with normal trees of the same variety.

b) Trees with multiple leaders shall conform to all standards noted herein for single leader trees and shall be accepted only as noted on the PLANT LIST.

c) All pruning wounds shall show vigorous bark on all edges at the time of harvest. Trees shall be free from all signs of pest and disease damage. The trunk shall be free from sun scald, frost cracks, and wounds resulting from abrasions, fire, animal damage, or other causes.

d) Pruning scars within the crown of any tree shall be clean cut and shall leave no protrusion beyond the branch collar.

e) All trees shall have healthy, vigorous leaves or needles of normal size, color, shape, and texture for the particular species and variety.

f) Deciduous shade trees and deciduous flowering trees shall have fall color typical for their species and variety.

g) Unless otherwise indicated on the PLANT LIST, the height and spread of deciduous shade trees shall be the minimum requirements.

h) Take caliper measurements for deciduous trees 6 inches above ground level up to and including 4 inches caliper size and 12 inches above ground for larger sizes.

i) No deciduous tree shall be pruned after the Engineer has tagged the plant in the nursery except as directed by the Engineer.

j) Unless otherwise noted on the PLANT LIST, shade trees for use in paved

areas shall have no branches lower than 6.5 feet from finish grade and no higher than 7.5 feet from finish grade. Flowering trees for use in areas away from pedestrian traffic shall have the first branch of their crowns no higher than 4 feet from finish grade.

k) Branching of all deciduous trees shall be best quality representatives of the species, cultivar or variety with lateral branching around the entire trunk to form a symmetrical tree for 80 percent to 100 percent of the tree's outer perimeter. All branches on deciduous trees shall meet the trunk at angles no less than 30 degrees and no greater than 90 degrees from the vertical.

8) Evergreen trees shall meet the following standards:
   a) The height of the evergreen trees (measured from the trunk flair at the natural ground line of the tree to the midpoint of the terminal leader) shall be not less than the minimum size designated on the PLANT LIST.
   b) No trees with double-leaders or twin-heads will be permitted.
   c) Evergreen trees shall be of specified height with spread in proportion to height, as designated in ASNS Standards, and shall be well-branched to the ground.
   d) All pruning wounds shall show vigorous bark on all edges at the time of harvest.
   e) Terminal and top whorl buds of all evergreen trees shall be in healthy and whole condition at the time of harvest.
   f) No evergreen tree shall be pruned after the Engineer has tagged the tree in the nursery except as directed by the Engineer.
   g) All trees shall have healthy, vigorous leaves or needles of normal size, color, shape, and texture for the particular species and variety.
9) All shrubs shall meet the following standards:
   a) All shrubs shall be healthy and vigorous plants which are very well shaped, heavily branched, densely foliated, and true to form for the variety.
   b) Canes or Trunk(s) and Branches:
      1. Well formed and sturdy.
      2. Branching shall be uniformly distributed close to the ground.
      3. Scars shall be free of rot and not exceed 1/4 the diameter of the wood beneath in greatest dimension unless completely healed (except pruning scars).
      4. Pruning scars shall be clean cut and shall leave little or no protrusion from the trunk or branch.
      5. Graft unions shall be completely healed.
      6. No suckers or water sprouts.
      7. Contain no dead wood.
      8. Free of cracks, splits, or cambium peeling.
      9. No shrub with pest or mechanical damage will be accepted.
   c) Shrubs shall show no signs of frost or winter damage to the foliage. Foliage shall not be in a state of drought stress. Leaves or needles shall show no signs of wilt or desiccation due to weather stress at any season of the year.
10) All ground cover plants and vines shall meet the following standards:

a) Ground cover plants and vines shall be of size, pot size, age, and condition listed in the PLANT LIST. When indicated on the PLANT LIST, the number of runners and the lengths of the runners of vines shall be minimums.
b) Plants shall be healthy, free of insects, and diseases.

11) All perennials shall meet the following standards:
a) Perennials shall be listed in the PLANT LIST.
b) Perennials shall be healthy and well cared for, with no evidence of insects or diseases present. Insect-ridden or diseased plants shall be rejected. Plants shall have a deep green foliage and dense, compact growth. Perennials shall have multistemmed bases and shall be two year potted stock minimum, one year in cutting bench and one year in pots.

12) Root Systems for All Plants:
a) Each plant shall have an extensive, symmetrically balanced fibrous root system. Any root ball which shows signs of asymmetry, injury, or damage to the root system shall be rejected.
b) Curling or spiraling of the roots along the walls of rigid containers will not be accepted.
c) All parts of the fibrous root system of all plants shall be moist and fresh with a white color when washed of soil. When the plant is removed from the container, the visible root mass shall be healthy with white root tips. The root systems of all plants shall be free of disease, insect pests, eggs, or larvae.
d) All trees, and all shrubs which are not grown in containers must be moved with the root systems as solid units with balls of earth firmly wrapped with untreated 8 ounce natural, biodegradable fabric burlap, firmly laced with stout, natural biodegradable cord or twine. The base of the tree trunks shall be wrapped with a protective burlap layer, surrounded by a cardboard trunk protector, and loosely tied with twine.
e) The diameter and depth of the balls of earth must encompass the fibrous and root feeding system necessary for the healthy recovery of the plant. Minimum root ball diameters and depths shall be in accordance with ASNS standards.
f) No plants shall be loose in the container.
g) Container grown plants which have roots growing out of the container will be rejected.

13) Mycorrhizal fungal inoculant shall be live spores packaged in plastic packets. At a minimum each packet of inoculant shall contain the following:
a) Live spores of VA Endomycorrhizal fungi: Vesicular-Arbuscular mycorrihizae fungi, minimum of 8 species.
b) Live spores of Ectomycorrhizal fungi: including *Pisolithus tinctorius*.

Mycorrhizal fungal inoculant shall be manufactured by Plant Health Care Incorporated, 440 William Pitt Way, Pittsburgh, PA 15238, telephone: (800) 421-9051; Horticultural Alliance, 2946 Louise Street, Sarasota, FL 34237, (800) 628-6373; BioPlex Organics, 2213 Huber Drive, Manheim, PA 17545 (800) 441-3573, or approved equal.

14) Planting soil mix shall be an approved topsoil specified under Item #944001A Furnishing and Placing Topsoil and that has been pH adjusted according to particular planting

applications and improved through the addition of organic matter as directed below. Planting soil mix shall conform to the following pH levels:

a) For broad-leaved evergreens and plants of the Heath Family, Ericaceae, requiring an acid soil, planting soil mix shall have a true pH of 4.5 to 5.5. Planting soil mix shall be amended by the Contractor at his own expense to the proper pH range by mixing with sulfur as specified, provided, installed and paid for under Item #944001A Furnishing and Placing Topsoil. Plants belonging to the Heath Family include but are not limited to the following genuses: Arctostaphylos, Calluna, Chamaedaphne, Enkianthus, Epigaea, Erica, Gaultheria, Gaylussacia, Kalmia, Oxydendron, Pieris, Rhododendron, Vaccinium, and Zenobia.

b) Planting soil mix for general planting of non-acid loving plants shall have a true pH value of 6.0 to 6.5. Planting soil mix shall be amended by the Contractor at his own expense to the proper pH range by mixing with dolomitic limestone as specified under Item #944001A Furnishing and Placing Topsoil.

c). The amount of either sulfur or limestone required to adjust the planting soil mix to the proper pH range shall be approved by the Engineer on the basis of soil tests as specified under Item #944001A Furnishing and Placing Topsoil.

d) Planting soil mix for use in groundcover, perennial, and bulb planting shall consist of pH adjusted loam which has been thoroughly premixed with organic material in the proportions of one part organic matter (humus or peat), with 5 parts of approved loam. Organic material shall be specified under Item #944001A Furnishing and Placing Topsoil

15) Staking, Guying, and Anchoring Materials: Not required unless desired by the Contractor.

16) Planting Mulch: Mulch shall be aged pine bark mulch. Submit samples for the Engineer's approval. Mulch shall be considered incidental to the planting of each plant and will be paid under the contract unit price for that plant.

17) Water: The Contractor shall be responsible to furnish his own supply of water to the site at no extra cost. If possible, the Engineer shall furnish the Contractor upon request with an adequate source and supply of water at no charge. However, if the Engineer's water supply is not available or not functioning, the Contractor shall be responsible to furnish adequate supplies at his own cost. All work injured or damaged due to the lack of water, or the use of too much water, shall be the Contractor's responsibility to correct. Water shall be free from impurities injurious to vegetation.

18) Antidesiccants shall be emulsions or other materials which will provide a protective film over plant surfaces permeable enough to permit transpiration and specifically manufactured for that purpose. Manufacturer of antidesiccant shall be subject to the Engineer's approval and shall be used only after approval by the Engineer. Antidesiccant shall be delivered in containers of the manufacturer and shall be mixed and applied according to the manufacturer's instructions.

19) Submittals:

a) At least 90 days prior to the first day of the planting season submit proof of landscape contractor's experience to the Engineer’s Representative.

b) At least 30 days prior to ordering materials, the Contractor shall submit to the Engineer representative samples, certifications, manufacturer's product data and certified test results for materials as specified below. No materials shall be ordered or delivered until the required submittals have been reviewed and approved by the Engineer. Delivered materials shall closely match the approved samples. Approval shall not constitute final acceptance. The Engineer reserves the right to reject, on or after delivery, any material which does not meet these Specifications.

c) Material Sampling and Testing:
   1) Material Sampling and Testing of Topsoil from Off-Site Sources shall be specified under Item #944001A Furnishing and Placing Topsoil.
   2) Planting Mulch: Submit a one cubic foot sample.
   3) Antidesiccant: Submit manufacturer's product data.
   4) Peat: Submit a one cubic foot sample and manufacturer's certification of contents.
   5) Mycorrhizal Fungal Inoculant:
      a) Submit manufacturer's product data certifying that inoculant being supplied conforms to these Specifications.
      b) Submit the purchasing receipt showing the total quantity purchased for the Project prior to installation.
      c) Submit empty packets of fungal spore inoculant to the Engineer for verification of use.
   6) Tree Guying System: Submit manufacturer's product data of system.
   7) Soil Additives: Submit manufacturer’s product data for all soil additives needed to amend a specific soil in order to meet the requirements of this special provision.

Article 9.49.03 – Construction Methods: Add the following:

1)Planting:

a) Furnishing and planting of plant material shall include, but shall not be limited to, the digging of planting pits and plant beds, amendment of loam as required to produce planting soil mix, provision of soil additives required to adjust for pH requirements of specific plants, furnishing the plants as specified as well as the labor of planting, fertilizing, and maintenance.

b) The Contractor shall locate plant material sources and ensure that plants are shipped in timely fashion for installation.

c) Contractor shall locate all existing underground utilities that are within 10 feet of the proposed planting pits and notify the Engineer of any conflicts prior to digging plant pits.

d) Seasons for Planting:
   1. Spring: Deciduous materials - March 21 through May 1; Evergreen materials - April 15 through June 1.
   2. Fall: Deciduous materials - October 1 through December 1; Evergreen materials - August 15 through October 15.

e) Plant Material Inspection:

1. At least one month prior to the expected planting date, the Contractor shall request that the Engineer provide a representative to select and tag stock to be planted under this Section. The Contractor shall pay for the transportation, subsistence and overnight accommodations, if necessary, for the Engineer's representative during the period of time required to select and tag the plant material.
2. The Contractor shall be responsible to certify the availability of quality plants in specified sizes from his/her sources of supply prior to requesting that the Engineer make plant source inspections. In the event that plants at the inspection location are found to be unavailable or of insufficient size, the Contractor shall be liable to reimburse the Engineer for all costs of the Engineer's hourly services which are incurred during unproductive inspection trips.
3. Unless specifically designated otherwise, a representative of the Contractor shall accompany the Engineer on all plant material selection field trips.
4. All trees for the project shall be individually tagged for approval with the Engineer's seals, and no trees shall be accepted for delivery to the site without such seals. Representative samples only of shrubs and ground cover plants may be tagged or marked for approval as an "Approved Typical Sample" and shipped to the site. Any shrub or groundcover plant that arrives at the construction site that does not meet the Approved Typical Sample will be rejected by the Engineer.
5. Inspection and approval of plants at the source shall not impair the right of subsequent inspection and rejection upon delivery to the site, or during the progress of the work if the Engineer finds that plants do not meet the requirements of the PLANT LIST or this Contract, have declined noticeably due to handling abuse, lack of maintenance, or other causes. Cost of replacements, as required, shall be borne by the Contractor.

f) Placement of topsoil shall be specified under Item #944001A Furnishing and Placing Topsoil and paid for under the work of the planting item. Obtain Engineers written approval of work of rough grading and finish grading prior to starting the work of planting.

g) Planting:
1. Notify the Engineer three working days prior to the proposed arrival of plant material on the site. If not planted within 24 hours of delivery to the site, all plants shall be maintained in an on-site nursery. Container grown shrubs stored on site shall be shaded from direct sunlight at all times and shall not be stored directly on paved surfaces. All plants delivered to the site and not planted within 24 hours of delivery shall have their root balls covered with mulch and shall be watered on a daily basis such that root balls are kept moist throughout.
2. Locations for all plants and outlines for planting areas shall be staked on the ground by the Contractor for approval by the Engineer before any plant pits or plant beds are dug. Notify the Engineer no less than 3 days

prior to desired date of inspection of staking to schedule site visit.

3. Circular plant pits shall not be required provided that the minimum dimension between the edge of the pit and the face of the rootball is not less than required herein.
4. All plant pits dug with a machine shall have the sides of the holes scraped with hand shovels to prevent glazing and compaction of the sides of the hole. Remove and stockpile excavated topsoil and subsoil into separate stockpiles for reuse as backfill for plant pit. All subsoil excavated from the bottoms of planting pits and unused at the end of the planting operations shall be removed from the site.
5. Plant pits shall be dug to the dimensions shown on the Contract Documents.
6. Groundcover, Bulb, and Perennial Beds: Groundcover, bulb and perennial beds shall be dug to a continuous depth of 1 foot below final grade, or as shown on the Contract Documents. Place sufficient planting soil mix to provide 1 foot deep beds. Remove groundcover and perennials from their pots immediately before planting. Handle plants carefully to prevent damaging roots. Place each plant in individual hole and firm the planting mix around the roots. Water thoroughly and mulch as shown on the Contract Documents. Groundcover plants may be planted after the planting mulch is placed. Bulbs shall be planted at depths as recommended by bulb supplier, as shown on the Contract Documents, or both. Bone meal shall be applied at the rate of 1/2 pound to every 25 square feet of area of bulbs. Bulbs shall have bone meal added as they are planted.
7. All plant roots and earth balls must be damp and thoroughly protected from sun and wind from the beginning of the digging operation, during transportation, and at the site until the final planting.
8. Remove container plants from containers prior to planting.
9. Trees and shrubs shall be placed in the center of plant pits, plumb, with the crown of their roots exposed and located above the surrounding finish grade.
10. Prior to completion of planting installations, remove rope and cut wire baskets from the top 1/3 of the root balls. Pull burlap away from the trunk or stem of the plant and cut burlap from the top 1/3 of the root balls.
11. Contractor shall 'butterfly' the root system for all container grown perennials immediately prior to planting them. Butterflying shall consist of vertically cutting the containerized root ball with a spade through the bottom half of the rootball followed by gently pulling the rootball open at the cut while placing it into the planting hole. The butterflied root system shall be placed over a small ridge of soil in the planting pit in order to assure as much soil to root ball contact as possible and to keep the halves apart.
12. Planting soil shall be backfilled in layers of not more than 6 inches. Compact each layer of planting soil by foot tamping prior to placing next

layer of planting soil backfill. Eliminate all air pockets in the backfill material. Enough planting soil shall be used to bring the finished surface of the planting pit to 2 inches above finished grade at plant stem when backfill soil has settled. A saucer shall be formed around each plant at a depth of 6 inches for trees and 4 inches for shrubs. All topsoil excavated from the planting pit shall be modified in accordance with the requirements of this specification and used to backfill the pit.

13. Fertilizer shall be spread over the plant saucer or plant bed between the saucer and the edge of the rootball. Till the fertilizer into the soil to a depth of four inches prior to the placement of the planting mulch. Fertilizer shall be as specified under Item #944001A Furnishing and Placing Topsoil and paid for under the planting item. Do not mulch until placement of the fertilizer has been verified by the Engineer. Fertilizer application rates shall be as determined by soil testing, analysis, and testing laboratory recommendations specified under Item #944001A Furnishing and Placing Topsoil.
14. All plants shall be inoculated with mycorrhizal fungi. Inoculant shall be added after the plants have been placed in their holes. Open the required number of packets for each plant and thoroughly mix the inoculant powder into the upper 10 inches of backfill soil.
    a. Mycorrhizal fungal inoculant shall be added to the plant pits according to plant size.
    b. The application rates for mycorrhizal fungal packets shall be in accordance with the manufacturer's recommendations.
    c. Submit the purchasing receipt showing the total quantity purchased for the project prior to installation. Submit empty packets of fungal spore inoculant to the Engineer for verification of use. Engineer will excavate tree pits to determine presence of mycorrhizal fungal inoculant.

h). All plants shall be watered immediately following planting as necessary to thoroughly moisten rootball and plant pit loam and thereafter shall be inspected frequently for watering needs and watered, as required, to provide adequate moisture in the planting pit. The Contractor shall inspect tree pits 24 hours after initial watering to confirm that they are draining properly. If surface water or excessively saturated plant pit soils exist, the Contractor shall immediately notify the Engineer. The Engineer will recommend remedial measures based upon site conditions.

i) Mulch material shall be placed over entire saucer areas of individual trees and shrubs and over the entire area of planting beds to a depth of 3 inches after settlement, not later than one week after planting. Do not apply mulch prior to the first watering of plant materials. Do not apply mulch prior to placement of surface applied fertilizer and verification of placement by the Engineer. Providing and placing mulch shall be considered incidental to planting and shall be paid under the item for the specific plant.

l) Pruning:
    1. As directed by the Engineer, each plant shall be pruned in accordance

with the workmanship requirements of "Pruning Standards" for Class I, fine pruning, to preserve the natural character of the plant.

2. Tree pruning, as required, shall be undertaken to the full height of affected trees.
3. All dead wood or suckers and all broken or badly bruised branches shall be removed. Never cut a leader.

j) Antidesiccant shall be applied to all evergreen and broadleaf evergreen plants in December and again in February, according to manufacturer's application recommendations and as directed by the Engineer.

k) If planting is done after lawn preparation or installation, proper protection of lawn areas shall be provided. Any damage resulting from planting operations shall be repaired immediately at no cost to the Engineer.

l) In the event that rock or underground construction work or obstructions are encountered in any plant pit or bed excavation work, alternate locations will be selected by the Engineer. Relocation of plant pits or beds shall be provided at no additional cost to the Engineer. Provide the Engineer with no less than 48 hours notice of obstruction so that a site visit can be scheduled to establish new locations for plants.

m) Absolutely no debris may be left on the site. Repair any damage to site as directed by the Engineer, at no additional cost.

2) Maintenance:

a) Maintenance shall begin immediately after each plant is planted and shall continue for a minimum 30-day Monitoring Period and until Final Acceptance.

b) Maintenance shall consist of keeping the plants in a healthy growing condition and shall include but is not limited to watering, weeding, cultivating, pruning, re-mulching, tightening and repairing of guys, straightening of trees to a plumb position, removal of dead material, resetting plants to proper grades or upright position, and maintaining the planting saucer.

1. Plants shall be inspected for watering needs at least twice each week and watered to promote plant growth and vitality.
2. For trees in lawn or mulched beds, apply water to the ground surface directly under the canopy. Water shall be applied at a sufficiently slow rate to prevent run off from the soil surface but great enough to equal 0.2 inches of water per square foot of canopy area per hour for 5 hours per week.
3. Trees shall be kept plumb.
4. Planting beds and individual plant pits shall be kept free of weeds, and mulch shall be replaced as required to maintain the specified layer of mulch. Beds and individual pits shall be neat in appearance and maintained to the designed layout.
5. Plants that die during the maintenance period shall be removed and replaced by the Contractor within one week of notification and replaced during that growing season, unless directed otherwise by the Engineer.
6. Spraying of insecticides or herbicides shall be done by State-licensed professionals. Spraying for insects, pests and diseases shall conform to

the National Arborist Association Standards under the section entitled "Standards for Pesticide Application Operations", as currently adopted and as approved by the Engineer. All insecticides, pesticides, and herbicides shall be EPA-approved.

7. Work of pruning, fertilizing, spraying, and similar activities shall be undertaken only by Certified Arborists and licensed chemical applicators, as pertinent to the work being performed.

c) During the maintenance period, any decline in the condition of plantings shall require the Contractor to take immediate action to identify potential problems and undertake corrective measures. If required, the Contractor shall engage professional arborists and/or horticulturalists to inspect plant materials and to identify problems and recommend corrective procedures. The Engineer shall be immediately advised of such actions. Inspection and recommendation reports shall be submitted to the Engineer.

3) Acceptance:

a) Upon completion of all planting work, the Contractor shall request in writing that the Engineer formally inspect the planting work.

b) If plant materials and workmanship are acceptable, the Engineer will issue a written Certificate of Conditional Acceptance to the Contractor.

c) Following the issuance of the Certificate of Conditional Acceptance to the Contractor, the Contractor shall maintain the plants for a minimum 30 day Monitoring Period. At the end of the Monitoring Period, the plant material will be inspected by the Engineer to determine whether or not all planting work has been performed to the requirements of this Section 9.49.

d) Acceptance Standards at end of the Monitoring Period: If plant material is reviewed when it is in full leaf, leaves shall be plump with water with a shape indicative of the species and shall be free of insect, pest and disease damage. Twigs shall have living cambium for their full length. Twigs and branches shall have a full bud set for their full length, including terminal buds. Trunks and branches shall be free of frost cracks; sun scald; damage due to insects, pests, and disease; structural defects; and damage resulting from machinery or tools. Plant material inspected and reviewed when the plants are not in full leaf shall have twigs, branches and trunks meeting the above requirements. All plants regardless of the season of review shall have a minimum of 75 percent healthy, balanced branching structure with a healthy terminal leader(s) with viable terminal bud(s).

e) If any number of plants do not meet these Acceptance Standards at the time of inspection, or if in the Engineer's opinion, workmanship is unacceptable, written notice will be given by the Engineer to the Contractor in the form of a punch list, which itemizes necessary planting replacements and/or other deficiencies to be remedied. The Contractor's responsibility for maintenance of all plants shall be extended until replacements are made or other deficiencies are corrected. All plants that do not meet these Acceptance Standards shall be removed from the project within seven days of receipt of the punch list. Replacements shall conform in all respects to the

Specifications for new plants and shall be planted in the same manner

f) Following the correction of all Punch List deficiencies, the Contractor shall request in writing that the Engineer formally inspect the planting work. If plant materials and workmanship are acceptable, the Engineer will issue a written Certificate of Final Acceptance to the Contractor.

4) Guarantee

a) The date of the Certificate of Final Acceptance shall establish the beginning of the maintenance period and the commencement of the required one-year guarantee and establishment period for planting work.

b) At the end of the guarantee and establishment period, a final inspection will be held to determine whether any plant material replacements are required. Each plant shall be plumb, shall have a character that is natural for its species as determined by the Engineer, and shall conform to the Acceptance Standards described in this Section 9.49. Plants found to be unacceptable shall be removed promptly from the site and replaced according to this Section 9.49. A final inspection will be made after the replacement plants have lived through one year.

c) At the end of the one-year guarantee and establishment period, remove all tree stakes, All replacements shall be plants of the same kind and size specified in the PLANT LIST. The cost shall be borne by the Contractor, except for possible replacements due to vandalism or neglect on the part of others.

9.49.05 – Basis of Payment: Add the following:

Pay Item	**Pay Unit**
Plant list by item #	EA

ITEM # 0950019A – TURF ESTABLISHMENT

Lawns shall be constructed in accordance with Article 9.50, supplemented as follows:

Article 9.50.02 – Materials:

Replace the seed mixture found in M.13. with the following:

Seed Mixture Composition

Common Name	Proportion By Weight	Germination Minimum	Purity Minimum
Creeping Red Fescue or Chewings Fescue	50%	85%	95%
Kentucky Bluegrass	25%	85%	90%
Perennial Rye	25%	90%	90%

a) Bluegrass and rye grass varieties shall be within the top 50 percent and 25 percent respectively, of varieties tested in National Turfgrass Evaluation Program, or currently recommended as low maintenance varieties by University of Massachusetts or the University of Rhode Island.
b) Seeding rate for the General Lawn Seed Mix shall be 6 pounds per 1,000 square feet.

ITEM # 0950029A – CAST IRON PLANTER

9.50.01: This item shall consist of furnishing and installation of cast iron planter in the location as shown on the Contract Documents and as directed by the Engineer.

9.50.02 – Materials:

1) Class 30 grey iron per ASTM A48
2) Cast iron planter shall be manufactured by Robinson Iron, Alexander City, Alabama or an approved equal.
3) Configuration: as shown on the Contract Documents
4) Dimensions: overall height 4 feet 10 inches, bottom tier basin diameter 6 feet 4 inches.
5) Finish: one coat of two component epoxy primer on bare metal; one coat of acrylic polyurethane finish paint, color dark green.
6) Anchorage: 4 stainless steel clip angles mechanically fastened to inside of cast iron base
7) Concrete footings shall be class “f” concrete.
8) Specifics: Provide cast iron planter with 3 bowls connected by central pedestal as shown on the Contract Documents.
9) Sealant: One component silicone sealant, Room Temperature Vulcanizing cure suitable for large gaps in cast metal assemblies where flange flexing occurs. Shall meet FDA/USDA & US MILL-A-46106A Specifications. Color shall be dark green.
10) Submittals: Provide shop drawings, catalogue cuts, product literature and materials certifications of all components of cast iron planter and sealant for review and approval.
11) Filter fabric shall be a non-woven geotextile suitable from preventing migration of potting soil through the weep holes in the planter.
12) Potting soil shall be a mixture of peat moss, vermiculite, perlite, starter fertilizer and wetting agent. The proposed mixture proportions should be submitted to the Engineer for approval.
13) Field touch up of painted surfaces

Touch-up and repair finishes that, for any reason, have been damaged during construction work.

Field application of coatings shall be in accordance with the manufacturer’s written application guidelines and these specifications. All areas cleaned to bare metal must be coated with a zinc-rich primer before any visible rust back occurs. The topcoat material for field touch-up painting and additional field topcoat application shall be from the same lot and batch used in the shop provided its shelf life has not expired. If the shelf life has expired, the same material of the same color from a different lot and batch shall be used. The materials used for

the field primer and intermediate coat must be compatible with the shop primer and intermediate coats.

All rust, scale, dirt, grease, concrete splatter and other foreign material on connections, bolts, nuts and around field welds shall be completely removed by power tool cleaning per SSPC-SP 11. Areas cleaned to SSPC-SP 11 shall have a 1-3 mil profile and must be primed prior to rusting. All debris generated from cleaning operations must be contained and properly disposed of.

Bolts, nuts and washers shall receive brush applications of intermediate and topcoat after final tensioning. Careful attention shall be given to bolted connections to insure that all bolts, nuts and washers are fully coated and that no gaps are left unfilled and uncoated.

Field welded areas shall be treated in the same manner as shop welded areas, including special treatment requirements.

At damaged areas that extend back to the steel surface (such as scratches, gouges or nicks), the entire three-coat system shall be locally reapplied after power tool cleaning to bare metal in accordance with SSPC-SP 11. The coating system adjacent to the damage shall be feathered back to increase the surface area for touch up painting. The area cleaned to SSPC-SP 11 shall be primed with a zinc-rich primer before rustback occurs. The coating manufacturer shall be consulted to determine the appropriate zinc-rich primer to use. Application of the zinc-rich primer shall be in accordance with the coating manufacturers written instructions. The specified intermediate and topcoats shall be reapplied in accordance with the manufacturer's written instructions.

At damaged areas that extend back only to the prime or intermediate coat, the area shall have the topcoat applied. Application of the touch-up materials in these damaged areas shall be performed by brush only.

Tarps shall be used to collect all surface preparation debris. The Contractor shall be responsible for disposing of all removed materials, including tarps.

9.50.03 – Construction Methods:

1) Install cast iron planter in location shown on the Contract Documents. Installation shall be in accordance with manufacturer's instructions. All basins shall be set level to ensure constant and even circumferential drip for both bowls and basin.

2) Seal gaps between cast basin and masonry sub-straight with silicone sealant as directed by the Engineer.

9.50.04 – Method of Measurement: The method of measurement shall be in units of one cast iron planter.

9.50.05 – Basis of Payment: Payment for this work will be made at the contract unit price per cast iron planter stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material,filter fabric, potting soil, footings, transport, equipment, tools, machinery, and labor incidental thereto as described in this specification and as shown on the drawings.

Pay Item	**Pay Unit**
Cast Iron Planter	EA.

ITEM # 0969062A - CONSTRUCTION FIELD OFFICE, MEDIUM

Description: Under the item included in the bid document, adequate weatherproof office quarters will be provided by the Contractor for the duration of the work, and if required, for a maximum of ninety days thereafter for shared use by the Town and Contractor forces. The office quarters shall be located convenient to the work site on the Town owned parcel at the intersection of Bank Street and West Main Street and installed in accordance with Article 1.08.02. Ownership and liability of the office quarters shall remain with the Contractor.

Materials: Materials shall be in like new condition for the purpose intended and shall be approved by the Engineer.

Office Requirements: The Contractor shall furnish the office quarters and equipment as described below.

	Description:
400 SF	Sq. Ft. of floor space with a minimum ceiling height of 7 ft. and shall be partitioned as shown on building floor plan as provided by the Engineer.
2 EA	Minimum number of exterior entrances.
2 EA	Minimum number of parking spaces.

Office layout: The office shall have a minimum square footage as indicated in the table above, and shall be partitioned as shown on building floor plan as provided by the Engineer. The underside of the office shall be fully skirted to the ground.

Lavatory Facilities: The Contractor shall furnish lavatory and toilet facilities at a location convenient to the office quarters for the use of project personnel and such assistants as they may engage. He shall also supply lavatory and sanitary supplies as required.

Windows and Entrances: The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. Copies of all keys to the construction field office shall be furnished to the Town. Any access to the entrance ways shall meet applicable building codes and be slip resistant, with appropriate handrails.

Lighting: The Contractor shall equip the office interior with electric lighting that provides a minimum illumination level of 100 foot-candles at desk level height, and electric outlets for each desk and drafting table. The Contractor shall also provide exterior lighting that provides a minimum illumination level of 2 foot-candles throughout the parking area and for a minimum distance of 10 ft. on each side of the field office.

The Contractor shall provide the following additional equipment, facilities, and/or services at the Field Office on this project to include at least the following to the satisfaction of the Engineer:

Parking Facility: Adequate parking spaces with adequate illumination on a paved surface, with surface drainage if needed. If paved parking does not exist adjacent to the field office, the Contractor shall provide a parking area of sufficient size to accommodate the number of vehicles indicated in the table above. Construction of the parking area and driveway, if necessary, will consist of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

Field Office Security: Physical Barrier Devices - This shall consist of physical means to prevent entry, such as: 1) All windows shall be barred or security screens installed; 2) All field office doors shall be equipped with dead bolt locks and regular day operated door locks; and 3) Other devices as directed by the Engineer to suit existing conditions.

Electric Service: The field office shall be equipped with an electric service panel to serve the electrical requirements of the field office, including: lighting, general outlets, computer outlets, calculators etc., and meet the following minimum specifications:

A. 120/240 volt, 1 phase, 3 wire.
B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.
C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.
D. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each computer workstation location.
E. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.
F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.
G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120 volt, straight blade.
H. After work is complete and prior to energizing, the Town's electrical inspector, must be contacted.

Heating, Ventilation and Air Conditioning (HVAC): The field office shall be equipped with sufficient heating, air conditioning and ventilation equipment to maintain a temperature range of 68°-80° Fahrenheit within the field office.

The Following Furnishings and Equipment Shall Be Provided In The Applicable Field Office Type:

Qty	Description:
3 EA	Office desks (2.5 ft x 5 ft) with drawers, locks, and matching desk chairs that have pneumatic seat height adjustment and dual wheel casters on the base.
2 EA	Office Chairs.
1 EA	Fire resistant cabinets (legal size/4 drawer), locking.
1 EA	Drafting type tables (3 ft x 6 ft) and supported by wall brackets and legs; and matching drafters stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base.
2 EA	Personal computer tables (4 ft x 2.5 ft).
1 EA	Hot and cold water dispensing unit and supply of cups and bottled water shall be supplied by the Contractor for the duration of the project.
2 EA	Electronic office type printing calculators capable of addition, subtraction, multiplication and division with memory and a supply of printing paper.
2 EA	Telephone.
1 EA	Telephone answering machine.
1 EA	Plain paper facsimile (FAX) machine capable of transmitting via telephone credit card. All supplies, paper and maintenance shall be provided by the Contractor.
1 EA	Copier/Scanner - dry, plain paper with automatic feeder and reducing capability. All supplies, paper and maintenance shall be provided by the Contractor.
1 EA	Wastebaskets - 30 gal., including plastic waste bags.
3 EA	Wastebaskets - 5 gal., including plastic waste bags.
2 EA	Electric pencil sharpeners.
* EA	Fire extinguishers - provide and install type and number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.
1 EA	Vertical plan racks for 2 sets of 2 ft x 3 ft plans for each rack.
1 EA	Concrete Curing Box as specified below under Concrete Testing Equipment.
1 EA	Concrete Air Meter as specified below under Concrete Testing Equipment.
1 EA	Concrete Slump Cone as specified below under Concrete Testing Equipment.

The furnishings and equipment required herein shall remain the property of the Contractor. Any supplies required to maintain or operate the above listed equipment or furnishings shall be provided by the Contractor for the duration of the project.

Telephone Service: This shall consist of the installation of two (2) telephone lines: one (1) line for phone/voice service and one (1) line dedicated for the facsimile machine. If 2 telephone lines are not sufficient to provide internet service for the Town Representative, the Contractor shall provide additional lines. The Contractor shall pay all charges.

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following. All testing equipment will remain the property of the Contractor at the completion of the project.

A) Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.

B) Air Meter – The air meter provided shall be in good working order and will meet the requirements of AASHTO T 152.

C) Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T119, Standard Test Method for Slump of Hydraulic-Cement Concrete.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of twenty thousand dollars ($20,000.00) in order to insure all Town-owned data equipment and supplies used in the office against all losses. The Contractor shall be named insured on that policy, and the Town shall be an additional named insured on the policy. These losses shall include, but not be limited to: theft, fire, and physical damage. The Town will be responsible for all maintenance costs of Town owned computer hardware. The Contractor's financial liability under this paragraph shall be limited to the amount of the insurance coverage required by this paragraph.

Maintenance: During the occupancy, the Contractor shall maintain all facilities and furnishings provided under the above requirements, and shall maintain and keep the office quarters clean through the use of weekly professional cleaning to include, but not limited to, washing & waxing floors, cleaning restrooms, removal of trash, etc. Exterior areas shall be mowed and clean of debris. A trash receptacle (dumpster) with weekly pickup (trash removal) shall be provided. Snow removal, sanding and salting of all parking, walkway, and entrance ways areas shall be accomplished during a storm if on a workday during work hours, immediately after a storm and prior to the start of a workday. If snow removal, salting and sanding are not completed by the specified time, the State will provide the service and all costs incurred will be deducted from the next payment estimate.

Method of Measurement: The furnishing and maintenance of the construction field office will be measured for payment by the number of calendar months that the office is in place and in operation, measured to the nearest month.

There will not be any price adjustment due to any change in the minimum computer system requirements.

Basis of Payment: The furnishing and maintenance of the construction field office will be paid at the listed unit price per month for the item “Construction Field Office, Medium”, which price shall include all material, equipment, labor, utility services and work incidental thereto.

The cost of providing the parking area, external illumination, trash removal and snow and ice removal shall be included in the monthly unit price bid for the respective item “Construction Field Office, Medium”.

Pay Item	Pay Unit
Construction Field Office, Medium	Month

ITEM #0970006A - TRAFFICPERSON (MUNICIPAL POLICE OFFICER)
ITEM #0970007A - TRAFFICPERSON (UNIFORMED FLAGGER)

9.70.01—Description: Under this item the Contractor shall provide the services of Trafficpersons of the type and number, and for such periods, as the Engineer approves for the control and direction of vehicular traffic and pedestrians. Traffic persons requested solely for the contractor's operational needs will not be approved for payment.

