

CONTRACT FORM
INCLUDING SPECIFICATIONS
FOR FIELD SUBSURFACE INVESTIGATIONS
BY TEST PIT CONTRACTORS

REHABILITATION OF BRIDGE 03903
MOSHER AVENUE OVER AMTRAK
STATE PROJECT NO. 58-336, GROTON, CONNECTICUT

TABLE OF CONTENTS

	<u>Page</u>
I. Invitation to Bid	I-1
II. Proposal for Subsurface Explorations	II-1
III. Contract Agreement for Subsurface Explorations	III-1
IV. Specifications for Test Pits	
1. General Conditions	IV-1
2. Technical Provisions	IV-8
V. List of Attachments:	V-1

INVITATION TO BID

Sealed proposals for the performance of test pits in the general vicinity of the proposed Project 58-336; Bridge 03903, Mosher Avenue over Amtrak in Groton, Connecticut, will be received by Freeman Companies, LLC, on behalf of CME Associates, Inc., until July 25, 2018, 4:00 PM, Eastern Time. Deliver all bids to Freeman Companies, LLC, 36 John Street, Hartford, Connecticut, 06106, and/or via email to ctonzi@freemancos.com.

Specifications, test pit location plan, proposal form and form of contract are attached hereto.

Proposals must be made upon the form provided. The blank places in the form must be filled in as noted, and no change shall be made in the phraseology of the proposal or in the items mentioned herein. Proposals that contain any omissions, alternations, additions, or items not called for in the itemized proposal, or that contain irregularities of any kind, may be rejected as non-responsive.

A certified check for the sum of ten percent (10%) of the amount of the bid, made payable to CME Associates, Inc. (Engineer) must accompany the bid, as a guarantee that the contract will be entered into, if awarded.

In lieu of a certified check, a proposal guaranty in the form of a bond furnished by a surety company in the amount of 10% of the amount of the bid will be accepted. The surety must be a corporate surety licensed to sign surety bonds in the State of Connecticut.

A performance contract bond and payment bond, each in the sum of one hundred percent (100%) of the contract price, will be required on execution of the contract.

A Certificate of Insurance in compliance with the insurance terms set forth in the Contract Agreement for Subsurface Explorations, must be submitted with this proposal.

CME Associates, Inc. reserves the right to reject any or all bids.

PROPOSAL FOR SUBSURFACE EXPLORATIONS

AT THE SITE OF

**REHABILITATION OF BRIDGE 03903
MOSHER AVENUE OVER AMTRAK
STATE PROJECT NO. 58-336, GROTON, CONNECTICUT**

TO: Freeman Companies, LLC on behalf of CME Associates, Inc.

In submitting this bid, the undersigned declares that he/she is the only person or persons interested in the said bid; that it is made without any connection to any person making another bid for the same contract; and that the bid is, in all respects, fair and without collusion, fraud, or mental reservation.

The undersigned also declares that he has carefully examined the plans, specifications and form of contract and that he, or his duly authorized agent, has personally inspected the actual location of the work, together with the local sources of supply; has satisfied himself as to all the quantities and conditions; and understands that in signing this proposal, he waives all right to plead any misunderstanding regarding same.

The undersigned further understands and agrees that he is to furnish and provide for the respective unit bid price, all the necessary material, machinery, implements, tools, labor, services, etc., and to do and perform all the necessary work under the aforesaid conditions, to complete the work in accordance with the plans and specifications, which plans and specifications it is agreed are a part of this proposal. The list of bid items, together with the estimated quantities thereof, is set forth in the Bid Sheet, which accompanies and forms a part of this proposal. The undersigned further agrees that his total bid prices, which shall be evaluated in comparison with the total bid prices of other bidders, shall be completed as the summation of the products of the approximate quantities shown on the Bid Sheet multiplied by the gross sum bid. In case of discrepancy between the words and the numerals giving the unit bid prices, the words shall govern.

Furthermore, the undersigned fully understands that the quantities of the items set forth in the Bid Sheet are only approximate and agrees to accept the unit price as full compensation for the actual quantities of such items required to complete the work to the satisfaction of the Engineer, be the quantities more or less than those set forth in the Bid Sheet.

The undersigned agrees to submit a schedule of progress or time chart for the work concerned if so requested by the Engineer after the opening of the bids, and to do so within three (3) days of such request. The schedule or chart will be used in consideration of the bids, and after award of the contract, by the Inspector in the field as a check on the actual progress.

On acceptance of this proposal for said work, the undersigned does hereby bind himself to enter into written contract with CME Associates, Inc. within five (5) days of the date of notice of award and to comply in all respects with the terms of said contract. The undersigned agrees that this proposal shall be valid for thirty (30) calendar days from the date of this proposal.

Accompanying this proposal is a guarantee, payable to the order of CME Associates, Inc., in the sum of 10% of the amount of the Gross Sum Bid which, deposit is to be forfeited as liquidated damages in case this proposal is accepted and the undersigned shall fail to execute a contract under the conditions of this proposal within five (5) days. Otherwise, said deposit is to be returned to the undersigned. The time schedules outlined in this bid need to be adhered to by the Engineer and Bidder.

All proposal guarantees will be returned within three (3) calendar days following the award of the contract. Freeman Companies, LLC will notify CME via e-mail that said proposal guarantees have been returned within the (3) calendar days following the award of the contract. When the award is deferred for a period of time longer than ten (10) calendar days after the opening of the proposals, all guarantees, except those of the three lowest bidders, will be returned. Should no award be made within 30 calendar days after the opening of proposals, all proposals will be rejected and the proposal guarantee returned, except that with the approval of the Bidder and the Surety, the Engineer may retain the proposal and proposal guaranty of the low bidder for as long as may be agreed upon by the Engineer, Bidder and Surety.

Date _____, 20____

 Print Legal Name of Person, Firm, or Corporation

 By (Signature)

 (Printed Name)

Bidder's Address (Not a P.O. address):

 Street

 City and State

 Telephone Number

 Email Address

If a Corporation:

Name	Address
_____ President	_____ _____
_____ Secretary	_____ _____
_____ Treasurer	_____ _____

If a Firm:

Name	Address
_____	_____
_____	_____
_____	_____

BID SHEET

**REHABILITATION OF BRIDGE 03903
MOSHER AVENUE OVER AMTRAK
STATE PROJECT NO. 58-336, GROTON, CONNECTICUT**

Item No.	Approx. Quantities	Item Description – Pay Unit <i>Unit Bid Price (in words)</i>	Unit bid price dollars/cents <i>(in figures)</i>	Amount of Bid dollars/cents <i>(in figures)</i>
1	24	Excavation Test Pits, per Linear Foot of Depth _____		
2	1	Mobilization and Demobilization, per Lump Sum _____		
3	4	Standby Time, per Hour _____		
4		_____ _____		
5		_____ _____		
6		_____ _____		
7		_____ _____		
8		_____ _____		
9		_____ _____		
10		_____ _____		

BID SHEET (continued)

Project No. 58-336
 Bridge 03903, Mosher Avenue over Amtrak
 Groton, Connecticut

TOTAL OR GROSS SUM BID, (*WRITTEN IN WORDS*):

TOTAL OR GROSS SUM BID, *DOLLARS/CENTS (IN FIGURES)*: \$ _____

DIRECT COSTS

Item No. and Description	Estimated Duration	*Daily Rate	*Weekly Rate	*Weekend Rate	*Monthly Rate
11. Traffic Person (For uniformed traffic control on non-railroad property)	_____	\$ _____	\$ _____	\$ _____	\$ _____

* If applicable, the Bidder should submit a rate for each category. "N/A" should be shown for non-applicable categories.

Estimated Total for Traffic Person \$ _____

Item No. and Description	Estimated Duration	*Daily Rate (8hr/per day at job site including travel time)	*Weekly Rate (8hr/per day at job site including travel time)	*Weekend Rate (8hr/per day at job site including travel time)	*Monthly Rate (8hr/per day at job site including travel time)	*Over-time Hourly Rate (for hours beyond daily rate)
12. Traffic Control Equipment (For work obtruding onto roadways)	_____	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____ (weekday) \$ _____ (weekend)
Additional Fees	Describe:					\$ _____
Additional Fees	Describe:					\$ _____

* If applicable, the Bidder should submit a rate for each category. "N/A" should be shown for non-applicable categories.

Estimated Total for Traffic Control Equipment \$ _____

CONTRACT AGREEMENT FOR SUBSURFACE EXPLORATIONS

AT THE SITE OF

**REHABILITATION OF BRIDGE 03903
MOSHER AVENUE OVER AMTRAK
STATE PROJECT NO. 58-336, GROTON, CONNECTICUT**

1. **GENERAL AGREEMENT**

This agreement, made and entered into this _____ day of _____, 2018, by and between CME Associates, Inc., hereinafter referred to as the "Engineer" or the Party of the First Part, and _____, hereinafter referred to as the Contractor or the Party of the Second Party,

WITNESSETH:

The Contractor shall furnish all labor, materials, equipment, supplies and other facilities, and shall perform all work necessary or proper for or incidental to the making of test pits at the locations on the plans at the site for the Project No. 58-336; Rehabilitation of Bridge 03903, Mosher Avenue over Amtrak in Groton, Connecticut, in strict accordance with the Specifications found herewith and the accompanying Contract Plans, and to the satisfaction and approval of the Engineer; and shall perform all other obligations and assume all liability imposed upon him by the Contract and Specifications.

In full consideration thereof, the Engineer will pay the Contractor, at the times and in the manner hereinafter provided, an amount determined by the prices named in the Clause, hereof entitled "Contract Unit Prices," and, except as otherwise provided herein, such amounts only. The prices for items named therein include full compensation to the Contractor for all labor, materials, and other things incidental to the completion of the entire work. Such payment shall be computed upon the basis of the actual quantities in the completed work, whether such quantities be more or less than those shown in the Bid Sheet bound herewith.

2. **CONTRACT UNIT PRICES**

Subject to the provisions of this Contract, the Engineer will pay and the Contractor shall accept in full consideration for the performance of the Contractor's obligation hereunder, the unit prices stated on the bid sheets.

3. AUTHORIZED FEE LIMIT:

The value of the "Total or Gross Sum Bids" combined with the estimated value of all Direct Costs, submitted by the Contractor in the bid, will be the "Authorized Fee Limit" unless unexpected subsurface or site conditions are encountered or a change in drilling methodology is required and is approved by the Engineer. Under these circumstances adjustments to the "Authorized Fee Limit" *may* apply.

If the "Approximate Quantity", indicated on the Bid Sheets, exceeds the amount by up to ten percent (10%), authorization for additional payment by the Inspector in the field will be acceptable. If the "Estimated Duration" for Traffic Person and/or Traffic Control Equipment, indicated on the Bid Sheet, exceeds the amount by up to fifty percent (50%), authorization for additional payment by the Inspector in the field will be acceptable. If either of the authorized percentages is exceeded, authorization by the Engineer will be required.

4. EXTRA WORK

Unforeseen work made necessary by changes in plans or work necessary to complete the test pits, for which no price is provided in the contract, shall be classified as extra work and done in accordance with the requirements of the specifications and as directed by the Engineer.

The Engineer shall notify the Contractor of the necessity for extra work, stipulating its character and extent. Upon receipt of such notification, the Contractor shall notify the Engineer, in writing, of the fair compensation, either unit price or lump sum as requested, for which he proposes to perform the required extra work. The Engineer may accept the compensation proposed by the Contractor, or if he considers the prices submitted to be excessive, he may order the work done on a "Cost Plus" basis as specified hereinafter. In either case, the character and extent of extra work, together with the accepted basis of compensation shall be communicated to the Contractor in writing.