9.70.03—Construction Method: Prior to the start of operations on the project requiring the use of Trafficpersons, a meeting will be held with the Contractor, Trafficperson agency or firm, Engineer, and State Police, if applicable, to review the Trafficperson operations, lines of responsibility, and operating guidelines which will be used on the project. A copy of the municipality's billing rates for Municipal Police Officers and vehicles, if applicable, will be provided to the Engineer prior to start of work.

On a weekly basis, the Contractor shall inform the Engineer of their scheduled operations for the following week and the number of Trafficpersons requested. The Engineer shall review this schedule and approve the type and number of Trafficpersons required. In the event of an unplanned, emergency, or short term operation, the Engineer may approve the temporary use of properly clothed persons for traffic control until such time as an authorized Trafficperson may be obtained. In no case shall this temporary use exceed 8 hours for any particular operation.

If the Contractor changes or cancels any scheduled operations without prior notice of same as required by the agency providing the Trafficpersons, and such that Trafficperson services are no longer required, the Contractor will be responsible for payment at no cost to the Department of any show-up cost for any Trafficperson not used because of the change. Exceptions, as approved by the Engineer, may be granted for adverse weather conditions and unforeseeable causes beyond the control and without the fault or negligence of the Contractor.

Trafficpersons assigned to a work site are to only take direction from the Engineer.

Trafficpersons shall wear a high visibility safety garment that complies with OSHA, MUTCD, ASTM Standards and the safety garment shall have the words "Traffic Control" clearly visible on the front and rear panels (minimum letter size 2 inches (50 millimeters). Worn/faded safety garments that are no longer highly visible shall not be used. The Engineer shall direct the replacement of any worn/faded garment at no cost to the State.

A Trafficperson shall assist in implementing the traffic control specified in the Maintenance and Protection of Traffic contained elsewhere in these specifications or as directed by the Engineer. Any situation requiring a Trafficperson to operate in a manner contrary to the Maintenance and Protection of Traffic specification shall be authorized in writing by the Engineer.

Trafficpersons shall consist of the following types:

1. Uniformed Law Enforcement Personnel: Law enforcement personnel shall wear the high visibility safety garment provided by their law enforcement agency. If no high visibility safety garment is provided, the Contractor shall provide the law enforcement personnel with a garment meeting the requirements stated below for the Uniformed Flaggers' garment.

Law Enforcement Personnel may be also be used to conduct motor vehicle enforcement operations in and around work areas as directed and approved by the Engineer.

Municipal Police Officers: Uniformed Municipal Police Officers shall be sworn Municipal Police Officers or Uniformed Constables who perform criminal law enforcement duties from the Municipality in which the project is located. Their services will also include an official Municipal Police vehicle when requested by the Engineer. Uniformed Municipal Police Officers will be used on non-limited access highways. If Uniformed Municipal Police Officers are unavailable, other Trafficpersons may be used when authorized in writing by the Engineer.
Uniformed Municipal Police Officers and requested Municipal Police vehicles will be used at such locations and for such periods as the Engineer deems necessary to control traffic operations and promote increased safety to motorists through the construction sites.

2. Uniformed Flagger: Uniformed Flaggers shall be persons who have successfully completed flagger training by the American Traffic Safety Services Association (ATSSA), National Safety Council (NSC) or other programs approved by the Engineer. A copy of the Flagger's training certificate shall be provided to the Engineer before the Flagger performs any work on the project. Uniformed Flaggers shall conform to Chapter 6E, Flagger Control, in the Manual of Uniformed Traffic Control Devices (MUTCD) and shall wear high-visibility safety apparel, use a STOP/SLOW paddle that is at least 18 inches (450 millimeters) in width with letters at least 6 inches (150 millimeters) high. The paddle shall be mounted on a pole of sufficient length to be 6 feet (1.8 meters) above the ground as measured from the bottom of the sign.

Uniformed Flaggers will only be used on non-limited access highways to control traffic operations when authorized in writing by the Engineer.

9.70.04—Method of Measurement: Services of Trafficpersons will be measured for payment by the actual number of hours for each person rendering services approved by the Engineer. These services shall include, however, only such trafficpersons as are employed within the limits of construction, project right of way of the project or along detours authorized by the Engineer to assist the motoring public through the construction work zone. Services for continued use of a detour or bypass beyond the limitations approved by the Engineer, for movement of construction vehicles and equipment, or at locations where traffic is unnecessarily restricted by the Contractor's method of operation, will not be measured for payment.

Trafficpersons shall not work more than twelve hours in any one 24 hour period. In case such services are required for more than twelve hours, additional Trafficpersons shall be furnished and measured for payment. In cases where the Trafficperson is an employee on the Contractor's payroll, payment under the item "Trafficperson (Uniformed Flagger)" will be made only for those hours when the Contractor's employee is performing Trafficperson services.

Travel time will not be measured for payment for services provided by Uniformed Municipal Police Officers or Uniformed Flaggers.

Mileage fees associated with Trafficperson services will not be measured for payment.

Safety garments and STOP/SLOW paddles will not be measured for payment.

9.70.05—Basis of Payment: Trafficpersons will be paid in accordance with the schedule described herein.
There will be no direct payment for safety garments or STOP/SLOW paddles. All costs associated with furnishing safety garments and STOP/SLOW paddles shall be considered included in the general cost of the item.

1. Uniformed Law Enforcement Personnel: The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the bid price even though payment will be made as described below. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount for the contract.

The Department will pay the Contractor its actual costs for "Trafficperson (Municipal Police Officer)" plus an additional 5% as reimbursement for the Contractor's administrative expense in connection with the services provided.

The invoice must include a breakdown of each officer's actual hours of work and actual rate applied. Mileage fees associated with Trafficperson services are not reimbursable expenses and are not to be included in the billing invoice. The use of a municipal police

vehicle authorized by the Engineer will be paid at the actual rate charged by the municipality. Upon receipt of the invoice from the municipality, the Contractor shall forward a copy to the Engineer. The invoice will be reviewed and approved by the Engineer prior to any payments. *Eighty (80%) of the invoice will be paid upon completion of review and approval. The balance (20%) will be paid upon receipt of cancelled check or receipted invoice, as proof of payment.* The rate charged by the municipality for use of a uniformed municipal police officer and/or a municipal police vehicle shall not be greater than the rate it normally charges others for similar services.

2. Uniformed Flagger: Uniformed flaggers will be paid for at the contract unit price per hour for "Trafficperson (Uniformed Flagger)", which price shall include all compensation, insurance benefits and any other cost or liability incidental to the furnishing of the trafficpersons ordered.

ITEM NO.	DESCRIPTION	UNIT
970006A	TRAFFICPERSON (MUNICIPAL POLICE OFFICER)	EST.
970007A	TRAFFICPERSON (UNIFORMED FLAGGER)	HR.

ITEM NO. 971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description is supplemented by the following:

The Contractor shall maintain and protect traffic as follows and as described and limited in the Special Provision "Prosecution and Progress" and as shown on the construction plans:

STAGE CONSTRUCTION

The Contractor shall maintain and protect traffic on all project roadways as shown on the Maintenance and Protection of Traffic Plans contained in the contract plans and these specifications. Prior to the start of construction, the Contractor shall submit to the Engineer for review and approval a 'Sequence of Operation Plan' that adheres to the requirements detailed in the Limitation of Operations and the Maintenance and Protection of Traffic plans. The ‘Sequence of Operation Plan’ shall also minimize impacts to the traffic, local businesses, pedestrians, and loss of parking spaces.

COMMERCIAL AND RESIDENTIAL DRIVEWAYS

The Contractor shall maintain access to and egress from all commercial and residential driveways and public alleys throughout the project limits. The Contractor will be allowed to close said driveways to perform the required work during those periods when the businesses are closed unless permission is granted from the business owner to close the driveway during business hours. If a temporary closure of a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure.

Article 9.71.03 - Construction Method is supplemented as follows:

SIGNING

The Contractor shall maintain all existing overhead and side-mounted signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate existing signs and sign supports as many times as deemed necessary and install temporary sign supports and foundations if necessary and as directed by the Engineer. The temporary relocation of any existing signs and supports, and the furnishing, installation and removal of any temporary supports and foundations, shall be paid for under the item “Maintenance and Protection of Traffic.”

When all work is completed, the Contractor shall remove existing signs and install new signs (or relocate existing signs) as shown on the Signing and Pavement Marking Plans contained in the contract plans and as directed by the Engineer. New signs will measured and paid for separately under the type of sign installed. Removing and relocating signs shall be included in the lump sum cost for 'Removal and Relocation of Existing Signs'

TRAFFIC SIGNALS

The Contractor shall keep each traffic signal in the project limits operational at all times during construction.

REQUIREMENTS FOR SUMMER

The Contractor shall schedule a meeting with representatives of the Engineer, Maintenance, and Traffic to determine what interim traffic control measures the Contractor must accomplish for the summer to provide safety to the motorist and pedestrians.

REQUIREMENTS FOR WINTER

The Contractor shall schedule a meeting with representatives of the Engineer, Maintenance, and Traffic to determine what interim traffic control measures the Contractor must accomplish for the winter to provide safety to the motorist and pedestrians, and permit adequate snow removal procedures.

SIGNING PATTERNS

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory.

Pavement Markings -Non-Limited Access Multilane Roadways
Secondary and Local Roadways
During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

Interim Pavement Markings
The Contractor shall install painted pavement markings, which shall include centerlines, shoulder edge lines, lane lines (broken lines), lane-use arrows, and stop bars, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work day/night. If the next course of bituminous concrete pavement will be placed within seven days, shoulder edge lines are not required. The painted pavement markings will be paid under the appropriate items.

If the Contractor will install another course of bituminous concrete pavement within 24 hours, the Contractor may install Temporary Plastic Pavement Marking Tape in place of the painted pavement markings by the end of the work day/night. These temporary pavement markings shall include centerlines, lane lines (broken lines) and stop bars; shoulder edge lines are not required. Centerlines shall consist of two 4 inch wide yellow markings, 2 feet in length, side by side, 4 to 6 inches apart, at 40-foot intervals. No passing zones should be posted with signs in those areas where the final centerlines have not been established on two-way roadways. Stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side. The Contractor shall remove and dispose of the Temporary Plastic Pavement Marking Tape when another course of bituminous concrete pavement is installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

If an intermediate course of bituminous concrete pavement will be exposed throughout the summer, then Epoxy Resin Pavement Markings should be installed unless directed otherwise by the Engineer.

Final Pavement Markings

In accordance with Section 12.10 entitled "Epoxy Resin Pavement Markings, Symbols, and Legends," the Contractor should install permanent Epoxy Resin Pavement Markings on the final course of bituminous concrete pavement by the end of the work day/night. If the permanent pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the permanent Epoxy Resin Pavement Markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the permanent Epoxy Resin Pavement Markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

NOTE: Painted pavement markings will not be allowed as a substitution for either the permanent Epoxy Resin Pavement Markings or the Temporary Plastic Pavement Marking Tape on the final course of bituminous concrete pavement.

TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS (English Version)

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

TRAFFIC CONTROL PATTERNS: Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

Speed and volume of traffic
Duration of operation
Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

If a lane reduction taper is required to shift traffic, the entire length of the taper should be installed on a tangent section of roadway so that the entire taper area can be seen by the motorist.

Any existing signs that are in conflict with the traffic control patterns shall be removed, covered, or turned so that they are not readable by oncoming traffic.

When installing a traffic control pattern, a Buffer Area should be provided and this area shall be free of equipment, workers, materials and parked vehicles.

Typical traffic control plans 20 through 25 may be used for moving operations such as line striping, pot hole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns will not be required when vehicles are on an emergency patrol type activity or when a short duration stop is made and the equipment can be contained within the shoulder. Flashing lights and appropriate trafficperson shall be used when required.

Although each situation must be dealt with individually, conformity with the typical traffic control plans contained herein is required. In a situation not adequately covered by the typical traffic control plans, the Contractor must contact the Engineer for assistance prior to setting up a traffic control pattern.

PLACEMENT OF SIGNS: Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs may be installed on both sides of the highway. On directional

roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

Allowable Adjustment of Signs and Devices Shown on the Traffic Control Plans

The traffic control plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans whenever possible.

The proper application of the traffic control plans and installation of traffic control devices depends on actual field conditions.

Adjustments to the traffic control plans shall be made only at the direction of the Engineer to improve the visibility of the signs and devices and to better control traffic operations. Adjustments to the traffic control plans shall be based on safety of work forces and motorists, abutting property requirements, driveways, side roads, and the vertical and horizontal curvature of the roadway.

The Engineer may require that the traffic control pattern be located significantly in advance of the work area to provide better sight line to the signing and safer traffic operations through the work zone.

Table I indicates the minimum taper length required for a lane closure based on the posted speed limit of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the traffic control plans cannot be achieved.

TABLE I – MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE
30 OR LESS	180
35	250
40	320
45	540
50	600
55	660
65	780

SECTION 1. WORK ZONE SAFETY MEETINGS

1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of DOT Construction, Connecticut State Police (Local Barracks), Municipal

Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the project. Other work zone safety meetings during the course of the project should be scheduled as needed.

1.b) A Work Zone Safety Meeting Agenda, (see Section 9), shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. Any issues that can't be resolved at these meetings will be brought to the attention of the District Engineer and the Office of Construction.

SECTION 2. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

2.a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.

2.b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advanced warning signs.

2.c) Stopping traffic may be allowed:

- As per the contract for such activities as blasting, steel erection, etc.
- During paving, milling operations, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.
- To move slow moving equipment across live traffic lanes into the work area.

2.d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or State Police, traffic may be briefly impeded while installing and/or removing the advanced warning signs and the first ten traffic cones/drums only. Appropriate measures shall be taken to safely slow traffic. If required, State Police may use traffic slowing techniques, including the use of Truck Mounted Impact Attenuators (TMAs) as appropriate, for a minimum of one mile in advance of the pattern starting point. Once the advanced warning signs and the first ten traffic cones/drums are installed/removed, the two TMAs and sign crew should continue to install/remove the pattern as described in Section 4c and traffic shall be allowed to resume their normal travel.

2.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.

2.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travelpath prior to

merging/exiting with/from the main line traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.

2.g) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.

2.h) On limited access roadways, workers are prohibited from crossing the travel lanes to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

SECTION 3. USE OF HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

3.a) On limited access roadways, one Flashing Arrow shall be used for each lane that is closed. The Flashing Arrow shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the traffic control plan. For multiple lane closures, one Flashing Arrow is required for each lane closed. If conditions warrant, additional Flashing Arrows should be employed (i.e.: curves, major ramps, etc.).

3.b) On non-limited access roadways, the use of a Flashing Arrow for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Flashing Arrow.

3.c) The Flashing Arrow shall not be used on two lane, two-way roadways for temporary alternating one-way traffic operations.

3.d) The Flashing Arrow board display shall be in the “arrow” mode for lane closure tapers and in the “caution” mode (four corners) for shoulder work, blocking the shoulder, or roadside work near the shoulder. The Flashing Arrow shall be in the “caution” mode when it is positioned in the closed lane.

3.e) The Flashing Arrow shall not be used on a multi-lane roadway to laterally shift all lanes of traffic, because unnecessary lane changing may result.

3.f) If the required number of Flashing Arrows is not available, the traffic control pattern shall not be installed.

SECTION 4. USE OF TRUCK MOUNTED IMPACT ATTENUATOR VEHICLES (TMAs)

4.a) For lane closures on limited access roadways, a minimum of two TMAs shall be used to install and remove traffic control patterns. If two TMAs are not available, the pattern shall not be installed.

4.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to utilize the TMAs.

4.c) Generally, to establish the advance and transition signing, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane. The flashing arrow board mounted on the TMA should be in the “flashing arrow” mode when taking the lane. The sign truck and workers should be immediately ahead of the second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, both TMAs shall travel in the closed lane until all Changeable Message Signs, signs, Flashing Arrows, and cones/drums are installed. The flashing arrow board mounted on the TMA should be in the “caution” mode when traveling in the closed lane.

4.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs may be positioned at each additional work area as needed. The flashing arrow board mounted on the TMA should be in the “caution” mode when in the closed lane.

4.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to the specification entitled “Type ‘D’ Portable Impact Attenuation System”. Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) should be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.

4.f) TMAs should be paid in accordance with how the unit is utilized. When it is used as a TMA and is in the proper location as specified, then it should be paid at the specified hourly rate for “Type ‘D’ Portable Impact Attenuation System”. When the TMA is used as a Flashing Arrow, it should be paid at the daily rate for “High Mounted Internally Illuminated Flashing Arrow”. If a TMA is used to install and remove a pattern and then is used as a Flashing Arrow, the unit should be paid as a “Type ‘D’ Portable Impact Attenuation System” for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove), and is also paid for the day as a “High Mounted Internally Illuminated Flashing Arrow”.

4.g) If the required number of TMAs is not available, the pattern shall not be installed.

SECTION 5. USE OF STATE POLICE OFFICERS

5.a) On limited access highways, the Engineer may determine that State Police Officers will be utilized for regional work zone traffic safety and enforcement operations in addition to project-related work zone assignments. State Police Officers shall be uniformed off-duty sworn Connecticut State Police Officers. Their services will also include the use of official State Police vehicles and associated equipment. State Police Officers will be used on all limited access highways. State Police Officers will not be used on non-limited access highways

unless specifically under their jurisdiction or authorized in writing by the Engineer. State Police Officers with official State Police vehicles will be used at such locations and for such periods as the Engineer deems necessary to control traffic operations and promote increased safety to motorists through the construction sites.

5.b) On a weekly basis, the Contractor shall submit to the Engineer the state police request form (DPS-0691-C) as an indication of their scheduled operations for the following week. This form shall be submitted no later than Wednesday Morning of the week prior to the scheduled operations. The Engineer shall review this schedule and approve the type and number of Officers required by signing off under the "Completed by DOT's Authorized Representative" line on Department of Public Safety Form DPS-0691-C. Once the Engineer has approved the number of Officers requested the Engineer will fax the order to the Department of Public Safety's Overtime Office.

5.c) Prior to the start of operations, a meeting will be held with the Contractor, Trooper in charge and Engineer to review the Trafficperson operations, lines of responsibility, and operating guidelines which will be used for the scheduled work.

5.d) At least one Officer should be used per critical sign pattern. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Likewise in areas with moderate traffic and wide, unobstructed medians, left lane closures can be implemented without State Police presence. Certain situations may require State Police presence, if one is available, even though the general guidelines above indicate otherwise. Examples of this include: nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur.

5.e) Once the pattern is in place, the State Police Officer should be positioned in a non- hazardous location at the beginning of the pattern or at one of the work areas not protected by a TMA. If traffic backs up beyond the beginning of the pattern, then the State Police Officer should be repositioned prior to the backup to give warning to the oncoming motorists. Where State Police Officer and TMA are in close proximity to each other, the TMA should be placed to protect the State Police Officer's vehicle from oncoming traffic.

5.f) Other functions of the State Police Officer(s) shall include:

- *Assisting entering/exiting construction vehicles within the work area.
- *Enhancing worker visibility/safety for workers in close proximity to the open travel lane(s).
- Speed control of traffic within the work area.

- Enforcement of speed and other motor vehicle laws within the work area.

Typically, the State Police Officer should be out of the vehicle for the functions marked with an asterisk (*).

5.g) State Police Officers assigned to a work site are to only take direction from the Engineer.

5.h) There will be no separate payment to the Contractor for State Police Services. The direct cost of such services will be paid by the Department. Indirect costs associated with scheduling and coordinating State Police shall be included under the Item – Maintenance and Protection of Traffic.

SECTION 6. USE OF (REMOTE CONTROLLED) CHANGEABLE MESSAGE SIGNS

6.a) For lane closures on limited access roadways, one Changeable Message Sign shall be used in advance of the traffic control pattern. Prior to installing the pattern, the Changeable Message Sign shall be installed and in operation, displaying the appropriate lane closure information (i.e.: Left Lane Closed - Merge Right). The Changeable Message Sign shall be positioned ½ - 1 mile ahead of the lane closure taper. If the nearest Exit ramp is greater than the specified ½ - 1 mile distance, than an additional Changeable Message Sign shall be positioned a sufficient distance ahead of the Exit ramp to alert motorists to the work and therefore offer them an opportunity to take the exit.

6.b) On non-limited access roadways, the use of Changeable Message Signs for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Changeable Message Sign.

6.c) The advance Changeable Message Sign is typically placed off the right shoulder, 5 feet from the edge of pavement. In areas where the Changeable Message Sign cannot be placed beyond the edge of pavement, it may be placed on the paved shoulder with a minimum of five (5) traffic drums placed in a taper in front of it to delineate its position. The advance Changeable Message Sign shall be adequately protected if it is used for a continuous duration of 36 hours or more.

6.d) When the Changeable Message Signs are no longer required, they should be removed from the clear zone and have the display screen cleared and turned 90° away from the roadway.

6.e) The Changeable Message Sign generally should not be used for generic messages (ex: Road Work Ahead, Bump Ahead, Gravel Road, etc.).

6.f) The Changeable Message Sign should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs (Examples include: Exit 34 Closed Sat/Sun - Use Exit 35, All Lanes Closed - Use Shoulder, Workers on Road - Slow Down).

6.g) Messages that need to be displayed for long periods of time, such as during stage construction, should be displayed with construction signs. For special

signs, please coordinate with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.

6.h) Section 11 contains the messages that are allowed on the Changeable Message Sign. For any other message(s), approval must be received from the Office of Construction prior to their use. No more than two (2) displays shall be used within any message cycle.

6.i) If the required number of Changeable Message Signs is not available, the pattern shall not be installed.

SECTION 7. USE OF (REMOTE CONTROLLED) CHANGEABLE MESSAGE SIGNS WITH RADAR

7.a) (Remote Controlled) Changeable Message Signs with Radar shall be used when specified, or as directed by the Engineer.

7.b) The typical placement of a (Remote Controlled) Changeable Message Sign with Radar is in the work zone portion of the traffic control pattern.

7.c) The typical usage of the (Remote Controlled) Changeable Message Sign with Radar is to display a message when a preset speed is exceeded. The sign will blank when no vehicles are present.

7.d) The preset speed for activating the message should be set 5-10 MPH above the posted, or desired, speed.

7.e) Section 12 contains the messages that are allowed on the (Remote Controlled) Changeable Message Sign with Radar. For any other message(s), approval must be received from the Office of Construction prior to their use. No more than two (2) displays shall be used within any message cycle.

SECTION 8. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

8.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.

8.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 72-hour duration.

8.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.

8.d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

SECTION 9. GENERAL

9.a) If the required minimum number of signs and equipment (i.e. one High Mounted Internally Illuminated Flashing Arrow for each lane closed, two TMAs, Changeable Message Sign, etc.) are not available, the traffic control pattern shall not be installed.

9.b) The Contractor shall have back-up equipment (TMAs, High Mounted Internally Illuminated Flashing Arrow, Changeable Message Sign, construction signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. The only exception to this is in the case of sudden equipment breakdowns in which the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.

9.c) Failure of the Contractor to have the required minimum number of signs and equipment, which results in the not being installed, shall not be a reason for a time extension.

9.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

SECTION 10. WORK ZONE SAFETY MEETING AGENDA

1) Review Project scope of work and time.
2) Review Section 1.08, Prosecution and Progress of the Special Provisions.
3) Review Section 9.70, Trafficperson of the Specifications.
4) Review Section 9.71, Maintenance and Protection of Traffic of the Special Provisions, including “Work Zone Safety Procedures”.
5) Review Contractor’s schedule and method of operations.
6) Review areas of special concern: ramps, turning roadways, medians, lane drops, etc.
7) Open discussion of work zone questions and issues.
8) Discussion of review and approval process for changes in contract requirements as they relate to work zone areas.

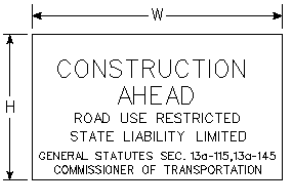
SECTION 11. WORK ZONE SAFETY PROCEDURES - ALLOWABLE MESSAGES FOR CHANGEABLE MESSAGE SIGNS

Message No	Frame 1	Frame 2	Message No	Frame 1	Frame 2
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	WORKERS ON ROAD	REDUCE SPEED
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	WORKERS ON ROAD	SLOW DOWN
5	RIGHT LANE CLOSED	MERGE LEFT	13	EXIT XX CLOSED	USE EXIT YY
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	EXIT XX CLOSED USE YY	FOLLOW DETOUR
7	RIGHT LANE CLOSED	REDUCE SPEED	15	2 LANES SHIFT AHEAD	USE CAUTION
8	2 RIGHT LANES CLOSED	REDUCE SPEED	16	3 LANES SHIFT AHEAD	USE CAUTION

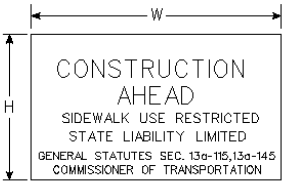
SECTION 12. WORK ZONE SAFETY PROCEDURES - ALLOWABLE MESSAGES FOR CHANGEABLE MESSAGE SIGN WITH RADAR

Message No	Frame 1	Frame 2	Message No	Frame 1	Frame 2
1	TOO FAST	SLOW DOWN	4		
2	TOO FAST SLOW DOWN		5		
3	YOU'RE SPEEDING	FINES DOUBLE	6		

SERIES 16 SIGNS



		W H
16-E	80-1605	84" x 60"
16-H	80-1608	60" x 42"
16-M	80-1613	30" x 24"



		W H
16-S	80-1619	48" x 30"

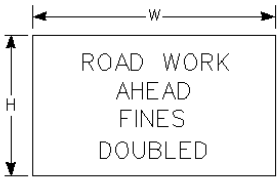
THE 16-S SIGN SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHALL BE INSTALLED ON ANY MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED- ACCESS HIGHWAYS, THESE SIGNS SHALL BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMPS PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

THE LOCATION OF SERIES 16 SIGNS CAN BE FOUND ELSEWHERE IN THE PLANS OR INSTALLED AS DIRECTED BY THE ENGINEER.
SIGNS 16-E AND 16-H SHALL BE POST MOUNTED.
SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS.
SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS, AND MAJOR TOWN/CITY ROADWAYS.
SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

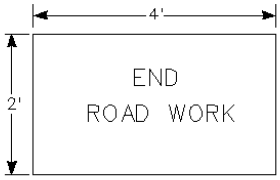
THE REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHEN THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.
THE "ROAD WORK AHEAD, FINES DOUBLED" REGULATORY SIGNS SHALL NOT BE INSTALLED ON TOWN ROADS.
THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.



	W H
31-1906	48" x 42"

"END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN MUST BE THE "END ROAD WORK" SIGN.



80-9612

REV'D 1-02

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
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DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN

REQUIRED SIGNS

APPROVED J.Carey PRINCIPAL ENGINEER DATE 1-02

NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.

2. SIGNS (AA), (A) AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.

3. SEE TABLE #1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.

4. A CHANGEABLE MESSAGE SIGN MAY BE UTILIZED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

5. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 72 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.

6. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA WILL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS REOPENED TO ALL LANES OF TRAFFIC.

7. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN THE EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED AND TEMPORARY PAVEMENT MARKINGS THAT DEPICT THE PROPER TRAVELPATHS SHALL BE INSTALLED.

8. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 200′ ON LOW SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).

9. FOR LANE CLOSURES ONE (1) MILE OR LONGER, A "REDUCE SPEED TO 45 MPH" SIGN SHALL BE PLACED AT THE ONE MILE POINT AND AT EACH MILE THEREAFTER.

10. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.

11. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

REV'D 1-02

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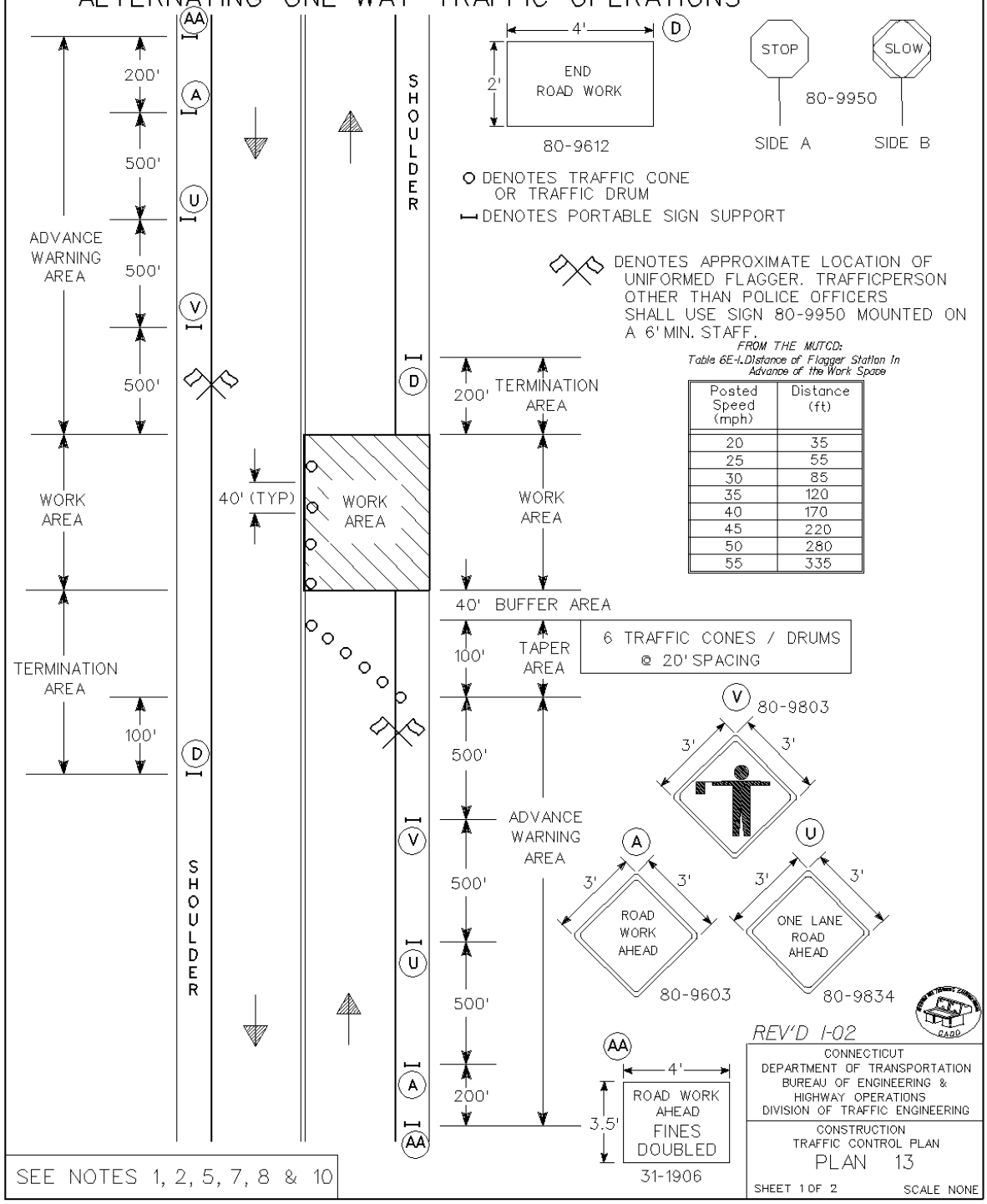
CONSTRUCTION
TRAFFIC CONTROL PLAN
NOTES

NOTES.DGN

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE
98 SQ. FT (MIN)



FROM THE MUTCD:
Table 6E-1.Distance of Flagger Station In Advance of the Work Space

Posted Speed (mph)	Distance (ft)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335

SEE NOTES 1, 2, 5, 7, 8 & 10

REV'D 1-02

CONNECTICUT
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DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 13

SHEET 1 OF 2 SCALE NONE

APPROVED J.Carey PRINCIPAL ENGINEER DATE 1-02

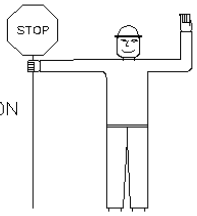
WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.04 FLAGGER PROCEDURES IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TYPICAL DETAIL SHEET ENTITLED "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

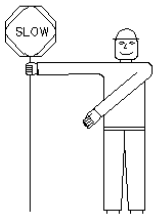
A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.



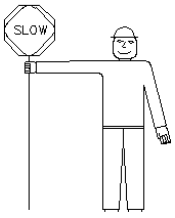
B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.



C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.