If the Engineer orders extra work performed on a "Cost Plus" basis, the Contractor shall perform the same and shall receive in payment therefor an amount equal to the actual net cost in money to him of the materials, wages of applied labor, other direct expense and insurance required for labor, plus 20 percent of the above items and plus such rental for plant and other equipment (other than small tools) as the Engineer deems reasonable, and that amount only. If the work is performed on a unit price basis, there is no markup.

No work shall be considered Extra Work unless it has been ordered in writing as such by the Engineer before the said work started, or unless the Contractor shall file a written claim for Extra Work with the Engineer within two (2) days from the date of instructions from the Engineer or his representative to proceed with such work.

5. PAYMENT

Partial Payment(s): On or about the first day of each calendar month, the Engineer will request the Contractor to furnish information necessary to estimate the value of the work satisfactorily done up to that time. Within fifteen (15) days after receipt of this information, the Engineer will request the State to pay him 90% of the value of the work thus estimated, less any previous payments made; and the Engineer, within ten (10) days after receipt of such payment from the State, will pay to the Contractor the amount thus received.

Final Payment: Upon verification of the satisfactory completion of all work whatsoever required, the Contractor shall furnish to the Engineer satisfactory evidence that all just liens, claims and demands for rental of equipment, labor and material, arising out of such work, are fully satisfied, and that all of the work is fully released from liens, claims and demands, whether just or otherwise. Within fifteen (15) days after receipt of such evidence, the Engineer will request the State to pay him the total value of all

work satisfactorily done, less any payments previously made, and within ten (10) days of receipt of this Final Payment from the State, the Engineer will pay to the Contractor all amounts still outstanding and due him. All prior estimates and payments shall be subject to correction in this payment, which is throughout this Contract called the Final Payment.

6. CONTRACT NOT TO BE ASSIGNED

The Contractor shall give his personal attention constantly to the faithful prosecution of the work. He shall not assign or otherwise dispose of the Contract, or his right, title or interest in or to the same or any part thereof.

7. MODIFICATION OF CONTRACT

No modification of or change in this Contract shall be valid or enforceable against either of the parties unless it is in writing and signed by the parties or their duly authorized representatives.

8. DEFAULT OF CONTRACT

When, in the opinion of the Engineer, the project or any part thereof has been abandoned, or the Contractor is willfully violating any of the covenants of this Contract, then the Engineer may declare the Contractor in default of the Contract and notify him to discontinue the project. The Engineer may then call on the Surety to complete the project.

9. COMMENCEMENT OF WORK

The Contractor agrees to mobilize and actually start work on the Contract within ten (ten) consecutive calendar days from the date of the written notice to proceed.

10. PERFORMANCE CONTRACT BOND AND PAYMENT BOND

The successful Bidder, at the time of the execution of the contract, may deposit with the Engineer, a surety company bond for the satisfactory completion of the work and a surety company bond for the payment of all debts pertaining to materials, rental of equipment, and labor used or employed in the execution of the Contract. These bonds shall each be in an amount equal to the amount of the contract award and in a form acceptable to the Engineer.

The Surety must be a corporate surety licensed to sign surety bonds in the State of Connecticut.

11. INSURANCE

The Bidder, to whom the Contract has been awarded, shall furnish to the Engineer, prior to the commencement of any work, satisfactory proof that all provisions, herewith specified, relating to the Contractor's insurance have been fully complied with.

12. TERMINATION

CME, the Client or the Owner may terminate this Agreement on sixty (60) days written notice to the Contractor without cause. CME, the Client or the Owner may terminate this Agreement for cause effective immediately, provided that at least two (2) weeks prior to that time, CME, the Client or the Owner shall have given written notice to the Contractor indicating a substantive default under the terms and conditions of this Agreement, and that during that two (2) week period, the Contractor does not

cure the default. If more than two weeks is required to cure the default, then CME, the Client or the Owner may terminate the Agreement immediately.

13. WAIVER OF RESPONSIBILITY

It shall be understood that preliminary data obtained by subsurface explorations prior to this Contract and presented for examination by prospective bidders is not intended as a warranty of actual subsurface conditions to be encountered. The Engineer will bear no responsibility for the accuracy or suitability of subsurface information made available for examination and the conditions indicated by such information shall not be used by the Contractor as possible cause for subsequent revisions or waivers in the Contract.

14. NON-LIABILITY OF THE STATE AND ENGINEER'S REPRESENTATIVES

No agents or employees of the Engineer, the State of Connecticut, all officers, agents and servants of the State of Connecticut, Commissioner of Transportation and his successors, shall be charged personally by the Contractor with any liability or held liable to him, under any terms or provisions of this Contract or because of its execution or attempted execution, or because of any breach thereof.

15. CONTRACTOR'S WARRANTIES

The Contractor represents and warrants:

That he is financially solvent; that he is experienced in and competent to perform the type of work contemplated by this Contract. That he has carefully examined the specifications, plans, and the site of the work, the general and local conditions, and other matters which may in any way affect the work or its performance.

IN WITNESS WHEREOF, the parties have caused these presents to be signed and sealed the day and year first above written.

Witness

_____	By _____
Witness Signature	Contractor Signature
_____	_____
Print Name and Title	Print Name and Title
_____	_____
Date	Date

Witness

_____	By _____
Witness Signature	Engineer Signature
_____	_____
Print Name and Title	Print Name and Title
_____	_____
Date	Date

SPECIFICATIONS FOR TEST PITS

SECTION 1 – GENERAL CONDITIONS

1-1 Definitions

"Engineer" shall mean the firm of CME Associates, Inc., or their authorized representative.

"Commissioner of Transportation" shall mean the Commissioner of Transportation for the State of Connecticut, acting directly or through his duly authorized representative.

"Contractor" shall mean the person, persons, or corporation, which has executed the Contract with the Engineer for the proposed work.

"Inspector" shall mean the firm of Freeman Companies, Inc., the authorized representative of the Engineer assigned to the inspection of work and materials.

"State" and/or "Department" shall mean the State of Connecticut Department of Transportation

1-2 Authority and Duties of the Engineer

All work shall be performed to the satisfaction of the Engineer and at such times and places, by such methods and in such manner and sequence as he may require, and shall at all stages be subject to his inspection. Upon request of the Contractor, the Engineer will confirm in writing any oral order, direction or requirement.

1-3 Authority and Duties of the Inspector

The Inspector is the Engineer's representative in the field, responsible for oversight of the Contractor and ensuring that the work progresses in accordance with these Specifications. The Inspector has the authority to make decisions in the field regarding, but not limited to, test pit locations and quantities of pay items. The Inspector will record the locations of the test pits and verify footings, junction box and culvert elevations.

1-4 Injury to Persons or Property

The Contractor shall be responsible for all injury to persons or damage to property, either directly or indirectly, that may result from his operations.

1-5 Insurance

With respect to the operations performed by the Contractor under the terms of this contract and also those performed for the Contractor by its subcontractors, the Contractor will be required to carry at its own cost and for the duration of this contract, and any supplements thereto, with the State of Connecticut and CME Associates, Inc. being named as additional insured parties in conjunction with paragraph (A) and (B) below, the following minimum insurance coverages at no direct cost to the State or CME Associates, Inc. In the event the contractor secures excess/umbrella liability insurance to meet the minimum requirements specified in paragraphs (A) and/or (B) below, the State of Connecticut, City of Groton, Amtrak, Freeman Companies and CME Associates, Inc. shall be named as additional insured.

1-5a Insurance Provisions

The State of Connecticut, its officers, officials, employees, agents, Boards and Commissions, CME Associates, Inc., Freeman Companies, LLC, and other 3rd Party necessary for successful completion of the work shall be named as additional insured. The coverage shall contain no special limitations on the scope of protection afforded to the State.

The Contractor shall assume any and all deductibles in the described insurance policies.

The Contractor's insurers shall have no right of recovery or subrogation against the State and the described insurance shall be primary coverage.

Any failure to comply with the claim reporting provisions of the policy shall not affect coverage provided to the State.

Each required insurance policy shall not be suspended, voided, cancelled or reduced except after 30 days prior written notice by certified mail has been given to the State.

"Claims Made" coverage is unacceptable, with the exception of Professional Liability.

The Contractor agrees that he/she will not use the defense of Governmental immunity in the adjustment of claims or in the defense of any suit, unless requested by the State.

A. COMMERCIAL GENERAL LIABILITY

The Contractor shall carry Commercial General Liability Insurance, including Contractual Liability Insurance, providing for a total limit of One Million Dollars (\$1,000,000) for all damages arising out of bodily injuries to or death of all persons in any one accident or occurrence, and for all damages arising out of injury to or destruction of property in any one accident or occurrence, and, subject to that limit per accident, a total (or aggregate) limit of Two Million Dollars (\$2,000,000) for all damages arising out of bodily injuries to or death of all persons in all accidents or occurrences and out of injury to or destruction of property during the policy period.

B. AUTOMOBILE LIABILITY

The operation of all motor vehicles, including those hired or borrowed, used in connection with the Agreement shall be covered by Automobile Liability Insurance providing for a total limit of One Million Dollars (\$1,000,000) for all damages arising out of bodily injuries to or death of all persons in any one accident or occurrence, and for all damages arising out of injury to or destruction of property in any one accident or occurrence. In cases where an insurance policy shows an aggregate limit as part of the automobile liability coverage, the aggregate limit must be at least Two Million Dollars (\$2,000,000).

C. RAILROAD PROTECTIVE LIABILITY (Not Required) – *When applicable on projects over/near railroads.*

When the Agreement requires work on, over or under the right of way of any railroad company, the Contractor shall provide, with respect to the operations that it or its subcontractors perform under the Agreement, Railroad Protective Liability Insurance for and on behalf of the railroad company as named insured, and the State named as additional insured, providing for coverage limits of (1) not less than Two Million Dollars (\$2,000,000) for all damages arising out of any one accident or occurrence, in connection with bodily injury or death and/or injury to or destruction of property; and (2) subject to that limit per accident, a total (or aggregate) limit of Six Million Dollars (\$6,000,000) for all injuries to persons or property during the policy period. If such insurance is required, the Contractor shall obtain and submit the minimum coverage indicated above to the State prior to the commencement of rail related work and/or activities and shall maintain coverage until the work and/or activities is/are accepted by the State.

D. VALUABLE PAPERS AND RECORDS – *When Applicable*

The Contractor shall secure and maintain a Valuable Papers Insurance Policy at no direct cost to the State, until the complete design has been accepted by the State, and all original tracings, highway and bridge design computations, survey data, documents or data will have been returned to the State. This will assure the State that all records, papers, maps, statistics, survey notes, all tracings, highway and bridge design and other data or documents will be reestablished, recreated or restored if made unavailable by fire, theft, or any other cause. When survey data is furnished by the State it shall retain in its possession duplications of all survey plans and field notes. The Contractor shall retain in its possession duplications of all products of its work under this Agreement, if and when it is necessary for the originals to be removed from its possession during the time that this policy is in force. This policy shall provide coverage in the amount of Seventy-five Thousand Dollars (\$75,000) when the insured items are in its possession, and in the amount of Twenty Thousand Dollars (\$20,000) regardless of the physical location of the insured items.

E. WORKERS' COMPENSATION

With respect to all operations the Contractor performs and all those performed for the Contractor by subcontractors, the Contractor and subcontractor(s) shall carry Workers' Compensation Insurance and, as applicable, insurance required in accordance with the U.S. Longshore and Harbor Workers' Compensation Act, in accordance with the requirements of the laws of the State of Connecticut, and of the laws of the United States respectively.

F. POLLUTION AND/OR ENVIRONMENTAL

The Contractor agrees to acquire and maintain pollution and environmental impairment coverage, if such insurance is applicable to the work performed by the Contractor under this agreement.