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DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 13

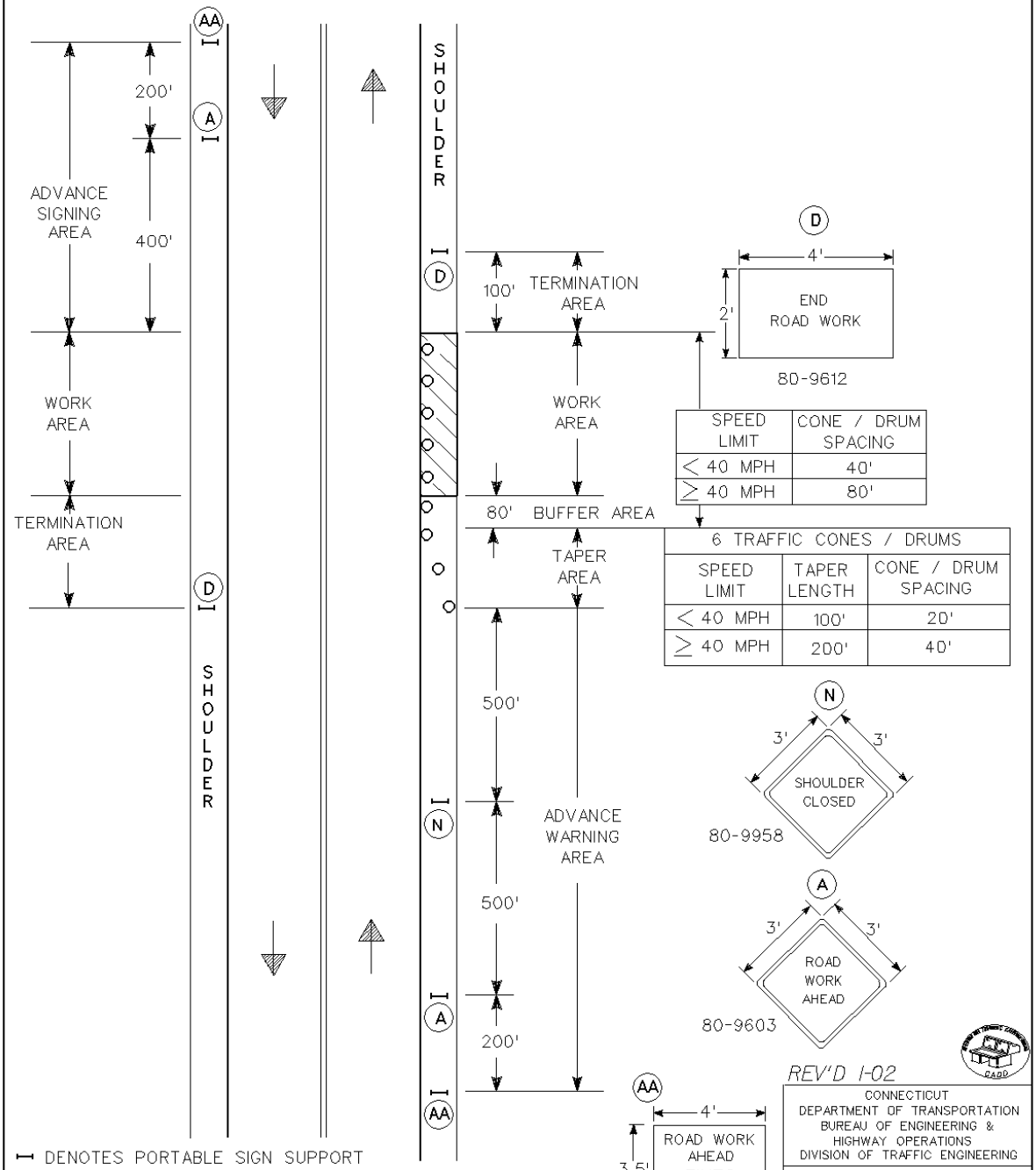
SHEET 2 OF 2 SCALE NONE

SEE NOTES 1, 2, 5, 7, 8 & 10

APPROVED J. Carey PRINCIPAL ENGINEER DATE 1-02

WORK IN SHOULDER - TWO LANE HIGHWAY

SIGN FACE
71 SQ. FT (MIN)



SPEED LIMIT	CONE / DRUM SPACING
< 40 MPH	40'
≥ 40 MPH	80'

6 TRAFFIC CONES / DRUMS		
SPEED LIMIT	TAPER LENGTH	CONE / DRUM SPACING
< 40 MPH	100'	20'
≥ 40 MPH	200'	40'

SEE NOTES 1, 2, 5, 8, & 10

REV'D 1-02

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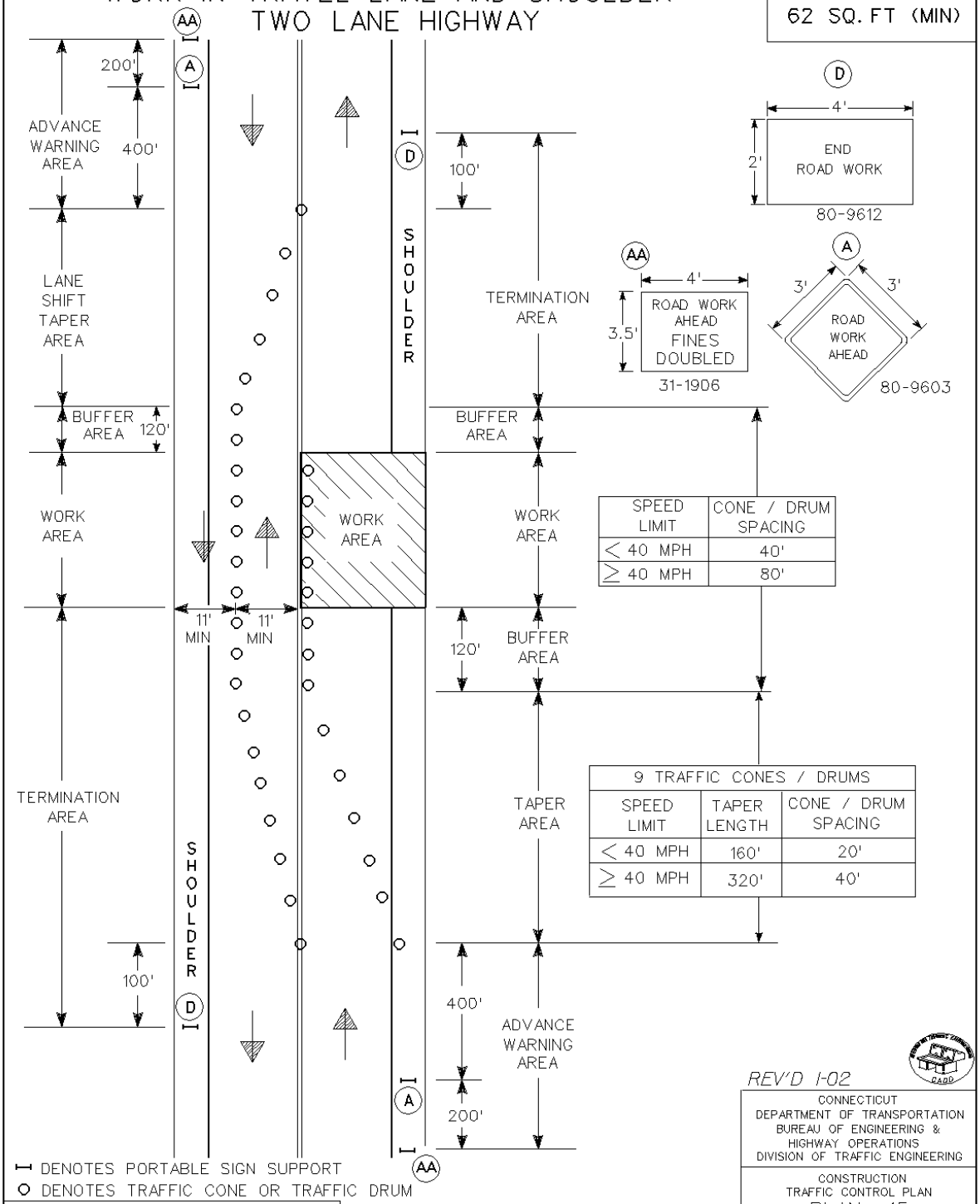
CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 14

SCALE NONE

APPROVED J.Carey PRINCIPAL ENGINEER DATE 1-02

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY

SIGN FACE
62 SQ. FT (MIN)



SPEED LIMIT	CONE / DRUM SPACING
< 40 MPH	40'
≥ 40 MPH	80'

9 TRAFFIC CONES / DRUMS		
SPEED LIMIT	TAPER LENGTH	CONE / DRUM SPACING
< 40 MPH	160'	20'
≥ 40 MPH	320'	40'

SEE NOTES 1, 2, 5, 7, 8 & 10

REV'D 1-02

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DIVISION OF TRAFFIC ENGINEERING

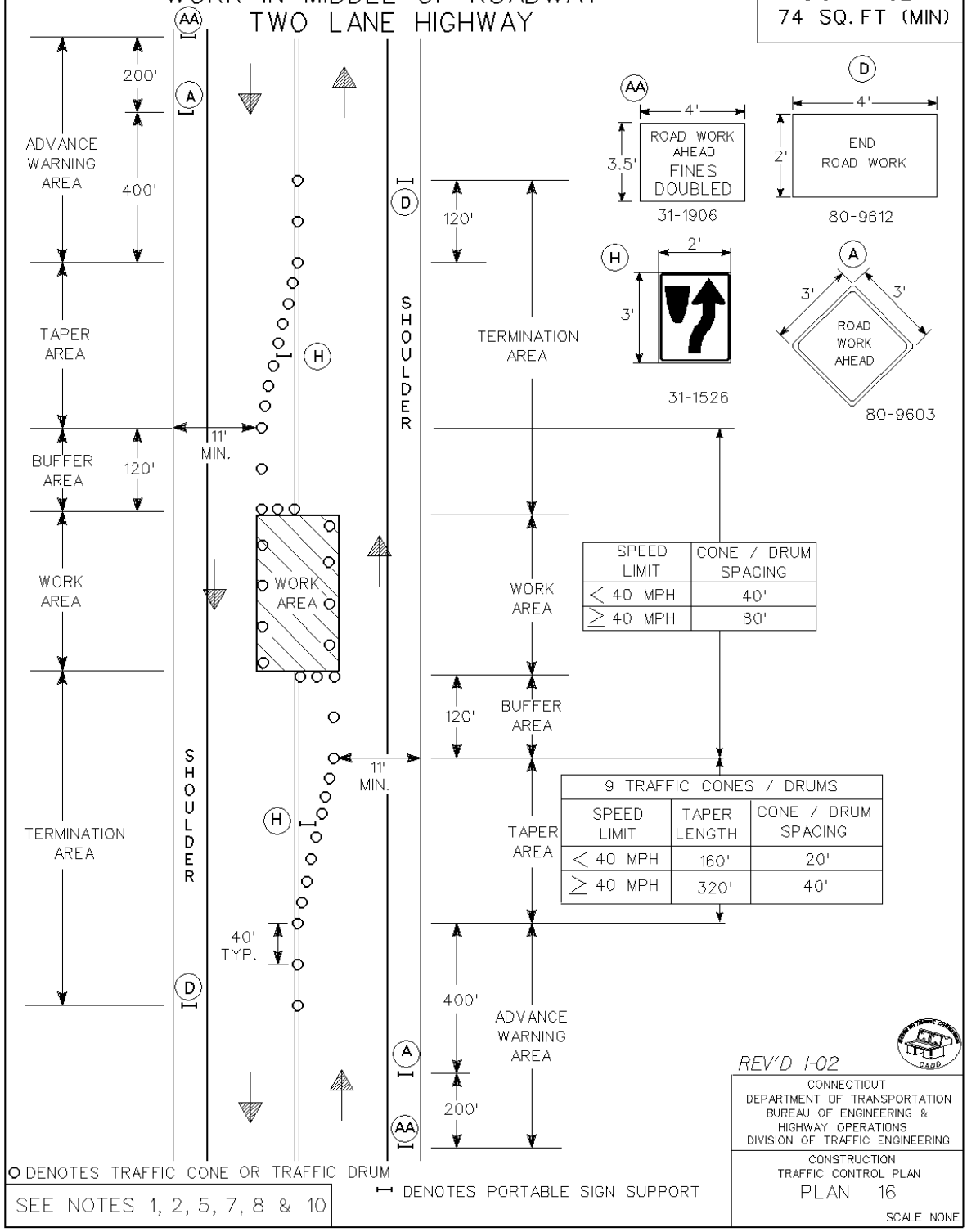
CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 15

SCALE NONE

APPROVED J. Carey PRINCIPAL ENGINEER DATE 1-02

WORK IN MIDDLE OF ROADWAY
TWO LANE HIGHWAY

SIGN FACE
74 SQ. FT (MIN)



SPEED LIMIT	CONE / DRUM SPACING
< 40 MPH	40'
≥ 40 MPH	80'

9 TRAFFIC CONES / DRUMS		
SPEED LIMIT	TAPER LENGTH	CONE / DRUM SPACING
< 40 MPH	160'	20'
≥ 40 MPH	320'	40'

SEE NOTES 1, 2, 5, 7, 8 & 10

REV'D 1-02

CONNECTICUT
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DIVISION OF TRAFFIC ENGINEERING

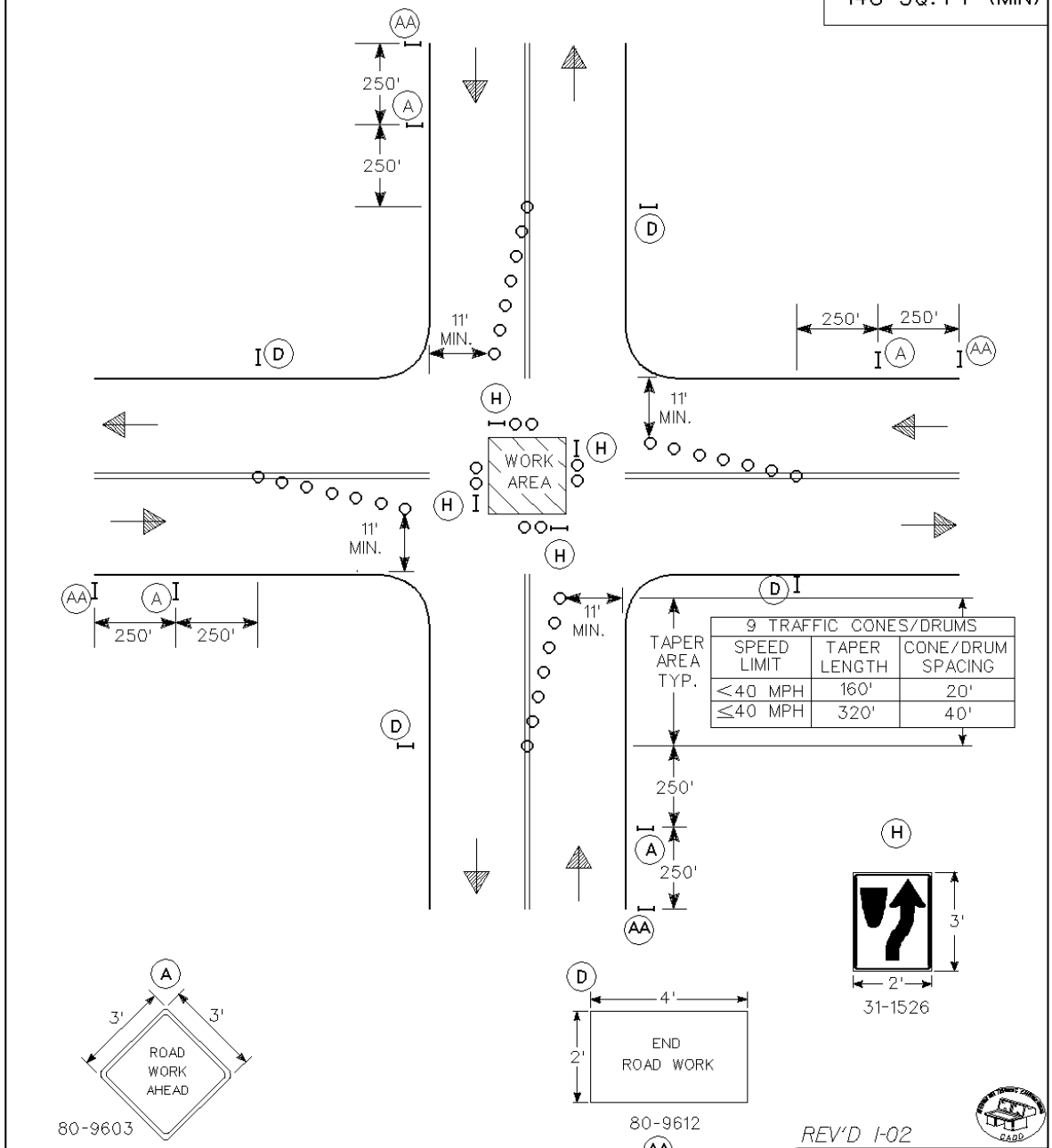
CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 16

SCALE NONE

APPROVED J.Carey PRINCIPAL ENGINEER DATE 1-02

WORK IN MIDDLE OF ROADWAY AT INTERSECTION

SIGN FACE
148 SQ. FT (MIN)



9 TRAFFIC CONES/DRUMS		
SPEED LIMIT	TAPER LENGTH	CONE/DRUM SPACING
<40 MPH	160'	20'
≤40 MPH	320'	40'

O DENOTES TRAFFIC CONE OR TRAFFIC DRUM
I DENOTES PORTABLE SIGN SUPPORT

SEE NOTES 1, 2, 5, 7 & 10

REV'D 1-02

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
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DIVISION OF TRAFFIC ENGINEERING

CONSTRUCTION
TRAFFIC CONTROL PLAN
PLAN 17

SCALE NONE

APPROVED J.Carey PRINCIPAL ENGINEER DATE 1-02

Article 9.71.05 – Basis of Payment is supplemented by the following:

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include furnishing, installing, and removing the material for the temporary traversable slope in those areas where a longitudinal dropdown exists.

If there is no method for payment for the temporary transition in those areas where a transverse dropdown exists, then the contract lump sum price for the “Maintenance and Protection of Traffic” shall also include furnishing, installing, and removing the material for the temporary transition.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include temporarily relocating existing signs and sign supports as many times as deemed necessary and furnishing, installing, and removing temporary sign supports and foundations if necessary during construction of the project.

ITEM #0975002A - MOBILIZATION

Work under this item shall conform to the requirements of Section 9.75 of the Standard Specifications supplemented and amended as follows:

Article 9.75.04 – Method of Measurement:
Delete the entire section and replace with the following:

This work will be measured for payment in the manner described hereinafter; however, the determination of the total contract price earned shall not include the amount of mobilization earned during the period covered by the current monthly estimate- but shall include amounts previously earned and certified for payment:

1. When the first payment estimate is made, 25 percent of the lump sum bid price for this item or 2.5 percent of the total original contract price, whichever is less, shall be certified for payment.

2. When the Baseline Schedule, as specified under Section 1.05.08, is accepted, 50 percent of the lump sum bid price or 5 percent of the total original contract price, whichever is less, minus any previous payments, will be certified for payment.

3. When 10 percent of the total original contract price is earned and the Baseline Schedule, as specified under Section 1.05.08, is accepted, 75 percent of the lump sum price of this item or 7.5 percent of the total original contract price, whichever is less, minus any previous payments, will be certified for payment.

4. When 30 percent of the total original contract price is earned and the Baseline Schedule, as specified under Section 1.05.08, is accepted, 100 percent of the lump sum price of this item or 10 percent of the total original contract price, whichever is less, minus any previous payments, will be certified for payment.

Upon completion of all work on the project, payment of any amount bid for mobilization in excess of 10 percent of the original contract amount will be paid.

Nothing herein shall be construed to limit or preclude partial payments otherwise provided for by the contract.

ITEM #979003A - CONSTRUCTION BARRICADE TYPE III

Article 9.79.01 – Description: The Contractor shall furnish construction barricades to conform to the requirements of NCHRP Report 350 (TL-3) and to the requirements stated in Article 9.71 "Maintenance and Protection of Traffic," as shown on the plans and/or as directed by the Engineer.

Article 9.79.02 – Materials: Prior to using the construction barricades, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices conform to NCHRP Report 350 (TL-3).

Alternate stripes of white and orange Type III or Type VI reflective sheeting shall be applied to the horizontal members as shown on the plans. Application of the reflective sheeting shall conform to the requirements specified by the reflective sheeting manufacturer. Only one type of sheeting shall be used on a barricade and all barricades furnished shall have the same type of reflective sheeting. Reflective sheeting shall conform to the requirements of Article M.18.09.01.

Construction barricades shall be designed and fabricated so as to prevent them from being blown over or displaced by the wind from passing vehicles. Construction barricades shall be approved by the Engineer before they are used.

Article 9.79.03 – Construction Methods: Ineffective barricades, as determined by the Engineer and in accordance with the ATSSA guidelines contained in "Quality Standards for Work Zone Traffic Control Devices", shall be replaced by the Contractor at no cost to the State.

Barricades that are no longer required shall be removed from the project and shall remain the property of the Contractor.

Article 9.79.04 – Method of Measurement: Construction Barricade Type III will be measured for payment by the number of construction barricades required and used.

Article 9.79.05 – Basis of Payment: "Construction Barricade Type III" required and used will be paid for at the Contract unit price per each. Each barricade will be paid for once, regardless of the number of times it is used.

Pay Item	Pay Unit
Construction Barricade Type III	EA.

TEM #0992089A – FLAGPOLE SOCKET

Description:

Flagpole socket shall be furnished and installed as shown on the construction documents.

Materials:

Flagpole socket shall be polyvinyl chloride schedule 40 pipe, one inch interior diameter, gray color.

Caps shall be a friction fit low density polyethylene plug as manufactured by Niagara Caps & Plugs, Erie, PA or an approved equal. Color shall be black.

Grout shall be non-shrink grout.

Construction Methods:

Mark out all socket locations with non-permanent markings for review by the Engineer.

Socket can be set prior to placing the concrete or drilled and grouted into cured concrete.

Sockets shall be installed plumb and top of sleeve shall be flush with the concrete surface.

Socket hall be kept free of soil and debris. Socket shall be capped with a flush cap. Hot glue or another approved low strength glue may be used to adhere the cap to the sleeve.

Method of Measurement:

This work will be measured for payment by the unit each of flagpole socket installed and accepted.

Basis of Payment:

Payment for this work will be made at the contract unit price each for one unit. Payment for all will be made for the type, size and kind specified, complete in place, which price shall include all materials, equipment, tools and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
0992089A	FLAGPOLE SOCKET	E.A.

ITEM # 0992090A - WOOD AND GRANITE BENCH

ITEM # 0992091A - GRANITE BENCH WITH WOOD SEAT-WITH BACK

9.92.01 - Description: This item shall consist of furnishing and installation of granite and wood benches in locations as shown on the Contract Documents and as directed by the Engineer.

9.92.02 – Materials:

1) Granite shall be Midnight Grey by New England Stone, 285 Smith Street, North Kingston, RI, 02852 or an approved equal.

2) Wood for bench slats, bench backs and miscellaneous wood pieces shall be heartwood Ipe, *Tabebuis spp*. At 12% moisture content the wood shall have a Janka side hardness of 3,680 lb; bending strength of 25,360 psi.; modulus of elasticity of 3,140 psi.; and a maximum crushing strength of 13,010 psi.

3) Wood shall be free of the following defects

(a) Large knots, sun cracks, pitch or bark pockets, inbark, soft heart centers, sap, cross or sloping grain, shakes, rough grain (wild growth), splits, or serious mechanical injury

(b) Curly or wavy grain shall be limited to 30% of the wood pieces for bench slats but shall not be allowed for fabrication of the chamfered frame pieces on front, side or back edges, which pieces shall be fabricated from straight grain boards only.

4) Steel supports, threaded rods, seat supports, back supports, dividers and miscellaneous appurtenances shall be Type 316 per ASTM A276-98B, ASTM A193M-99A and ASTM 276 as applicable. Stainless steel finish shall be No. 4 unless specified otherwise. Stainless steel shall have a surface roughness of 0.5 microns or less. Drill and tap bar stock to received threaded bolts as shown on the Contract Documents.

5) Grout as required for anchoring shall be a pourable, quick setting, non-metallic and non-shrinking hydraulic cement grout equal to Five Star Grout by U.S. Grout Corporation; Sika Grout 212 by Sika Corporation; or Harris Construction Grout by AH Harris & Sons.

6) The Contractor shall submit shop drawings, manufacturer's literature and samples and for all components of bench as follows:

a) Shop drawings for granite, wood and stainless steel bench seats and backs.
b) Manufacturer's literature for stainless steel certifying compliance with ASTM requirements and for non-shrink grout.
c) Certification that wood conforms to requirements of specification.
d) Sample of wood and stainless steel seat and bench back including thickened edge, sanded and finished in accordance with the Contract Documents. Provide stainless steel supports, threaded rods and counter sunk

and plugged connections. Sample shall be 12 inches wide, full depth of seat and height of bench back.

e) Granite samples showing the specified finishes (12”x12” samples)

9.92.03 – Construction Methods:

1) Granite fabrications:

a) Fabricate granite bases of benches to the dimensions and split, thermal and sawn finishes shown on the Contract Documents. Provide dressed vertical edges at intersecting vertical split faces as shown on the Contract Documents.

b) Granite faces which will be concealed in the finished work shall be sawn to approximately true planes. Maximum variation in thickness shall be 1/16 inch. Sawn surfaces shall be cleaned of rust stains and iron particles.

c) All faces shall be at right angles to the plane of the top.

d) Granite shall be cut accurately to required shapes and dimensions.

e) Holes, cut-outs, sinkages and openings in granite work for anchors, cramps, dowels, supports, and lifting devices, shall be accurately cut or drilled to required dimensions, as shown on the approved Shop Drawings, and as necessary to secure granite in place to insure correct location and accurate fit of all fixtures.

2) Wood bench seats shall be shop fabricated in accordance with Architectural Woodwork Institute, 700-G-2, Custom Grade standard as applicable and noted herein:

a) Bench seats and backs shall be fully plant prepared and shipped complete for installation on site.

b) Entire bench sanded to ensure surfaces free from glue stains. Smoothness of exposed surfaces per 700-S-4, Custom Standard except that flat surfaces shall receive a 150 grit abrasive.

c) Joints between bench slats and thickened ends and edges shall be plant prepared, utilizing mortise and tenon, screws, dowel or spline joinery to ensure full connection between slat ends and nosing boards. Non-oxidizing metals only.

d) All wood-to-wood connections glued prior to connecting with hardware or other approved connection system.

e) All edges shall be eased to 3/32-inch chamfer.

d) Drill, counter sink and plug all holes for anchorage bench back to stainless steel supports as shown on Contract Documents.

3) Install aggregate base in accordance with Section 3.04 of the Standard Specification.

4) Install concrete foundations, footings and sidewalks as shown on the Contract Documents and in accordance with the requirements of Section 6.01 of the Standard Specifications.

5) Install benches in the locations shown on the Contract Documents. Final field

fabrication including all finish work required to bring the benches into conformance with the requirements of the Contract Documents shall proceed as directed by the Engineer. Benches shall have level seats and plumb and plumb granite bases.

9.92.04 – Method of Measurement: The method of measurement shall be in units of one bench without back and one bench with back as applicable.

9.92.05 – Basis of Pavement: Payment for this work will be made at the contract unit price per bench as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto as described in this specification and as shown on the drawings.

Pay Item	**Pay Unit**
Wood and granite bench	EA.
Granite bench with wood seat-with back	EA.

ITEM # 0992092A – GRANITE SEATWALL

9.92.01 - Description: This item shall consist of furnishing and installation of granite seatwall in locations as shown on the Contract Documents and as directed by the Engineer.

9.92.02 – Materials:

1) Granite shall be Midnight Grey by New England Stone, 285 Smith Street, North Kingston, RI, 02852 or an approved equal.

2) Concrete for foundations shall be Class F concrete per Section 6.01 and Section M.03. Reinforcing steel for foundations shall conform to Section M.06.

3) Setting bed mortar shall conform to ASTM C 270, Type S, except that latex polymer additive shall be mixed with the cementitious materials and aggregate in lieu of water.

a) Cement: Shall be an American Portland cement conforming to ASTM C150, Type I or II, except Type III may be used for cold-weather construction, as selected by the Engineer's Representative and shall exhibit no efflorescence when cast into 2 inch x 7 inch x ½ inch (50 mm x 178 mm x 13 mm) slabs comprising the mortar under test.

b) Water: clean, fresh and potable, from public water system.

c) Sand: clean, washed, uniformly well-graded, conforming to ASTM C144 with 100 percent passing No. 8 sieve (2.37 mm), and not more than 35 percent passing No. 50 sieve (300 um), with a fineness modulus maintained at 2.25 plus or minus 0.10.

d) Hydrated Lime: provide plastic hydrate, conforming to ASTM C207, Type "S" as approved by the Engineer's Representative.

4) The Contractor shall submit the following:

a) Shop drawings for granite

b) Manufacturer’s literature for mortar.

c) Granite samples showing the specified finishes (12”x12” samples)

9.92.03 – Construction Methods:

1) Granite fabrications:

a) Fabricate granite seats to the dimensions and split, thermal and sawn finishes shown on the Contract Documents. Provide dressed vertical edges at intersecting vertical split faces as shown on the Contract Documents.

b) Granite faces that will be concealed in the finished work shall be sawn to approximately true planes. Maximum variation in thickness shall be 1/16 inch. Sawn surfaces shall be cleaned of rust stains and iron particles.

c) All faces shall be at right angles to the plane of the top.

d) Granite shall be cut accurately to required shapes and dimensions.

e) Holes, cut-outs, sinkages and openings in granite work for anchors, cramps, dowels, supports, and lifting devices, shall be accurately cut or drilled to required dimensions, as shown on the approved Shop Drawings, and as necessary to secure granite in place to insure correct location and accurate fit

of all fixtures.

3) Install aggregate base in accordance with Section 3.04 of the Standard Specification.

4) Install concrete foundations, footings and slabs as shown on the Contract Documents and in accordance with the requirements of Section 6.01 of the Standard Specifications.

5) Install seatwall in the locations shown on the Contract Documents. Seatwalls shall have seats that drain and plumb vertical surfaces.

9.92.04 – Method of Measurement: The method of measurement shall be in units of linear footage of seatwall as applicable.

9.92.05 – Basis of Pavement: Payment for this work will be made at the contract unit price unit price per linear foot for granite seatwall installed. Payment for all will be made for the work specified, complete in place, which price shall include all materials, equipment, tools and labor incidental thereto as described in this specification and as shown on the drawings, and all excavation, back filling, disposal or surplus material and all drainage openings.

Pay Item	**Pay Unit**
Granite Seatwall	L.F.

ITEM # 0992103 A - TRASH RECEPTACLE

9.92.01-Description: This item shall consist of furnishing and installation of trash receptacles in locations as shown on the Contract Documents and as directed by the Engineer.

9.92.02 – Materials:

1) Trash receptacle shall be Model Park PTS-2429 by Wesnic, Inc., 6000 Bowdendale Avenue, Jacksonville, FL 32216, 904-733-8444 x 215 or an approved equal.
   a) Wood: Nominal 2 inch by 3 inch mahogany, finished with Danish Oil.
   b) Steel: 0.25 inch x one inch with fast dry enamel black finish.
   c) In-ground mounting required per manufacturer's instructions.
   d) Liner: fiberglass 32 gallon capacity.
   e) Submittal: provide product literature and shop drawings form manufacturer for review and approval prior to ordering.

9.92.03 – Construction Methods:

1) Install trash receptacles in locations shown on the Contract Documents. Installation shall be in accordance with manufacturer's instructions.

9.92.04 – Method of Measurement: The method of measurement shall be in units of each trash receptacle.

9.92.05 – Basis of Payment: Payment for this work will be made at the contract unit price per trash receptacle stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
0992103A	TRASH RECEPTACLE	EA.

ITEM #1001002A – TRENCHING AND BACKFILLING WITH ARCHEOLOGICAL MONITORING

Article 10.01.01 – Description:

The work of this section includes trenching and backfilling as specified under Section 10 except the trenching shall be performed under the review of an archeologist hired by the Town. This item will only be required if the archeologist determines in the three archeological test area shown on the drawings that there is a high likelihood of intact archeological resources that would be impacted by particular trenching activities. The Town Representative will notify the Contractor after the archeologist has tested the 3 archeological test areas to identify any trenching that will require archeological monitoring.

Trenching activities shall follow the direction of the archeologist and as outlined below:

1. Field locate and mark the location of trenching in the area of archeological concern. The area of archeological concern will be identified by the Town Representative with the archeologist. The Contractor shall mark the trench locations including the actual width of the trench. Depths of the trenches should be noted as well.

2. Contractor to remove pavement materials from the trench.

3. Contractor to excavate a small area of the trench to the full depth of the proposed trench in six inch layer while the archeologist reviews the work to determine the depth of fill materials versus intact native soils.

4. Contractor shall remove fill materials to a depth approved by the Town Representative and archeologist down to intact native soils.

5. Archeologist to perform tests on intact native soils.

6. The Contractor shall continue to remove further soils as directed by the Town Representative and archeologist until the full depth of the trench is achieved.

7. The Contractor is responsible for all shoring required for the safety of the archeologist working in the trench.

8. Once the archeologist has completed their testing of the trench the Contractor may install the conduit or other piping and backfill as specified.

1002110A – DECORATIVE LIGHT POLE FOUNDATION

Article 10.02.01 – Description:

This item shall consist of furnishing and installing a decorative light standard foundation of the type called for at the location and to the dimensions and details shown on the plans or as directed by the Engineer and in conformity with these specifications.

10.02.02 – Materials: Shall conform to Articles 10.02.02 and as supplemented in these provisions:

Foundation: Concrete light pole foundation shall extend a minimum of 48" below grade and shall be precast, complete with anchor bolts, 1" pvc conduit sweeps, and ¾" pvc ground pipe. Precast concrete bases shall be 4000 PSI Class "F" concrete as manufactured by Cromwell Concrete Products, Inc., Cromwell, CT or approved equal. Concrete foundations shall be 24" minimum diameter with chamfered edges. Top of foundation shall be installed flush with adjacent sidewalk.

Anchor bolts: Galvanized "J" bolt, sized in accordance with pole manufacturer's recommendations. Pole shall be rated to withstand 90 M.P.H winds and a 1.3 gust factor.

10.02.03 – Construction Methods: Shall conform to Articles 10.02.0, 10.04.03 and as supplemented in these provisions:

SUBMITTALS:

A detail for a typical concrete base is provided in the Exhibits for bidding purposes, with wind load strength of 90 mph and 1.3 gust factor. The Contractor shall provide drawings and details of concrete bases for use with proposed poles and luminaires, based on local field conditions, stamped by a Professional Engineer, registered in the State of Connecticut.

10.02.04 – Method of Measurement: This work shall be measured for payment by the number of light standards with luminaries, bracket arms, receptacles, etc. of the type called for installed and accepted.

10.02.05 – Basis of Payment: This work will be paid for at the contract unit price for each "Decorative Light Pole Foundation" of which includes a complete installation, complete in place, which price shall include all materials, labor, tools and equipment.

ITEM # 1002215A – TRAFFIC CONTROL FOUNDATION – WARNING GATE

Section 10.02 of the Standard Specifications is amended as follows:

10.02.01 - Description: Replace with the following:

This item shall consist of constructing a foundation for the proposed installation of a traffic warning gate (to be installed under State Project 58-282) at the location and to the dimensions and details shown on the plans or as directed by the Engineer and in conformity with these specifications. Work under this item will also involve drilling, coring, or a combination of coring and drilling of holes in the existing wingwall structure for grouting dowel bars and anchor bolts in holes shown on plans. Installation of 2”diameter conduit between the bridge abutment and the foundation including core drilling hole in the existing wingwall structure to accommodate the conduit, shall also be included in the work item. If the contractor elects to saw cut (2") and chip out the area in lieu of drilling and grouting, it will be acceptable to the Engineer providing he submits his procedure showing the protection of the existing reinforcement and adjacent concrete as noted herein.

10.02.02 - Materials: Replace with the following:

The materials for the work shall conform to the following:
Class “A” Concrete shall conform to Article M.03.01.
Uncoated reinforcement shall conform to Article M.06.01.
Anchor bolts shall be fully threaded ASTM A36 steel rods and shall be galvanized.
Grout shall be an epoxy grout conforming to Article M.03.01-15.
Electrical conduit shall conform to Article M.15.09
Ground rods shall conform to Article M.15.15-7

10.02.03 - Construction Methods: Supplement with the following:

The Contractor shall locate the existing reinforcement in the wingwall prior to drilling holes and shall not cut the existing wingwall reinforcement for the installation of the proposed foundation reinforcement and anchor bolts. The holes for placing the foundation reinforcement and anchor bolts shall be core-drilled unless otherwise indicated on the plans. Holes shall be of the size and depth shown on the plans. The Contractor is fully responsible for the type of drilling equipment used. Drilling methods shall not cause spalling, cracking, loosening, or other damage to existing concrete or adjacent structure, foundation and existing utilities. Any damage shall be repaired by the Contractor at his own expense.

Each finished hole shall be blown clean with an air jet and then flushed with a jet of clean water. In the water-flushing operation, the pressure hose shall be extended to the

bottom of the hole several times and withdrawn gradually each time. After flushing, the vertical holes shall be left full of clean water for a period of 6 hours. Immediately before the grouting operation on a hole, all water shall be removed from it and the free water on the wall of the hole shall be removed with an air jet or by the use of clean rags.

The epoxy grout shall be mixed and placed strictly in accordance with the recommendations of the manufacturer. The grout shall completely fill the space around the reinforcing bar/anchor bolt. Particular care shall be taken to conform to the manufacturer's specified time limit for initial set time (time grout must remain undisturbed) and cure time (time required for grout to completely cure). The Contractor shall provide an approved means of keeping the bar centered in the tops and bottoms of the holes until the grout has thoroughly cured.

The contractor shall provide covers for the mast arm and warning gate foundations that fully cover the concrete foundation and steel anchor bolts. Covers shall be fabricated from materials suitable in exterior, harsh environments suitable for exposure over two or three years. Design of covers shall be similar to the covers in place in Stonington on the east side of the mystic river bridge. The cost of these covers shall be considered incidental to the work of the item.

Article 10.02.04 - Method of Measurement: Replace with the following:

This work shall be measured for payment by the number of foundation units installed and accepted.

Article 10.02.05 - Basis of Payment: Replace with the following:

This work will be paid for at the contract unit price each for "Traffic Control Foundation – Warning Gate", which price shall include all materials including Class "A" concrete, anchor bolts, reinforcing bars, epoxy grout, forms, drilling or coring and preparing holes and grouting anchor bolts and dowels, electrical conduits, conduit caps, ground rod, sleeves, disposal of surplus excavated material, restoration of concrete sidewalk and pavement surfaces, equipment, tools and labor incidental thereto.

Excavation for installation of conduit between the bridge abutment and the warning gate foundation will be paid under item "Structure Excavation-Earth (Complete)". Replacement of excavated portion of roadway pavement will be paid under items listed elsewhere in the specifications.

1003551A - DOCK BOLLARD

Article 10.04.01 – Description:

This project includes new bollard deck lighting to be installed at the Gravel Street pump station site to replace existing lighting, as indicated on the Drawings. The contractor shall furnish and install, a light fixture and luminaire on a granite bollard as detailed in the contract drawings, new underground wiring, conduit and electrical connections to the new illumination service cabinet as shown on the plans. Work shall include all associated trenching, backfilling and sidewalk repair. It is the intent of this project to call for a complete job, resulting in a properly installed and operating lighting system.

10.04.02 – Materials:

MANUFACTURERS:

A. Available Manufacturers: Subject to compliance with specification requirements, lighting manufacturers offering products that may be incorporated in the work are the following or an approved equal:

1. BEGA-USA

B. Available Manufacturers: Subject to compliance with specification requirements, lamp manufacturers offering products that may be incorporated in the work are the following or an approved equal:

C. 1. General Electric
2. Philips
3. Osram (Sylvania)

D. Any proposed substitution shall be submitted to the Engineer for approval 10 days prior to the bid opening. No substitutions shall be assumed to be acceptable without being properly submitted to the Engineer for approval. Requests for substitution shall contain the following:

1. Sample of substitute and specified products.
2. A list of three projects using the proposed products in a similar application.
3. An item-by-item comparison of the proposed substitute fixture with the products specified.
4. Copy of warranty information.

5. Comprehensive specifications describing proposed substitution, including mechanical construction and electrical components including input wattage, ballast factor and efficiency of the ballast.
6. Point-by-point calculations for the project area.

MATERIALS:

A. General: Dock Bollard Lighting fixtures (luminaires) shall be complete with ballasts, mounting brackets and hardware, lamps, installation accessories, fixture wire, junction box and all accessories as required, as specified in the as called for in the Contract documents, and as required by NEC.

B. Lighting Fixtures:

The luminaire shall be a dock bollard, Model 2838P. The housing shall be a die-cast aluminum with universal mounting for direct attachment to a wiring box.

OPTICAL ASSEMBLY

The optical assembly shall consist of a precisely molded polycarbonate diffuser ¼" thick with diffused stippled interior surface retained by a one pier die-cast aluminum guard, secured by four (4) captive socket head, stainless steel screws threaded into stainless steel inserts. The interior of the lamp compartment shall be gloss white and fully gasketed for weather tight operation.

LAMP HOLDER AND BALLAST

Lamp holder and ballast shall consist of compact flourescent bulb type G23-2 (9W), rated 75W, 250V.

FINISH:

Metal Parts: Manufacturer's standard finish except as otherwise indicated. Finish applied over corrosion-resistant primer, free of streaks, runs, holidays, stains, blisters, and similar defects. Remove poles, fixtures, and accessories showing evidence of corrosion or finish failure during Project warranty period and replace with new items.

The bollard shall be finished by the manufacturer with polyester powder paint applied after a seven stage pretreatment process to insure maximum durability.

All prepared metal surfaces shall be free of visible defects and blemishes prior to finishing. The finish on all metal surfaces, (except hardware) shall be as follows:

All surfaces shall be cleaned and finished as follows:

Surface preparation: Shall be abrasive blast cleaned so that the surface profile is 1.9 mils maximum.

Primer: Sherwin Williams wash primer green P60G-2 catalyzed vinyl or Carboline 1037WP, one coat applied at a uniform film thickness of 0.4 mil dry, or approved equal.

Finish: Sherwin Williams "Polane" F-63 series co reacted polyurethane enamel or Carboline 139, two coats applied at a uniform film thickness of 1.25 mil per coat and 2.5 mil total or approved equal.

Color: Color shall be white. As approved by the Engineer.

The lighting system shall operate from 208 volts, 60 Hertz systems. Fixtures, receptacles, switches and all other applicable lighting system components and details shall be as shown on the Contract plans or as specified. Each lighting unit shall comply in all respects with the Specifications and the Contract plans. All fixtures shall be UL listed. The Installer shall check field conditions for interference or unusual conditions that effect the performance of his work and shall notify the Owner of such conditions and request direction. Contractor shall verify locations of new lighting equipment with the Owner prior to proceeding.

SUBMITTALS:

Shop Drawings and Materials Lists: Submit six (6) sets of shop drawings, catalog cuts, photometric curves, illustrations, specifications, schedules and material lists showing complete details of all proposed equipment for approval prior to manufacture, ordering or installation of said items. Point-by-point calculations shall be submitted upon request of the Owner. At the completion of the project, the Contractor shall provide to the Owner a schematic wiring diagram documenting the as-built conditions, including underground connections and other new work.

As part of the submittal process, Contractor shall provide orientation drawings for owner's approval, showing height and orientation of the bollard.

REGULATIONS, PERMITS, FEES:

All work shall be done in strict accordance with the latest edition of the NEC, rules and regulations of the State and local authorities having jurisdiction over such work, and regulations of the utility companies in force where the work is being installed. All permits shall be obtained and paid for by the Contractor.

PROTECTION OF EQUIPMENT AND WORK

The Contractor shall adequately protect all equipment, tools and work on premises against theft, destruction by weather or other causes, and shall assume full responsibility for such protection until final acceptance by the Owner. All material shall be placed or stored in such a location so that it will not be a hazard to the traveling public.

The Contractor shall provide adequate protection for persons and property in the various locations and phases of the work. Barricades or covers shall be used, where deemed necessary to promote safety.

REPAIRS TO COMPLETED AND EXISTING CONSTRUCTION

The Contractor shall be liable for any and all damage to the highway, sidewalks or any part thereof including all appurtenances, slopes, pavements and structures wherever such damage is caused by the operations or negligence of the Contractor.

Any damage caused by the by the Contractor's operations to partially or fully completed work shall be repaired at the expense of the Contractor, to match existing adjacent areas to the satisfaction of the Owner.

QUALIFICATIONS:

All work shall be done by qualified and experienced mechanics of each labor class, holding the appropriate occupational license as required by the State of Connecticut.

QUALITY ASSURANCE:

A. Comply with applicable local code requirements of the authority having jurisdiction and NEC Articles 225, 250, 410, and 501 as applicable to installation.
B. Comply with requirements of UL standards, including Standards 484A and B, pertaining to exterior lighting fixtures. Provide exterior lighting fixtures and components, which are UL-listed and labeled.

C. Comply with applicable requirements of NFPA 780, "Lightning Protection Code," pertaining to installation of exterior lighting fixtures.

D. Comply with ANSI C2, "National Electrical Safety Code."

SEQUENCING AND SCHEDULING:

A. Coordinate with other electrical work including temporary interruptions of power, conductors & cables, raceways & boxes to properly interface installation of exterior lighting fixtures with other work.

B. All work shall be approved and inspected by the authorities having jurisdiction prior to concealment.

EXAMINATION:

B. Examine areas and conditions under which lighting fixtures are to be installed, and substrate that will support lighting fixtures. Notify Owner in writing of conditions detrimental to proper completion of the work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to Installer and with approval of Owner.

COORDINATION WITH OWNER AND UTILITY COMPANY:

A. The Contractor shall assume all charges and make all necessary arrangements with the power company for the required electrical services necessary for the energizing of the deck lighting equipment. The contractor shall comply with the utility company regulations and shall make arrangements with the utility company to connect and disconnect the power as required. Any charges incurred shall be paid by the Contractor.

B. The Contractor shall notify and coordinate with the Owner and the utility company sufficiently in advance of any disruption of power. Under no circumstances shall the Contractor enter any manhole or place an attachment to a utility company pole without a utility company representative present.

C. Existing light poles and luminaires owned by the City shall be carefully removed and delivered to the City's designated storage yard.

INSTALLATION:

Prior to the installation of the dock bollards the contractor shall lay out the proposed fixtures on each existing granite bollard. The contractor shall then remove projections in the granite that would limit a tight fighting installation of the light fixture to the granite bollard. Once installed all of the light fixtures should be installed uniformly from bollard to bollard with no obvious mis-alignment due to the irregular granite surface. The cost of the work to the granite bollard shall be considered incidental to the work of this item.

A. Install all luminaires, lamps and associated supports, fittings, conduit, boxes, wiring and grounding conductors as called for in these specifications, and shown on the Contract plans, as required and in accordance with the manufacturer's instructions and recommendations.

B. Prior to the issuance of the Certificate of Compliance, thoroughly clean the luminaires, lamps and accessories.

C. All fixtures shall be aligned and directed as shown or so as to illuminate the desired area properly. Fixtures shall be directly and rigidly mounted on their supporting structures using bolted connections.

D. Where aluminum contacts concrete or dissimilar metal, separate contact surfaces with gasket, non-absorptive tape or bituminous coating to prevent corrosion. Use stainless steel fasteners.

E. Fixtures shall be mounted plumb, level, and in straight lines. Fixtures shall be installed accurately as to line and level. Fastenings and supports shall be firmly set so that the fixtures will not be distorted by handling incident to normal maintenance. All parts including lamps shall be secured to prevent falling or dislocation.

F. Lighting fixtures shall be positioned to clear all obstructions.

G. All auxiliary steel, supports and brackets of all kinds for safely erecting the fixtures shall be furnished and installed in place by the Installer.

H. Where coordination with other equipment is necessary some departure from the locations shown may be permitted on approval of Owner.

I. All lighting units when installed shall be set true and shall be free of leaks, warps, dents or other imperfections.

J. All lighting fixtures shall be directly grounded to the equipment grounding system by means of a conductor of size not less than that required by NEC. If insulated, the ground conductor insulation shall be colored green.

K. Taps and splices shall be made with insulated wire nut connectors of the setscrew or spring type or with indent compression type connectors. Solid wire shall be terminated at screw type connections by looping around the terminal screw. At panel boards, solid wire may be terminated using screw type pressure terminals; stranded wire may be terminated using saddle type pressure terminals.

CUTTING AND PATCHING

A. The Contractor shall be responsible for removal of existing concrete foundations where required, and cutting, trenching, backfill and patching of roadway, sidewalk surfaces and deck surface to match existing adjacent surfaces. Saw cutting shall be used to the greatest extent possible. Contractor shall backfill trenches and foundations with suitable material, in accordance with utility company and Owner requirements.

GROUNDING:

A. Provide equipment-grounding connections for exterior lighting fixtures as per NEC requirements.

FIELD QUALITY CONTROL:

A. Replace defective and burned out lamps for a period of one year following the Date of Certificate of Compliance.

B. Furnish stock or replacement lamps amounting to 15 percent, but not less than 4 lamps in each case, of each type and size lamp used in each type fixture. Deliver replacement stock as directed to Owner's storage space.

C. The Installer is not responsible for the footcandles of illumination provided by the completed systems. However, if after the lighting is installed and in operation, any areas are noted which are obviously under or over lighted, the Installer shall promptly advise the Owner and, if required, make changes as directed in writing by the Owner.

D. Fixtures shall be protected and maintained in good condition during construction. At the completion of the work, all fixtures shall be cleaned, inspected, and repaired, or replaced if damaged, and a complete set of new lamps shall be installed. High intensity discharge lamps shall be "burnt in" for at least 100 hr prior to final inspection.

ADJUSTING AND CLEANING:

A. Clean lighting fixtures of dirt and debris upon completion of installation.

B. Protect installed fixtures from damage during construction period.

DEMONSTRATION:

A. The Installer shall perform an insulation resistance test on the lighting wiring before energizing and verify correct operation.

WARRANTY:

A. Submit standard written limited warranty from luminaire manufacturer agreeing to replace luminaires or electrical components that fail in materials or workmanship within the specified warranty period.

B. Warranty period: 5 years from date of manufacture for dock bollard lighting fixture, factory-installed electrical component system; a minimum of two years for other luminaire components. Dock bollard lighting system consisting of a core and coil ballast, starting aid (where required), capacitor and wiring inside fixtures will carry a warranty from the manufacturer covering defects in material and workmanship for five years from the date of manufacture.

All other components shall carry a manufacture warranty covering defects in material

and workmanship for a minimum of two years from the date of manufacture.

C. The warranty shall not deprive the Owner of other rights or remedies the Owner may have under other provisions of the Contract, and is in addition to and running concurrent with other warranties made by the Contractor under requirements of the Contract.

10.04.04 – Method of Measurement: This work shall be measured for payment by the number of luminaire bollards of the type called for installed and accepted.

10.04.05 – Basis of Payment: This work shall be paid for at the contract unit price for each “Dock Bollard” of the type called for, with fittings, conduit and junction box, complete in place, which price shall include all materials, labor, tools and equipment.

1003593A – DECORATIVE LIGHT STANDARD AND LUMINAIRE

Article 10.03.01 – Description:

This item shall consist of furnishing and installing a decorative light standard of the type specified, brackets, dampers, grounding wire and connections complete in place, at the locations and to the dimensions and details shown on the plans or as directed by the Engineers.

10.03.02 – Materials:

Subject to conformance with the specifications lighting manufacturers offering products that may be incorporated in the work are the following or an approved equal:

1. Holophane
2. Antique Street Lamps

Subject to compliance with specification requirements, lamp manufacturers offering products that may be incorporated in the work are the following or an approved equal:

1. General Electric
2. Philips
3. Osram (Sylvania)

Any proposed substitution shall be submitted to the Engineer for approval 10 days prior to the bid opening. No substitutions shall be assumed to be acceptable without being properly submitted to the Engineer for approval. Requests for substitution shall contain the following:

1. Sample of substitute and specified products.
2. A list of three projects using the proposed products in a similar application.
3. An item by item comparison of the proposed substitute fixture with the products specified.
4. Copy of warranty information.
5. Comprehensive specifications describing proposed substitution, including mechanical construction and electrical components including input wattage, ballast factor and efficiency of the ballast.
6. Point-by-point calculations for the project area.

LUMINAIRE:

The Boardwalk luminaire is styled to replicate the "teardrop" luminaires that lighted boulevards in the first half of this century. Designed for light control and ease of installation and maintenance, the Boardwalk has a precision optical system for true street lighting performance. The luminaire shall be Holophane's catalog number BWU 15AHP 12 N 2 DS. Boardwalk Style Luminaire, 150 Watt High Pressure Sodium, Mogul Base Socket, voltage TBD, UL and CSA Listed, Bowl Type II Glass Door, Decorative Deep Skirt, Green Finish, with Sylvania (LU150/ECO) 150HP Clear Mogul Base Lamp

The wiring chamber has a 1-1/2 inch, gasketed, NPT threaded entry for pendant mounting. A stainless steel set screw locks the unit in position. A three station terminal block will accept #14 through #2 wires and is prewired to one half of the plug assembly that connects to the removable electrical module.

The electrical / reflector assembly hinges down from the wiring chamber for ease in wiring and to facilitate the removal of the electrical module. The assembly is secured in place by a stainless steel latch. The unitized electrical module consists of the ballast mounted to an aluminum plate that is easily removed by loosening two screws in keyhole slots. The disconnect plug connects the ballast to the terminal block in the wiring chamber. The socket is street lighting grade with nickel plated lamp grip shell, center contact backed by a coiled spring and glazed porcelain body. The anodized and brightened reflector is formed with flutes to control voltage rise in the lamp and to work in conjunction with the refractor to provide the desired distribution of light.

The cast aluminum door cradles a bowl shaped, thermal resistant borosilicate glass refractor that controls the light to provide an I.E.S. asymmetric full cut off distribution. The combination of reflector, refractor and vertical burning lamp maximize efficiency and uniformity of illumination while controlling luminaire brightness. The refractor assembly and decorative skirt assembly hinges from the electrical /reflector assembly and is latched by a stainless steel, captive, wing nut assembly.

Ballast shall be 150 Watt High Pressure Sodium High Power Factor (+90%) high reactance type. Ballasts shall be multi-tap. Ballasts shall have a published Ballast Factor of 1.0 for production ballasts, and a non-prorated warranty for 6 years. Ballasts shall have a maximum input wattage of 188 watts when operating at 120 volts and a minimum ambient starting temperature of –20 degrees F.

The luminaire is finished green with polyester powder paint applied after a seven stage pretreatment process to insure maximum durability. All castings utilize alloy #356 aluminum for maximum corrosion resistance and all exposed hardware is stainless steel.

CUL/U.L. listing suitable for wet locations at 40 degrees C.

LIGHTING POST, ROADWAY ARM AND ARM FITTER:

POST

The lighting post shall be constructed of a round, tapered, steel shaft and cast iron clamshell base. The post shaft shall be Holophane catalog number RTS2270F. The pole shall be 22'-0" tall, 7" diameter at the base tapering to 3.5" at the pole top, finished green. The shaft shall have provisions for the installation of a weatherproof GFI receptacle. The two-piece cast iron clamshell base shall be Holophane catalog number NY20CSB, 20" in diameter.

The pole shall conform to the requirements of the "Standard specifications for structural supports for highway signs, luminaires, and traffic signals, either 1994 or 2001 edition (as specified by the customer) by the American Association of State Highway and Transportation Officials for a basic wind speed as specified supporting luminaires and other accessories as specified by the customer.

Wind-Load Strength: 90 mph and 1.3 gust factor for total support assembly, including pole, base, and anchorage, where used, to carry the fixtures, supports, and appurtenances at the indicated heights above grade without deflection or whipping.

The shaft shall have welds conforming to applicable AWS structural welding code. Pole shaft is one piece, low carbon alloy steel per ASTM A595, Grade A with 55,000- PSI minimum yield strength. Pole base shall be per ASTM A36 and shall telescope pole shaft and be circumferentially welded top and bottom. Hand hole is 2" x 4" minimum, cover and fasteners are included. A grounding provision shall be immediately accessible through hand hole, ½-13 threads.

The clamshell base shall be North Yorkshire series, constructed of cast iron ASTM A-48 Class 30.

ROADWAY ARM
The Boston Harbour Roadway arms shall be Holophane catalog number BHC 72/1

CA/DG. The arm shall be all aluminum construction with a decorative support strap. All

mounting hardware shall be tamper resistant stainless steel. The finish color shall be

green.

ARM FITTER

The Boston Harbour style decorative arm fitter is designed to replicate the look of period cast arm mounts. The decorative arm fitter shall be Holophane's catalog number BHLF/200-SCA/GN. Boston Harbour decorative arm fitter, to slip fit 2" nominal pipe, cast aluminum standard version, green finish

The fitter body, top cover, and threaded male connector shall be heavy wall cast aluminum. All mounting and locking hardware shall be stainless steel.
The fitter is provided with two U-bolts with washers and nuts and two leveling set screws that lock the fitter to a 2" horizontal arm and allow a +/- 5 degree adjustment from horizontal to the fitter. On the Standard version, a pivoting 1-1/2NPT threaded male connection provides a +/- 4 degree adjustment from vertical. Three (3) stainless steel set screws lock the threaded male connector in place. The cast top cover can be removed to allow access to the inside of the fitter to facilitate wire connections. Three (3) stainless steel set screws lock the cover to the fitter.

BANNER ARM

The banner arm shall be BA26H/1/CO-5EB-CA/DG/EB/CO. The arm shall be all aluminum construction with a clamp on eye bolt to secure a banner. All mounting hardware shall be tamper resistant stainless steel. The finish color shall be green.

FINISH:

Metal Parts: Manufacturer's standard finish except as otherwise indicated. For fixtures mounted on poles, match finish of poles and luminaire fixtures. Finish applied over corrosion-resistant primer, free of streaks, runs, holidays, stains, blisters, and similar defects. Remove poles, fixtures, and accessories showing evidence of corrosion or finish failure during Project warranty period and replace with new items.

The pole, banner arms, cross arms, and luminaire shall be finished by the manufacturer with polyester powder paint applied after a seven stage pretreatment process to insure maximum durability.

All prepared metal surfaces shall be free of visible defects and blemishes prior to finishing. The finish color on all metal surfaces, (except hardware) shall be dark green. As approved by the Engineer.

Other Parts: Manufacturer's standard finish except as otherwise indicated.

1. The lighting system shall operate from 208 V.
2. Fixtures, receptacles, switches and all other applicable lighting system components and details shall be as shown on the Contract plans or as specified.

2. Each lighting unit shall comply in all respects with the Specifications and the Contract plans. All fixtures shall be UL listed.
3. The Installer shall check field conditions for interference or unusual conditions that affect the performance of his work and shall notify the Owner of such conditions and request direction. Contractor shall verify locations of new lighting equipment with the Owner prior to proceeding.

10.03.03 – Construction Methods: Shall conform to Articles 10.03.03, 10.04.03 and as supplemented in these provisions:

SUBMITTALS:

Shop Drawings and Materials Lists: Submit six (6) sets of shop drawings, catalog cuts, photometric curves, illustrations, specifications, schedules and material lists showing complete details of all proposed equipment for approval prior to manufacture, ordering or installation of said items. Point-by-point calculations shall be submitted upon request of the Owner. At the completion of the project, the Contractor shall provide to the Owner a schematic wiring diagram documenting the as-built conditions, including underground connections and other new work.

A detail for a typical concrete base is provided in the Exhibits for bidding purposes, with wind load data for luminaire/pole combination. The Contractor shall provide drawings and details of concrete bases for use with proposed poles and luminaires, based on local field conditions, stamped by a Professional Engineer, registered in the State of Connecticut.

As part of the submittal process, Contractor shall provide orientation drawings for owner's approval, showing height and orientation of pole mounted accessories,

REGULATIONS, PERMITS, FEES:

All work shall be done in strict accordance with the latest edition of the NEC, rules and regulations of the State and local authorities having jurisdiction over such work, and regulations of the utility companies in force where the work is being installed. All permits shall be obtained and paid for by the Contractor.

PROTECTION OF EQUIPMENT AND WORK

The Contractor shall adequately protect all equipment, tools and work on premises against theft, destruction by weather or other causes, and shall assume full responsibility for such protection until final acceptance by the Owner. All material shall be placed or stored in such a location so that it will not be a hazard to the traveling public.

The Contractor shall provide adequate protection for persons and property in the various locations and phases of the work. Barricades or covers shall be used, where deemed necessary to promote safety.

REPAIRS TO COMPLETED AND EXISTING CONSTRUCTION

The Contractor shall be liable for any and all damage to the highway, sidewalks or any part thereof including all appurtenances, slopes, pavements and structures wherever such damage is caused by the operations or negligence of the Contractor.

Any damage caused by the by the Contractor's operations to partially or fully completed work shall be repaired at the expense of the Contractor, to match existing adjacent areas to the satisfaction of the Owner.

QUALIFICATIONS:

All work shall be done by qualified and experienced mechanics of each labor class, holding the appropriate occupational license as required by the State of Connecticut.

QUALITY ASSURANCE:

Comply with applicable local code requirements of the authority having jurisdiction and NEC Articles 225, 250, 410, and 501 as applicable to installation.

Comply with requirements of UL standards, including Standards 484A and B, pertaining to exterior lighting fixtures. Provide exterior lighting fixtures and components which are UL-listed and labeled.

Comply with applicable requirements of NFPA 780, "Lightning Protection Code," pertaining to installation of exterior lighting fixtures.

Comply with ANSI C2, "National Electrical Safety Code."

SEQUENCING AND SCHEDULING:

Coordinate with other electrical work including temporary interruptions of power, conductors & cables, raceways & boxes to properly interface installation of exterior lighting fixtures with other work.

All work shall be approved and inspected by the authorities having jurisdiction prior to concealment.

STORAGE AND HANDLING OF POLES:

General: Store poles on decay-resistant treated skids at least 1 ft. above grade and vegetation. Support pole to prevent distortion and arrange to provide free air circulation.

Metal Poles: Retain factory-applied pole wrappings until just before pole installation. For poles with nonmetallic finishes, handle with web fabric straps.

EXAMINATION:

Examine areas and conditions under which lighting fixtures are to be installed, and substrate that will support lighting fixtures. Notify Owner in writing of conditions detrimental to proper completion of the work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to Installer and with approval of Owner.

COORDINATION WITH OWNER AND UTILITY COMPANY:

The Contractor shall assume all charges and make all necessary arrangements with the power company for the required electrical services necessary for the energizing of the roadway lighting equipment the contractor shall comply with the utility company regulations and shall make arrangements with the utility company to connect and disconnect the power as required. Any charges incurred shall be paid by the Contractor.

The Contractor shall notify and coordinate with the Owner and the utility company sufficiently in advance of any disruption of power. Under no circumstances shall the Contractor enter any manhole or place an attachment to a utility company pole without a utility company representative present.

Existing poles and luminaires owned by the Utility Company shall be carefully removed and delivered to the utility companies designated storage yard.

INSTALLATION:

Install all luminaires, lamps and associated supports, fittings, conduit, boxes, wiring and grounding conductors as called for in these specifications, and shown on the Contract

plans, as required and in accordance with the manufacturer's instructions and recommendations.

Prior to the issuance of the Certificate of Compliance, thoroughly clean the luminaires, lamps and accessories and shall replace all lamps which were used for a period equivalent to 50 percent or more of their rated life, at no additional cost.

All fixtures shall be aligned and directed as shown or so as to illuminate the desired area properly. Fixtures shall be directly and rigidly mounted on their supporting structures using bolted connections.

Where aluminum contacts concrete or dissimilar metal, separate contact surfaces with gasket, non-absorptive tape or bituminous coating to prevent corrosion. Use stainless steel fasteners.

Fixtures shall be mounted plumb, level, and in straight lines. Fixtures shall be installed accurately as to line and level. Fastenings and supports shall be firmly set so that the fixtures will not be distorted by handling incident to normal maintenance. All parts including lamps shall be secured to prevent falling or dislocation.

Lighting fixtures shall be positioned to clear all obstructions.

All auxiliary steel, supports and brackets of all kinds for safely erecting the fixtures shall be furnished and installed in place by the Installer.

Where coordination with other equipment is necessary some departure from the locations shown may be permitted on approval of Owner.

All lighting units when installed shall be set true and shall be free of leaks, warps, dents or other imperfections.

All lighting fixtures shall be directly grounded to the equipment grounding system by means of a conductor of size not less than that required by NEC. If insulated, the ground conductor insulation shall be colored green.

Taps and splices shall be made with insulated wire nut connectors of the setscrew or spring type or with indent compression type connectors. Solid wire shall be terminated at screw type connections by looping around the terminal screw. At panelboards, solid wire may be terminated using screw type pressure terminals; stranded wire may be terminated using saddle type pressure terminals.

Install poles plumb. Provide shims or double nits to adjust plumb. Grout around each base.

CUTTING AND PATCHING

The Contractor shall be responsible for removal of existing concrete foundations where required, and cutting, trenching, backfill and patching of roadway and sidewalk surfaces to match existing adjacent surfaces. Saw cutting shall be used to the greatest extent possible. Contractor shall backfill trenches and foundations with suitable material, in accordance with utility company and Owner requirements

GROUNDING:

Provide equipment grounding connections for exterior lighting fixtures as per NEC requirements.

FIELD QUALITY CONTROL:

Replace defective and burned out lamps for a period of one year following the Date of Certificate of Compliance.

Furnish stock or replacement lamps amounting to 15 percent, but not less than 4 lamps in each case, of each type and size lamp used in each type fixture. Deliver replacement stock as directed to Owner's storage space.

The Installer is not responsible for the footcandles of illumination provided by the completed systems. However, if after the lighting is installed and in operation, any areas are noted which are obviously under or over lighted, the Installer shall promptly advise the Owner and, if required, make changes as directed in writing by the Owner.

Fixtures shall be protected and maintained in good condition during construction. At the completion of the work, all fixtures shall be cleaned, inspected, and repaired, or replaced if damaged, and a complete set of new lamps shall be installed. High intensity discharge lamps shall be "burnt in" for at least 100 hr prior to final inspection.

ADJUSTING AND CLEANING:

Clean lighting fixtures of dirt and debris upon completion of installation.

Protect installed fixtures from damage during construction period.

DEMONSTRATION:

The Installer shall perform an insulation resistance test on the lighting wiring before energizing and verify correct operation.

WARRANTY:

Submit standard written limited warranty from luminaire manufacturer agreeing to replace luminaires or electrical components that fail in materials or workmanship within the specified warranty period.

Warranty period: 6 years from date of manufacture for HID fixture, factory-installed electrical component system; a minimum of two years for other luminaire components. HID lighting system consisting of a core and coil ballast, starting aid (where required), capacitor and wiring inside HID fixtures will carry a warranty from the manufacturer covering defects in material and workmanship for five years from the date of manufacture.

All other components shall carry a manufacture warranty covering defects in material and workmanship for a minimum of two years from the date of manufacture.

The warranty shall not deprive the Owner of other rights or remedies the Owner may have under other provisions of the Contract, and is in addition to and running concurrent with other warranties made by the Contractor under requirements of the Contract.

10.03.04 – Method of Measurement: This work shall be measured for payment by the number of decorative light standards with luminaries, bracket arms, receptacles, etc. of the type called for installed and accepted.

10.03.05 – Basis of Payment: This work will be paid for at the contract unit price for each “Decorative Light Standard and Luminiare” of which includes all bracket arms, accessories, receptacles, etc., of the type called for, complete in place, which price shall include all materials, labor, tools and equipment.

1004934A - HIGH PRESSURE SODIUM LUMINAIRE WITH INTEGRAL BALLAST

Article 10.04.01 - Description: This project includes new decorative utility pole mounted street lighting arm brackets and luminaires to replace existing street lighting on Water Street, as indicated on the Drawings. The contractor shall remove existing luminaries and brackets and furnish new luminaries and brackets, and electrical connections to existing utility company services at locations indicated in the plans. Work shall include all associated utility coordination work. It is the intent of this project to call for a complete job, resulting in a properly installed and operating street lighting system.

10.04.02 – Materials:
Fixtures and all other applicable lighting system components and details shall be as shown on the Contract plans or as specified. Each lighting unit shall comply in all respects with the Specifications and the Contract plans. All fixtures shall be UL listed. The Installer shall check field conditions for interference or unusual conditions that effect the performance of his work and shall notify the Owner of such conditions and request direction. Contractor shall verify locations of new lighting equipment with the Owner prior to proceeding.

MANUFACTURERS:

Available Manufacturers: Subject to compliance with specification requirements, lighting manufacturers offering products that may be incorporated in the work are the following or an approved equal:

1. Holophane
2. Lumec

Available Manufacturers: Subject to compliance with specification requirements, lamp manufacturers offering products that may be incorporated in the work are the following or an approved equal:

1. General Electric
2. Philips
3. Osram (Sylvania)

Any proposed substitution shall be submitted to the Engineer for approval 10 days prior to the bid opening. No substitutions shall be assumed to be acceptable without being properly submitted to the Engineer for approval. Requests for substitution shall contain the following:

1. Sample of substitute and specified products.

2. A list of three projects using the proposed products in a similar application.
3. An item by item comparison of the proposed substitute fixture with the products specified.
4. Copy of warranty information.
5. Comprehensive specifications describing proposed substitution, including mechanical construction and electrical components including input wattage, ballast factor and efficiency of the ballast.
6. Point-by-point illumination calculations for the project area.

FINISH

Metal Parts: Manufacturer's standard finish except as otherwise indicated. For fixtures mounted on poles, match finish of poles and luminaire fixtures. Finish applied over corrosion-resistant primer, free of streaks, runs, holidays, stains, blisters, and similar defects. Remove poles, fixtures, and accessories showing evidence of corrosion or finish failure during Project warranty period and replace with new items.

Other Parts: Manufacturer's standard finish except as otherwise indicated.

The bracket, slipfitter, and luminaire shall be finished by the manufacturer with polyester powder paint applied after a seven stage pretreatment process to insure maximum durability.

All prepared metal surfaces shall be free of visible defects and blemishes prior to finishing. The finish on all metal surfaces, (except hardware) shall be as follows:

All cast iron surfaces shall be cleaned and finished as follows:

Surface preparation: Shall be abrasive blast cleaned so that the surface profile is 1.9 mils maximum.

Primer: Sherwin Williams wash primer green P60G-2 catalyzed vinyl or Carboline 1037WP, one coat applied at a uniform film thickness of 0.4 mil dry, or approved equal.

Finish: Sherwin Williams "Polane" F-63 series co reacted polyurethane enamel or Carboline 139, two coats applied at a uniform film thickness of 1.25 mil per coat and 2.5 mil total or approved equal.

Color: Color shall be Dark Green. As approved by the Engineer.

DECORATIVE LUMINAIRE

General Description

The Boardwalk luminaire is styled to replicate the "teardrop" luminaires that lighted boulevards in the first half of this century. Designed for light control and ease of installation and maintenance, the Boardwalk has a precision optical system for true street lighting performance. The luminaire shall be Holophane's catalog number BWU 250HP 12 N 2 DS P27 R. Boardwalk Style Luminaire, 250 Watt High Pressure Sodium, Mogul Base Socket, voltage TBD, UL and CSA Listed, Teardrop Type II Glass Door, NEMA Twistlock Photocontrol Receptacle, Decorative Deep Skirt, DTL Twistlock Photocontol Voltage TBD, Dark Green Finish with 250HP Clear Mogul Base "O" TCLP Compliant Lamp.

Wiring Chamber

The wiring chamber has a 1-1/2 inch, gasketed, NPT threaded entry for pendant mounting. A stainless steel set screw locks the unit in position. A three station terminal block will accept #14 through #2 wires and is prewired to one half of the plug assembly that connects to the removable electrical module.

Electrical/Reflector Assembly

The electrical / reflector assembly hinges down from the wiring chamber for ease in wiring and to facilitate the removal of the electrical module. The assembly is secured in place by a stainless steel latch. The unitized electrical module consists of the ballast mounted to an aluminum plate that is easily removed by loosening two screws in keyhole slots. The disconnect plug connects the ballast to the terminal block in the wiring chamber. The socket is street lighting grade with nickel plated lamp grip shell, center contact backed by a coiled spring and glazed porcelain body. The anodized and brightened reflector is formed with flutes to control voltage rise in the lamp and to work in conjunction with the refractor to provide the desired distribution of light.

Refractor/Door Assembly

The cast aluminum door cradles a bowl shaped, thermal resistant borosilicate glass refractor that controls the light to provide an I.E.S. asymmetric full cut off distribution. The combination of reflector, refractor and vertical burning lamp maximize efficiency and uniformity of illumination while controlling luminaire brightness. The refractor assembly and decorative skirt assembly hinges from the electrical /reflector assembly and is latched by a stainless steel, captive, wing nut assembly.

Photocontrol

The fixture will be equipped with a NEMA twist lock photocontrol receptacle integral to the fixture housing.

Ballast
250 watt HPS ballasts are Lead type. Ballast factor is 1.0.

Finish/Material
The luminaire is finished dark green with polyester powder paint applied after a seven stage pretreatment process to insure maximum durability. All castings utilize alloy #356 aluminum for maximum corrosion resistance and all exposed hardware is stainless steel.

CUL/U.L Listing
CUL/U.L. listing suitable for wet locations at 40 degrees C.

DECORATIVE ARM FITTER

General Description
The Boston Harbour style decorative arm fitter is designed to replicate the look of period cast arm mounts. The decorative arm fitter shall be Holophane's catalog number BHLF/200-SCA/GN. Boston Harbour decorative arm fitter, to slip fit 2" nominal pipe, cast aluminum standard version, dark green finish.

Material
The fitter body, top cover, and threaded male connector shall be heavy wall cast aluminum. All mounting and locking hardware shall be stainless steel.

Installation
The fitter is provided with two U-bolts with washers and nuts and two leveling set screws that lock the fitter to a 2" horizontal arm and allow a +/- 5 degree adjustment from horizontal to the fitter. On the Standard version, a pivoting 1-1/2NPT threaded male connection provides a +/- 4 degree adjustment from vertical. Three (3) stainless steel set screws lock the threaded male connector in place. The cast top cover can be removed to allow access to the inside of the fitter to facilitate wire connections. Three (3) stainless steel set screws lock the cover to the fitter.

Finish

The fitter is finished dark green with polyester powder paint applied after the seven stage pretreatment process to insure maximum durability.

DECORATIVE ARM BRACKET

General Description

The Luminaire bracket shall have an aluminum pipe arm. The bracket shall be Valmont catalog number ACSA-200-60. Wood utility pole decorative bracket, 72" length, cast aluminum, dark green finish. The bracket shall utilize the through bolt attachment in conjuction with the bottom two lag bolts installed in the bottom holes of the bracket.

Material

The luminaire bracket shall be 2 ½" aluminum pipe (6036-T6 alloy). The tube shall be heat treated after bending to produce a T6 temper.

Dimensions

The luminaire bracket shall measure 72" from the pole to luminaire cente.

Finish

The fitter is finished dark green with polyester powder paint applied after the seven stage pretreatment process to insure maximum durability.

10.04.03 – Construction Methods: Shall conform to Articles 10.03.03, 10.04.03 and as supplemented in these provisions:

SUBMITTALS:

Shop Drawings and Materials Lists: Submit six (6) sets of shop drawings, catalog cuts, photometric curves, illustrations, specifications, schedules and material lists showing complete details of all proposed equipment for approval prior to manufacture, ordering or installation of said items. Point-by-point calculations shall be submitted upon request of the Owner. At the completion of the project, the Contractor shall provide to the Owner a schematic wiring diagram documenting the as-built conditions, including all work and connections.