Failure of the Contractor to maintain insurance coverage in accordance with the terms of the agreement shall constitute a violation of the agreement and shall subject the Contractor to liquidated damages in the amount of ten percent (10%) of the total contract price, subject to the continued commercial availability of such insurance.

G. CERTIFICATE OF INSURANCE

In conjunction with the above, the Contractor agrees to furnish to the State a Certificate of Insurance on a form acceptable to the State, fully executed by an insurance company or companies satisfactory to the State, for the insurance policy or policies required hereinabove, which policy or policies shall be in accordance with the terms of said Certificate of Insurance.

The Contractor shall produce, within five (5) business days, a copy of 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 agreement/contract.

1-5b Additional Coverage

Other types of coverage may be offered by the Contractor.

(H) UMBRELLA LIABILITY:

In the event the Contractor secures excess/umbrella liability insurance to meet the minimum requirements specified as items B, and E (if required), the State of Connecticut must be named as Additional Insured. The State of Connecticut must be the Named Insured if a separate umbrella policy is obtained to supplement the coverage specified for item A.

1-5c Certificate of Insurance

The Contractor agrees to furnish to the Engineer a Certificate of Insurance in conjunction with Items A, B, C, D, E, F, G, and H above, fully executed by an insurance company or companies satisfactory to the State, for the insurance policy or policies herein above, which policy or policies shall be in accordance with the terms of the Accord form. For the Workers' Compensation Insurance and, if applicable, the U.S. Longshoremen and Harbor Workers' Compensation Act coverage, the policy number (s) and term of the policy (ies) shall be indicated on the Certificate of Insurance. Each insurance policy shall state that the insurance company agrees to investigate and defend the insured against all claims for damage, even if groundless.

1-5d Responsibility for Claims and Liability

- (a) The Contractor shall indemnify and hold harmless, National Railroad Passenger Corporation (AMTRAK), Metro North Railroad (MNRR) (*when project is over/near railroad*), CME Associates, Inc, Freeman Companies, LLC., 3rd Parties necessary for the successful completion of the work, the State and its officers, representatives, agents, servants, employees, successors and assigns from and against any and all (1) Claims arising directly or indirectly in connection with the Agreement, concerning the negligent acts of commission or omission (collectively, the "Acts") of the Contractor or Contractor Parties, and (2) liabilities, damages, losses, costs and expenses, including but not limited to attorneys' and other professionals' fees, arising directly or indirectly in connection with Claims, Acts or the Agreement, to the extent of the Contractor's or Contractor Parties' negligence. The Contractor's obligations under this section to indemnify and hold harmless against Claims includes Claims concerning confidentiality of any part of or all of the Contractor's bid, proposal or any Records, any intellectual property rights, other proprietary rights of any person or entity, copyrighted or uncopyrighted compositions, secret processes, patented or unpatented inventions, article or appliances furnished or used in the performance.
- (b) The Contractor shall not be responsible for indemnifying or holding the State harmless from any liability arising due to the negligence of the State or any third party acting under the direct control or supervision of the State.
- (c) The Contractor shall reimburse the State for any and all damages to the real or personal property of the State caused by the Acts of the Contractor or any Contractor Parties. The State shall give the Contractor reasonable notice of any such Claims.
- (d) The Contractor's duties under this section shall remain fully in effect and binding in accordance with the terms and conditions of the Agreement, without being lessened or compromised in any way, even where the Contractor is alleged or is found to have merely contributed in part to the Acts giving rise to the Claims and/or where the State is alleged or is found to have contributed to the Acts giving rise to the Claims.
- (e) The Contractor shall carry and maintain at all times during the term of the Agreement, and during the time that any provisions survive the term of the Agreement, sufficient general liability insurance to satisfy its obligations under this Agreement. The Contractor shall name the State as an additional insured on the policy. The Department shall be entitled to recover under the insurance policy even if a body of competent jurisdiction determines that the Department or the State is contributorily negligent.
- (f) This section shall survive the termination of the Agreement and shall not be limited by reason of any insurance coverage. The Contractor shall not use the defense of Sovereign Immunity in the adjustment of claims or in the defense of any suit, including any suit between the State and the Contractor, unless requested to do so by the State. If this Agreement is between the State and a Municipality, the Municipality agrees that in the event of an adjustment of claims or in the defense of any suit between the State and the Municipality, the Municipality shall not use the defense of Governmental Immunity.

1-6 Laws To Be Enforced

The Contractor, at all times, shall observe and comply with all federal and state laws and local bylaws, ordinances, and regulations in any manner affecting the conduct of the work or applying to employees on the project, as well as all orders or decrees which have been promulgated or enacted, by any legal bodies or tribunals having authority or jurisdiction over the work, materials, employees for contract.

1-7 Right of Way and Damage to Property

The Contractor shall obtain all necessary permits and licenses at his own expense from the authorities having jurisdiction. He shall comply with all federal laws, state statutes and local ordinances of the city, town, or village in which the work is being done.

The Contractor shall be responsible for carrying out the work in accordance with the provisions of all permits.

The Contractor may occupy during his operations only those portions of streets or public places at the test pit locations for which the required permits have been obtained by him. If the Contractor desires to use additional areas outside of those required for the test pits, he shall arrange for such areas at his own expense.

The Contractor shall take every precaution against injuring paving, utilities, or private properties and shall promptly repair at his own expense any damage to such paving, utilities, or private property, to the satisfaction of the Engineer. The requirement includes the filling of all test pits, the re-sodding of any areas where the grass is damaged, and the restoration of the pavement structure as described in the Technical Provisions. Property, which is damaged as the result of the Contractor's operations, shall be repaired at the Contractor's expense, to the satisfaction of the Engineer.

The location of all stationary and mobile equipment shall be subject to the approval of the Engineer and upon the completion of the Contractor's operations at each site, he shall remove equipment therefrom and shall clear the area of all debris and restore it to the condition existing before the start of his operations.

The Contractor is cautioned that there shall be no entry of his equipment or personnel upon private property until the Engineer first notifies him that such entry is permissible in accordance with state statutes and state policy and until he, the Contractor, then informs the property owner that entry is being made pursuant to said notification. He shall, at all times, carry out his operations so as to inconvenience no resident at or near the working area. The Contractor shall make clear to all his personnel, the importance of proper public relations. The Engineer will not condone any rude or inconsiderate treatment of any citizens of the State by personnel employed on this project. The Engineer reserves the right to require the removal from the work of any persons or persons employed by the Contractor who has violated this section of the specifications, and such person or persons shall not be employed again thereon without the written consent of the Engineer.

1-8 Cleaning Up and Restoration

After completing the work, the Contractor shall promptly remove all equipment and other materials brought by him to the site and restore the site to its original condition. It is anticipated that pavement restoration to town standards using hot-mix asphalt will be required for test pits in paved areas.

Each test pit site shall be restored to the condition that it was received in. The cost of this work will be incidental to the work and included in the overall cost of the Contract.

1-9 Progress and Time of Completion

The work under this Contract shall be commenced within ten (10) consecutive calendar days from the date of written notice to proceed and shall be prosecuted continuously to completion within twenty (20) calendar days from the date of written notice to proceed.

If the quantities stated in the proposal are increased, as hereinafter provided, the number of calendar days allowed for completion will be similarly increased. This increase will be in the same proportion as the increase in the total payments to the Contractor above the amount of the executed Contract.

In case the Contractor shall fail to complete the work hereunder in accordance with the Contract within the time limit specified, he shall pay to the Engineer the sum of \$500 for each and every calendar day that the time consumed in said completion exceeds the above-mentioned time allowed for that purpose. This sum shall not be considered as a penalty, but as the liquidated damages that the State will suffer by reason of said delay. The Engineer shall deduct the amount of such liquidated damages from the monies, which may be due or become due to the Contractor under this Contract.

1-10 Health and Safety Plan

The Contractor shall have a General Health and Safety Plan for the work to be performed and assumes full responsibility for site safety of the Contractor's personnel. The Department or Engineer may request a copy of the health and safety plan. The purpose of this requirement is to assure proper and safe conduct of excavation operations. Items to be covered in the General Health and Safety Plan include, but are not limited to general safety practices of equipment movement and operation:

- Protective clothing and gear
- Buried and overhead utilities
- Traffic Safety
- First Aid

1-11 Railroad Safety Training - *When Applicable* (for projects over railroads)

The Contractor and his/her personnel involved in the work to be performed shall coordinate and complete all required railroad safety training as set forth by Amtrak/Metro North requirements and assumes full responsibility for Railroad Safety Training of the Contractor's personnel. The Engineer may request a copy of the certificate of training completion and/or copy of ID passes, if any, issued by the railroad.

1-12 Work Day

It is anticipated that a permit will be required from the City of Groton. The Contractor shall comply with all conditions on the permit including work hours and all other items.

Typical allowable daytime work hours for operations on paved surfaces of State roadways are from 9:00 a.m. to 4:00 p.m. This includes the time to set up and remove sign patterns and any other devices needed for traffic control. The Order of Conditions of the project specific Encroachment Permit may shorten or lengthen the typical allowable hours. The Contractor is required to obtain an Encroachment Permit from the Department's Construction District having jurisdiction over the project site before performing any work within the State ROW.

Typically, no work is allowed during inclement weather. Work on Interstate Highways and other Limited Access Expressways may have further restrictions, one of which may be, work requiring the closure of 2 or more lanes may need to be performed at night.

Work which can be performed from outside of the paved surfaces of roadways and which does not require any traffic control on the adjacent roadway is typically allowed from 7:30 a.m. to 5:00 p.m. However, the typical allowable work hours may vary by season.

The Contractor will not be permitted to work on the following Legal Holidays; New Year's Day, Washington's Birthday, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, Martin Luther King Day, Lincoln's Birthday, Columbus Day, and Veteran's Day. Also, the Contractor will not be permitted to work on the day before and the day after any of the above Legal Holidays on Interstate Highways, Limited Access Expressways, or Railroads. This applies also to the Friday immediately preceding any of the above Legal Holidays celebrated on a Monday and the Monday immediately following any of the above Legal Holidays celebrated on a Friday.

The Contractor may work on the above Legal Holidays, if pre-approved by the Department.

No additional premium will be paid for work required outside of the normal work hours nor will Standby Time be paid for restrictions within the normal work hours. No work of any kind shall be performed by the Contractor without prior approval of the Engineer.

On Site work hours will be restricted for work on Interstates and Expressways. On site work deviating from normal work hours (restricted hours and night work) will be required, and shall be conducted as shown in the Order of Conditions of the Encroachment Permit, which the Contractor must obtain from the District prior to executing the work. A list of conditions expected to be included on the Contractor's Encroachment Permit is included in the appendices. One and two-lane closures are anticipated, and shall be included under Section 2-20, Mobilization and Demobilization-Land.

Restrictions for work on Interstates and Expressways are expected to include the following:

1. When daytime traffic volumes are high, night time work may be exclusively required. No work, which will interfere with the flow of traffic, will be permitted before 8:00 p.m. and after 5:00 a.m., for any work on the paved surface.
2. For work off the road, in the grass areas, the allowable hours will be 9:00 a.m. to 4:00 p.m. Monday through Friday.
3. No work will be allowed during inclement weather.
4. Holiday Restrictions: No permit work within the highway right of way will be permitted the day before a legal holiday and no work shall be resumed until 12:00 noon the day following the holiday, unless otherwise approved or indicated. Weekends shall be considered as part of the holiday when the legal holiday falls on a Friday or Monday.

SECTION 2 – TECHNICAL PROVISIONS

2-1 Scope of Work

The work to be done under this contract includes the furnishing of all material, labor, equipment, water supply and all else necessary for excavating test pits, backfilling the area, and patching the pavement as described herein and shown on the test pit location plan.