As part of the submittal process, the Contractor shall provide orientation drawings for the owner's approval, depicting the height and orientation of pole mounting and all information required, including approximate locations of existing utilities in relation to the decorative luminaire, bracket and arm.

REGULATIONS, PERMITS, FEES:

All work shall be done in strict accordance with the latest edition of the NEC, rules and regulations of the State and local authorities having jurisdiction over such work, and regulations of the utility companies in force where the work is being installed. All permits shall be obtained and paid for by the Contractor.

PROTECTION OF EQUIPMENT AND WORK

The Contractor shall adequately protect all equipment, tools and work on premises against theft, destruction by weather or other causes, and shall assume full responsibility for such protection until final acceptance by the Owner. All material shall be placed or stored in such a location so that it will not be a hazard to the traveling public.

The Contractor shall provide adequate protection for persons and property in the various locations and phases of the work. Barricades or covers shall be used, where deemed necessary to promote safety.

REPAIRS TO COMPLETED AND EXISTING CONSTRUCTION

The Contractor shall be liable for any and all damage to the highway, sidewalks or any part thereof including all appurtenances, slopes, pavements and structures wherever such damage is caused by the operations or negligence of the Contractor.

Any damage caused by the by the Contractor's operations to partially or fully completed work shall be repaired at the expense of the Contractor, to match existing adjacent areas to the satisfaction of the Owner.

QUALIFICATIONS:

All work shall be done by qualified and experienced mechanics of each labor class, holding the appropriate occupational license as required by the State of Connecticut.

QUALITY ASSURANCE:

Comply with applicable local code requirements of the authority having jurisdiction and NEC Articles 225, 250, 410, and 501 as applicable to installation.

Comply with requirements of UL standards, including Standards 484A and B, pertaining to exterior lighting fixtures. Provide exterior lighting fixtures and components which are UL-

listed and labeled.

Comply with applicable requirements of NFPA 780, "Lightning Protection Code," pertaining to installation of exterior lighting fixtures.

Comply with ANSI C2, "National Electrical Safety Code."

SEQUENCING AND SCHEDULING:

Coordinate with other electrical work including temporary interruptions of power, conductors & cables, raceways & boxes to properly interface installation of exterior lighting fixtures with other work.

All work shall be approved and inspected by the authorities having jurisdiction prior to concealment.

STORAGE AND HANDLING:

General: Store luminaire brackets on decay-resistant treated skids at least 1 ft. above grade and vegetation. Support pole to prevent distortion and arrange to provide free air circulation.

EXAMINATION:

Examine areas and conditions under which lighting fixtures are to be installed, and substrate that will support lighting fixtures. Notify Owner in writing of conditions detrimental to proper completion of the work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to Installer and with approval of Owner.

COORDINATION WITH OWNER AND UTILITY COMPANY:

The Contractor shall assume all charges and make all necessary arrangements with the power company for the required electrical services necessary for the energizing of the roadway lighting equipment. The contractor shall comply with the utility company regulations and shall make arrangements with the utility company to connect and disconnect the power as required. Any charges incurred shall be paid by the Contractor.

The Contractor shall notify and coordinate with the Owner and the utility company sufficiently in advance of any disruption of power. Under no circumstances shall the

Contractor enter any manhole or place an attachment to a utility company pole without a utility company representative present.

Existing luminaires and brackets owned by the City of Groton shall be carefully removed and disposed of by the Contractor.

INSTALLATION:

Install all luminaires, lamps and associated supports, fittings, conduit, boxes, wiring and grounding conductors as called for in these specifications, and shown on the Contract plans, as required and in accordance with the manufacturer's instructions and recommendations.

Prior to the issuance of the Certificate of Compliance, thoroughly clean the luminaires, lamps and accessories and shall replace all lamps which were used for a period equivalent to 50 percent or more of their rated life, at no additional cost.

All fixtures shall be aligned and directed as shown or so as to illuminate the desired area properly. Fixtures shall be directly and rigidly mounted on their supporting structures using bolted connections.

Where aluminum contacts concrete or dissimilar metal, separate contact surfaces with gasket, non-absorptive tape or bituminous coating to prevent corrosion. Use stainless steel fasteners.

Fixtures shall be mounted plumb, level, and in straight lines. Fixtures shall be installed accurately as to line and level. Fastenings and supports shall be firmly set so that the fixtures will not be distorted by handling incident to normal maintenance. All parts including lamps shall be secured to prevent falling or dislocation.

Lighting fixtures shall be positioned to clear all obstructions.

All auxiliary steel, supports and brackets of all kinds for safety erecting the fixtures shall be furnished and installed in place by the Installer.

Where coordination with other equipment is necessary some departure from the locations shown may be permitted on approval of Owner.

All lighting units when installed shall be set true and shall be free of leaks, warps, dents or other imperfections.

All lighting fixtures shall be directly grounded to the equipment grounding system by means of a conductor of size not less than that required by NEC. If insulated, the ground conductor insulation shall be colored green.

Taps and splices shall be made with insulated wire nut connectors of the setscrew or spring type or with indent compression type connectors. Solid wire shall be terminated at screw type connections by looping around the terminal screw. At panelboards, solid wire may be terminated using screw type pressure terminals; stranded wire may be terminated using saddle type pressure terminals.

GROUNDING:

Provide equipment grounding connections for exterior lighting fixtures as per NEC requirements.

FIELD QUALITY CONTROL:

Replace defective and burned out lamps for a period of one year following the Date of Certificate of Compliance.

Furnish stock or replacement lamps amounting to 15 percent, but not less than 4 lamps in each case, of each type and size lamp used in each type fixture. Deliver replacement stock as directed to Owner's storage space.

The Installer is not responsible for the footcandles of illumination provided by the completed systems. However, if after the lighting is installed and in operation, any areas are noted which are obviously under or overlighted, the Installer shall promptly advise the Owner and, if required, make changes as directed in writing by the Owner.

Fixtures shall be protected and maintained in good condition during construction. At the completion of the work, all fixtures shall be cleaned, inspected, and repaired, or replaced if damaged, and a complete set of new lamps shall be installed. High intensity discharge lamps shall be "burnt in" for at least 100 hr prior to final inspection.

ADJUSTING AND CLEANING:

Clean lighting fixtures of dirt and debris upon completion of installation.

Protect installed fixtures from damage during construction period.

DEMONSTRATION:

The Installer shall perform an insulation resistance test on the lighting wiring before energizing and verify correct operation.

WARRANTY:

Submit standard written limited warranty from luminaire manufacturer agreeing to replace luminaires or electrical components that fail in materials or workmanship within the specified warranty period.

Warranty period: 5 years from date of manufacture for HID fixture, factory-installed electrical component system; a minimum of two years for other luminaire components. HID lighting system consisting of a core and coil ballast, starting aid (where required), capacitor and wiring inside HID fixtures will carry a warranty from the manufacturer covering defects in material and workmanship for five years from the date of manufacture.

All other components shall carry a manufacture warranty covering defects in material and workmanship for a minimum of two years from the date of manufacture.

The warranty shall not deprive the Owner of other rights or remedies the Owner may have under other provisions of the Contract, and is in addition to and running concurrent with other warranties made by the Contractor under requirements of the Contract.

10.04.04 – Method of Measurement: This work shall be measured for payment by the number of light standards with luminaries of the type called for installed and accepted.

10.04.05 – Basis of Payment: This work shall be paid for at the contract unit price for each “High Pressure Sodium Luminaire with Integral Ballast” of which includes the removal of existing utility pole mounted luminaires & mounting arms, all accessories, etc. of the type called for, complete in place, which price shall include all materials, utility costs, labor, tools and equipment.

1008115A – 2” RGS CONDUIT IN TRENCH

Article 10.08.03.1 – Description: (Addition to existing Standard Specification Section 10.08 Electrical Conduits)

This project includes new conduit stub-ups for the utility service installation as indicated on the Drawings. This specification shall follow all requirements as indicated in Standard Specification Form 816; Section 10.08.03.1 with the addition of vertical 2” RGS conduit stub-ups above finished grade on service utility poles. The contractor shall furnish and install all conduits as shown on the drawings. All work shall be coordinated with existing utilities and the scope of work for the Streetscape project. Final locations and requirements shall be as directed by the respective utility companies and the Streetscape project. It is the intent of this project to properly install a complete and useable infrastructure for the forthcoming wiring of the utilities. shall be paid for under the conduit in trench item by linear foot of conduit installed.

1008119A – 4” RGS CONDUIT IN TRENCH

Article 10.08.03.1 – Description: (Addition to existing Standard Specification Section 10.08 Electrical Conduits)

This project includes new conduit stub-ups for the utility service installation as indicated on the Drawings. This specification shall follow all requirements as indicated in Standard Specification Form 816; Section 10.08.03.1 with the addition of vertical 4” RGS conduit stub-ups above finished grade on service utility poles. The contractor shall furnish and install all conduits as shown on the drawings. All work shall be coordinated with existing utilities and the scope of work for the Streetscape project. Final locations and requirements shall be as directed by the respective utility companies and the Streetscape project. It is the intent of this project to properly install a complete and useable infrastructure for the forthcoming wiring of the utilities. Stub ups shall be paid for under the conduit in trench item by linear foot of conduit installed.

1008645A – 4” 3 CELL INNERDUCT

Article 10.08.01 – Description: (Addition to existing Standard Specification Section 10.08 Electrical Conduits)

This project includes new innerduct assemblies for installation within conduit for cable company infrastructure as indicated on the Drawings. The contractor shall furnish and install all units as shown on the drawings. All work shall be coordinated with existing utilities and the scope of work for the Streetscape project. Final locations and requirements shall be as directed by the respective utility companies and the Streetscape project. It is the intent of this project to properly install a complete and useable infrastructure for the forthcoming wiring of the utilities.

10.08.02 – Materials:

MANUFACTURERS:

A. Available Manufacturers: Subject to compliance with specification requirements, innerduct manufacturers offering products that may be incorporated in the work are the following or an approved equal:

1. Maxcell

B. Any proposed substitution shall be submitted to the Engineer for approval 10 days prior to the bid opening. No substitutions shall be assumed to be acceptable without being properly submitted to the Engineer for approval. Requests for substitution shall contain the following:

1. Sample of substitute and specified products.
2. A list of three projects using the proposed products in a similar application.
3. An item-by-item comparison of the proposed substitute unit with the products specified.
4. Copy of warranty information.
5. Comprehensive specifications describing proposed substitution, including construction and application.

MATERIALS:

A. The innerduct shall be a multi-cell, flexible fabric system for installation within conduit systems. Innerduct shall be installed with pullstrings as required for cable pulling..

10.08.03 – Construction Methods: Shall conform to Articles 10.08.03 and supplemented in these provisions:

EXAMINATION OF SITE AND CONTRACT DOCUMENTS

Before submitting prices or beginning work, thoroughly examine the site and the Contract Documents.

No claim for extra compensation will be recognized if difficulties are encountered which would have been revealed by examination of site conditions and Contract Documents prior to executing Contract.

Where discrepancies occur within Contract Documents, notify Engineer, in writing, of discrepancy and request clarification. Until notified of Engineer's decision, include item or arrangement of better quality, greater quantity or higher cost in Contract price.

For material, device and equipment identified on Contract Drawings by manufacturer and model: Check Specification for ancillary requirements such as pilot lights or alarms, and include same with furnished item. If Specifications require different model, notify Engineer of discrepancy and request clarification.

Notify Engineer, in writing, of materials and apparatus believed to be omitted, inadequate or unsuitable, or in violation of laws, ordinances, rules or regulations of authorities having jurisdiction. In absence of such written notice, it is mutually agreed that bid price for work under each Section has included the cost of items required for acceptable satisfactory functioning of entire system.

RECORD DRAWINGS

Furnish and keep on the job at all times, one complete and separate set of Contract Documents of the Electrical work.

As work progresses, record changes, revisions and additions to Electrical work clearly, neatly, accurately and promptly. Items to be indicated include but are not limited to:

- Dimensional change
- Revision to Drawing detail
- Changes made by Change Order
- Details not on original Contract Drawing
- Information on concealed elements which would be difficult to identify or measure later

Approval of requisition for payment for work installed will NOT be given unless supported by record prints as required above.

COORDINATION

Examine Contract Documents and coordinate with Contractor and other trades as necessary to facilitate the progress of the work.

Particular emphasis is placed on timely installation of major apparatus and furnishing of other trades and Contractor with relevant information.

Do NOT install a system until critical components of system and related systems have been coordinated and applicable shop drawings have been accepted.

10.08.04 – Method of Measurement: This work shall be measured for payment by the linear feet of innerduct system of the type called for installed and accepted.

10.08.05 – Basis of Payment: This work shall be paid for at the contract unit price for complete innerduct system of the type called for, complete in place, which price shall include all materials, labor, tools and equipment. Installation shall be complete and accepted for project requirements.

1008646A – 2” 3 CELL INNERDUCT

Article 10.08.01 – Description: (Addition to existing Standard Specification Section 10.08 Electrical Conduits)

This project includes new innerduct assemblies for installation within conduit for cable company infrastructure as indicated on the Drawings. The contractor shall furnish and install all units as shown on the drawings. All work shall be coordinated with existing utilities and the scope of work for the Streetscape project. Final locations and requirements shall be as directed by the respective utility companies and the Streetscape project. It is the intent of this project to properly install a complete and useable infrastructure for the forthcoming wiring of the utilities.

10.08.02 – Materials:

MANUFACTURERS:

A. Available Manufacturers: Subject to compliance with specification requirements, innerduct manufacturers offering products that may be incorporated in the work are the following or an approved equal:

1. Maxcell

B. Any proposed substitution shall be submitted to the Engineer for approval 10 days prior to the bid opening. No substitutions shall be assumed to be acceptable without being properly submitted to the Engineer for approval. Requests for substitution shall contain the following:

1. Sample of substitute and specified products.
2. A list of three projects using the proposed products in a similar application.
3. An item-by-item comparison of the proposed substitute unit with the products specified.
4. Copy of warranty information.
5. Comprehensive specifications describing proposed substitution, including construction and application.

MATERIALS:

A. The innerduct shall be a multi-cell, flexible fabric system for installation within conduit systems. Innerduct shall be installed with pullstrings as required for cable pulling..

10.08.03 – Construction Methods: Shall conform to Articles 10.08.03 and supplemented in these provisions:

EXAMINATION OF SITE AND CONTRACT DOCUMENTS

Before submitting prices or beginning work, thoroughly examine the site and the Contract Documents.

No claim for extra compensation will be recognized if difficulties are encountered which would have been revealed by examination of site conditions and Contract Documents prior to executing Contract.

Where discrepancies occur within Contract Documents, notify Engineer, in writing, of discrepancy and request clarification. Until notified of Engineer's decision, include item or arrangement of better quality, greater quantity or higher cost in Contract price.

For material, device and equipment identified on Contract Drawings by manufacturer and model: Check Specification for ancillary requirements such as pilot lights or alarms, and include same with furnished item. If Specifications require different model, notify Engineer of discrepancy and request clarification.

Notify Engineer, in writing, of materials and apparatus believed to be omitted, inadequate or unsuitable, or in violation of laws, ordinances, rules or regulations of authorities having jurisdiction. In absence of such written notice, it is mutually agreed that bid price for work under each Section has included the cost of items required for acceptable satisfactory functioning of entire system.

RECORD DRAWINGS

Furnish and keep on the job at all times, one complete and separate set of Contract Documents of the Electrical work.

As work progresses, record changes, revisions and additions to Electrical work clearly, neatly, accurately and promptly. Items to be indicated include but are not limited to:

- Dimensional change
- Revision to Drawing detail
- Changes made by Change Order
- Details not on original Contract Drawing
- Information on concealed elements which would be difficult to identify or measure later

Approval of requisition for payment for work installed will NOT be given unless supported by record prints as required above.

COORDINATION

Examine Contract Documents and coordinate with Contractor and other trades as necessary to facilitate the progress of the work.

Particular emphasis is placed on timely installation of major apparatus and furnishing of other trades and Contractor with relevant information.

Do NOT install a system until critical components of system and related systems have been coordinated and applicable shop drawings have been accepted.

10.08.04 – Method of Measurement: This work shall be measured for payment by the linear feet of innerduct system of the type called for installed and accepted.

10.08.05 – Basis of Payment: This work shall be paid for at the contract unit price for complete innerduct system of the type called for, complete in place, which price shall include all materials, labor, tools and equipment. Installation shall be complete and accepted for project requirements.

1010002A – HAND HOLES

1010003A – HAND HOLE UNIT (NOMINAL SIZE=32”X19”)

1010004A – HAND HOLE UNIT (NOMINAL SIZE=24”X13”)

1010005A – HAND HOLE UNIT (NOMINAL SIZE=18”X11”)

Article 10.10.01 – Description: (Addition to existing Standard Specification Section 10.10 Concrete Handholes).

This project includes new handholes for the power, cable, telephone and fire system infrastructure as indicated on the Drawings. The contractor shall furnish and install all units as shown on the drawings. All work shall be coordinated with existing utilities and the scope of work for the Streetscape project. Final locations and requirements shall be as directed by the respective utility companies and the Streetscape project. It is the intent of this project to properly install a complete and useable infrastructure for the forthcoming wiring of the utilities.

10.10.02 – Materials:

MANUFACTURERS:

A. Available Manufacturers: Subject to compliance with specification requirements, handhole manufacturers offering products that may be incorporated in the work are the following or an approved equal:

1. Quazite

B. Any proposed substitution shall be submitted to the Engineer for approval 10 days prior to the bid opening. No substitutions shall be assumed to be acceptable without being properly submitted to the Engineer for approval. Requests for substitution shall contain the following:

1. Sample of substitute and specified products.
2. A list of three projects using the proposed products in a similar application.
3. An item-by-item comparison of the proposed substitute unit with the products specified.
4. Copy of warranty information.
5. Comprehensive specifications describing proposed substitution, including construction and application.

MATERIALS:

A. General: Precast polymer concrete handholes, and all accessories as required, as specified in the as called for in the Contract documents, and as required by NEC.

B. Provide handholes as specified or equal to the following:

1. Cable service: Quazite catalog #PG1324BB18 handhole with no base and mouseholes as required. Provide extension with knockouts as required per drawings for conduit services. Covers shall be heavy duty with two bolts. Color shall be coordinated and specified with Streetscape project Contractor.
2. Telephone service: Quazite catalog #PG1324BB18 handhole with no base and mouseholes as required. Provide extension with knockouts as required per drawings for conduit services. Covers shall be heavy duty with two bolts. Color shall be coordinated and specified with Streetscape project Contractor.
3. Fire service: Quazite catalog #PG1118BB18 handhole with no base and knockouts as required per drawings for conduit services. Covers shall be heavy duty with two bolts. Color shall be coordinated and specified with Streetscape project Contractor.
4. Power service: Quazite catalog #PG1932BB18 handhole with no base and mouseholes as required. Provide extension with knockouts as required per drawings for conduit services. Covers shall be heavy duty with two bolts. Color shall be coordinated and specified with Streetscape project Contractor.
5. Site Lighting service: Quazite catalog #PG1118BB18 handhole with no base and mouseholes as required. Provide extension with knockouts as required per drawings for conduit services. Covers shall be heavy duty with two bolts. Color shall be coordinated and specified with Streetscape project Contractor.

C. All covers shall have project specific load ratings and labeling as detailed below:

1. Design load ratings shall be 8,000# over a 10” square with minimum test of 12,000#. Covers specified as standard duty for sidewalk application with occasional non-deliberate vehicular traffic.
2. Standard cover logos shall be provided as follows:
   a. Power handhole type ‘H’ (per drawings) shall be Quazite catalog option #17 (Electric).
   b. Exterior street luminaire handhole type ‘HS’ (per drawings) shall be Quazite catalog option #41 (Street Lighting).
   c. Telephone handhole type ‘HT’ (per drawings) shall be Quazite catalog option #43 (Telephone).
   d. Cable handhole type ‘HC’ (per drawings) shall be Quazite catalog option #10 (CATV).
   e. Fire service handhole type ‘HF’ (per drawings) shall be Quazite catalog custom option with “Fire”.

10.10.03 – Construction Methods: Shall conform to Articles 10.10.03 and supplemented in these provisions:

EXAMINATION OF SITE AND CONTRACT DOCUMENTS

Before submitting prices or beginning work, thoroughly examine the site and the Contract Documents. REFER TO DRAWING #E-3 FOR DETAILS OF UNIT(S) AND UTILITY REQUIREMENTS FOR USE AND CONSTRUCTION OF UNIT(S).

No claim for extra compensation will be recognized if difficulties are encountered which would have been revealed by examination of site conditions and Contract Documents prior to executing Contract.

Where discrepancies occur within Contract Documents, notify Engineer, in writing, of discrepancy and request clarification. Until notified of Engineer's decision, include item or arrangement of better quality, greater quantity or higher cost in Contract price.

For material, device and equipment identified on Contract Drawings by manufacturer and model: Check Specification for ancillary requirements such as pilot lights or alarms, and include same with furnished item. If Specifications require different model, notify Engineer of discrepancy and request clarification.

Notify Engineer, in writing, of materials and apparatus believed to be omitted, inadequate or unsuitable, or in violation of laws, ordinances, rules or regulations of authorities having jurisdiction. In absence of such written notice, it is mutually agreed that bid price for work under each Section has included the cost of items required for acceptable satisfactory functioning of entire system.

RECORD DRAWINGS

Furnish and keep on the job at all times, one complete and separate set of Contract Documents of the Electrical work.

As work progresses, record changes, revisions and additions to Electrical work clearly, neatly, accurately and promptly. Items to be indicated include but are not limited to:

1. Dimensional change
2. Revision to Drawing detail
3. Location and depth of underground utility
4. Revision to conduit routing
5. Revision to electrical circuitry
6. Actual equipment location
7. Changes made by Change Order
8. Details not on original Contract Drawing

9. Information on concealed elements which would be difficult to identify or measure later

Approval of requisition for payment for work installed will NOT be given unless supported by record prints as required above.

COORDINATION

Examine Contract Documents and coordinate with Contractor and other trades as necessary to facilitate the progress of the work.

Particular emphasis is placed on timely installation of major apparatus and furnishing of other trades and Contractor with relevant information.

Do NOT install a system until critical components of system and related systems have been coordinated and applicable shop drawings have been accepted.

OPERATION OF SERVICES AND UTILITIES

During the construction period and until finally inspected, tested and accepted, maintain new services and utilities.

Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Town as to date, time of day, and duration.

Notify Engineer and Town of estimated duration of shutdown period at least ten days in advance of date when shutdown is proposed. Approval of shutdown shall be obtained from proper utility and Town, before any service is interrupted.

Work during shutdown period shall be arranged for continuous performance, including overtime if required, to ensure that existing operating services will be shut down only for time actually necessary to complete connections.

REPAIRS TO COMPLETED AND EXISTING CONSTRUCTION

The Contractor shall be liable for any and all damage to the highway, sidewalks or any part thereof including all appurtenances, slopes, pavements and structures wherever such damage is caused by the operations or negligence of the Contractor.

Any damage caused by the by the Contractor's operations to partially or fully completed work shall be repaired at the expense of the Contractor, to match existing adjacent areas to the satisfaction of the Owner.

10.10.04 – Method of Measurement: This work shall be measured for payment by the number of handholes of the type called for installed and accepted.

10.10.05 – Basis of Payment: This work shall be paid for at the contract unit price for each “Handhole” of the type called for, complete in place, which price shall include all materials, labor, tools and equipment. Installation shall be complete and accepted for project requirements.

1010037A – PRECAST HEXHOLE VAULT

Article 10.10.01 – Description: (Addition to existing Standard Specification Section 10.10 Concrete Handholes).

This project includes a new hexhole vault for the primary power system infrastructure as indicated on the Drawings. The contractor shall furnish and install the unit as shown on the drawings. All work shall be coordinated with existing utility (CL&P) and the scope of work for the Streetscape project. Final location and requirements shall be as directed by the utility company and the Streetscape project. It is the intent of this project to properly install a complete and useable infrastructure for the future wiring of the utility.

10.10.02 – Materials: Add the following:

Unit shall be a two-piece precast reinforced concrete hexhole assembly. Parge all exterior joints & seams with hydraulic cement and cover with epoxy sealer. Mortar shall be applied between the unit sections.

10.10.03 – Construction Methods: Shall conform to Articles 10.10.03 and supplemented in these provisions:

INTENT

It is the intent of the Contract Documents to require finished work, tested and ready for operation.

Drawings are diagrammatic and indicate the general arrangement of systems and work included in the Contract. DO NOT SCALE THE DRAWINGS.

EXAMINATION OF SITE AND CONTRACT DOCUMENTS

Before submitting prices or beginning work, thoroughly examine the site and the Contract Documents. REFER TO DRAWING #E-3 FOR DETAILS OF UNIT(S) AND UTILITY REQUIREMENTS FOR USE AND CONSTRUCTION OF UNIT.

No claim for extra compensation will be recognized if difficulties are encountered which would have been revealed by examination of site conditions and Contract Documents prior to executing Contract.

Where discrepancies occur within Contract Documents, notify Engineer, in writing, of discrepancy and request clarification. Until notified of Engineer's decision, include item or arrangement of better quality, greater quantity or higher cost in Contract price.

For material, device and equipment identified on Contract Drawings by manufacturer and model.

Notify Engineer, in writing, of materials and apparatus believed to be omitted, inadequate or unsuitable, or in violation of laws, ordinances, rules or regulations of authorities having jurisdiction. In absence of such written notice, it is mutually agreed that bid price for work under each Section has included the cost of items required for acceptable satisfactory functioning of entire system.

RECORD DRAWINGS

Furnish and keep on the job at all times, one complete and separate set of Contract Documents of the Electrical work.

As work progresses, record changes, revisions and additions to Electrical work clearly, neatly, accurately and promptly. Items to be indicated include but are not limited to:

1. Dimensional change
2. Revision to Drawing detail
3. Location and depth of underground utility
4. Revision to conduit routing
5. Revision to electrical circuitry
6. Actual equipment location
7. Changes made by Change Order
8. Details not on original Contract Drawing
9. Information on concealed elements which would be difficult to identify or measure later

Approval of requisition for payment for work installed will NOT be given unless supported by record prints as required above.

COORDINATION

Examine Contract Documents and coordinate with Contractor and other trades as necessary to facilitate the progress of the work.

Particular emphasis is placed on timely installation of major apparatus and furnishing of other trades and Contractor with relevant information.

Do NOT install a system until critical components of system and related systems have been coordinated and applicable shop drawings have been accepted.

OPERATION OF SERVICES AND UTILITIES

During the construction period and until finally inspected, tested and accepted, maintain new services and utilities.

Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Town as to date, time of day, and duration.

Notify Engineer and Town of estimated duration of shutdown period at least ten days in advance of date when shutdown is proposed. Approval of shutdown shall be obtained from proper utility and Town, before any service is interrupted.

Work during shutdown period shall be arranged for continuous performance, including overtime if required, to ensure that existing operating services will be shut down only for time actually necessary to complete connections.

REPAIRS TO COMPLETED AND EXISTING CONSTRUCTION

The Contractor shall be liable for any and all damage to the highway, sidewalks or any part thereof including all appurtenances, slopes, pavements and structures wherever such damage is caused by the operations or negligence of the Contractor.

Any damage caused by the by the Contractor's operations to partially or fully completed work shall be repaired at the expense of the Contractor, to match existing adjacent areas to the satisfaction of the Owner.

10.10.04 – Method of Measurement: This work shall be measured for payment by the size hexhole of the type called for installed and accepted.

10.10.05 – Basis of Payment: This work shall be paid for at the contract unit price for "Hexhole" of the type called for, complete in place, which price shall include all materials, labor, tools and equipment. Installation shall be complete and accepted for project requirements.

1010912A – ELECTRIC MANHOLE

Article 5.07.01 – Description: (Addition to existing Standard Specification Section 5.07 Catch Basins, Manholes and Drop Outlets).

This project includes a new manhole for the primary power system infrastructure as indicated on the Drawings. The contractor shall furnish and install the unit as shown on the drawings. All work shall be coordinated with existing utility (CL&P) and the scope of work for the Streetscape project. Final location and requirements shall be as directed by the utility company and the Streetscape project. It is the intent of this project to properly install a complete and useable infrastructure for the future wiring of the utility.

5.07.02 – Materials: Add the following:

Unit shall be a two-piece precast reinforced concrete manhole assembly. Parge all exterior joints & seams with hydraulic cement and cover with epoxy sealer. Mortar shall be applied between the unit sections.

5.07.03 – Construction Methods: Shall conform to Articles 10.10.03 and supplemented in these provisions:

EXAMINATION OF SITE AND CONTRACT DOCUMENTS

Before submitting prices or beginning work, thoroughly examine the site and the Contract Documents. REFER TO DRAWING #E-3 FOR DETAILS OF UNIT(S) AND UTILITY REQUIREMENTS FOR USE AND CONSTRUCTION OF UNIT.

No claim for extra compensation will be recognized if difficulties are encountered which would have been revealed by examination of site conditions and Contract Documents prior to executing Contract.

Where discrepancies occur within Contract Documents, notify Engineer, in writing, of discrepancy and request clarification. Until notified of Engineer's decision, include item or arrangement of better quality, greater quantity or higher cost in Contract price.

For material, device and equipment identified on Contract Drawings by manufacturer and model.

Notify Engineer, in writing, of materials and apparatus believed to be omitted, inadequate or unsuitable, or in violation of laws, ordinances, rules or regulations of authorities having jurisdiction. In absence of such written notice, it is mutually agreed

that bid price for work under each Section has included the cost of items required for acceptable satisfactory functioning of entire system.

RECORD DRAWINGS

Furnish and keep on the job at all times, one complete and separate set of Contract Documents of the Electrical work.

As work progresses, record changes, revisions and additions to Electrical work clearly, neatly, accurately and promptly. Items to be indicated include but are not limited to:

1. Dimensional change
2. Revision to Drawing detail
3. Location and depth of underground utility
4. Revision to conduit routing
5. Revision to electrical circuitry
6. Actual equipment location
7. Changes made by Change Order
8. Details not on original Contract Drawing
9. Information on concealed elements which would be difficult to identify or measure later

Approval of requisition for payment for work installed will NOT be given unless supported by record prints as required above.

COORDINATION

Examine Contract Documents and coordinate with Contractor and other trades as necessary to facilitate the progress of the work.

Particular emphasis is placed on timely installation of major apparatus and furnishing of other trades and Contractor with relevant information.

Do NOT install a system until critical components of system and related systems have been coordinated and applicable shop drawings have been accepted.

OPERATION OF SERVICES AND UTILITIES

During the construction period and until finally inspected, tested and accepted, maintain new services and utilities.

Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Town as to date, time of day, and duration.

Notify Engineer and Town of estimated duration of shutdown period at least ten days in advance of date when shutdown is proposed. Approval of shutdown shall be obtained from proper utility and Town, before any service is interrupted.

Work during shutdown period shall be arranged for continuous performance, including overtime if required, to ensure that existing operating services will be shut down only for time actually necessary to complete connections.

REPAIRS TO COMPLETED AND EXISTING CONSTRUCTION

The Contractor shall be liable for any and all damage to the highway, sidewalks or any part thereof including all appurtenances, slopes, pavements and structures wherever such damage is caused by the operations or negligence of the Contractor.

Any damage caused by the by the Contractor's operations to partially or fully completed work shall be repaired at the expense of the Contractor, to match existing adjacent areas to the satisfaction of the Owner.

10.10.04 – Method of Measurement: This work shall be measured for payment by the size manhole of the type called for installed and accepted.

10.10.05 – Basis of Payment: This work shall be paid for at the contract unit price for "Manhole" of the type called for, complete in place, which price shall include all materials, labor, tools and equipment. Installation shall be complete and accepted for project requirements.

1017040A – SERVICE ENTRANCE COMBINATION METER SOCKET UNIT

Article 10.17.01 – Description: (Addition to existing Standard Specification Section 10.17 Service Entrance and Cabinet)

This project includes new service entrance combination cabinets with disconnect switch and meter socket provisions for installation to accommodate power utility company infrastructure as indicated on the Drawings. Units shall be wall mounted to structures (buildings) as designated on drawings. The contractor shall furnish and install all units as shown on the drawings. All work shall be coordinated with existing utilities and the scope of work for the Streetscape project. Final locations and requirements shall be as directed by the respective utility companies and the Streetscape project. It is the intent of this project to properly install a complete and useable infrastructure for the forthcoming wiring of the utilities.

10.17.02 – Materials:

The materials for this work shall conform to the requirements of Article M.15.15 & M.15.16 with the materials for meter socket provisions and utility service disconnect switch included. The materials for lighting control, including foundations, transformer pads, photoelectric control devices, receptacle, contactor and convenience light shall be removed from this specification section.

1017101A – CABLE TERMINAL PEDESTAL UNIT

Article 11.02.01 – Description: (Addition to existing Standard Specification Section 11.02 Pedestals).

This project includes new pedestal units for the cable system infrastructure as indicated on the Drawings. The contractor shall furnish and install all units as shown on the drawings. All work shall be coordinated with existing utilities and the scope of work for the Streetscape project. Final locations and requirements shall be as directed by the Cable utility company (Comcast) and the Streetscape project. It is the intent of this project to properly install a complete and useable infrastructure for the forthcoming wiring of the utility.

11.02.02 – Materials:

MANUFACTURERS:

A. Available Manufacturers: Subject to compliance with specification requirements, pedestal manufacturers offering products that may be incorporated in the work are the following or an approved equal:

1. Channell

B. Any proposed substitution shall be submitted to the Engineer for approval 10 days prior to the bid opening. No substitutions shall be assumed to be acceptable without being properly submitted to the Engineer for approval. Requests for substitution shall contain the following:

1. Sample of substitute and specified products.
2. A list of three projects using the proposed products in a similar application.
3. An item-by-item comparison of the proposed substitute unit with the products specified.
4. Copy of warranty information.
5. Comprehensive specifications describing proposed substitution, including construction and application.

MATERIALS:

A. General: Composite type, cable service pedestal with heat dissipation and self locking cover. Unit houses active and passive equipment, contains full access and universal bracketry. Units shall be provided with Comcast standard; Groton,

Connecticut pattern. Provide all accessories as required, as specified in the as called for in the Contract documents, and as required by NEC.

B. Provide pedestals as specified or equal to the following:

1. Type ‘A’: Channell catalog #SPH1420-6C5-B3-L90 pedestal. Color shall be coordinated and specified with Streetscape project Contractor.
2. Type ‘B’: Channell catalog #SPH1420-6C5-B3-L90 pedestal. Color shall be coordinated and specified with Streetscape project Contractor.
3. Type ‘C’: Channell catalog #SPH1420-6C5-B3-L90 pedestal. Color shall be coordinated and specified with Streetscape project Contractor.
4. Type ‘D’: Channell catalog #SPH1420-6C5-B3-L90 pedestal. Color shall be coordinated and specified with Streetscape project Contractor.
5. Type ‘E’: Channell catalog #SPH710-6C5-B9-L90 pedestal. Color shall be coordinated and specified with Streetscape project Contractor.

11.02.03 – Construction Methods: Shall conform to Articles 11.02.03 and supplemented in these provisions:

EXAMINATION OF SITE AND CONTRACT DOCUMENTS

Before submitting prices or beginning work, thoroughly examine the site and the Contract Documents.

No claim for extra compensation will be recognized if difficulties are encountered which would have been revealed by examination of site conditions and Contract Documents prior to executing Contract.

Where discrepancies occur within Contract Documents, notify Engineer, in writing, of discrepancy and request clarification. Until notified of Engineer's decision, include item or arrangement of better quality, greater quantity or higher cost in Contract price.

For material, device and equipment identified on Contract Drawings by manufacturer and model: Check Specification for ancillary requirements such as pilot lights or alarms, and include same with furnished item. If Specifications require different model, notify Engineer of discrepancy and request clarification.

Notify Engineer, in writing, of materials and apparatus believed to be omitted, inadequate or unsuitable, or in violation of laws, ordinances, rules or regulations of authorities having jurisdiction. In absence of such written notice, it is mutually agreed that bid price for work under each Section has included the cost of items required for acceptable satisfactory functioning of entire system.

RECORD DRAWINGS

Furnish and keep on the job at all times, one complete and separate set of Contract Documents of the Electrical work.

As work progresses, record changes, revisions and additions to Electrical work clearly, neatly, accurately and promptly. Items to be indicated include but are not limited to:

- Dimensional change
- Revision to Drawing detail
- Location and depth of underground utility
- Revision to conduit routing
- Revision to electrical circuitry
- Actual equipment location
- Changes made by Change Order
- Details not on original Contract Drawing
- Information on concealed elements which would be difficult to identify or measure later

Approval of requisition for payment for work installed will NOT be given unless supported by record prints as required above.

COORDINATION

Examine Contract Documents and coordinate with Contractor and other trades as necessary to facilitate the progress of the work.

Particular emphasis is placed on timely installation of major apparatus and furnishing of other trades and Contractor with relevant information.

Do NOT install a system until critical components of system and related systems have been coordinated and applicable shop drawings have been accepted.

OPERATION OF SERVICES AND UTILITIES

During the construction period and until finally inspected, tested and accepted, maintain new services and utilities.

Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Town as to date, time of day, and duration.

Notify Engineer and Town of estimated duration of shutdown period at least ten days in advance of date when shutdown is proposed. Approval of shutdown shall be obtained from proper utility and Town, before any service is interrupted.

Work during shutdown period shall be arranged for continuous performance, including overtime if required, to ensure that existing operating services will be shut down only for time actually necessary to complete connections.

REPAIRS TO COMPLETED AND EXISTING CONSTRUCTION

The Contractor shall be liable for any and all damage to the highway, sidewalks or any part thereof including all appurtenances, slopes, pavements and structures wherever such damage is caused by the operations or negligence of the Contractor.

Any damage caused by the by the Contractor's operations to partially or fully completed work shall be repaired at the expense of the Contractor, to match existing adjacent areas to the satisfaction of the Owner.

11.02.04 – Method of Measurement: This work shall be measured for payment by the number of pedestals of the type called for installed and accepted.

11.02.05 – Basis of Payment: This work shall be paid for at the contract unit price for each "Pedestals" of the type called for, complete in place, which price shall include all materials, labor, tools and equipment. Installation shall be complete and accepted for project requirements.

1017102A – MASTER FIRE BOX

Article M.19.01 – Description:

This project includes new fire alarm system municipality boxes for the fire alarm system infrastructure as indicated on the Drawings. This includes fire alarm street boxes and master boxes. The contractor shall furnish and install all units as shown on the drawings. All work shall be coordinated with existing utilities and the scope of work for the Streetscape project. Final locations and requirements shall be as directed by the Mystic Fire District and the Streetscape project. It is the intent of this project to properly install a complete and useable system including boxes, conduit and wire.

M.19.02 – Materials:

MANUFACTURERS:

A. Available Manufacturers: Subject to compliance with specification requirements, fire alarm box manufacturers offering products that may be incorporated in the work are the following or an approved equal:

1. Gamewell

B. Any proposed substitution shall be submitted to the Engineer for approval 10 days prior to the bid opening. No substitutions shall be assumed to be acceptable without being properly submitted to the Engineer for approval. Requests for substitution shall contain the following:

1. Sample of substitute and specified products.
2. A list of three projects using the proposed products in a similar application.
3. An item-by-item comparison of the proposed substitute unit with the products specified.
4. Copy of warranty information.
5. Comprehensive specifications describing proposed substitution, including construction and application.

MATERIALS:

A. The street and master box shall be a weatherproof Gamewell® three-fold Municipal fire alarm box, equipped with the following features: positive noninterference, quick succession, telegraph key, tap bell, test panel and lock. The fire alarm box shall have a one and one-quarter (1¼) second timed brass code wheel, the number of which shall be assigned by the Mystic Fire District.

This number shall also appear on the front of the firebox by use of a numbered plate. Boxes shall be mounted in accordance with the American Disabilities Act. Generally, the pull handle shall be 54 inches from the finished grade with a 30-inch clear space.

B. All municipal alarm locations shall have a 5/8-inch x 10-ft cooper clad ground rod, with a six foot #8 gauge pigtail.

C. Master boxes shall be Gamewell® local energy type only.

D. Five conductor 12 gauge solid copper insulated wire in cable meeting the International Municipal Signal Association (I.M.S.A.) specification # 20-1 shall be used for the municipal alarm connection. Three-conductor cable meeting the above specifications may be used if the run is less than 200 feet.

E. When ordering cable, request a copy of the certified lab test for the cable and have this available to give to personnel of the fire district when cable is pulled into the conduit.

F. Cable having higher conductor counts may be needed due to the size and location of the project.

G. Ten feet of wire shall be left at all pedestal and hand hole locations. Thirty feet of wire is needed at the base of the distribution pole for the riser.

H. Personnel of the Mystic Fire District shall perform all connections of the municipal fire alarm cable.

M.19.03 – Construction Methods: Shall conform to Articles 11.02.03 and supplemented in these provisions:

EXAMINATION OF SITE AND CONTRACT DOCUMENTS

Before submitting prices or beginning work, thoroughly examine the site and the Contract Documents.

No claim for extra compensation will be recognized if difficulties are encountered which would have been revealed by examination of site conditions and Contract Documents prior to executing Contract.

Where discrepancies occur within Contract Documents, notify Engineer, in writing, of discrepancy and request clarification. Until notified of Engineer's decision, include item or arrangement of better quality, greater quantity or higher cost in Contract price.

For material, device and equipment identified on Contract Drawings by manufacturer and model: Check Specification for ancillary requirements such as pilot lights or alarms, and include same with furnished item. If Specifications require different model, notify Engineer of discrepancy and request clarification.

Notify Engineer, in writing, of materials and apparatus believed to be omitted, inadequate or unsuitable, or in violation of laws, ordinances, rules or regulations of authorities having jurisdiction. In absence of such written notice, it is mutually agreed that bid price for work under each Section has included the cost of items required for acceptable satisfactory functioning of entire system.

RECORD DRAWINGS

Furnish and keep on the job at all times, one complete and separate set of Contract Documents of the Electrical work.

As work progresses, record changes, revisions and additions to Electrical work clearly, neatly, accurately and promptly. Items to be indicated include but are not limited to:

- Dimensional change
- Revision to Drawing detail
- Location and depth of underground utility
- Revision to conduit routing
- Revision to electrical circuitry
- Actual equipment location
- Changes made by Change Order
- Details not on original Contract Drawing
- Information on concealed elements which would be difficult to identify or measure later

Approval of requisition for payment for work installed will NOT be given unless supported by record prints as required above.

COORDINATION

Examine Contract Documents and coordinate with Contractor and other trades as necessary to facilitate the progress of the work.

Particular emphasis is placed on timely installation of major apparatus and furnishing of other trades and Contractor with relevant information.

Do NOT install a system until critical components of system and related systems have been coordinated and applicable shop drawings have been accepted.

OPERATION OF SERVICES AND UTILITIES

During the construction period and until finally inspected, tested and accepted, maintain new services and utilities.

Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Town as to date, time of day, and duration.

Notify Engineer and Town of estimated duration of shutdown period at least ten days in advance of date when shutdown is proposed. Approval of shutdown shall be obtained from proper utility and Town, before any service is interrupted.

Work during shutdown period shall be arranged for continuous performance, including overtime if required, to ensure that existing operating services will be shut down only for time actually necessary to complete connections.

REPAIRS TO COMPLETED AND EXISTING CONSTRUCTION

The Contractor shall be liable for any and all damage to the highway, sidewalks or any part thereof including all appurtenances, slopes, pavements and structures wherever such damage is caused by the operations or negligence of the Contractor.

Any damage caused by the by the Contractor's operations to partially or fully completed work shall be repaired at the expense of the Contractor, to match existing adjacent areas to the satisfaction of the Owner.

M.19.04 – Method of Measurement: This work shall be measured for payment by the number of master boxes and linear feet of conductor wiring of the type called for installed and accepted.

M.19.05 – Basis of Payment: This work shall be paid for at the contract unit price for complete wiring system and each "master box" of the type called for, complete in place, which price shall include all materials, labor, tools and equipment. Installation shall be complete and accepted for project requirements.

1017031A – TRANSFORMER PAD

Article 10.17.01 – Description: (Addition to existing Standard Specification Section 10.17 Service Entrance and Cabinet).

This project includes new transformer pads for the primary and secondary power system infrastructure as indicated on the Drawings. The contractor shall furnish and install the units as shown on the drawings. All work shall be coordinated with existing utility (CL&P) and the scope of work for the Streetscape project. Final location and requirements shall be as directed by the utility company and the Streetscape project. It is the intent of this project to properly install a complete and useable infrastructure for the future wiring of the utility.

10.17.02 – Materials: Refer to Form 816.

10.17.03 – Construction Methods: Shall conform to Articles 10.17.03 and supplemented in these provisions:

Before submitting prices or beginning work, thoroughly examine the site and the Contract Documents. REFER TO DRAWING #E-3 FOR DETAILS OF UNIT(S) AND UTILITY REQUIREMENTS FOR USE AND CONSTRUCTION OF UNIT.

10.17.04 – Method of Measurement: This work shall be measured for payment by the size transformer pad of the type called for installed and accepted.

10.17.05 – Basis of Payment: This work shall be paid for at the contract unit price for “transformer Pad” of the type called for, complete in place, which price shall include all materials, labor, tools and equipment. Installation shall be complete and accepted for project requirements.

GENERAL – Pad–mounted oil insulated equipment (such as transformers, transclosures, switches, etc) should be installed so as to be accessible, not constitute an environmental hazard or a fire hazard, and be protected from damage. In URD areas transformers installed at residential front lot lines are not subject to the requirements of this Standard, refer to **DTR 42.031**.

LOCATION – The pad–mounted equipment should be installed at a location where permanent access will be assured for future operation and maintenance as well as to permit installation, replacement and removal of the equipment by means of a winch truck with the boom up. Where noise may be a problem, careful consideration should be given when selecting a location. Areas subject to flooding should be avoided, as should other environmentally sensitive areas noted in **DSEM Section 06.32**. The building owner's and/or tenant's fire insurance carrier may restrict the proximity of the equipment to doors, windows or combustible materials and such requirements are the responsibility of the customer subject to the requirements of Northeast Utilities. In the absence of other requirements, the equipment shall be located with the following minimum clearances from various building facilities. The distances mentioned in this section shall not supersede any local ordinance or code which requires greater clearances.

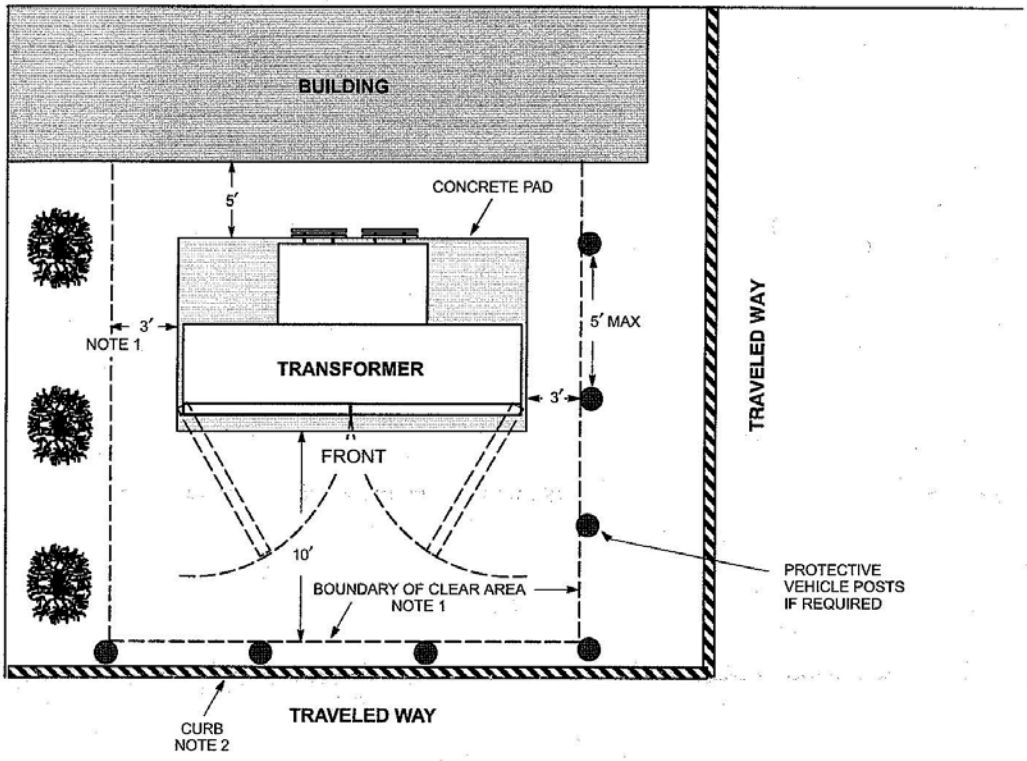
	Minimum Distance		
Item	In Front of In Feet	To Side of In Feet	Below In Feet
Door	20	10	–
Air intake	10	10	25
Window	10	3	5
Fire escape	20	20	–
Combustible wall	6	6	–
Noncombustible wall	5	3	–
Fuel tanks (above and below grade)	10	10	–
Natural gas or propane connections			
CT/MA	3	3	–
NH	15	15	–
Gasoline dispensing unit	20	20	–

OIL SUMP – If the surrounding grade pitches toward critical areas, it is recommended that an oil sump be provided. This should consist of 3/4–inch trap rock fill under and around the equipment pad adequate to contain the quantity of oil in the equipment to be installed at the given location.

ADDITIONAL FIRE PROTECTION – If the building owner's and/or tenant's combustible facilities adjacent to the equipment require fire protection beyond that provided by oil sump, it shall be their responsibility to provide such protection in the form of space separation, fire resistant barriers, automatic spray systems, other oil containment facilities, or other means approved by their fire insurance company.

EQUIPMENT PROTECTION – Where pad–mounted equipment would be exposed to possible damage by vehicular traffic, protective bumpers are to be installed on exposed sides. Galvanized steel pipes 4–inch minimum diameter filled with concrete, I–beams 5–inch minimum, or other suitable means of protection may be used as bumpers. Such pipes or I–beams shall extend 42–inch minimum both above and below grade. Heavier bumpers set deeper should be considered where exposed to heavy trucks. Bumpers should be 10–foot minimum from the operating side of concrete pad and on the other sides 36–inch minimum from equipment or pad, whichever projects farther. The maximum spacing between bumpers on exposed sides should be 60 inches.

EQUIPMENT LOCKS – Any equipment, with provisions for locking, that is left on site and is accessible to the general public, shall be padlocked. This includes installations that are not complete and not energized. Completed pad–mount transformer installations shall meet "TAMPERPROOF EQUIPMENT LOCK" requirements, **DTR 03.401**.



Notes

1. To inspect, provide access, operate elbow connectors and ventilate the transformer, the above specified clear area distances to buildings or shrubs shall be maintained. The distance from the building is to the concrete transformer pad. Property line shall be considered an obstruction, since fences, shrubs, etc. may be installed at a future date by adjacent property owners. Because of the possibility of cooling fins overhanging the pad, side clearances to be increased to 5 feet for transformers 1000 kVA and larger.
2. If no curb exists, or transformer is located closer than 10 feet to the traveled way, protective vehicle posts (●) shall be installed as specified in **DTR 42.061**.
3. Top of transformer pad shall be installed 3 inches above final grade.
4. Transformer shall not be located on steep grades where access to or elbow operation is made difficult.
5. Transformer shall meet the minimum distances to doors, windows, fire escapes, air intakes and walls as specified in **DTR 42.061**.
6. Transformer ***is not*** to be located with its doors facing the building.
7. Refer to **DTR 58.301** for specific instructions on the installation of the transformer pad.
8. Refer to **DSEM Section 06.32** for information on environmental considerations.

ORIGINAL 4/10/91 APPROVED 1/25/02	**PAD–MOUNTED TRANSFORMERS LOCATION TO BUILDINGS AND ROADWAYS**			
	NORTHEAST UTILITIES	CONSTRUCTION STANDARD	**DTR 42.047**	**6**

ITEM NO. 1206023A - REMOVAL AND RELOCATION OF EXISTING SIGNS

Section 12.06 is supplemented as follows:

Article 12.06.01 – Description is supplemented as follows:
Work under this item shall consist of the removal and/or relocation of designated extruded aluminum and sheet aluminum side-mounted signs, sign posts, sign supports, and foundations where indicated on the plans or as directed by the Engineer. Work under this item shall also include furnishing and installing new sign posts and associated hardware for signs designated for relocation.

Article 12.06.03 – Construction Methods is supplemented as follows:
The Contractor shall take care during the removal of existing signs, sign posts, and sign supports that are to be relocated so that they are not damaged. Any material that is damaged shall be replaced by the Contractor at no cost to the State.

Sheet aluminum signs designated for removal are to be salvaged if they are in suitable condition as determined by the Engineer. The Contractor shall sort all salvaged sheet aluminum signs by location (signs from State roadways vs signs from Town roadways), size and shall stack ten signs to a bundle. Each bundle shall be bound by tape or metal strap and the bundles shall be stacked on pallets. The Contractor shall confirm intended delivery of the salvaged sheet aluminum signs at least seven days in advance and shall deliver the signs to the following address for State signs:

D.O.T. Sign Shop
1107 Cromwell Avenue
Rocky Hill, CT 06067
Attention: Jeffrey Adams (Phone # 860-258-4675)

Town signs shall be delivered to a Town facility as directed by the Engineer. Extruded aluminum signs, sheet aluminum signs not suitable for salvage, sign posts, sign supports, and foundations designated for removal shall be removed and disposed of by the Contractor as directed by the Engineer and in accordance with existing standards for removal of signing.

Article 12.06.04 – Method of Measurement is replaced with the following:
Payment under Removal and Relocation of Existing Signs shall be at the contract lump sum price which shall include all extruded aluminum and sheet aluminum side-mounted signs, sign posts, and sign supports designated for relocation, all sheet aluminum side-mounted signs designated for salvage, all extruded aluminum and sheet aluminum signs, sign posts, sign supports, and foundations designated for removal and disposal, and all work and equipment required.

Article 12.06.05 – Basis of Payment is replaced with the following:

This work will be paid for at the contract lump sum price for “Removal and Relocation of Existing Signs” which price shall include relocating designated extruded aluminum and sheet aluminum side-mounted signs, sign posts, and sign supports, removing and disposing of designated extruded aluminum and sheet aluminum side-mounted signs, sign posts, sign supports, and foundations, and all equipment, material, tools and labor incidental thereto. This price shall also include the loading, transporting, and unloading of sheet aluminum side-mounted signs designated for salvage and all equipment, material, tools and labor incidental thereto.

Pay Item	**Pay Unit**
Removal and Relocation of Existing Signs	L.S.

ITEM # 1208966A – BULLETIN BOARD/HISTORIC MYSTIC BOARD

Description: This item shall consist of furnishing and installation of a bulletin board/historic mystic board in the location as shown on the Contract Documents and as directed by the Engineer.

Materials:

1) Concrete for footings shall be Class F concrete per Section 6.01 and Section

M.03. Reinforcing steel for foundations shall conform to Section M.06.

2)Gravel shall be bank run gravel.

3) Steel tube for posts shall be in accordance with ASTM A53/A53M-99B, Type F. ASTM A36/A36M-00 requirements for flat bar stock. All hardware shall conform to ASTM A307-97 requirements.

4) Galvanizing
   a) Prior to galvanizing, all specified metal items shall be cleaned (pickled) in accordance with SSPC-SP8. Cleaning shall remove all rust, scale, and coating surface must be clean, dry, undamaged and free of all loose rust, dirt, grease, or other contaminants including salt deposits. Specified metal items calling for galvanizing shall be hot-dipped galvanized after fabrication and chromated after galvanizing by dipping in a 0.15 percent chromic acid solution. Galvanizing bath shall contain 0.05 – 0.09 percent nickel. Galvanize all ferrous fasteners, clips, sleeves, anchors and accessories in contact with galvanized items.
   b) Galvanizing shall comply with ASTM A123M-97A, A153/A153M-98, ASTM A385-00 as applicable.
   c) Unless otherwise indicated, all items to be galvanized shall receive a 3 mil coating of zinc.
   d) Items to be galvanized shall be galvanized after fabrication. Where size of assembly is too large for complete unit galvanizing, these assemblies shall be galvanized prior to fabrication, in as large sections as practical and then only with the written approval of the Engineer.

5) Paint coatings for sign surfaces and graphics shall be high performance, high gloss exterior alkyd enamel coating system, by Sherwin Williams, Pittsburgh Paint PPG Architectural Finishes, or Glidden Company or approved equal. Custom colors as selected by the Engineer.

6) Paint for galvanized steel shall be a two coat system.
   a) Prime coat for shop painting on galvanized surfaces shall be an epoxy or urethane coating: Amercoat 385, by Ameron International; Pitt-Guard 97-946 Series All Weather Direct-to-Rust Epoxy Coatings, by PPG Architectural

Finishes, Inc.; Macropoxy 646 Fast Cure Epoxy by Sherwin-Williams Company or approved equal.

b) Finish over epoxy or urethane coating shall be an aliphatic urethane coating. Recommended Dry Film Thickness shall be as recommended by manufacturer and approved by Engineer. Finish coat shall be compatible with prime coat and manufactured by: Amercoat 450HS by Ameron International; Pitthane II by PPG Architectural Finishes, Inc.; Acrolon 218 HS Acrylic Polyurethane by Sherwin-Williams Company or approved equal. Color shall be gloss dark green.

7) Wood for bulletin board shall be medium density overlay-primed and paint to match the paint color on the metal work.

8) Porcelain enamel panels

a). Steel for fabrication of sign base flat bar stock as specified in this Section. Steel for base plates shall be 0.25 inch thickness. Width and height dimensions shall be shown on the Contract Documents. Threaded rod shall be 0.5 inch diameter steel hardware as specified in this Section.

b). Porcelain enamel shall be a substantially vitreous inorganic coating bonded to metal by fusion at temperatures above 760 degrees Centigrade. Porcelain enamel frits, glazes and oxides shall be processed into a final form that shall have no less than a Class A acid resistance rating as defined by ASTM C282, Citric Acid Spot Test. Provide minimum 12 colors.

c). Finished panels shall have a maximum variation of 3/16 inch in a convex direction when measured perpendicular to the nominal plane of the panel face. Variation in the concave direction shall be limited to 3/32 inch from the actual plane of the panel face.

d). Panels shall be square within 1/16 inch as measured across the diagonal.

e). Enameling steel shall be as defined by ASTM A424 Type 1, with a thickness of 16 gauge. Steel substrates shall be machine fabricated in accordance with approved shop drawings and shall exhibit straight lines, square corners, and shall be free of twists, kinks, warps, dents, and other imperfections which may affect appearance or serviceability.

f). VHB Double Coated Acrylic Tape

1. Tape shall be manufactured by 3M Bonding Systems Division, 3M Center, Building 220-7E-01, St. Paul, MN 55144-1000, Telephone (800) 362-3550. Tape to be used between galvanized steel sheet and porcelain enamel sign to be Model 4932.

9) Grout as required for anchoring shall be a pourable, quick setting, non-metallic and non-shrinking hydraulic cement grout equal to Five Star Grout by U.S. Grout Corporation; Sika Grout 212 by Sika Corporation; or Harris Construction Grout by AH Harris & Sons.

10) Sealant and primer shall be polyurethane-based, one component, elastomeric sealants, complying with Fed. Spec. TT-S-00230C, Class A Type 1. Color shall be as selected by the Engineer. Sealants shall be self-leveling pour grade type equal to the following.

a) Vulkem 45, as manufactured by Mameko International, 4475 East 175th Street, Cleveland Ohio 44182, (800) 321-6412.
b) Urexpan NR-210, as manufactured by Pecora Corporation, 165 Wambold Road, Harleysville, PA 10348, (215) 723-6051
c) PSI 951, as manufactured by Polymeric Systems Inc., Phoenixville, PA, (800) 228-5548.

11) Submittals:

a) Submit complete shop drawings for steel components. Include plans, sections and details as required to show all materials, layout, dimensions, jointing and connections for all items required.
b) Manufacturer's literature for painting systems, non-shrink grout and sealant systems.

c). Porcelain Enamel Panel – Submit a 6 inch high sample porcelain enamel panel with representative portion of the art work showing range of colors and typical detail for acceptance by the Engineer.

Construction Methods:

1) Take all measurements required at the work site. Check measurements, compare dimensions and other data with various trades installing adjoining work to assure proper coordination. The engineer will provide to the contractor a full size model of the granite base in clay or other suitable material.

2) Install concrete foundations as shown on the Contract Documents and in accordance with the requirements of Section 6.01 of the Standard Specifications.

2) Do all shop drilling, shop fitting, shop cutting, shop welding, and bolting required to erect, install and fit metal work to adjoining work. Conform to AISI Code as applicable. Furnish all screws, bolts, anchors, etc., required to attach wood to metal work securely.

3) Welding shall be continuous except where tack welding is specifically permitted. Tack welding will not be permitted on exposed surfaces. All exposed welds shall be ground smooth.

4) Provide drainage holes in steel tubes such that holes are 0.25 above top surface of concrete foundation. Do not enlarge unfair holes by burning and forcing, but correct

by reaming.

5) Weld with uncoated wire to prevent flux deposits. If coated wire is used, all flux residue shall be thoroughly removed and bare white metal exposed. Where overlapping surfaces are welded, seal off contact area by welding all edges around contact area.

6) Posts shall be welded caps. All steel sections shall be fillet welded and ground smooth prior to galvanizing, and priming and shop painting, to the sizes and dimensions as shown on Contract Documents.

7) Posts shall be shop painted in accordance with manufacturer's instructions. Ensure full coverage to recommended DFT of prime and finish coats on all parts of posts.

8) Core drill holes in concrete foundation in locations and to depths shown on the Contract Documents. Grout into place granite base to elevations as required by the Contract Documents, taking special care to align holes of granite base with concrete footing. Place pourable grout in cored holes and immediately insert posts. Set posts plumb and to heights shown on the Contract Documents. Immediately clean all grout from surfaces of granite and painted steel. Hold back grout to accommodate sealant. Place sealant.

Method of Measurement: The method of measurement shall be in Lump Sum unit 'Bulletin Board/Historic Mystic Sign.

1) The method of measurement shall be in units of one 'Bulletin Board/Historic Mystic Sign as applicable.

2) Excavation for and concrete foundation materials and installation will not be measured for payment, but the costs shall be included in the price bid for the 'Wayfinding Sign'.

3) Core drilling, grouting and sealing will not be measured for payment, but the costs shall be included in the price bid for the Bulletin Board/Historic Mystic Sign.

Basis of Pavement: Payment for this work will be made at the contract unit price lump sum as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

Pay Item	**Pay Unit**
Bulletin Board/Historic Mystic Sign	LS.

ITEM # 1208967A - WAYFINDING SIGN

Description: This item shall consist of furnishing and installation of a wayfinding sign in locations as shown on the Contract Documents and as directed by the Engineer.

Materials:

1) Granite shall be Midnight Grey by New England Stone, 285 Smith Street, North

Kingston, RI, 02852 or an approved equal.

2) Concrete for footings shall be Class F concrete per Section 6.01 and Section M.03. Reinforcing steel for foundations shall conform to Section M.06.

3) Steel pipe for posts shall be schedule 40 circular seamless steel pipe in accordance with ASTM A53/A53M-99B, Type F. ASTM A36/A36M-00 requirements for flat bar stock. All hardware shall conform to ASTM A307-97 requirements.

4) Galvanizing

   e) Prior to galvanizing, all specified metal items shall be cleaned (pickled) in accordance with SSPC-SP8. Cleaning shall remove all rust, scale, and coating surface must be clean, dry, undamaged and free of all loose rust, dirt, grease, or other contaminants including salt deposits. Specified metal items calling for galvanizing shall be hot-dipped galvanized after fabrication and chromated after galvanizing by dipping in a 0.15 percent chromic acid solution. Galvanizing bath shall contain 0.05 – 0.09 percent nickel.. Galvanize all ferrous fasteners, clips, sleeves, anchors and accessories in contact with galvanized items.

   f) Galvanizing shall comply with ASTM A123M-97A, A153/A153M-98, ASTM A385-00 as applicable.

   g) Unless otherwise indicated, all items to be galvanized shall receive a 3 mil coating of zinc.

   h) Items to be galvanized shall be galvanized after fabrication. Where size of assembly is too large for complete unit galvanizing, these assemblies shall be galvanized prior to fabrication, in as large sections as practical and then only with the written approval of the Engineer.

5) Paint coatings for sign surfaces and graphics shall be high performance, high gloss exterior alkyd enamel coating system, by Sherwin Williams, Pittsburgh Paint PPG Architectural Finishes, or Glidden Company or approved equal. Custom colors as selected by the Engineer.

6) Paint for galvanized steel shall be a two coat system.

   a) Prime coat for shop painting on galvanized surfaces shall be an epoxy or urethane coating: Amercoat 385, by Ameron International; Pitt-Guard 97-946 Series All Weather Direct-to-Rust Epoxy Coatings, by PPG Architectural Finishes, Inc.; Macropoxy 646 Fast Cure Epoxy by Sherwin-Williams Company or approved equal.

   b) Finish over epoxy or urethane coating shall be an aliphatic urethane coating. Recommended Dry Film Thickness shall be as recommended by

manufacturer and approved by Engineer. Finish coat shall be compatible with prime coat and manufactured by: Amercoat 450HS by Ameron International; Pitthane II by PPG Architectural Finishes, Inc.; Acrolon 218 HS Acrylic Polyurethane by Sherwin-Williams Company or approved equal. Color shall be gloss dark green.

7) Grout as required for anchoring shall be a pourable, quick setting, non-metallic and non-shrinking hydraulic cement grout equal to Five Star Grout by U.S. Grout Corporation; Sika Grout 212 by Sika Corporation; or Harris Construction Grout by AH Harris & Sons.

8) Sealant and primer shall be polyurethane-based, one component, elastomeric sealants, complying with Fed. Spec. TT-S-00230C, Class A Type 1. Color shall be as selected by the Engineer. Sealants shall be self-leveling pour grade type equal to the following.

a) Vulkem 45, as manufactured by Mameko International, 4475 East 175th Street, Cleveland Ohio 44182, (800) 321-6412.
b) Urexpan NR-210, as manufactured by Pecora Corporation, 165 Wambold Road, Harleysville, PA 10348, (215) 723-6051
c) PSI 951, as manufactured by Polymeric Systems Inc., Phoenixville, PA, (800) 228-5548.

9) Submittals:

a) Submit complete shop drawings for wayfinding sign system, including all granite and steel components. Include plans, sections and details as required to show all materials, layout, dimensions, jointing and connections for all items required.
b) Manufacturer's literature for painting systems, non-shrink grout and sealant systems.

Construction Methods:

1) Take all measurements required at the work site. Check measurements, compare dimensions and other data with various trades installing adjoining work to assure proper coordination. The engineer will provide to the contractor a full size model of the granite base in clay or other suitable material.

2) Granite fabrications:

a) Size and Dimension: Granite shall be of the sizes and dimensions indicated on the Contract Documents and approved Shop Drawings.
b) Exposed surfaces shall have a sand blasted fine stippled surface in which the surface is slightly pebbled with occasional slight trails and scratches. Bottom surface of granite bases concealed in the finished work shall be sawn to true planes. Maximum variation in thickness shall be 1/16 inch. Sawn faces shall be cleaned of rust stains and iron particles.
c) Granite shall be cut accurately to required shapes and dimensions.
d) Holes, cut-outs, sinkages and openings in granite work for anchors, cramps, dowels, supports, and lifting devices, shall be accurately cut or drilled to required dimensions, as shown on the approved Shop Drawings, and as necessary to secure granite in place to insure correct location and accurate fit of all fixtures.

e) Arrises shall be cut sharp and true to square, and continuous with adjoining arrises. Where exposed, arrises shall be eased as shown on the Contract Documents and approved Shop Drawings.

2) Install concrete foundations as shown on the Contract Documents and in accordance with the requirements of Section 6.01 of the Standard Specifications.

2) Do all shop drilling, shop fitting, shop cutting, shop welding, and bolting required to erect, install and fit metal work to adjoining work. Conform to AISI Code as applicable. Furnish all screws, bolts, anchors, etc., required to attach wood to metal work securely.

3) Welding shall be continuous except where tack welding is specifically permitted. Tack welding will not be permitted on exposed surfaces. All exposed welds shall be ground smooth.

4) Provide drainage holes in steel tubes such that holes are 0.25 above top surface of concrete foundation. Do not enlarge unfair holes by burning and forcing, but correct by reaming.

5) Weld with uncoated wire to prevent flux deposits. If coated wire is used, all flux residue shall be thoroughly removed and bare white metal exposed. Where overlapping surfaces are welded, seal off contact area by welding all edges around contact area.

6) Posts shall be welded caps. All steel sections shall be fillet welded and ground smooth prior to galvanizing, and priming and shop painting, to the sizes and dimensions as shown on Contract Documents.

7) Posts shall be shop painted in accordance with manufacturer's instructions. Ensure full coverage to recommended DFT of prime and finish coats on all parts of posts.

8) Core drill holes in concrete foundation in locations and to depths shown on the Contract Documents. Grout into place granite base to elevations as required by the Contract Documents, taking special care to align holes of granite base with concrete footing. Place pourable grout in cored holes and immediately insert posts. Set posts plumb and to heights shown on the Contract Documents. Immediately clean all grout from surfaces of granite and painted steel. Hold back grout to accommodate sealant. Place sealant.

Method of Measurement: The method of measurement shall be in Lump Sum unit 'Wayfinding Sign'.

1) The method of measurement shall be in units of one 'Wayfinding Sign' as applicable.

2) Excavation for and concrete foundation materials and installation will not be measured for payment, but the costs shall be included in the price bid for the 'Wayfinding Sign'.

3) Core drilling, grouting and sealing will not be measured for payment, but the costs shall be included in the price bid for the Wayfinding Sign'.

Basis of Pavement: Payment for this work will be made at the contract unit price lump sum as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

Pay Item	**Pay Unit**

Wayfinding Sign LS.

ITEM #1220011A - CONSTRUCTION SIGNS – TYPE III REFLECTIVE SHEETING

Article 12.20.01 – **Description:** The Contractor shall furnish construction signs with Type III reflective sheeting and their required portable supports or metal sign posts that conform to the requirements of NCHRP Report 350 (TL-3) and to the signing requirements stated in Article 9.71 "Maintenance and Protection of Traffic," as shown on the plans and/or as directed by the Engineer.

Article 12.20.02 – Materials: Prior to using the construction signs and their portable supports, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices (both sign and portable support tested together) conform to NCHRP Report 350 (TL-3).

Portable sign supports shall be designed and fabricated so that the signs do not blow over or become displaced by the wind from passing vehicles. Portable sign supports shall be approved by the Engineer before they are used.

Mounting height of signs on portable sign supports shall be a minimum of 1 foot and a maximum of 2 feet, measured from the pavement to the bottom of the sign.

All sign faces shall be rigid and reflectorized. Reflective sheeting shall conform to the requirements of Article M.18.09.01 (Type III). Sheet aluminum sign blanks shall conform to the requirements of Article M.18.13. Metal sign posts shall conform to the requirements of Article M.18.14. Application of reflective sheeting, legends, symbols, and borders shall conform to the requirements specified by the reflective sheeting manufacturer. Attachments shall be provided so that the signs can be firmly attached to the portable sign supports or metal posts without causing damage to the signs.

The following types of construction signs shall not be used: mesh, non-rigid, roll-up.

The following portable sign support systems or equivalent systems that meet the above requirements may be used:

- Korman Model #SS548 flexible sign stand with composite aluminum sign substrate (APOLIC)

- Traffix "Little Buster" dual spring folding sign stand with corrugated polyethylene (0.4 in. thick) sign substrate (InteCel)

Article 12.20.03 – Construction Methods: Ineffective signs, as determined by the Engineer and in accordance with the ATSSA guidelines contained in "Quality Standards

for Work Zone Traffic Control Devices", shall be replaced by the Contractor at no cost to the Town.

Signs and their portable supports or metal posts that are no longer required shall be removed from the project and shall remain the property of the Contractor.

Article 12.20.04 – Method of Measurement: Construction Signs - Type III Reflective Sheeting will be measured for payment by the number of square feet of sign face. Sign supports will not be measured for payment.

Article 12.20.05 – Basis of Payment: "Construction Signs – Type III Reflective Sheeting" required and used on the project will be paid for at the Contract unit price per square foot. This price shall include the furnishing and maintenance of the signs, portable sign supports, metal sign posts and all hardware. Each sign and support or posts will be paid for once, regardless of the number of times it is used.