It is anticipated that pavement restoration to town standards using hot-mix asphalt will be required for restoration of all test pits, which are in paved areas.

The work is located on Mosher Avenue adjacent to Bridge No. 03903 over Amtrak, in Groton, Connecticut. Test pit work is outside the Amtrak right-of-way.

The proposal shall include, but not limited to, all costs associated with: excavating a minimum of four (4) test pits using vacuum or hand excavation and/or conventional excavation methods adjacent to Bridge No. 03903 over Amtrak in accordance with the provided drawing; traffic control (if required); temporary excavation support system (if necessary); mobilization; demobilization; all necessary equipment and tools; fuel costs; materials and labor for backfilling and patching of areas where test pits are dug, acquisition of permits, coordination with CME/Freeman Company personnel, overhead, profit and administrative costs. Freeman personnel will mark the desired location of the test pits and be present during test pitting to record the configuration of the bridge abutments. Upon the completion of each test pit the disturbed area ground and/or pavement structure shall be restored to its original condition.

The existing asphalt pavement shall be saw-cut prior to excavating. The dimensions of the area to be saw-cut shall be determined by the SSE Contractor, but the selected area shall be sufficient to permit inspection and documentation of the exposed backwalls of the existing abutments. The minimum width of the excavation at the backwall shall be 24 inches. The minimum depth of each test pit shall be 60 inches but the Contractor should be prepared to extend the test pit depth to 72 inches if directed by the inspector.

Note that - buried telecommunication conduit is suspected to be present along the back edge of the northwest abutment. If present, the SSE Contractor shall use hand or vacuum excavation methods in the vicinity of the conduit to prevent damage to the existing conduit. The SSE Contractor shall provide temporary support of the exposed portion of the conduit to facilitate inspection of the abutment backwall.

Test pits shall be backfilled using material removed in making the excavation, provided it is found to be free from large or frozen lumps, wood or other deleterious material. Backfill placed deeper than 4 feet below grade shall be placed in maximum 8-inch thick loose lifts and compacted by tamping with the heel of the excavator bucket. Backfill placed from 4 feet below grade to the bottom of pavement, including Base Course, shall be placed in maximum 6-inch thick loose lifts and thoroughly compacted using mechanical rammers, vibrators or pneumatic tampers.

Any surplus or unsuitable backfill material, including saw-cut asphalt, shall be removed and disposed of at no additional cost.

Pavement reconstruction shall be in conformance with the Town of Groton's Road and Drainage Standards for Collector Streets and shall consist of 5 inches of hot-mix bituminous pavement over a minimum of 18 inches of gravel base. Hot-mix bituminous pavement shall conform to the mix type specified by the City of Groton.

It is anticipated that temporary lane, shoulder, or sidewalk closures will be necessary to perform the test pit excavation. A City of Groton Permit will need to be obtained to perform the work. Depending on the requirements of the Permit, local police officers or flaggers may be needed to assist with traffic control.

2-2 Contract Plans

The work shall conform to the drawing prepared by Freeman Companies, LLC and numbered and titled as follows:

Drawing Description	Test Pit Location Plan
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2-3 Supervision

The work shall be performed under the supervision and direction of the Inspector. No excavating shall be made except in the presence of the Inspector. The Inspector will mark the locations of all test pits.

2-4 Existing Conditions

Before any test pits are performed, the Contractor shall contact “Call Before You Dig” at (860) 922-4455 to obtain a request number in accordance with State and Federal laws. The request number expires in 30 calendar days; therefore, the Contractor is responsible for maintaining an active request number. The Contractor will supply the Engineer with the request number(s) prior to the start of work. During the progress of the work, the Contractor shall cooperate with the owners of the utilities and permit their representative access to the work to determine if their utilities are being endangered in any way. Any relocation of test pits shall be done with the approval of the Inspector. In addition to contacting “Call Before You Dig”, the Contractor is required to notify the City of Groton Town Engineer, to assist in locating all City-owned utilities.

2-5 Contractor's Plant and Equipment

All plant, equipment, and methods to be used by the Contractor shall be subject to approval by the Engineer and Amtrak/MNRR (when applicable for projects over railroads) at all times during the work; however, approval of the equipment shall not be construed as including the approval of the performance thereof. Additional equipment and methods shall be provided when ordered by the Engineer if required to perform the work satisfactorily according to the Specifications.

If excavation equipment for track level work consists of hi-rail, truck mounted equipment, only one track will be shut down at a time, as such the equipment must allow a train to pass on an adjacent track. All equipment used within the Amtrak/MNRR right-of-way must be pass inspection by the Railroad prior to mobilization to the site. Access for hi-rail equipment will be as directed by the railroad company.

The Contractor shall submit in writing, upon request of the Engineer, a schedule of operations for the work. The Engineer shall be notified at least 48 hours in advance of deviations from the schedule and such deviations shall be subject to the approval of the Engineer.

2-6 Cooperation by Contractor

The Contractor shall at all times have on the work, as his agent, a competent superintendent or foreman thoroughly experienced in the type of work being performed, who shall receive instructions from the Inspector. The superintendent shall have full authority to execute the orders or directions of the Inspector, without delay, and to supply promptly such materials, equipment, tools, labor and incidentals as may be required.

2-7 Character of Workmen

The Contractor shall employ only superintendents, foremen, and workmen as are careful and competent, and the Engineer may demand the dismissal of any person or persons employed by the Contractor in or about the work who misconduct himself or be incompetent or negligent in the due and proper performance of his or their duties, or neglects or refuses to comply with the directions given, and such person or persons shall not be employed again thereon without the written consent of the Engineer. Should the Contractor continue to employ or again employ such person or persons, the Engineer may withhold all payments, which are due or become due, or the Engineer may suspend the work until such orders are complied with.

2-8 Line and Grade

Line and grade for the entire work will be established and laid out by the Engineer or Inspector. The Contractor shall execute the work to such line and grade.

2-9 Facilities to be Furnished by the Contractor

If project involves work on water, the Contractor shall provide and set a water level gauge at his own expense as directed by the Engineer, the use of a boat or float, and boatmen, laborers and material to constitute a part of the usual equipment and crew on his contract, as may be required in supervising with work.

The Contractor shall construct his own access roads or trails as required. The cost of all these items shall be included in the unit bid prices.

2-10 Test Pits

a. General:

Excavation shall be performed at location directed by the Engineer or Inspector. The horizontal size of test pits dug shall be kept as small as practical, for the type of equipment used, to limit disturbance to the adjacent ground but large enough to locate the underground feature and allow for visual inspection and location by survey. When noncohesive soils are encountered, the Contractor shall provide a method of keeping the test pit open in order to allow easy inspection of underground features, which is acceptable to the Inspector. When the test pit is approved and accepted by the Engineer, it shall be backfilled with compacted suitable granular material to existing grade, or subgrade in paved areas. Paved areas shall be patched to match the existing pavement to the satisfaction of the Engineer.

If a test pit reaches the maximum depth and the anticipated underground feature is not found within the limits of the excavation, the horizontal size of the excavation shall be increased by 50% in one direction, as directed by the Engineer or Inspector, in an attempt to locate the underground feature. If the underground feature is still not found, the test pit will be considered unsuccessful and shall be abandoned.

b. Vacuum Excavation:

When specified or otherwise appropriate, test pits shall be dug by using an appropriately sized vacuum truck to remove soil from the test pit. Test pits shall be dug to the depth range indicated in Section 2.1 above and at the locations shown on the plans entitled "Test Pit Location Plan".

c. Conventional Excavation:

When specified or otherwise appropriate, test pits shall be dug by using an appropriately sized rubber-tired backhoe to remove soil from the test pit. Test pits shall be dug to the depth range indicated in Section 2.1 above and at the locations shown on the plans entitled "Test Pit Location Plan".

d. Manual Excavation:

When specified or otherwise appropriate, due to the close proximity of sensitive features or hazards associated with feature being located, test pits shall be hand dug with shovels, picks and other small hand held tools. Test pits shall be dug to the depth range indicated in Section 2.1 above and at the locations shown on the plans entitled "Test Pit Location Plan".

2-11 Standby Time

Certain projects may require the Contractor to suspend operations during the normal work day, after work has already begun for the day, due to unexpected restricted working hours imposed by the Department or for other reasons such as: traffic related issues (including air and rail traffic), unexpected weather conditions, tides or other conditions. Work on site of active construction projects may periodically require that the Contractor temporarily stop the test pit operations. When a stoppage of work occurs for any reason, it will be determined by the Engineer as to whether or not it qualifies as Standby Time.

Standby Time will not be paid when a full scheduled work day cannot be performed due to predicted adverse weather conditions, lack of qualified laborers/operators or equipment breakdown.

Should the State or Engineer deem the equipment or workers to be unsafe, no Standby Time will be paid for the Contractor to furnish replacement workers or equipment.

Standby Time will not be paid to assemble or remove a traffic control pattern.

If Traffic Control services consisting of State Troopers or Local Police have been scheduled and confirmed with the entity on a particular work day and a Trooper or Police Officer does not show up on site, Standby Time will only be paid from the time that the Contractor normally begins work on site to the time that the Contractor leaves the site, as directed by the Inspector. If Flagmen services have been scheduled and confirmed with the Railroad on a particular work day and the Flagmen do not show up on site, Standby Time will only be paid from the time that the Contractor normally begins work on site to the time that the Contractor leaves the site, as directed by the Inspector.

2-12 Trafficpersons

The Contractor shall provide the services of Trafficpersons of the type and number, and for such periods, for the control and direction of vehicular traffic and pedestrians in accordance with the State of Connecticut DOT's publication "Traffic Control During Maintenance Operation" and the attached Maintenance Control Plans. Railroad Flagmen are not considered to be Trafficpersons.

The Contractor shall inform the Engineer of his scheduled operations and the number and type of Trafficpersons requested and/or required by permit.

If the Contractor changes or cancels any scheduled operations without prior notice of same, as required by the agency providing the Trafficperson, and such that Trafficperson services are no longer required, the Contractor will be responsible for payment, at no cost to the Engineer, of any shown-up cost for any Trafficperson not used because of the change. Exceptions may be granted for adverse weather conditions and unforeseeable causes beyond the control and without the fault or negligence of the Contractor.

Trafficpersons shall consist of the following types:

State Police Officers: State Police Officers shall be uniformed off-duty sworn Connecticut State Troopers. 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 State highways. State Police Officers with Official State Police vehicles will be used at such locations and for such periods necessary to control traffic operations and promote increased safety to motorists through the construction sites. On limited access highways, State Police Officers will be utilized for regional work zone traffic safety and enforcement operations in addition to project-related work zone assignments.

Uniformed Municipal Police Officers: Uniformed Municipal Police Officers shall be sworn Municipal Police Officers or Uniformed Constables who perform criminal law enforcement duties for the Municipality in which the project is located. Their services will also include an official Municipal Police vehicle. Uniformed Municipal Police Officers will be used on all non-limited access highways. If the Town where work is being performed does not have a municipal police force then State Police Officers will be used on non-limited access State Highways and in some cases on local roads as determined by the Town's traffic authority.

Uniformed Municipal Police Officers and requested Municipal Police vehicles will be used at such locations and for such periods deemed necessary to control traffic operations and promote increased safety to motorists through the work site.

Uniformed Flaggers: Uniformed Flaggers shall be persons who have successfully completed flagger training by the American Traffic Safety Services Association, National Safety Council or other programs. Services of Uniformed Flaggers shall include the following equipment: garments (including high visibility headgear) so as to be readily distinguishable as a Flagger in accordance with Standard 6E-3 of the MUTCD, and these specifications, and a STOP/SLOW paddle that is at least 18 inches in width and with letters at least 6 inches high, mounted on a handle of sufficient length so that the bottom of the sign will be 6 feet above the ground, and conforms to Standard 6E-4 of the MUTCD and catalog number 387-80-9950 of the Catalog of Signs Connecticut DOT.

Uniformed Flaggers will only be used on non-limited access highways when authorized by the State of Connecticut DOT's publication "Traffic Control During Maintenance Operation" and the attached Maintenance Contraol Plans. Uniformed Flaggers will be used at such locations and for such periods necessary to control traffic operations.

Any work on Railroad property shall require the use of Railroad Flaggers and be governed by the flagging regulations as described in the Railroad Company's "Permit To Enter Upon Railroad Property".

General: Uniformed Law Enforcement Personnel being used as Trafficpersons may conduct motor vehicle enforcement operations in and around work areas.

Trafficpersons shall wear a high visibility safety garment that complies with OSHA, MUTCD, ASTM Standards and the following:

Uniformed Law Enforcement Personnel shall wear the high visibility safety garment provide 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.

Uniformed Flagger – The base material for the safety garment shall be a fluorescent color of orange, yellow, or strong yellow-green. The garment shall have vertical and horizontal stripe markings of contrasting color to the base material to enhance noticeability of the wearer. These markings shall be made of retroreflective

or combination of retroreflective and non-retroreflective materials. The retroreflective material shall be orange, yellow, white, silver, strong yellow-green, or a fluorescent version of one of these colors and shall have a minimum width of 5/8". A minimum area of 40 square inches of retroreflective material must be visible when the garment is viewed from either the front or back and a minimum of 12 square inches of retroreflective material must be visible from any other normal observation angle. The safety garment shall have the words "Traffic Control" clearly visible on the front and rear panels (minimum letter size 2 inches).

Worn/faded safety garments that are no longer highly visible shall not be used. The Inspector shall direct the replacement of any worn/faded garment at no additional 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 Trafficpersons to operate in a manner contrary to the Maintenance and Protection of Traffic Specification shall be authorized in writing by the Engineer.

Prior to the start of operations on the project requiring the use of Trafficpersons, a meeting will be held with the Contractor, Trafficperson agency, and Inspector to review the Trafficperson operations, lines of responsibility, and operating guidelines which will be used on the project.

In the event of an unplanned, emergency, or short-term operation, the Inspector may approve the use of properly clothed, non-certified Trafficpersons until such time as a certified Trafficperson may be obtained. In no case shall this temporary use exceed 8 hours for any particular operation.

2-13 Traffic Control Equipment

When the Contractor's operations obtrude onto any part of the roadway, the Contractor is to adhere to the requirements of the Department's publication "Traffic Control During Maintenance Operation" latest edition (revised 07/2002 included in attachments). The requirements of this publication generally include the furnishing and use of traffic control equipment such as; signs, cones, barrels and sometimes crash trucks.

2-14 Mobilization and Demobilization – Land

This item shall include the initial mobilization of the crew and equipment at the project site and the final demobilization after all test pits are complete. The Contractor is required to furnish the excavation equipment and tools, in good condition and all other equipment necessary to carry on and complete the work properly. The Contractor may be required to mobilize and dismantle his equipment at existing highway structures, highway embankments, highway rights of way, off the traveled way, wooded areas and other difficult sites. The Contractor shall have the necessary equipment and personnel to assemble his excavation equipment at the desired locations.

Any work hour restrictions, necessary permits or any other requirements made by the Connecticut Department of Transportation, Town of Groton or other public transportation authority shall be complied with by the Contractor and any costs shall be considered as part on the unit price of Mobilization and Demobilization – Land and no additional compensation will be allowed. No additional compensation will be made to the Contractor for preparing the application for and acquiring the entry permit and its associated fee.

This item shall also include full compensation for all traffic control devices, cones, signs, light plants, Traffic Attenuation Vehicle, etc. when provided and used by the Contractor.

All material or equipment furnished under this item shall remain the property of the Contractor and shall be maintained and disposed of by him. This item shall carry all charges incident to such plant setup and removal, in order that the charges need not be distributed among the more variable items of the contract.

2-15 Mobilization and Demobilization – Railroad (Not Required) *(applies to any explorations located within the Metro North Railroad/Amtrak Railroad right-of-way, or impacting the right-of-way during mobilization)*

This item shall include the initial mobilization of the crew and equipment at the project site and the final demobilization after all test pits are complete. The Contractor is required to furnish the excavation equipment and tools, in good condition and all other equipment necessary to carry on and complete the work properly. The Contractor may be required to mobilize and dismantle his equipment at existing railroad structures, railroad embankments, railroad rights-of-way, and other areas under railroad ownership. The Contractor shall have the necessary equipment and personnel to assemble his excavation equipment at the desired locations. The Contractor will be required to prepare and submit for approval, a Work Plan detailing how the test pit work will be performed prior to mobilization to the site. This work plan shall include equipment cut sheets, mounting details, manner of work, location or equipment, etc.

Any work hour restrictions, necessary permits or any other requirements made by a railroad or public transportation authority for entering on their property shall be complied with by the Contractor and any costs shall be considered as part on the unit price of Mobilization and Demobilization-Railroad and no additional compensation will be allowed.

The Engineer will prepare and obtain an Entry Permit from the railroad or public transportation authority and, provided that insurance requirements have been met, grant permission to the Contractor, acting as the Engineer's Contractor, to work adjacent to the Amtrak Property in the vicinity of Bridge No. 03903 Mosher Ave over Amtrak to perform said work. A copy of the Railroad's Permit to Enter Upon Property shall be provided to the Contractor after selection. All the requirements, terms, and conditions outlined within the Railroad's Permit to Enter Upon Property are hereby incorporated into the CONTRACT AGREEMENT FOR TEST PITS. The Contractor by submitting a bid for this project, assumes full responsibility to assure all his/her personnel involved in the work, including him/herself and anyone under the direction of the Contractor, will read the Entry Permit in its entirety before entering railroad property, and abide by the rules and regulation set forth in the Railroad's Permit to Enter Upon Property. The cost of the entry permit required by the railroad or public transportation authority will be borne by the Engineer. No compensation will be made to the Contractor for preparing the application for and acquiring the entry permit and its associated fee. Should Railroad Flagmen and/or Groundmen be required, the Engineer will establish a Force Account with the railroad for their payment.

This item shall also include full compensation for all traffic control devices, cones, signs, light plants, etc. when provided and used by the Contractor, whether within the Railroad right-of-way or when necessary for accessing the Railroad right-of-way from an adjacent roadway.

All material or equipment furnished under this item shall remain the property of the Contractor and shall be maintained and disposed of by him. This item shall carry all charges incident to such plant setup and removal, in order that the charges need not be distributed among the more variable items of the contract.

2-16 Records

The Contractor shall keep complete, neat, accurate and legible daily reports. The records shall be made at the site as the work progresses and shall be furnished to the Engineer at the completion of each day. The records shall contain the following information:

General

- Name of Inspector, Contractor and Engineer
- Date of start and date of finish.
- Town, State Project Number, Route Number/Name, and Bridge Number when applicable
- Test pit Number
- Quantities completed for each pay Item

- ❑ Field Receipts for Direct Costs

Test Pits

- ❑ Full information in tabular form on Bridge No. 00813 and 01466 footing elevations, Bridge No. 00480 junction box elevation and location, and Bridge No. 00480 top of culvert elevation.
- ❑ Notes regarding any other pertinent information and remarks on miscellaneous conditions encountered such as: Bridge No. 00813 barrier bearing material.

2-17 Submission of Reports and Samples

A copy of the Contractor's daily reports shall be given to the Inspector daily.

2-18 Measurement and Payment

a. General

The contract items include all services, labor, equipment, transportation, fuel costs, material and supplies for the complete work, acquisition of permits, coordination with Freeman Companies and CME personnel, overhead, profit and administrative costs. Freeman Companies will be present during excavation to record the locations of the bridge abutments, backwalls and footings and to measure and record the depth of approved test pits for payment.

No other payments for any specified or indicated work, nor for any work implied therefrom, shall be made. The quantities stated in the proposal are approximate only and are for the specific purpose of comparing bids. The Engineer does not guarantee that these items or quantities will be performed. The Engineer and Inspector reserve the right to vary the quantities or delete items in their entirety, and the Contractor shall not be entitled to any extra payment due to such amended quantities or deleted items.

b. Test Pits

1. This work will be measured for payment by the actual number of vertical linear feet excavated, measured from the existing ground surface to the bottom of the accepted test pit. Test pit depth shall be measured to the nearest half foot.
2. This work will be paid for at the contract unit price each for "Test Pits" of the specified excavation method, including all tools, material and equipment needed to excavate the test pit, backfill the area and patch the pavement (when present) and all other work incidental thereto. Fractions of a foot shall be paid at the fractional portion of the unit price.
3. If a test pit is excavated and no abutment or footing is found, the test pit will be considered unsuccessful and abandoned and the Contractor will be paid for the test pit at the contract unit price. No additional measurement or payment will be made for the widening of the excavation as described above.
4. If the Engineer or Inspector directs the Contractor to widening a test pit more than 50% of its original size, the original excavation will be considered 1 test pit with a depth measured for payment and the additional excavation will be considered as a second test pit and have its actual depth measured separately for payment.

c. Standby time

1. The item Standby Time will be measured for payment by the actual number of hours each necessary piece of mechanized excavation equipment is required by the Engineer to Standby. Idle incidental equipment, such as pickup trucks, and hand tools shall not qualify

for payment under “Standby Time”. Standby Time will be measured to the nearest 15-minute interval.

2. The item will be paid at the contract unit price per hour for “Standby Time.” Fractions of an hour shall be paid at the fractional portion of the unit price.

d. Trafficpersons

1. Only Trafficperson services in accordance with the State of Connecticut DOT’s publication “Traffic Control During Maintenance Operation” and the attached Maintenance Control Plans will be measured for payment. Services of Trafficpersons will be measured for payment by the actual number of hours for each person rendering services in accordance with these specifications. Services of Trafficpersons utilized by the Contractor not necessary for the proper completion of the project or at locations where traffic is unnecessarily restricted by the Contractor’s method of operation, will not be measured for payment.

The minimum hours of payment for each Trafficperson supplied by a law enforcement agency or Trafficperson subcontractor in any one day shall be four hours. No Uniformed Trafficperson shall work more than twelve hours in any one-day. In case such services are required for more than twelve hours, the Contractor may request additional Trafficpersons. In cases where the Trafficperson is an employee on the Contractor’s payroll, payment for the Trafficperson will be made only for those hours when the Contractor’s employee is performing Trafficperson duties.

Travel time charged by State Police Officers, up to one hour per day, will be measured for payment. No travel time will be allowed or paid for Uniformed Municipal Police Officers or Uniformed Flaggers. Safety garments and STOP/SLOW paddles will not be measured for payment.

2. The Estimated Total sum of money shown in the itemized proposal for this work will be used as a budget value to set aside project funds and will not be used for bid comparison. Payment will be made as described below.