Pay Item	Pay Unit
Construction Signs – Type III Reflective Sheeting	S.F.

ITEM # 1302046A – RESET MANHOLE (WATER)

Adjust manhole rim and cover to the proposed grades indicated on the contract documents . Contact the water utility prior to performing the work.

Method of Measurement:

The method of measurement shall be in units of each “Reset Manhole (Water)”.

Basis of Pavement: Payment for this work will be made at the contract unit price each as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
1302046A (WATER)		RESET MANHOLE EACH

ITEM # 1302061A – ADJUST GATE BOX (WATER)

Adjust water gate box to the proposed grades indicated on the contract documents. Contact the water utility prior to performing the work.

Method of Measurement:

The method of measurement shall be in units of each “Adjust Gate Box (Water)”.

Basis of Pavement: Payment for this work will be made at the contract unit price each as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
1302061A	ADJUST GATE BOX (WATER)	EACH

ITEM #1309189A – RESET FIRE HYDRANT

ITEM # 1303196A – RELOCATE FIRE HYDRANT

Description: This work shall consist of resetting, disconnection, alteration and reconnection of those existing fire hydrants at locations necessary to complete this project and as ordered by the Engineer. This work shall include the coordination with the affected utility companies and customers. Any damage caused by the Contractor or Subcontractors, as determined by the Engineer, shall be corrected by the Contractor in accordance with this specification.

Materials: All materials shall be provided by the Contractor and shall meet the current standards of the affected service.

Construction Methods: The Contractor shall perform all work in coordination with the Utility Company and as directed by the Engineer. Certain work may require use of a licensed and/or certified tradesman when such work is required by local and/or state codes.

Any work and materials supplied by the utility companies shall be on a billable basis to the Contractor.

Method of Measurement: Resetting of Fire Hydrant and Relocation of fire hydrants will be measured as units.

Corrective work required to repair damage caused by the Contractor or its Subcontractors shall not be measured for payment.

Basis of Payment: Relocation of Fire Hydrant and Resetting of Fire Hydrant will be paid for at the contract unit price each complete, in place, whish price shall include all materials, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Reset Fire Hydrant	Ea.
Relocation of Fire Hydrants	Ea.

ITEM # 140350A – RESET MANHOLE (SANITARY)

Adjust manhole rim and cover to the proposed grades indicated on the contract documents.

Method of Measurement:

The method of measurement shall be in units of each “Reset Manhole (Sanitary)”.

Basis of Pavement: Payment for this work will be made at the contract unit price each as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
140350A	RESET MANHOLE (SANITARY)	EACH

ITEM # 1500210A – RESET MANHOLE (TELEPHONE)

Adjust manhole rim and cover to the proposed grades indicated on the contract documents . Contact the telephone utility prior to performing the work.

Method of Measurement:

The method of measurement shall be in units of each “Reset Manhole (Telephone)”.

Basis of Pavement: Payment for this work will be made at the contract unit price each as stipulated herein, and as specified and shown on the Contract Documents, complete in place, which price shall include all material, transport, equipment, tools, machinery, and labor incidental thereto.

ITEM NO.	DESCRIPTION	UNIT
1500210A	RESET MANHOLE (TELEPHONE)	EACH

SECTION M.04 BITUMINOUS CONCRETE

M.04.01—Bituminous Concrete Materials and Facilities
M.04.02—Mix Design and Job Mix Formula (JMF)
M.04.03—Production Quality Control (QC) Testing and Control of Mixture

M.04.01—Bituminous Concrete Materials and Facilities: Each source of material, and facility used to produce and test bituminous concrete (HMA) must be qualified on an annual basis by the Engineer. The basis of approval for plant machinery, material processing & controls, and field laboratory requirements are available from the Engineer. Test Procedures and Specifications referenced herein are in accordance with the latest AASHTO and ASTM Standard Test Procedures and Specifications. Such references when noted with an (M) have been modified by the Engineer and are detailed in Table M.04.03-6.

The Contractor shall submit to the Engineer all sources of coarse aggregate, fine aggregate, mineral filler and PG binder. The Contractor shall submit a Material Safety Data Sheet (MSDS) for each grade of binder to be used on the Project. The Contractor shall not change material sources without prior approval of the Engineer.

An adequate quantity of each size aggregate, mineral filler and bitumen shall be maintained at the HMA plant site at all times while the plant is in operation to ensure that the plant can consistently produce bituminous concrete mixtures that meet the job mix formula (JMF) as specified in M.04.02. The quantity of such material shall be reviewed by the Engineer on an individual plant basis and is dependent upon the plant's daily production capacity, but shall never be less than one day's production capacity. Less than one day's production capacity may be cause for the job mix formula to be rejected.

1. Coarse Aggregate:

a. Requirements: The coarse aggregate shall consist of clean, hard, tough, durable fragments of crushed stone or crushed gravel of uniform quality. Aggregates from multiple sources of supply must not be mixed or stored in the same stockpile.

b. Basis of Approval: The request for approval of the source of supply shall include a washed sieve analysis in accordance with AASHTO T 27. The Gsa, Gsb, and Pw_a shall be determined in accordance with AASHTO T 85. The coarse aggregate must not contain more than 1% crusher dust, sand, soft disintegrated pieces, mud, dirt, organic and other injurious materials. When tested for abrasion using AASHTO T 96, the aggregate loss must not exceed 40%. When tested for soundness using AASHTO T 104 with a magnesium sulfate solution, the coarse aggregate must not have a loss exceeding 10% at the end of 5 cycles.

For HMA mixtures, materials shall also meet the coarse aggregate angularity criteria as specified in Tables M.04.02-2 thru M.04.02-4 for blended aggregates retained on the #4 sieve when tested according to ASTM D 5821. The amount of aggregate particles of the coarse aggregate blend retained on the #4 sieve that are flat or elongated shall be determined in accordance with ASTM D 4791 and shall not exceed 10% by weight when tested to a 3:1 ratio, as shown in Tables M.04.02-2 thru M.04.02-4.

2. Fine Aggregate:

Requirements: The fine aggregate from each source quarry/pit deposit shall consist of clean, hard, tough, rough-surfaced and angular grains of natural sand; manufactured sand prepared from washed stone screenings; stone screenings, slag or gravel; or combinations thereof, after mechanical screening or manufactured by a process approved by the Engineer. The Contractor is prohibited from mixing two or more sources of fine aggregate on the ground for the purpose of feeding into an HMA plant.

a. All fine aggregate shall meet the listed criteria shown in items #1 thru #7 of Table M.04.01-1. Table M.04.01-1 indicates the quality tests and criteria required for all fine aggregate sources. Individually approved sources of supply shall not be mixed or stored in the same stockpile. The fine aggregates must be free from injurious amounts of clay, loam, and other deleterious materials.

   For Superpave mixtures, in addition to the above requirements, the fine aggregate angularity shall be determined by testing the materials passing the #8 sieve in accordance with AASHTO T 304, Method A. Qualification shall be based on the criteria listed in Tables M.04.02-2 thru M.04.02-4. The fine aggregate shall also be tested for clay content as a percentage contained in materials finer than the #8 sieve in accordance with AASHTO T 176.

Table M.04.01-1: Fine Aggregate Criteria by Pit/Quarry Source

Item	Title	AASHTO Protocol	Criteria
1	Grading	T 27 and T 11	100% Passing the 3/8 inch 95% Passing the #4 minimum
2	Absorption	T 84	3% maximum
3	Plasticity limits	T 90	0 or not detectable
4	L.A. Wear	T 96	50% maximum(fine aggregate particle size # 8 and above)
5	Soundness by Magnesium Sulfate	T 104	20% maximum @ 5 cycles
6	Clay Lumps and Friable Particles	T 112	3% maximum

7	Deleterious Criteria	As determined by the Engineer	Deleterious substances include: Organic or inorganic calcite, hematite, shale, clay or clay lumps, friable materials, coal-lignite, shells, loam, mica, clinkers, or organic matter (wood, etc). -Shall not contain more than 3% by mass of any individual listed constituent and not more than 5% by mass in total of all listed constituents.
If Fine aggregate is tested by the CTDOT twice and does not meet above criteria.			
8	Pit/source Petrographic Analysis	C 295 (ASTM)	• Required to be performed by the Contractor at no expense to the Department. • Report assignable cause(s), corrective action taken to mitigate source and written request for resample. • If fine aggregate fails upon retest, Contractor may be permitted to request trial use on roadway for evaluation using the subject fine aggregate in HMA, to be monitored for no more than 48 months. • Evaluation location(s); mix size & level; terms and costs related to this application; determination of performance, and approval will be established at the sole discretion of the Engineer.

b. Basis of Approval: A Quality Control Plan for Fine Aggregate (QCPFA) provided by the Contractor shall be submitted for review and approval for each new source documenting how conformance to Items 1 through 7 as shown in Table M.04.01-1 is monitored. The QCPFA must be resubmitted any time the process, location or manner of how the fine aggregate (FA) is manufactured changes, or as requested by the Engineer. The QCPFA must include the locations and manufacturing processing methods. The QCPFA for any source may be suspended by the Engineer due to the production of inconsistent mixtures.

The Contractor shall submit all test results to the Engineer for review. The Contractor shall also include a washed sieve analysis in accordance with AASHTO T 27/T 11. Any fine aggregate component or final combined product shall have 100% passing the 3/8 inch sieve and a minimum of 95% passing the # 4. The Gsa, Gsb, and Pw_a shall be determined in accordance with AASHTO T 84.

The Contractor will be notified by the Engineer if any qualified source of supply fails any portion of Table M.04.01-1. One retest will be allowed for the Contractor to make corrections and/or changes to the process. If, upon retest, the material fails again, the use of the material will not be permitted without additional testing.

The Contractor may solicit additional testing by a third party acceptable to the Engineer to perform a Petrographic analysis (ASTM C 295), at its expense. The Contractor shall submit the results of the analysis with recommended changes to the manufacturing process to the Engineer. The Contractor shall submit fine aggregate samples for testing by the Engineer after the recommended changes have been made.
Upon review of the Petrographic analysis report and identified items that were corrected, the source may be re-sampled and tested by the Engineer.

c. The Contractor may request that the use of such material not meeting the requirements be considered on select project(s) for certain applications. HMA pavement incorporating such material will be monitored and evaluated for a period not to exceed 48 months, at the direction of the Department and at the expense of the Contractor. Terms of any evaluation and suitable application will be predetermined by the Engineer.

   If the Engineer determines, upon evaluation, that the fine aggregate performance is adequate and not harmful to the pavement's serviceability, the Department may approve the material for use in HMA mixtures in similar applications.

3. Mineral Filler:

a. Requirements: Mineral filler shall consist of finely divided mineral matter such as rock dust, including limestone dust, slag dust, hydrated lime, hydraulic cement, or other accepted mineral matter. At the time of use it shall be freely flowing and devoid of agglomerations. Mineral Filler shall be introduced and controlled at all times during production in a manner acceptable to the Engineer.

b. Basis of Approval: The request for approval of the source of supply shall include the location, manufacturing process, handling and storage methods for the material. Mineral filler shall conform to the requirements of AASHTO M-17

4. Liquid Bituminous Materials:

a. Performance grade (PG) binder Requirements:
   i. Binders shall contain uniformly mixed and blended liquid bituminous materials that are free of contaminants such as fuel oils and other solvents. Such binders shall be properly heated and stored to prevent damage or separation. A PG binder shall be classified by the supplier as a "Neat" binder for each lot and be so labeled on each bill of lading. Neat PG binders shall be asphalts free from modification with: fillers, extenders, reinforcing agents, adhesion

promoters, thermoplastic polymers, acid modification and other additives, and shall indicate such information on each bill of lading and certified test report.

ii. The blending at mixing plants of PG binder from different suppliers is strictly prohibited. Contractors who blend PG binders will be classified as a supplier and will be required to certify the binder in accordance with AASHTO R-26(M). The asphalt binder shall be Performance Grade 64-22 Neat asphalt. The binder shall meet the requirements of AASHTO M-320(M) and AASHTO R-29(M). The Contractor shall submit a Certified Test Report and bill of lading representing each delivery in accordance with AASHTO R-26(M). The Certified Test Report must also indicate the binder specific gravity at 77°F; rotational viscosity at 275°F and 329°F and the mixing and compaction viscosity-temperature chart for each shipment.

iii. The Contractor shall submit the name(s) of personnel responsible for receipt, inspection, and record keeping of PG binder materials. Contractor plant personnel shall document specific storage tank(s) where binder will be transferred and stored until used, and provide binder samples to the Engineer upon request. The person(s) shall assure that each shipment (tanker truck) is accompanied by a statement certifying that the transport vehicle was inspected before loading and was found acceptable for the material shipped and that the binder will be free of contamination from any residual material, along with two (2) copies of the bill of lading.

iv. Basis of Approval: The request for approval of the source of supply shall list the location where the material will be manufactured, and the handling and storage methods, along with necessary certification in accordance with AASHTO R-26(M). Only suppliers/refineries that have an approved "Quality Control Plan for Performance Graded Binders" formatted in accordance with AASHTO R-26(M) will be allowed to supply PG binders to Department projects.

b. <u>Cut-backs (medium cure type)</u>

i. Requirements: The liquid petroleum materials shall be produced by fluxing an asphalt base with appropriate petroleum distillates to produce the grade specified.

ii. Basis of Approval: The request for approval of the source of supply shall be submitted at least seven days prior to its use listing the location where the materials will be produced, and manufacturing, processing, handling and storage methods. The Contractor shall submit a Certified Test Report in accordance with article 1.06 and a Material Safety Data Sheet (MSDS) for the grade to be used on the Project. The liquid asphalt shall be MC-250 conforming to AASHTO M-82.

c. <u>Emulsions</u>

i. Requirements: The emulsified asphalt shall be homogeneous and not be used if exposed to freezing temperatures.

ii. Basis of Approval**:** The request for approval of the source of supply must include the location where the materials will be produced, and manufacturing, processing, handling and storage methods.

1. Emulsified asphalts shall conform to the requirements of AASHTO M-140. Materials used for tack coat shall not be diluted and meet grade RS-1. When ambient temperatures are 80˚F and rising, grade SS-1 or SS-lh may be substituted if accepted by the Engineer. Each shipment shall be accompanied with a Certified Test Report listing Saybolt viscosity, residue by evaporation, penetration of residue, and weight per gallon.

2. Cationic emulsified asphalt shall conform to the requirements of AASHTO M-208(M). Materials used for tack coat shall not be diluted and meet grade CRS-1. The settlement and demulsibility test will not be performed unless deemed necessary by the Engineer. When ambient temperatures are 80˚F and rising, grade CSS-1 or CSS-lh may be substituted if accepted by the Engineer. Each shipment shall be accompanied with a Certified Test Report listing Saybolt viscosity, residue by evaporation, penetration of residue, and weight per gallon.

5. Reclaimed Asphalt Pavement (RAP):

a. Requirements: RAP shall consist of asphalt pavement constructed with asphalt and aggregate reclaimed by cold milling or other removal techniques approved by the Engineer. For bituminous mixtures containing RAP, the Contractor shall submit a JMF in accordance with M.04.02 to the Engineer for review.

b. Basis of Approval: The RAP material will be accepted on the basis of one of the following criteria:

i. When the source of all RAP material is from pavements previously constructed on Department projects, the Contractor shall provide a materials certificate listing the detailed locations and lengths of those pavements and that the RAP is only from those locations listed.

ii. When the RAP material source or quality is not known, the Contractor shall test the material and provide the following information along with a request for approval to the Engineer at least 30 calendar days prior to the start of the paving operation. The request shall include a material certificate stating that the RAP consists of aggregates that meet the specification requirements of M.04.01-1 through 3 and that the binder in the RAP is substantially free of solvents, tars and other contaminants. The Contractor is prohibited from using unapproved material on Department projects and shall take necessary action

to prevent contamination of approved RAP stockpiles. Stockpiles of unapproved material shall remain separate from all other RAP materials at all times. The request for approval shall include the following:

1. A 50-pound sample of the RAP to be incorporated into the recycled mixture.
2. A 25-pound sample of the extracted aggregate from the RAP.
3. After recovery of binder from the RAP by AASHTO T 170(M), the viscosity test results shall be reported when tested at 140°F by AASHTO T 202 or T 316.
4. A statement that RAP material has been crushed to 100% passing the ½ inch sieve and remains free from contaminants such as joint compound, wood, plastic, and metals.

6. Crushed Recycled Container Glass (CRCG):

a. Requirements: The Contractor may propose to use clean and environmentally-acceptable CRCG in an amount not greater than 5% by weight of total aggregate.

b. Basis of Approval: The Contractor shall submit to the Engineer a request to use CRCG. The request shall state that the CRCG contains no more than 1% by weight of contaminants such as paper, plastic and metal and conform to the following gradation:

CRCG Grading Requirements	
Sieve Size	Percent Passing
3/8-inch	100
No. 4	35-100
No. 200	0.0-10.0

7. Joint Seal Material:

Requirements: Joint seal material shall be a hot-poured rubber compound intended for use in sealing joints and cracks in Asphalt Concrete Pavements. Joint seal material must meet the requirements of AASHTO M-324 – Type 2.

8. Plant production requirements

a. Storage Silos:

i. The Contractor may use silos for short-term storage of Superpave mixtures with prior notification and approval of the Engineer. A silo must have heated cones and an unheated silo cylinder if it does not contain a separate internal heating system. Prior approval must be obtained for storage times greater than those indicated. When multiple silos are filled, the Contractor shall

discharge one silo at a time. Simultaneous discharge of multiple silos is not permitted.

Type of silo cylinder	Maximum storage time for all classes (hr)
Open Surge	4
Unheated – Non-insulated	8
Unheated – Insulated	18
Heated – No inert gas	To be determined by the Engineer

ii. For all classes of mixture sampled from hauling vehicles at the plant after storage in silos (virgin or mixture containing RAP) except 5, 5A, and 5B, the binder properties of the recovered asphalt shall meet the PG binder grade specified when recovered by AASHTO T 170(M) and tested in accordance with AASHTO R-29 and M-320(M).

iii. If mixture coming out of a silo continuously does not meet the requirements of M.04.03, or the binder does not meet the PG requirements, the Engineer shall deem that silo unacceptable for use.

b. Aggregates: The Contractor shall ensure that aggregate stockpiles are managed to provide uniform gradation and particle shape, prevent segregation and cross contamination in a manner acceptable to the Engineer. For drum plants only, the Contractor shall determine the percent moisture content a minimum of twice daily, prior to production and half way through production. The Contractor shall perform cold feed gradation analysis (AASHTO T 27(M) & T 11) for each component aggregate to ensure values remain within the tolerances stated in Table M.04.02 when compared to the latest JMF for that class.

c. Mixture: The dry and wet mix times shall be sufficient to provide proper coating (minimum 95% as determined by AASHTO T 195(M)) of all particles with bitumen and produce a uniform mixture. The Contractor shall make necessary adjustments to ensure bituminous concrete mixtures are free from moisture throughout. The Contractor shall make necessary adjustments to ensure all types of bituminous concrete mixtures contain no more than 0.5% moisture throughout when tested in accordance with AASHTO T 329.

d. RAP: The Contractor shall indicate the percent of RAP, the moisture content (as a minimum, determined twice daily – prior to production and halfway through production), and the net dry weight of RAP added to the mixture on each truck ticket. For each day of production, the production shall conform to the job mix formula and RAP percentage and no change shall be made without the prior approval of the Engineer.

e. Documentation system: The mixing plant documentation system shall include equipment for accurately proportioning the components of the mixture by weight and in the proper order, controlling the cycle sequence and timing the mixing operations. Recording equipment shall monitor the batching sequence of each

component of the mixture and produce a printed record of these operations on each truck ticket, as specified herein. Tolerance controls shall be automatically or manually adjustable to provide proportions within these tolerances for any batch size. The automatic proportioning system shall be capable of consistently delivering mixtures within these limits for the full range of batch sizes.

An asterisk (*) shall be automatically printed next to any individual batch weight(s) exceeding these tolerances. The entire batching and mixing interlock cut-off circuits shall interrupt and stop the automatic batching operations when an error exceeding the acceptable tolerance occurs in proportioning.

Each Aggregate Component:	±1.0 % total target batch weight
Mineral Filler	±0.5 % of the total batch
Bituminous Material	±0.1 % of the total batch
Zero Return (Aggregate)	±0.5 % of the total batch
Zero Return (Bituminous Material)	±0.1 % of the total batch

There must be provisions so that scales are not manually adjusted during the printing process. In addition, the system shall be interlocked to allow printing only when the scale has come to a complete rest. A unique printed character (m) shall automatically be printed on the truck and batch plant printout when the automatic batching sequence is interrupted or switched to auto-manual or full manual during proportioning. For each day's production, each project shall be provided a clear, legible copy of these recordings on each truck ticket.

f. Field Laboratory:

The Contractor shall furnish the Engineer an acceptable field laboratory, to test bituminous mixtures during production and the Engineer shall have priority to use it for testing. The HMA plant production field laboratory shall have a minimum of 300 square feet, have a potable water source and drainage in accordance with the CT Department of Public Health Drinking Water Division, be equipped with all necessary testing equipment as well as with a PC, printer, dedicated phone, and separate dedicated data line. This equipment shall be maintained in clean and good working order at all times and be made available for use by the Engineer.

The laboratory shall be equipped with a suitable heating system capable of maintaining a minimum temperature of 65°F. It shall be clean and free of all materials and equipment not associated with the laboratory. Windows shall be installed to provide sufficient light and ventilation. During summer months, the laboratory temperature shall not exceed ambient temperature. Light fixtures and outlets shall be installed at convenient locations, and a telephone shall be within audible range of the testing area. The laboratory shall be equipped with an adequate workbench that has a suitable length, width, and sampling tables, and be approved by the Engineer.

The field laboratory testing apparatus, supplies, and safety equipment shall be capable of performing all tests in their entirety that are referenced in AASHTO R 35(M), *Standard Practice for Superpave Volumetric Design for Hot-Mix Asphalt (HMA)* and AASHTO M 323, *Standard Specification for Superpave Volumetric Mix Design*. In addition, the quantity of all equipment and supplies necessary to perform the tests must be sufficient to initiate and complete the number of tests identified in Table M.04.03-2 for the quantity of mixture produced at the plant on a daily basis. The Contractor shall ensure that the Laboratory is adequately supplied at all times during the course of the project with all necessary testing materials and equipment.

g. Mixing Plant and Machinery:
The mixing plant used in the preparation of the bituminous concrete shall comply with AASHTO M-156(M)/ASTM D 995 for a Batch Plant or a Drum Dryer Mixer Plant, and be approved by the Engineer.

M.04.02—Mix design and Job Mix Formula (JMF)

1. Marshall Method - Class 1, 2, 3, 4, 5, 5A, 5B and 12:

a. Requirements: When specified, the Marshall method shall be employed to develop a bituminous concrete mix design that includes a JMF consisting of target values for gradation and bitumen content for each class of bituminous concrete designated for the project in accordance with the latest Asphalt Institute's MS-2 manual. Each class of bituminous concrete must meet the requirements as shown in Table M.04.02-1.

b. Basis of Approval: The Contractor shall submit to the Engineer a request for approval of the JMF annually in accordance with one of the methods described herein. Prior to the start of any paving operations, the JMF and production percentage of bitumen must be accepted by the Engineer, and the Contractor must demonstrate the ability to meet the accepted JMF and production percentage of bitumen for each class of mixture. Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

The Engineer will test each class of mixture for compliance with the submitted JMF and Table M.04.02-1. The maximum theoretical density (Gmm) will be determined by AASHTO T 209(M). If the mixture does not meet the requirements, the JMF shall be adjusted within the ranges shown in Table M.04.02-1 until an acceptable mixture is produced. All equipment, tests and computations shall conform to the Marshall method in accordance with AASHTO T 245(M).

An accepted JMF from the previous operating season may be acceptable to the Engineer provided that there are no changes in the sources of supply for the

coarse aggregate, fine aggregate, recycled material (if applicable) and the plant operation had been consistently producing acceptable mixture.

The Contractor shall not change sources of supply after a JMF has been accepted. Before a new source of supply for materials is used, a new JMF shall be submitted to the Engineer for approval.

c. Marshall mixture (virgin): For bituminous concrete mixtures that contain no recycled material, the limits prescribed in Table M.04.02-1 govern. The Contractor shall submit to the Engineer for approval, a JMF with the individual fractions of the aggregate expressed as percentages of the total weight of the mix and the source(s) of all materials. The JMF shall indicate two bitumen contents; the JMF target percentage and a production percentage (actual amount added to mix) of bitumen for each mix class by total weight. For surface course Class 1, a 0.45 power gradation chart shall also be submitted on which is plotted the percentage passing each sieve. The JMF shall also indicate the target temperature of completed mixture as it is dumped from the mixer and tested in accordance with M.04.03.

d. Marshall mixtures with RAP: In addition to M.04.02 – 1a through c, RAP in bituminous concrete shall comply with requirements stated in M.04.01, and as stated herein. Upon approval of the Engineer, a maximum of 15% RAP may be used with no binder grade modification. RAP material shall not be used with any other recycling option.
The Contractor may increase the RAP percentage in 5% increments up to a maximum of 30% provided a new JMF is accepted by the Engineer. The following information shall be included in the JMF submittal:
   - Gradation and asphalt content of the RAP.
   - Percentage of RAP to be used.
   - Virgin aggregate source(s).
   - Total binder content based on total mixture weight.
   - Production pull percentage of added virgin binder based on total mixture weight.
   - Gradation of combined bituminous concrete mixture (including RAP).
   - Grade of virgin added, if greater than 15% of total mix weight.

e. Marshall mixture with CRCG: In addition to M.04.02 – 1a through c, for bituminous concrete that contains CRCG, the Contractor shall submit a materials certificate to the Engineer stating that the mixture and its components comply with requirements stated in M.04.01 - (6). Additionally, 1% hydrated lime, or other accepted non-stripping agent, shall be added to all mixtures containing CRCG. CRCG material shall not be used with any other recycling option.

2. Cold Patch Method - Class 5, 5A, 5B:

a. Requirements: This mixture must be capable of being stockpiled and workable at all times. A non-stripping agent accepted by the Engineer shall be used in accordance with manufacturer's recommendations. The Contractor shall take necessary steps to ensure that this mixture uses aggregate containing no more than 1% moisture and is not exposed to any rain, snow, or standing water for a period of 6 hours after being mixed. This mixture shall be mixed and stockpiled at the point of production on a paved surface at a height not greater than 4 feet during the first 48 hours prior to its use.
   i. Class 5A mixture shall have 3/8 to ½ inch polypropylene fibers that have been approved by the Engineer added at a rate of 6 pounds per ton of mixture.
   ii. Class 5B mixture shall have ¼ inch polyester fibers that have been approved by the Engineer added at the rate of 2 1/2 pounds per ton of mixture.
   iii. Class 5 mixture shall not contain fibers.

b. Basis of Approval: The aggregates, fibers and binder (MC-250) shall meet the requirements as specified in M.04.01-1 through 4 and in Table M.04.02-1. The use of recycled material is not permitted with these classes of bituminous concrete. Mixtures not conforming to the binder content as shown in Table M.04.02-1 shall be subject to rejection. There is a two test minimum per day of production. Mixtures not conforming to the gradation as shown in Table M.04.02-1 shall be subject to payment adjustment as specified in Article 4.06.

TABLE M.04.02 – 1 MASTER RANGES FOR MARSHALL BITUMINOUS CONCRETE MIXTURES

Notes: (a) 75 blow (Marshall Criteria). (b) 3-6% when used for a roadway wearing surface. (c) For divided highways with 4 or more lanes, a stability of 1500 lbs is required. (d) Contains an accepted non-stripping compound. (e) To help prevent stripping, the mixed material will be stockpiled on a paved surface and at a height not greater than 4 feet during the first 48 hours. (f) As determined by AASHTO T 245(M). (g) The percent passing the #200 sieve shall not exceed the percentage of bituminous asphalt binder determined by AASHTO T

CLASS	**1**	**2**	**3**	**4**	**12**	**5 (e)(j)**	**5A (e)(j)**	**5B (e)(j)**	**JMF % Tol. (±)**
Grade of PG Binder content %	**PG 64-22 5.0 – 6.5**	**PG 64-22 5.0 – 8.0**	**PG 64-22 6.5 - 9.0**	**PG 64-22 4.0 - 6.0**	**PG 64-22 7.5 - 10.0**	**MC-250 (d) 6.0 - 7.5**	**MC-250 (d) 6.0 - 7.5**	**MC-250 (d) 6.0 - 7.5**	0.4
Sieve Size	**Percent Passing (%)**								
# 200	3.0 – 8.0 (g)	3.0 – 8.0 (g)	3.0 – 8.0 (g)	0.0 – 5.0 (g)	3.0 – 10.0 (g)	0.0 - 2.5	0 .0- 2.5	0.0 - 2.5	2.0
# 50	6 – 26	8 – 26	10 - 30	5 - 18	10 - 40				4
# 30	10 - 32	16 - 36	20 - 40		20 - 60	2 - 15	2 – 15	2 - 15	5
# 8	28 - 50	40 - 64	40 - 70	20 - 40	60 - 95	10 - 45	10 – 45	10 - 45	6
# 4	40 - 65	55 - 80	65 - 87	30 - 55	80 - 95	40 - 100	40 – 100	40 - 100	7
¼”									
3/8 “	60 - 82	90 - 100	95 - 100	42 - 66	98 - 100	100	100	100	8
½ “	70 - 100	100	100		100				8
¾”	90 - 100			60 - 80					8
1”	100								
2”				100					
	Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%								
Mixture Temperature									
Binder	325°F maximum					140-185° F			
Aggregate	280-350° F					100-175° F			
Mixtures	265-325° F				120-175°F	120-175° F			25 °F

Mixture Properties						
VOIDS - %	3.0 – 6.0 (a)	2.0 – 5.0 (b)	0 – 4.0		0 - 5.0 (a)	
Stability (f) lbs. min.	1200 (c)	1000	1000		1000	
FLOW (f) in.	.08 - .15	.08 - .15	.08 - .18		.08 - .15	
VMA % - min.	15(h) :16 (i)					

3. Superpave Design Method – S0.25, S0.375, S0.5, and S1

a. Requirements: The Contractor or its representative shall design and submit Superpave mix designs annually for approval. The design laboratory developing the mixes shall be approved by the Engineer. The mix design shall contain the nominal maximum aggregate size and include a JMF consisting of target values for gradation and bitumen content for each HMA mix type designated for the project, as specified in Tables M.04.02-2 thru Table M.04.02-5 and in accordance with the latest requirements of AASHTO M 323(M) and AASHTO R 35(M).

The contractor shall provide a certified test report with supporting documentation from an accredited AASHTO Materials Reference Laboratory (AMRL) with the use of NETTCP Certified Technicians for aggregate consensus properties for each type & level, as specified in Table M.04.02-3. In addition the Gsa, Gsb, Pw_a shall also be provided for each component aggregate. New mixes shall be tested in accordance with AASHTO T 283(M) *Standard Method of Test for Resistance of Compacted Hot Mix Asphalt (HMA) to Moisture-Induced Damage.* The tensile strength ratio must be indicated on the certified test report. The mix design shall conform to all criteria applicable to the selected traffic level equivalent single-axle loads (ESAL) as specified in this contract. Each HMA mix type must meet the requirements shown in Tables M.04.02-2 thru Table M.04.02-5.

In addition, minimum binder content values apply to all types of HMA mixtures, as stated in Table M.04.02-5. For mixtures containing RAP, the virgin production and the anticipated proportion of binder contributed by the RAP cannot be less than the total permitted binder content value for that type nor the JMF minimum binder content.

Superpave Mixture (virgin): For HMA mixtures that contain no recycled material, the limits prescribed in Tables M.04.02-2 thru Table M.04.02-5 apply. The Contractor shall submit a JMF, on a form provided by the Engineer, with the individual fractions of the aggregate expressed as percentages of the total weight of the mix and the source(s) of all materials to the Engineer for approval. The JMF shall indicate the corrected target binder content and applicable binder correction factor (ignition oven or extractor) for each mix type by total weight of mix. The mineral filler (dust) shall be defined as that portion of blended mix that passes the #200 sieve by weight when tested in accordance with AASHTO T 30(M). The dust-to-effective asphalt (D/Pbe) ratio shall be between 0.6 and 1.2 by weight. The dry/wet mix times and hot bin proportions (batch plants only) for each type shall be included in the JMF.

The percentage of aggregate passing each sieve shall be plotted on a 0.45 power gradation chart and shall be submitted for all HMA mixtures. This chart shall delineate the percentage of material passing each test sieve size as defined

by the JMF. The percentage of aggregate passing each standard sieve shall fall within the specified control points, but outside the restricted zone limits as shown in Tables M.04.02-2 thru Table M.04.02-5. Mixes with documented performance history which pass through the restricted zone may be permitted for use as long as all other physical and volumetric criteria meets specifications as specified in Tables M.04.02-2 thru Table M.04.02-5 and with prior approval from the Engineer. A change in the JMF requires that a new chart be submitted.

Superpave Mixtures with RAP: In addition to sections M.04.02 – 3 a through c, for HMA that contains RAP, the Contractor shall submit a materials certificate to the Engineer stating that the RAP complies with requirements stated in section M.04.01. Upon approval of the Engineer, a maximum of 15% RAP may be used with no binder grade modification for batch plants and drum plants.

The RAP shall be crushed after milling or other removal method so that 100 % passes the 0.5 inch sieve. Also, under no circumstances shall the top-size aggregate in the RAP exceed the nominal maximum aggregate size allowed by the job mix formula for that mix. The Contractor shall assure that the RAP is free from contaminating substances such as joint seal compound. The aggregate type used, either gravel, trap rock or a blend of the two, shall be maintained and consistent throughout the entire roadway. The final Superpave mixture shall conform to specifications as amended herein. RAP material shall not be used with any other recycling option.

b. Basis of Approval: On an annual basis the Contractor shall submit to the Engineer a request for approval of the HMA mixture, the mix design, and JMF in accordance with one of the methods described herein. Prior to the start of any paving operations, the JMF must be approved by the Engineer, and the Contractor must demonstrate the ability to meet the accepted JMF and production percentage of bitumen for each type of mixture. HMA mixture supplied to the project without an approved mix design, JMF and approved facility will be rejected. The JMF shall also indicate the target temperature of completed mixture as it is dumped from the mixer and tested in accordance with M.04.03. Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

HMA Plant Trials: Upon submittal and approval of the mix design by the Engineer, the Contractor shall test and evaluate plant-produced mixture (PPT) in accordance with these specifications when required.

The JMF shall be accepted if the HMA Plant mixture and materials meet all criteria as specified in Tables M.04.02-2 thru Table M.04.02-5. If the mixture does not meet the requirements, the contractor shall adjust the JMF within the ranges shown in Tables M.04.02-2 thru Table M.04.02-5 until an acceptable

mixture is produced. All equipment, tests, and computations shall conform to the latest AASHTO R-35(M) and AASHTO M-323(M).

Any JMF, once approved, shall only be acceptable for use when it is produced by the designated HMA plant, it utilizes the same component aggregates and binder source, and it continues to meet all criteria as specified herein, and component aggregates are maintained within the tolerances shown in Table M.04.02-2.

The Contractor shall not change any component source of supply including consensus properties after a JMF has been accepted. Before a new source of materials is used, a revised JMF shall be submitted to the Engineer for approval. Any approved JMF applies only to the plant for which it was submitted. Only one mix with one JMF will be approved for production at any one time. Switching between approved JMF mixes with different component percentages or sources of supply is prohibited.

The following information must be included in the mix design submittal:

a. Gradation, specific gravities and asphalt content of the RAP,
b. Material Certificate stating that all RAP inventory conforms to all material specifications,
c. Percentage of RAP to be used.

Superpave mixture with CRCG: In addition to M.04.02 – 3 a through c, for HMA mixtures that contain CRCG, the Contractor shall submit a materials certificate to the Engineer stating that the CRCG complies with requirements stated in M.04.01, as applicable. Additionally, 1% hydrated lime, or other accepted non-stripping agent, shall be added to all mixtures containing CRCG. CRCG material shall not be used with any other recycling option.

c. Mix Status: Each Plant will have each type of HMA mixture evaluated based on previous years production compliance, for the next construction paving season, as determined by the Engineer. Based on the rating a type receives it will determine whether the mixture can be produced without the prior completion of a PPT. Ratings will be provided to each HMA producer annually at the beginning of the paving season.