“Trafficperson” will be paid for at the actual hourly rate charged for the Trafficperson service (monthly statement or receipted bills) by the entity which actually provide the service plus a five percent (5%) markup. Use of a Municipal police vehicle will be paid at the actual rate charged by the Municipality plus a five percent (5%) markup. The rate charged by the Municipality for use of a Uniformed Municipal Police Officer and/or an official Municipal Police vehicle shall not be greater than the rate it normally charges others for similar services.

e. Traffic Control Equipment

1. The Estimated Total sum of money shown in the itemized proposal for this work will be used as a budget value to set aside project funds and will not be used for bid comparison. Payment will be made as described below.
2. Traffic Control Equipment, including operators, which is provided by a Subcontractor or is rented, will be measured for payment by the actual time that the equipment was in place for traffic control on the roadway. The unit of time, i.e. Days, Weeks, Months, shall be that included in the Subcontractor of Rental agreement. This item will be due for payment at the time of final payment after removal of all materials and equipment from the project.
3. Traffic Control Equipment will be paid for at the actual daily, weekly, or monthly rate billed by the sub-consultant / rental company providing the traffic control services. The sub-

consultant / rental company's invoice shall be included with the Contractor's invoice as backup for direct costs. Rental equipment will be paid for at actual cost with no mark-up.

f. Mobilization and Demobilization—Land

1. When mechanized equipment is used for Vacuum Excavation or Conventional Excavation, this item will be measured for payment by the actual number of excavation machines (equipment) brought to the site and used as directed and approved by the Engineer. This item will be due for payment at the time of final payment after removal of all materials and equipment from the project.
2. When Manual Excavation is specified, this item will be measured for payment by the actual number of complete and separate crews of laborers performing the work, as directed and approved by the Engineer.
3. This work will be paid for at the contract unit price each for "Mobilization and Demobilization—Land", for the number of excavation machines or crews of laborers, as specified above. This item will also include full compensation for all traffic control patterns, cones, light plants, and all other materials, equipment, tools, labor and work incidental thereto that were provided and used by the Contractor.

g. Mobilization and Demobilization—Railroad

1. When mechanized equipment is used for Vacuum Excavation or Conventional Excavation, this item will be measured for payment by the actual number of excavation machines (equipment) brought to the site and used as directed and approved by the Engineer. This item will be due for payment at the time of final payment after removal of all materials and equipment from the project.
2. When Manual Excavation is specified, this item will be measured for payment by the actual number of complete and separate crews of laborers performing the work, as directed and approved by the Engineer.
3. This work will be paid for at the contract unit price each for "Mobilization and Demobilization—Railroad", for the number of excavation machines or crews of laborers, as specified above. This item will also include full compensation for all traffic control patterns, cones, light plants, and all other materials, equipment, tools, labor and work incidental thereto that were provided and used by the Contractor.

V LIST OF ATTACHMENTS

1. Conditions Expected to be included in the Contractor's Permit
2. Test Pit Work Plan To be provided by selected Substructure Exploration (SSE) Contractor
3. Test Pit Location Plan
4. Traffic Control During Construction Operations
5. Copy of Advertised Invitation To Bid
6. Railroad Temporary Permit to Enter Upon Property
7. Railroad Protective Liability (RRPL) Insurance Policy

CONDITIONS EXPECTED TO BE INCLUDED IN THE CONTRACTOR'S PERMIT

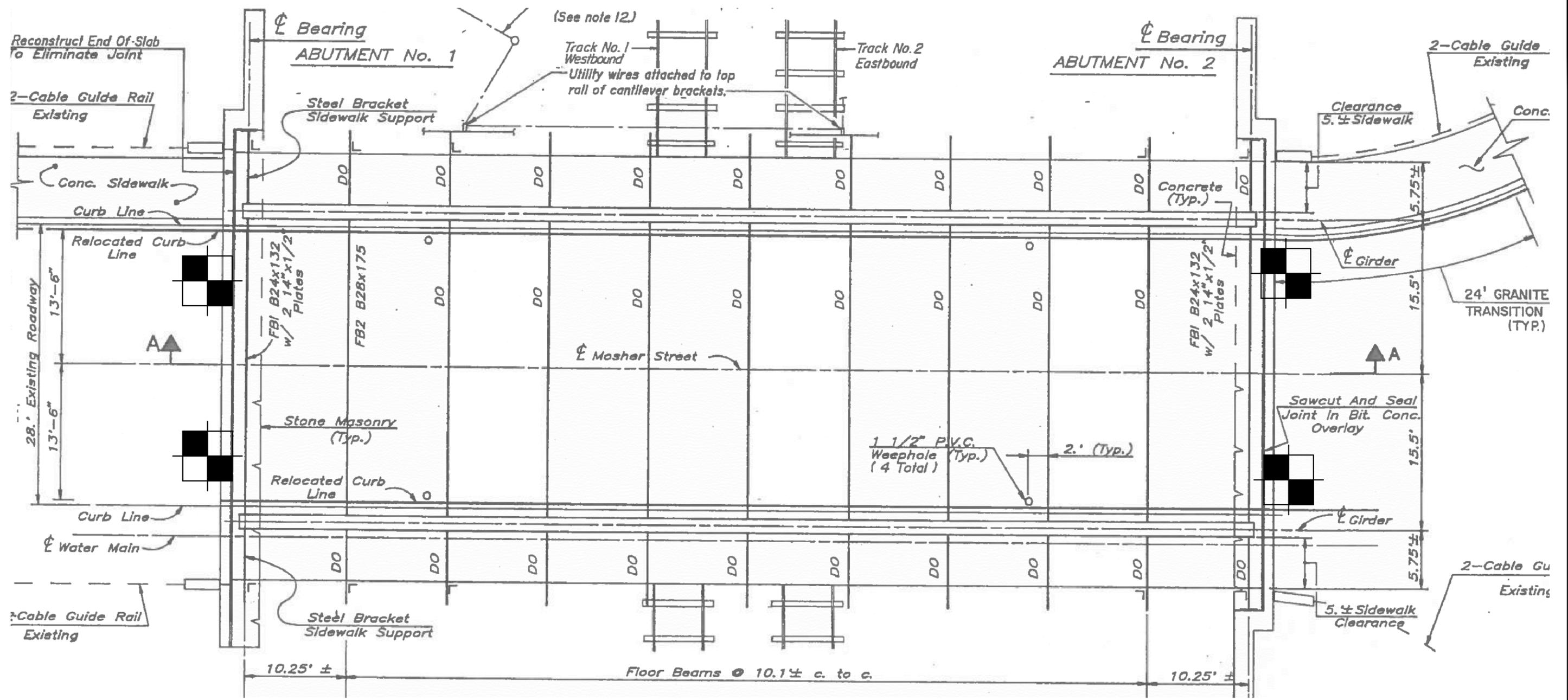
(Note: The Contractor must obtain a Permit from the Department prior to the start of work)

- a. A copy of the Permit must be available on site at all times.
- b. Vehicular and pedestrian traffic must be adequately protected through the use of appropriate traffic control patterns. Uniformed police officers or personnel who are certified for traffic control to a level equivalent to the National Safety Council shall be utilized to direct traffic through the work area. All traffic control signing and appurtenances shall be in accordance with the latest edition of the "Manual on Uniform Traffic Control Devices" and must meet NCHRP 350 requirements. Traffic Plans are attached.
- c. No work that will interfere with the flow of traffic will be permitted between 6:00 a.m. and 9:00 a.m. and also between 4:00 p.m. and 7:00 p.m, unless allowed by the City of Groton.
- d. No work will be allowed during inclement weather.
- e. Holiday Restrictions: No permit work within the highway right of way will be permitted the day before a legal holiday and no work shall be resumed until 12:00 noon the day following the holiday, unless otherwise approved or indicated. Weekends shall be considered as part of the holiday when the legal holiday falls on a Friday or Monday.
- f. Vehicles must be parked off the roadway whenever possible to avoid impeding traffic flow or distracting the traveling public.
- g. Appropriate work zone signs must be set out to alert the traveling public of activity in the area.

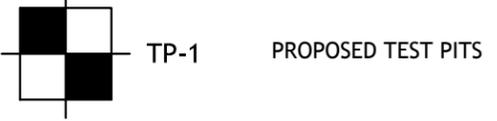
TEST PIT WORK PLAN

(TO BE PROVIDED BY SSE CONTRACTOR AFTER SELECTION)

Freeman Companies, LLC - R:\2017\2017-0802_CLE_Mosher_Ave_over_Amtrak_Groton_CME\DWG\Figure 5.dwg Mar 27, 2018 - 3:18pm Plotted By: Sbiegler

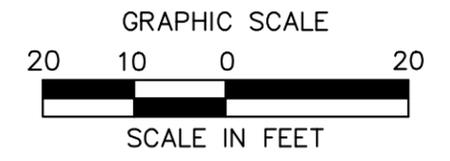


LEGEND:



NOTES:

1. BASE PLAN PROVIDED BY CME ASSOCIATES, INC.
2. REFER TO THE CONTRACT FORM AND INVITATION TO BID FOR ADDITIONAL INFORMATION



TEST PIT LOCATION PLAN
REHABILITATION OF BRIDGE No. 03903,
MOSHER AVENUE OVER AMTRAK
DOT PROJECT No. 0058-0336
GROTON, CONNECTICUT

FREEMAN
COMPANIES
LAND DEVELOPMENT | ENGINEERING DESIGN | CONSTRUCTION SERVICES

FREEMAN COMPANIES, LLC
36 JOHN STREET
HARTFORD, CT 06106
WWW.FREEMANCOS.COM
TEL: (860) 251-9550
TOLL FREE: (800) 604-5141
FAX: (860) 986-7161

ELEVATE YOUR EXPECTATIONS

No.	Date	Description

REVISIONS

DRAWN: S.B.
CHECKED: C.T.
APPROVED: N.W.
SCALE: 1"=10'
PROJECT NO.: 2017-0802
DATE: 03/27/2018

SHEET NO.
FIGURE 2

TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS

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 19 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 shall 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 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. The agenda should include:
- Review Project scope of work and time
 - Review Section 1.08, Prosecution and Progress
 - Review Section 9.70, Trafficpersons
 - Review Section 9.71, Maintenance and Protection of Traffic
 - Review Contractor's schedule and method of operations.
 - Review areas of special concern: ramps, turning roadways, medians, lane drops, etc.
 - Open discussion of work zone questions and issues
 - Discussion of review and approval process for changes in contract requirements as they relate to work zone areas

SECTION 2. GENERAL

- 2.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.
- 2.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.
- 2.c) Failure of the Contractor to have the required minimum number of signs, personnel and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for loss time.
- 2.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 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

- 3.a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.
- 3.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.
- 3.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.
- 3.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, traffic slowing techniques may be used and shall include 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 TMAs and sign crew shall continue to install/remove the pattern as described in Section 4c and traffic shall be allowed to resume their normal travel.
- 3.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
- 3.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path 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.
- 3.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.

- 3.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 4. USE OF HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

- 4.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.).
- 4.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.
- 4.c) The Flashing Arrow shall not be used on two lane, two-way roadways for temporary alternating one-way traffic operations.
- 4.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.
- 4.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.

SECTION 5. USE OF TRUCK MOUNTED IMPACT ATTENUATOR VEHICLES (TMAs)

- 5.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.
- 5.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.
- 5.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, the 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.

- 5.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 shall 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.
- 5.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.
- 5.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, and 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”.

SECTION 6. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

- 6.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.
- 6.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.
- 6.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.
- 6.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.

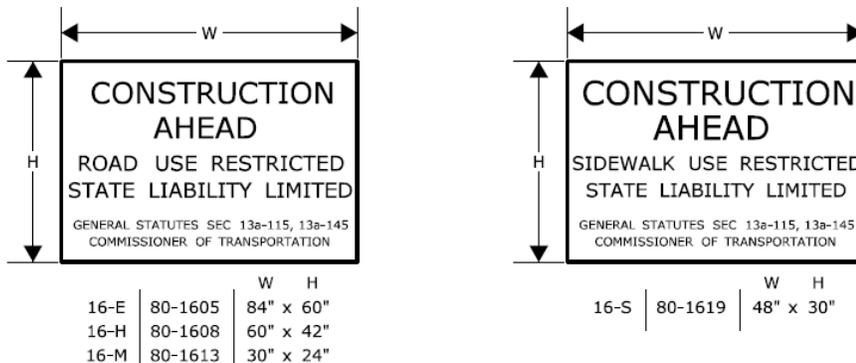
SECTION 7. USE OF (REMOTE CONTROLLED) CHANGEABLE MESSAGE SIGNS (CMS)

- 7.a) For lane closures on limited access roadways, one CMS shall be used in advance of the traffic control pattern. Prior to installing the pattern, the CMS shall be installed and in operation, displaying the appropriate lane closure information (i.e.: Left Lane Closed - Merge Right). The CMS 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 CMS 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.
- 7.b) CMS should not be installed within 1000 feet of an existing CMS.
- 7.c) On non-limited access roadways, the use of CMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the CMS.
- 7.d) The advance CMS is typically placed off the right shoulder, 5 feet from the edge of pavement. In areas where the CMS 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 CMS shall be adequately protected if it is used for a continuous duration of 36 hours or more.
- 7.e) When the CMS 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.
- 7.f) The CMS generally should not be used for generic messages (ex: Road Work Ahead, Bump Ahead, Gravel Road, etc.).
- 7.g) The CMS 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).
- 7.h) 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.
- 7.i) The messages that are allowed on the CMS are as follows:

<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>	<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>
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

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.

SERIES 16 SIGNS



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.

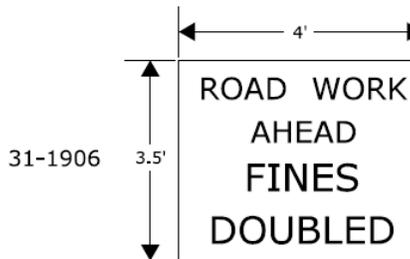
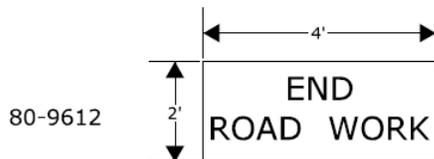
REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHERE THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.

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.

"END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN MUST BE THE "END ROAD WORK" SIGN.



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
REQUIRED SIGNS

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. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.
5. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.
6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.
7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).
8. 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.
9. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
10. SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180' (55m)
35	250' (75m)
40	320' (100m)
45	540' (165m)
50	600' (180m)
55	660' (200m)
65	780' (240m)

METRIC CONVERSION CHART (1" = 25mm)

ENGLISH	METRIC	ENGLISH	METRIC	ENGLISH	METRIC
12"	300mm	42"	1050mm	72"	1800mm
18"	450mm	48"	1200mm	78"	1950mm
24"	600mm	54"	1350mm	84"	2100mm
30"	750mm	60"	1500mm	90"	2250mm
36"	900mm	66"	1650mm	96"	2400mm



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN NOTES

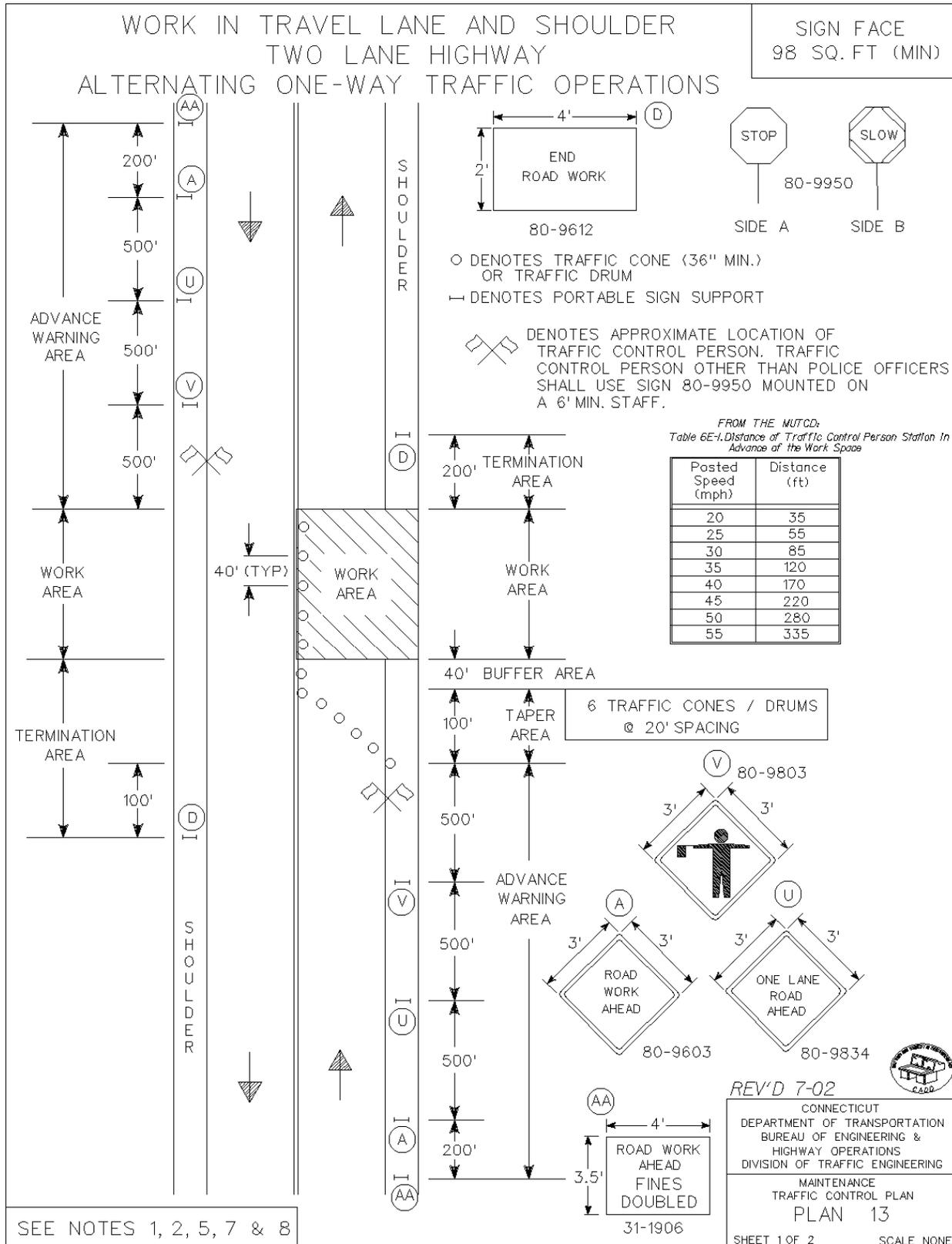
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

Charles S. Harlow
PRINCIPAL ENGINEER

Charles S. Harlow
2012.06.05 15:50:35-0400

12PSX0242 EXHIBIT A1



SEE NOTES 1, 2, 5, 7 & 8

12PSX0242 EXHIBIT A1

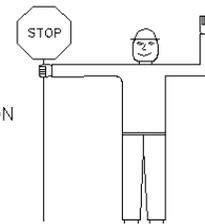
WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

HAND SIGNAL METHODS TO BE USED BY TRAFFIC CONTROL PERSONS

THE FOLLOWING METHODS FROM SECTION 6E.04 TRAFFIC CONTROL PERSON PROCEDURES IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE USED BY TRAFFIC CONTROL PERSONS 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.

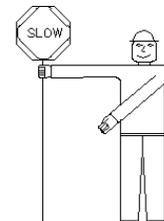
A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE TRAFFIC CONTROL PERSON 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.



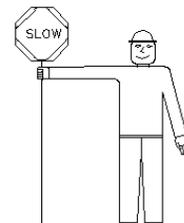
B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE TRAFFIC CONTROL PERSON 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 TRAFFIC CONTROL PERSON SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.



C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE TRAFFIC CONTROL PERSON 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 TRAFFIC CONTROL PERSON HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.