1) Rating Procedure: Ratings for each type are as follows:

"A" – Approved:
Rating assigned to a mixture type from a producer with a current rating of 70% or better based on specification compliance based on binder content (Pb), air voids (Va), maximum theoretical gravity (G_{mm}), and Voids in Mineral Aggregate (VMA).

"PPT" – Pre-Production Trial:

Rating assigned to a type of mixture when there is no production history from the previous year, has a change in one or more aggregate components from the JMF on record, a change in RAP percentage, or is a new JMF not previously on record.

HMA mixtures rated with a “PPT” cannot be shipped or used on Department projects. A passing “PPT” test shall be performed with NETTCP certified personnel on that type of mixture by the HMA producer and meet all specifications (Table M.04.02-2 Table M.04.02-5) before production shipment may be resumed. At no time shall mixture rated “PPT” be shipped to Department projects.

Contractors that have mix types rated a “PPT” may use one of the following methods to change the rating to an “A.”

Option A: Schedule a day when a Department inspector can be at the HMA facility to witness a passing “PPT” test or,

Option B: When the Contractor or their representative performs a “PPT” test without being witnessed by an inspector, the Contractor shall submit the test results and a split sample including 2 gyratory molds, 5,000 grams of boxed HMA for binder and gradation determination, and 5,000 grams of cooled loose HMA for Gmm determination for verification testing and approval. Passing verifications will designate the HMA type to be on an “A” status. Failing verifications will require the contractor to submit additional trials.

Option C: When the Contractor or their representative performs a “PPT” test without being witnessed by a Department inspector, the Engineer may verify the mix in the Contractor’s laboratory. Passing verifications will designate the HMA type to be an “A” status. Failing verifications will require the Contractor to submit additional trials.

When Option (A) is used and the “PPT” test meets all specifications, the “PPT” test is considered a passing test and the rating for that mix is changed to “A”. When the “PPT” test is not witnessed, the “PPT” Option (B) procedure must be followed and the mixtures along with the test results delivered to the Materials Testing Lab. The test results must meet the “B” tolerances established by the Engineer.

“U” – No Acceptable Mix Design on File:

Rating assigned to a type of mixture that does not have a JMF submitted, or the JMF submitted has not been approved, or is incomplete. A mix design or JMF must be submitted annually thirty (30) days prior in order to obtain an “A,” or “PPT” status for that

mix. A “U” will be used only to designate the mix status until the mix design has been approved, and is accompanied with all supporting data as specified. HMA mixtures rated with a “U” cannot be used on Department projects.

TABLE M.04.02– 2: SUPERPAVE MASTER RANGE FOR MIXTURE DESIGN CRITERIA

Notes: (1) Minimum Pb as specified in Table M.04.02-5. (2) Voids in Mineral Aggregates shall be computed as specified herein. (3) Control point range is also defined as the master range for that mix. (4) Dust is considered to be the percent of materials passing the #200 sieve.

	S0.25				**S0.375**				**S0.5**				**S1**			
Sieve	CONTROL POINTS (3)		*RESTRICTED ZONE*		CONTROL POINTS(3)		*RESTRICTED ZONE*		CONTROL POINTS(3)		*RESTRICTED ZONE*		CONTROL POINTS(3)		*RESTRICTED ZONE*	
inches	Min (%)	Max (%)	*Max (%)*	*Min (%)*	Min (%)	Max (%)	*Min (%)*	*Max (%)*	Min (%)	Max (%)	*Min (%)*	*Max (%)*	Min (%)	Max (%)	*Min (%)*	*Max (%)*
2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-
1.0	-	-	-	-	-	-	-	-	-	-	-	-	90	100	-	-
3/4	-	-	-	-	-	-	-	-	100	-	-	-	-	90	-	-
1/2	100	-	-	-	100	-	-	-	90	100	-	-	-	-	-	-
3/8	97	100	-	-	90	100	-	-	-	90	-	-	-	-	-	-
#4	-	90	-	-	-	90	-	-	-	-	-	-	-	-	*39.5*	*39.5*
#8	32	67	*47.2*	*47.2*	32	67	*47.2*	*47.2*	28	58	*39.1*	*39.1*	19	45	*26.8*	*30.8*
#16	-	-	*31.6*	*37.6*	-	-	*31.6*	*37.6*	-	-	*25.6*	*31.6*	-	-	*18.1*	*24.1*
#30	-	-	*23.5*	*27.5*	-	-	*23.5*	*27.5*	-	-	*19.1*	*23.1*	-	-	*13.6*	*17.6*
#50	-	-	*18.7*	*18.7*	-	-	*18.7*	*18.7*	-	-	*15.5*	*15.5*	-	-	*11.4*	*11.4*
#100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
#200	2.0	10.0	-	-	2.0	10.0	-	-	2.0	10.0	-	-	1.0	7.0	-	-
Pb (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VMA (2)	16.0 ± 1				16.0 ± 1				15.0 ± 1				13.0 ± 1			
VA (%)	4.0 ± 1				4.0 ± 1				4.0 ± 1				4.0 ± 1			
Gse	JMF value				JMF value				JMF value				JMF value			
Gmm	JMF ± 0.030				JMF ± 0.030				JMF ± 0.030				JMF ± 0.030			
Dust/Pbe(4	0.6 – 1.2				0.6 – 1.2				0.6 – 1.2				0.6 – 1.2			

Agg. T	280 – 350F	280 – 350F	280 – 350F	280 – 350F
Mix Temp	265 – 325 F	265 – 325 F	265 – 325 F	265 – 325 F

TABLE M.04.02–3

SUPERPAVE MASTER RANGE FOR CONSENSUS PROPERTIES OF COMBINED AGGREGATE STRUCTURES

Notes: **(1)** If less than 25 % of a given layer is within 4 inches of the anticipated top surface, the layer may be considered to be below 4 inches for mixture design purposes.

Traffic Level	Design ESALs (80 kN)	Coarse Aggregate Angularity (1) ASTM D 5821	Fine Aggregate Angularity (7) AASHTO T 304	Flat or Elongated Particles ASTM D 4791	Sand Equivalent AASHTO T 176
- - - - -	(million)			> # 4	- - - - -
1*	< 0.3	55/- -	40	10	40
2	0.3 to < 3.0	75/- -	40	10	40
3	≥ 3.0	95/90	45	10	45
	Design ESALs are the anticipated project traffic level expected on the design lane, projected over a 20 year period, regardless of the actual expected design life of the roadway.	Criteria presented as minimum values. 95/90 denotes that a minimum of 95% of the coarse aggregate, by mass, shall have one fractured face and that a minimum of 90% shall have two fractured faces.	Criteria presented as minimum percent air voids in loosely compacted fine aggregate passing the #8 sieve.	Criteria presented as maximum Percent by mass of flat or elongated particles of materials retained on the #4 sieve, determined at 3:1 ratio.	Criteria presented as minimum values for fine aggregate passing the #8 sieve.

*** NOTE: Level 1 for use by Towns and Municipalities ONLY.**

TABLE M.04.02– 4: SUPERPAVE MASTER RANGE FOR TRAFFIC LEVELS AND DESIGN VOLUMETRIC PROPERTIES.

Traffic Level	Design ESALs	Number of Gyrations by Superpave Gyratory Compactor			Percent Density of Gmm from HMA specimen			Voids Filled with Asphalt (VFA) Based on Nominal mix size – inch			
	(million)	Nini	Ndes	Nmax	Nini	Ndes	Nmax	0.25	0.375	0.5	1
1*	< 0.3	6	50	75	≤ 91.5	96.0	≤ 98.0	70 - 80	70 - 80	70 - 80	67 - 80
2	0.3 to < 3.0	7	75	115	≤ 90.5	96.0	≤ 98.0	65 - 78	65 - 78	65 - 78	65 - 78
3	≥ 3.0	8	100	160	≤ 90.0	96.0	≤ 98.0	73 – 76	73 - 76	65 - 75	65 - 75

*** NOTE: Level 1 for use by Towns and Municipalities ONLY.**

TABLE M.04.02– 5: SUPERPAVE MINIMUM BINDER CONTENT BY MIX TYPE & LEVEL.

Mix Type	Level	Binder Content Minimum (1)
S0.25	1*	5.6
S0.25	2	5.5
S0.25	3	5.4
S0.375	1*	5.6
S0.375	2	5.5
S0.375	3	5.4
S0.5	1*	5.0
S0.5	2	4.9
S0.5	3	4.8
S1	1*	4.6
S1	2	4.5
S1	3	4.4

*** NOTE: Level 1 for use by Towns and Municipalities ONLY.**

M.04.03—Production Quality Control (QC) Testing, Approval and Control of Mixture: The Contractor shall submit a Quality Control plan for HMA production specifically for the plant producing the HMA mixture in accordance with Section 4.06.03-9 for review and approval of the Engineer. The plan must also include a list of sampling & testing methods and frequencies used during production, and the names of all Quality Control plant personnel and their duties. In addition;

i. All plant personnel involved with sampling and testing for Quality Control purposes must have a current certification as an NETTCP HMA Plant Technician or Interim HMA Plant Technician and be in good standing. Technicians found by the Engineer to be non-compliant with NETTCP and Department policies may be suspended by the Engineer from participating in the production of mixtures for Department projects until their actions can be reviewed by NETTCP.

ii. The Contractor shall maintain a list of laboratory equipment used in their quality control processes including but not limited to, balances, scales, manometer/vacuum gauge, thermometers, gyratory compactor, clearly showing calibration and/or inspection dates, in accordance with AASHTO R-18.

In addition, based on the mix design method the following also applies.

1. **Materials Sampling & Testing Methods for Marshall Mix Design:** The Contractor shall furnish the Engineer a field laboratory accepted by the Engineer to test

bituminous mixtures during production. Material samples will be obtained from the hauling vehicles by the Engineer at the plant during each day's production as indicated in the Department's "Schedule of Minimum Requirements for Sampling Materials for Test." The following test procedures will be used:

AASHTO T 30(M)	Mechanical Analysis of Extracted Aggregate
AASHTO T 40(M)	Sampling Bituminous Materials
AASHTO T 164(M)/ AASHTO T 308(M)	Quantitative Extraction/Ignition Oven of Bitumen from Bituminous Paving Mixtures
AASHTO T 245(M)	Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
AASHTO T 209(M)	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
AASHTO T 269(M)	Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
AASHTO T 329	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method

a. Cessation of Supply: Marshall Mix Production shall cease for the Project from any plant that consistently fails to produce mixture that meets the JMF and volumetric properties. The criteria for ceasing the supply of a class of mixture from any plant are as follows:

   i. Off-Test Status: The results of AASHTO T 164(M) and T 30(M) will be used to determine if the mixture is within the tolerances shown in Table M.04.02-1. The Contractor will be notified that a plant is "off test" for a class of mixture when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1 for that class of mixture.
   ii. When multiple plants and silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the "off test" adjusted payment.
   iii. If a test indicates that the bitumen content or gradation are outside the tolerances, the Contractor may make a single JMF change on classes 1, 2, 3, 4 and 12 as accepted by the Engineer prior to any additional testing. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.
   iv. The Engineer may cease supply of mixture from the plant when the test results from three non-consecutive samples of a class of mixture not within the JMF tolerances or the test results from two non-consecutive samples not within the master range indicated in Table M.04.02-1 during any one production period, due to inconsistent production.
   v. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without

approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.

b. Adjustments for Off test Mixture under Cessation of Supply: The HMA plant shall cease
supplying to the project:

i. When the test results from three consecutive samples are "off test" and not within the JMF tolerances or,

ii. The test results from two consecutive samples are "off test" and not within the ranges indicated in Table M.04.02 – 1 or,

iii. When the percent of material passing the minus #200 sieve material exceeds the percent of extracted bitumen content for three consecutive samples during any production period of the values stated in Table M.04.02-1:

a. The quantity of mixtures shipped to the project determined to be "off test" and outside the tolerances will be tabulated by the Engineer and will be adjusted in accordance with Article 4.06.
b. Following cessation, a trial production period will be required at the plant for that class of mixture. Use of that class of mixture from that plant will be prohibited on the Project until the plant has demonstrated the ability to consistently produce acceptable mixture.
c. When the Engineer has accepted the mixtures from the trial production period, the use of that mixture on the Project may resume.

2. Material Sampling & Testing Methods for Superpave Mix Design:

a. Samples of mixtures will be obtained from the hauling vehicles at the plant during each day's production, as indicated in Table M.04.03– 1. The Contractor shall perform necessary moisture susceptibility testing annually or when material component sources change, and for all levels of HMA S0.5 plant produced mixtures, as specified in the latest version of AASHTO T 283(M). The T 283(M) test results shall be submitted by the Contractor for approval. The acceptable tensile strength ratio shall be 80 percent minimum, and show no evidence of stripping. This shall be completed within 30 days of beginning of production. Superpave mixtures that require anti-strip additives (either liquid or mineral) shall continue to meet all requirements specified herein for binder and HMA. The Contractor shall submit the name, manufacturer, percent used, and MSDS sheet for the anti-strip additive (if applicable) to the Engineer. In addition;

i. The Contractor shall maintain all testing equipment within a field laboratory in good working order.
ii. The Contractor shall not modify or use the equipment within the field laboratory without the consent of the Engineer. Any such action by the Contractor may be cause for the Engineer to re-inspect equipment, check

calibrations, which could delay production at that facility until such checks are completed.

iii. The Contractor shall take immediate action to replace, repair, and/or recalibrate any piece of equipment that is deemed by the Engineer to be out of calibration, malfunctioning, or not in operation.

iv. Production without the use of required testing equipment will be permitted for only 1 hour. Additional production beyond the first hour may be considered by the Engineer. If permitted to continue production, box samples will be taken, tested, and incorporated as stated in Subarticle M.04.03 and Article 4.06.04-1b. No production shall be permitted beyond that day until the subject equipment is repaired or replaced to the satisfaction of the Engineer.

v. Compaction of samples shall be accomplished utilizing an accepted Superpave Gyratory Compactor (SGC), supplied by the Contractor. The SGC shall be located at the HMA plant supplying mixture to the project.

vi. The Engineer will perform all acceptance and verification testing for HMA production.

b. <u>Additional QC plan Requirements for Plants producing Superpave Mix Design mixture</u>:

i. The Contractor shall perform all listed component aggregates and Superpave mixture Quality Control testing in accordance with the test procedures and schedule listed in Table M.04.03-1, as a minimum, any day that Superpave mixtures are produced.

ii. The Contractor shall propose a QC test frequency for AASHTO T 27(M) on the cold feed material and AASHTO T 308 for RAP binder content.

iii. All process control (PC) test data shall be kept on file for the duration of the project for review by the Engineer.

c. <u>Determination of Off-Test status:</u>

i. <u>Off Test Status:</u> Superpave mixes shall be considered *"off test"* when any Control Point Sieve, VA, VMA, and Gmm values are outside of the limits specified in Table M.04.03-3 and the computed binder content (Pb) established by AASHTO T308(M) or as documented on the vehicle delivery ticket is below the minimum binder content stated in M.04.03-5. Note that further testing of samples or portions of samples not initially tested for this purpose <u>cannot</u> be used to change the status.

ii. Any time the HMA mixture is considered Off-test:

1. The Contractor shall notify the Engineer (and project staff) when the plant is *"off test"* for a type of mixture. When multiple plants and silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the *"off test"* determination.

2. The Contractor must take immediate actions to correct the deficiency, minimize *"off test"* production to the project, and obtain an additional Process Control (PC) test after any corrective action to verify production is in conformance to the specifications. A PC test will not be used for acceptance and is solely for the use of the Contractor in its quality control process.

d. Test Section:

The test section, as specified in Article 4.06, shall be considered acceptable if payment for HMA mixture tested at the plant is no less than 100% and the field density meets the specified requirements.

Table M.04.03– 1: Contractor Quality Control Testing Procedures & Minimum Frequency of Test

Protocol	Reference	Description	Frequency (min)
1	AASHTO T 27	Sieve Analysis of Fine and Coarse Aggregate	Determined by Contractor
2	AASHTO T 329	Moisture content of RAP (before start and halfway thru production - when used)	2/day
3	AASHTO T 255(M)	Moisture content of each cold feed aggregate (before start and halfway thru production - drum plants only)	2/day
4	AASHTO T 308(M)	Binder content of RAP by Ignition Oven method (before start of production when used)	Determined by Contractor
5	AASHTO T 168(M)	Sampling of HMA	See Note (3)
6	AASHTO T 308(M)	Binder content by Ignition Oven method (adjusted for aggregate correction factor)	See Note (3) & Note (4)
7	AASHTO T 30(M)	Gradation of extracted aggregate for HMA mixture	See Note (3)
8	AASHTO T 312(M)	(1)Superpave Gyratory molds compacted to N_{des}	See Note (3)
9	AASHTO T 166(M)	(2)Bulk specific gravity of HMA	See Note (3)
10	AASHTO R 35(M)	(2)Air voids, VMA	See Note (3)
11	AASHTO T 209(M)	Maximum specific gravity of HMA (average of two tests)	See Note (3)
12	AASHTO T 329	Moisture content of Production HMA	See Note (3)

Notes: (1) One set equals two six-inch molds. Molds to be compacted to N_{max} for PPTs and N_{des} for production testing

(2) Average value of one set of six-inch molds.

(3) Test frequency shall be based on HMA quantity produced per day. Table M.04.03-2 denotes the number of tests required for daily QC by the Contractor.

(4) The aggregate correction factor will be determined by the Engineer.

Table M.04.03 – 2: Contractor Acceptance Testing Required Based on Daily Production per Type/Level/Plant[1]

Daily quantity produced in tons	Minimum number of tests required[2]	Acceptance min. # of tests
0 to 150	No testing required (if mix already accepted) [3]	1
151 to 600	1 test	1
601 to 1,200	2 tests	2
1,201 to 1,800	3 tests	3
1,801 and greater [4]	4 tests	4

Notes:

(1) For the purpose of the Contractor complying with the number of tests stated in Table M.04.03-2, tons of the same type/level per plant shall be combined from multiple state projects.

(2) All testing shall be selected using stratified – random sampling of total estimated daily tons in accordance with ASTM D 3665, except that the first test shall be randomly taken from the first round of trucks, the first 151 ton sublot, or as otherwise ordered by the Engineer. QC samples shall be saved and stored at the HMA facility for 7 days for Engineer retrieval, after which they may be disposed of.

(3) When directed by the Engineer, a minimum of 1 test is required for bridge and critical areas.

(4) An additional random test shall be taken by the Contractor for each additional 600 tons.

e. Incentive/disincentive adjustment for Superpave mixtures: The quantity of Superpave mixtures shipped to the project that meets the incentive criteria for Air Voids (VA) will be adjusted in accordance with Article 4.06.04.

   The quantity of Superpave mixtures shipped to the project that is “off-test” for binder content (Pb) and/or Air Voids (VA) will be adjusted in accordance with Article 4.06.04.

f. Cessation of Supply for Superpave mixtures with no disincentive adjustment: Production of HMA shall cease for the Project from any plant that consistently fails to produce mixture that meets the JMF and volumetric properties. The quantity of Superpave mixtures shipped to the project that is “off-test” will not be adjusted for deficient mixtures.

   i. An HMA production plant will be required to cease supplying mixtures to the project when:

      1. HMA mixture is “off test” on three (3) consecutive tests for VMA, regardless of date of production due to inconsistency (i.e., small production requires 1 test per day for multiple days).

      2. HMA mixture is “off test” on two (2) consecutive tests for the Control Point sieves in one day’s production.

3. HMA mixture is “off test” on two (2) consecutive tests for the Gmm in one day’s production or on three (3) consecutive tests regardless of date of production.
4. The Pb content from the ignition oven/centrifuge minus the mix moisture differs by more than 0.2 from the HMA plant production weigh ticket, the Contractor shall immediately investigate, determine an assignable cause and correct the issue. If issue is not corrected after three (3) consecutive tests, mixture from that HMA plant shall not be permitted until the issue is resolved to the satisfaction of the Engineer.

5. The Pb content is below the requirements of Table M.04.03 – 5 on the ignition oven test results or the HMA plant weigh ticket.

6. Following cessation, the Contractor shall immediately make necessary material or HMA plant corrections and run a Pre-Production Trial (PPT) for that type of mixture. Use of that type of mixture from that plant will be prohibited to the Project until the plant has demonstrated the ability to consistently produce acceptable mixture. When the Contractor has a passing test and has received approval from the Engineer, the use of that mixture to the Project shall resume.

3. <u>JMF Changes for Superpave mixtures production:</u> It is understood that a JMF change is effective from the time it was submitted forward and is not retroactive to the previous test or tests. JMF changes are permitted to allow for trends in aggregate and mix properties but every effort shall be employed by the Contractor to minimize this to ensure a uniform and dense pavement.

a. JMF changes to the G_{mm} or mix Absorption Correction Factor (A_{cf}) are only permitted prior to or after a production shift for all HMA types of mixtures and only when they:
   i. Are requested in writing and pre-approved by the Engineer;
   ii. Are based on a minimum of a two test trend;
   iii. Are documented with a promptly submitted revised JMF on form provided by the Engineer.

TABLE M.04.03– 3: SUPERPAVE MASTER RANGE FOR HMA MIXTURE PRODUCTION

Notes: (1) 300°F minimum after October 15. (2) Minimum Pb as specified in Table M.04.03-5 (3) Control point range is also defined as the master range for that mix. (4) JMF tolerances shall be defined as the limits for production compliance. VA & Pb payment is subject to adjustments, as defined in sub-article 4.06.04 - 2.

	S0.25		**S0.375**		**S0.5**		**S1**		**Tolerances**
Sieve	CONTROL POINTS (4)		CONTROL POINTS (4)		CONTROL POINTS (4)		CONTROL POINTS (4)		**JMF Limits** (4)
inches	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	±Tol
2.0	-	-	-	-	-	-	-	-	
1.5	-	-	-	-	-	-	100	-	
1.0	-	-	-	-	-	-	90	100	
3/4	-	-	-	-	100	-	-	90	
1/2	100	-	100	-	90	100	-	-	
3/8	97	100	90	100	-	90	-	-	
#4	-	90	-	90	-	-	-	-	
#8	32	67	32	67	28	58	19	45	
#16	-	-	-	-	-	-	-	-	
#200	2.0	10.0	2.0	10.0	2.0	10.0	1.0	7.0	
Pb(2)	-	-	-	-	-	-	-	-	note (2)
VMA (%)	16.0		16.0		15.0		13.0		1.0
VA (%)	4.0		4.0		4.0		4.0		1.0
Gmm	JMF value		JMF value		JMF value		JMF value		0.030
Agg. Temp	280 – 350F		280 – 350F		280 – 350F		280 – 350F		
Mix Temp	265 – 325 F (1)		265 – 325 F (1)		265 – 325 F (1)		265 – 325 F (1)		

TABLE M.04.03– 4: SUPERPAVE MASTER RANGE FOR TRAFFIC LEVELS AND DESIGN VOLUMETRIC PROPERTIES.

Traffic Level	Design ESALs	Number of Gyrations by Superpave Gyratory Compactor	
	(million)	Nini	Ndes
1*	< 0.3	6	50
2	0.3 to < 3.0	7	75
3	≥3.0	8	100

*** NOTE: Level 1 for use by Towns and Municipalities ONLY.**

TABLE M.04.03– 5: SUPERPAVE MINIMUM BINDER CONTENT BY MIX TYPE & LEVEL.

Mix Type	Level	Binder Content Minimum (1)
S0.25	1*	5.6
S0.25	2	5.5
S0.25	3	5.4
S0.375	1*	5.6
S0.375	2	5.5
S0.375	3	5.4
S0.5	1*	5.0
S0.5	2	4.9
S0.5	3	4.8
S1	1*	4.6
S1	2	4.5
S1	3	4.4

*** NOTE: Level 1 for use by Towns and Municipalities ONLY.**

Table M.04.03-6:
Modifications to Standard AASHTO and ASTM Test Specifications and Procedures.

AASHTO Standard Specification	
Reference	**Modification**
AASHTO M 320	1. Mass change for PG 64-22 shall be a maximum loss of 0.5% when tested in accordance with AASHTO T 240. 2. The two bottles used for the mass change determination may be re-heated and used for further .
AASHTO Standard Methods of Test	
Reference	**Modification**
AASHTO T 27	Section 7.7.1 Samples are not washed
AASHTO T 30	Section 6.2 thru 6.5 Samples are not routinely washed
AASHTO M-156 /ASTM D 995	Section 8.7.3 *Accuracy: Batch Plants* The automation proportioning system shall be capable of consistently delivering mixtures within the full range of batch sizes within the following tolerances: *Total Batch Weight Of Paving Mix. %* *Batch aggregate component* ± 1.0% Note: AASHTO T 40 is modified as follows: Section 9.1.1 Sampling valve is located on bottom third of storage tank.
AASHT T 164	Method A **APPARATUS:** Section 5 ConnDOT in addition to AASHTO apparatus includes infrared lamp and substitutes graduated cylinder with a 1000 ml flask. Section 6. Reagent. Must be Conn D.O.T. approved ******* Article 8.2.1 all classes of HMA except Class 4 are scooped from the sample container. Section 9.1 and 9.2 Moisture content is periodically determined on production samples as plant conditions require. Section 11.1 See Section 9.0 AASHTO T 164 Section 11.3 and 11.5 Filter paper is dried and weighed in field using

	heat lamp or oven when an ash test is performed. Section 11.6.2 Extract is collected if an ash test is to be performed Section 11.6.2 Performed on selected samples only Section 11.6.2 A three test running average is used to correct for total binder in HMA.
AASHTO T 168	Samples are taken at one point in the pile. All types of bituminous concrete except Class 4 are scooped from the sample container instead of remixing and quartering. (Method verified by laboratory study). Samples from a hauling vehicle are taken from only one point instead of four as specified. Selection of Samples: Sampling is equally important as the testing, and the sampler shall use every precaution to obtain samples that are truly representative of the bituminous mixture. Box Samples: In order to enhance the rate of processing samples taken in the field by construction or maintenance personnel the samples will be tested in the order received and data processed to be determine conformance to material specifications and to prioritize inspections by laboratory personnel.
AASHTO T 170	Recovery of Asphalt from Solution by Abson Method Delete the referenced section and replace with the language shown: 5.0 Apparatus Centrifuge batch unit capable of exerting a minimum centrifugal force of 770 times gravity or a continuous unit capable of exerting a minimum force of 300 times gravity. 5.1. Centrifuge tubes- a 250ml wide mouth bottles 5.2. Extraction Flasks- a 500ml three angle necks and joints flask with 24/40 side necks. 5.3.2. Glass Tubing- Heat resistant glass tubing, having 10mm inside diameter and a gooseneck shaped delivery tube, for connecting the flask to the condenser. 5.3.3. Inlet Aeration Tube- 180mm in length having a 6mm outside diameter with a 10-mm bulb carrying six staggered holes approximately 1.5 mm in diameter. 5.3.4. Electric Heating Mantle- Variable transformer to fit a 500 ml flask. 5.3.5 Water-jacketed Condenser, Alliham type, with 200 mm Minimum jacket length. 5.3.6. Thermometer- an ASTM low distillation thermometer having a range of –2 to 300_C (30 to 580_F), respectively, and conforming to

	the requirements in ASTM specification E 1 5.3.7. Gas Flow Meter- A type capable of indicating a gas flow of up to 1000 ml per minute. 5.3.8. Corks. NO. 20 5.3.9. Flexible Elastomeric Tubing- 5.3.10. Separatory Funnel 500 ml capacity or larger 6.0. Reagents and Materials 6.1. Carbon Dioxide Gas- A pressurized tank, with pressure-reducing valve. The solvent for extracting the asphalt from the mixtures should be reagent grade trichloroethylene or methylene chloride. Other solvents may affect the bitumen to change its properties significantly from that as it exists in the mixture. 8. Sample 8.1. The sample shall consist of the solution from previous extraction of a sample of sufficient mass to result in approximately 105 to 110 g of recovered bitumen. 9. Procedure 9.1. The entire procedure, form the start of the extraction to the final recovery, must be completed within 8 hours. 9.2 Centrifuge the solution from the previous extraction for a minimum of 30 minutes at 770 times gravity (approx. 2700rpm) in 250 wide mouth bottles. Assemble the apparatus as shown in figure 1 with the separatory funnel in the thermometer hole in the cork. Lower the aeration tube so that the bulb is in contact with the bottom of the flask. Fill the separatory funnel with the centrifuged solution and open the stopcock to fill the flask approximately one-half full of solvent mixture. Apply low heat to the flask and start distillation. Introduce carbon dioxide gas at a low rate (approx. 100mL/minute) to provide agitation and prevent foaming. Adjust the funnel stopcock to introduce fresh solvent at a rate that will keep the flask approximately one half full during distillation, adding additional solvent mixture to the funnel into all solvent has been introduced into the distillation flask. When the temperature reaches 157 to 160_C (315 to 320_F), increase the carbon dioxide gas flow to approximately 900mL/minute. Maintain this gas flow rate for 20 minutes while also maintaining the temperature of the residue in the flask at 160 to 166_C (320 to 330_F).

AASHTO T 195	Section 3.3 only one truck load of mixture is sampled. Samples are taken from opposite sides of the load.
AASHTO T 209	Section 6.4 Bowl is suspended 2 minutes prior to reading rather than 10 minutes. This makes no significant difference in results. Section 7.2 The average of two bowls is used proportionally in order to satisfy minimum mass requirements. 8.3 Omit Pycnometer method.
AASHTO T 245	Section 3.3.1 A molding temperature of 140 to 146 C is used Section 3.5.1 Seventy-five (75) blows per side are used on Classes 1 and 12, per ConnDOT design requirements Section 3.1 for production testing: one specimen is molded for each extraction test (generally five molds per day) for production over 275 metric tons/day. Other mixtures: two specimens per extraction test.
AASHTO T 283	This protocol shall be performed at the HMA plant in accordance with section 7 on HMA S0.5 (all design levels) by the Contractor or their representative at a time designated by the DRM. TSR testing is required on all classes and design levels during the design phase and on all HMA S0.5 design levels during the production phase.
AASHTO T 308	In addition to the standard testing procedure, the Department has adopted a procedure that addresses a correction factor that is calculated using the composite aggregate percentages (**C**omposite **A**ggregate **C**orrection **F**actor **M**ethod **(CACF)**). The aggregate is burned in compliance with the standard ASSHTO procedure Method A exclusively. All modifications are listed for this method only. 5.5. Omit. Replace with: The individual aggregate samples are to be dried in an oven at a maximum temperature of 148 ± 5ºC (300 ± 9º F) to a constant weight. RAP samples are to be oven dried at a maximum temperature of 110 ± 5ºC (230 ± 9º F) to a constant weight. RAP samples will be burned for total binder content only and not to arrive at a correction factor for a mixture. 6.2. Omit Note 2 6.3. Omit. 6.6. Omit. Replace with: Perform a gradation analysis on the burned blank and compare it to the gradation performed prior to burning. 6.7. Omit. 6.8. Omit. The correction factors for each size aggregate are provided by the Engineer. The Composite Aggregate Correction Factor (CACF) for any mixture may be calculated by summing the result of the

	correction factor for each individual aggregate multiplied by the percentage of that aggregate in the overall mixture. (Note: All correction factors must be re-calculated every time the percentage of any aggregate changes within the mixture.)
AASHTO T 331	5.1 Cores are dried to a constant mass prior to testing using a core-dry machine.
AASHTO Standard Recommended Practices	
Reference	**Modification**
AASHTO R 35	**<u>Volumetric Calculations of VMA and Correction Factor</u>** VMA_a - Voids in Mineral Aggregate from (Va + Vbe) the mix: A. VMA calculated from the mix shall be determined in accordance with *Formula 5.16.1 (i)*. It can be correlated that the VMA calculated from AASHTO R-35(M) is equivalent to VMA_a when the Pb_a is known and substituted for A_{cf}, as shown in *Formula 5.16.1(i)*. Test results from VMA_a shall therefore be required to meet all contract specifications. Values of VMA_a that are out of specifications during production may be cause for the contractor to determine assignable cause, take corrective action, and modify the Job Mix Formula (JMF), as needed. Continued VMA_a data that is out of specifications may be cause for the Engineer to order cessation of supply. *i.* Formula 5.16.1A. Determining the VMA of HMA by the mix or air voids & effective binder method: *1.* $VMA_a = V_a + \left[\frac{(Gmb_d \times (Pb_t - A_{cf})}{G_b} \right]$ Where: VMA_a = VMA calculated from plant production mix(Va + Vbe) Gmb_d = Bulk specific gravity as determined by AASHTO T 166(M) Pb_t = Binder Total content (corrected) by AASHTO T 308(M) A_{cf} = Absorption correction factor provided by Contractor (refer to b. i thru iii) Gse = Effective Specific gravity determined by AASHTO M 323 *Formula 5.16.1B*. Determining the HMA mix binder correction factor for each class by use of Percent absorption of water by AASHTO T 84/85, AASHTO T 315 and D_f method. This value shall be

performed by the Contractor during the mix design only and submitted as a JMF value. Three methods for determining the A_{cf} are shown, although method (i) will be the desired method to be used. All three methods are equivalent when the Gsa, Gsb and Pwa are recent and valid for the mix. Since method (iii) is an estimate based on trap rock based mixtures, some allowance and calibration may be needed for mixes that are composed with granite, gravel, or other aggregate materials but the change is estimated to be minimal (± 0.1 or less).

i. $A_{cf} = Df \times Pwa$

ii. $(A_{cf} = Pba_From_annual_JMF_submittal)$

iii. $A_{cf} = x1...x6$

Where: Df = as determined by Formula 5.16.1C.
Pwa = as determined by AASHTO T 84/85
Pba = as determined by AASHTO M 323 (from annual JMF submittal)

MIX	*TRAP ROCK*	*GRAVEL & BROWN TRAP*	*GRANITE & TORRINGTO GRANITE*
S0.25	*0.5*	*1.2*	*0.6*
S0.375	*0.5*	*1.2*	*0.6*
S0.50	*0.4*	*1.0*	*0.5*
S1	*0.4*	*1.0*	*0.5*

D_f (Density Factor): The Contractor shall calculate the HMA mix design D_f (*derived from formula X1.2 APPENDIX X1 of AASHTO R 35*(M)*)* for each class of material, in accordance with *Formula 5.16.1C*.

2) *Formula 5.16.1C*. Determining the Density Factor *(D_f)* of mix design HMA:

i. $$D_f = \left(\frac{Gse - Gsb}{Gsa - Gsb}\right)$$

Where:
Df = Density Factor or multiplier determined by AASHTO R-35(M)
Gse = Effective Specific gravity determined by AASHTO M-323 at plant
Gsa = Apparent Specific gravity determined by AASHTO T 84/85 of mix design
Gsb = Bulk specific gravity determined by AASHTO T 84/85 of mix design

AASHTO R 26	Quality Control Plans must be formatted in accordance with AASHTO R 26, certifying suppliers of performance-graded asphalt binders, Section 9.0, Suppliers Quality Control Plan, and "NEAUPG Model PGAB QC Plan." 1. The Department requires that all laboratory technician(s) responsible for testing PG-binders be certified or Interim Qualified by the New England Transportation Technician Certification Program (NETTCP) as a PG Asphalt Binder Lab Technician. 2. Sampling of asphalt binders should be done under the supervision of qualified technician. NECTP "Manual of Practice," Chapter 2 Page 2-4 (Key Issues 1-8). 3. A copy of the Manual of Practice for testing asphalt binders in accordance with the Superpave PG Grading system shall be in the testing laboratory. 4. All laboratories testing binders for the Department are required to be accredited by the AASHTO Materials Reference Laboratory (AMRL). 5. Sources interested in being approved to supply PG-binders to the Department by use of an "in-line blending system," must record properties of blended material, and additives used. 6. Each source of supply of PG-binder must indicate that the binders contain no additives used to modify or enhance their performance properties. Binders that are manufactured using additives, modifiers, extenders etc., shall disclose the type of additive, percentage and any handling specifications/limitations required. Suppliers shall provide M-320 Table 2 testing at a minimum of once per month on one sample of material. Each supplier shall rotate the PG grade each month (including PMA), so that data can be collected for all the grades produced.

-- END OF SPECIAL PROVISION SPECIFICATIONS --