SEE NOTES 1, 2, 5, 7 & 8

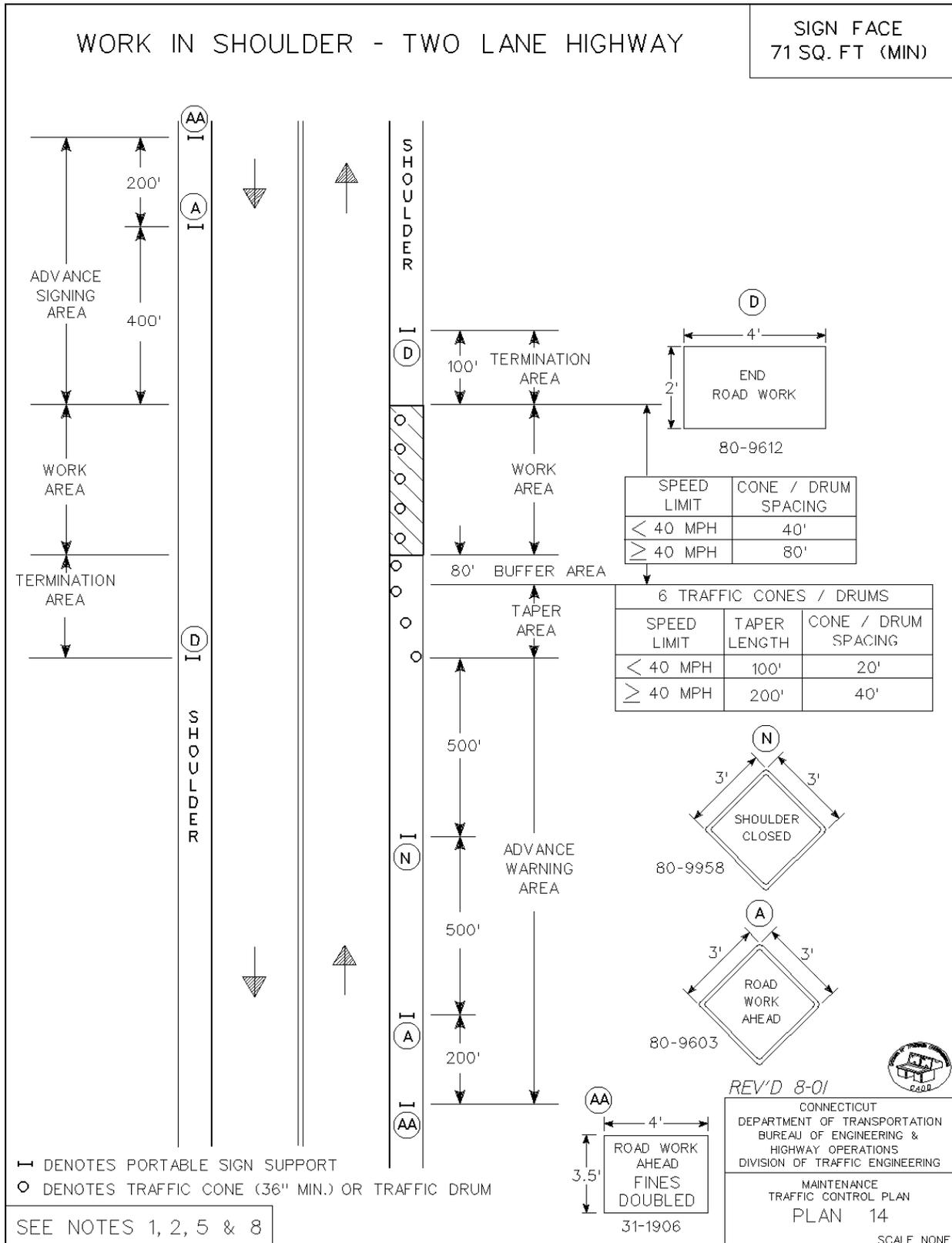


REV'D 7-02

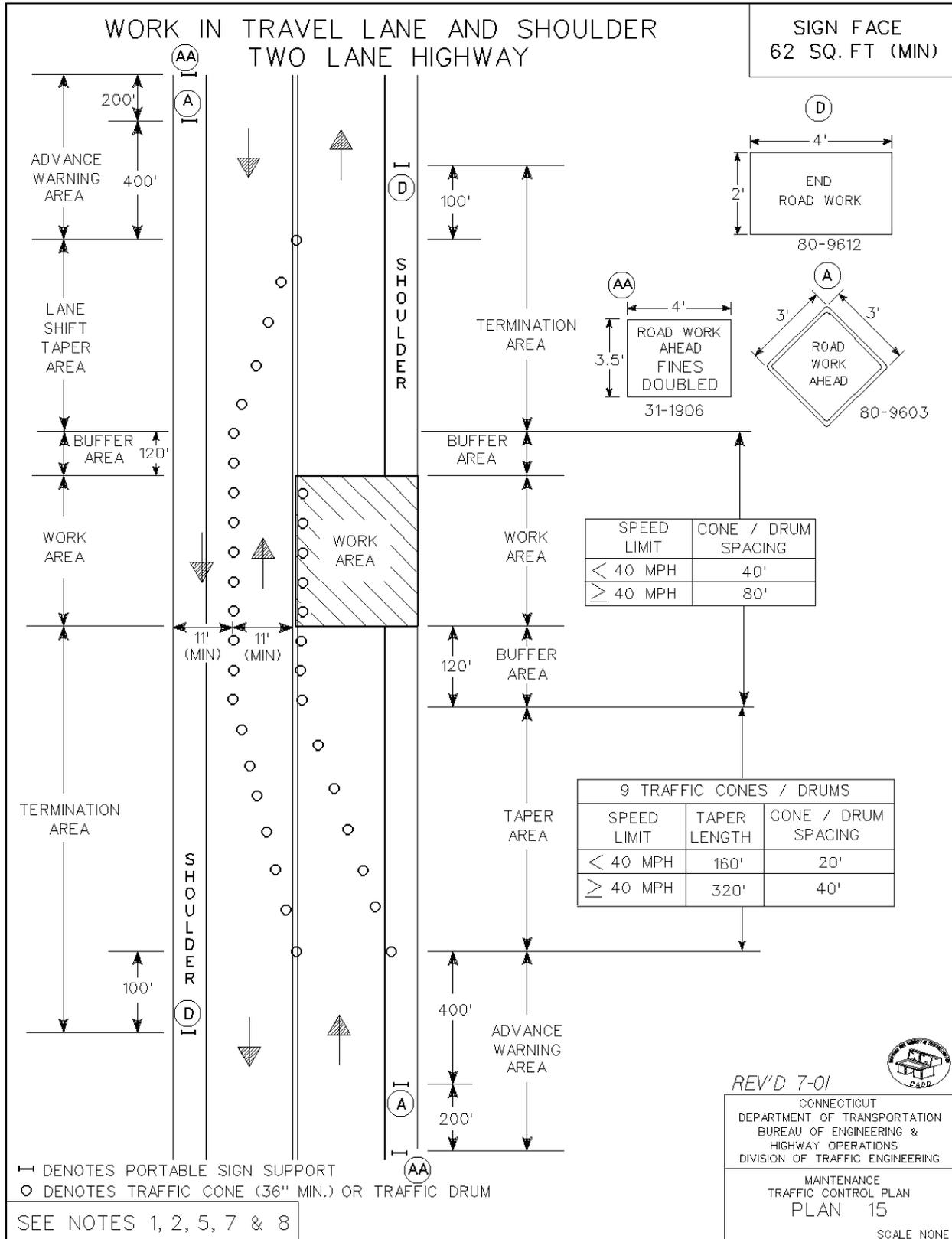
CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING &
HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING
MAINTENANCE
TRAFFIC CONTROL PLAN
PLAN 13
SHEET 2 OF 2 SCALE NONE

APPROVED Charles S. Harlow DATE 7/19/02
PRINCIPAL ENGINEER

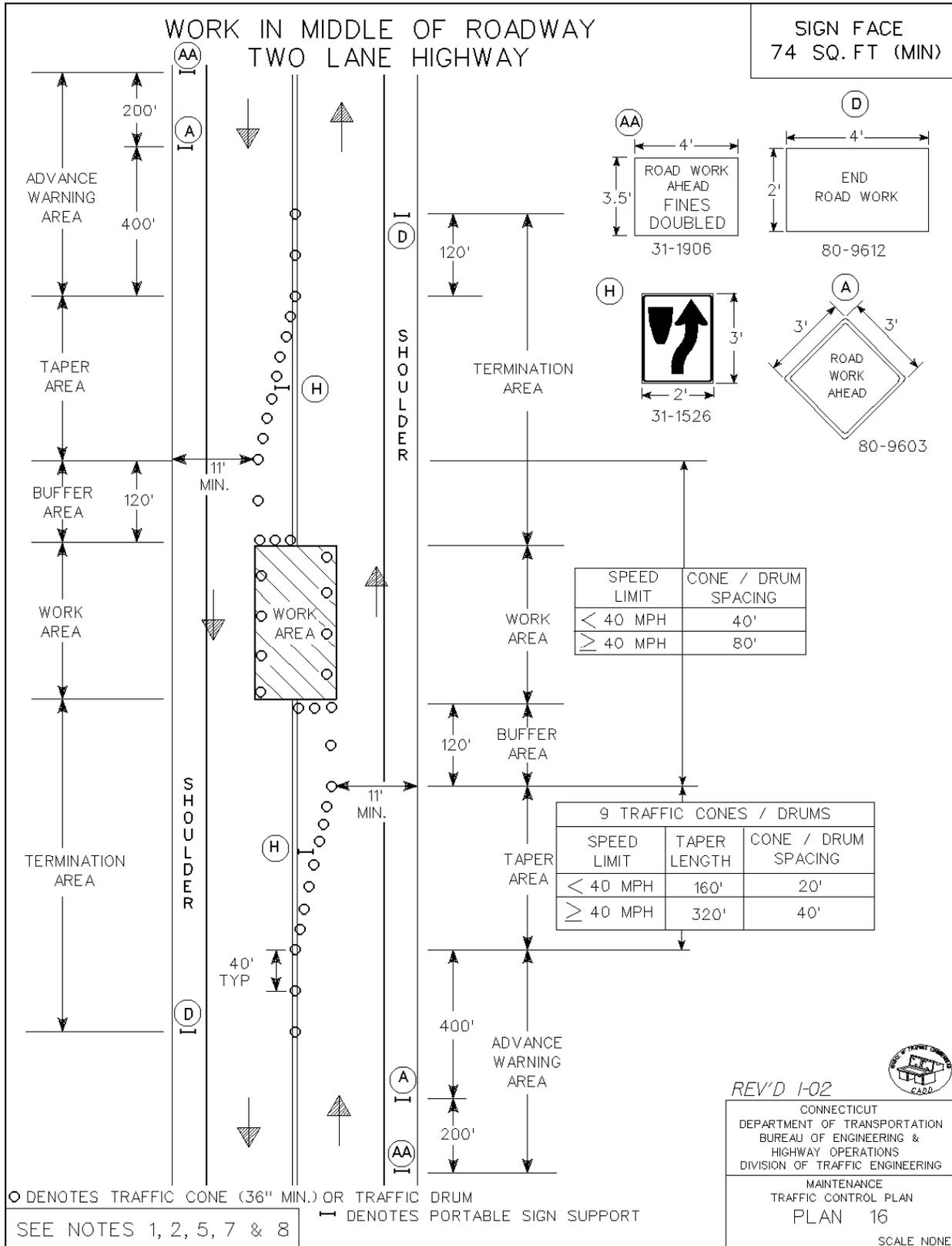
12PSX0242 EXHIBIT A1



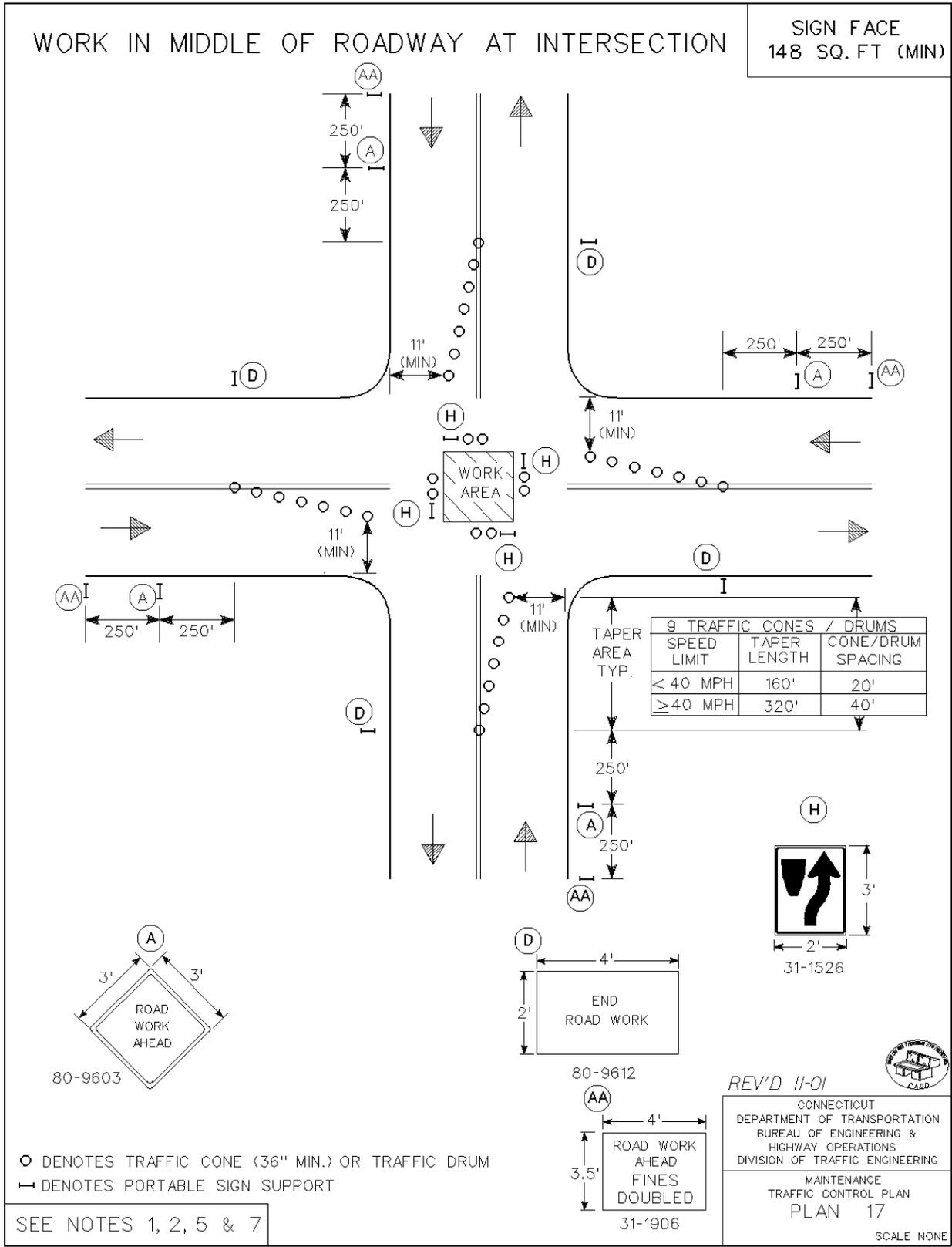
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12PSX0242 EXHIBIT A1



12PSX0242 EXHIBIT A1

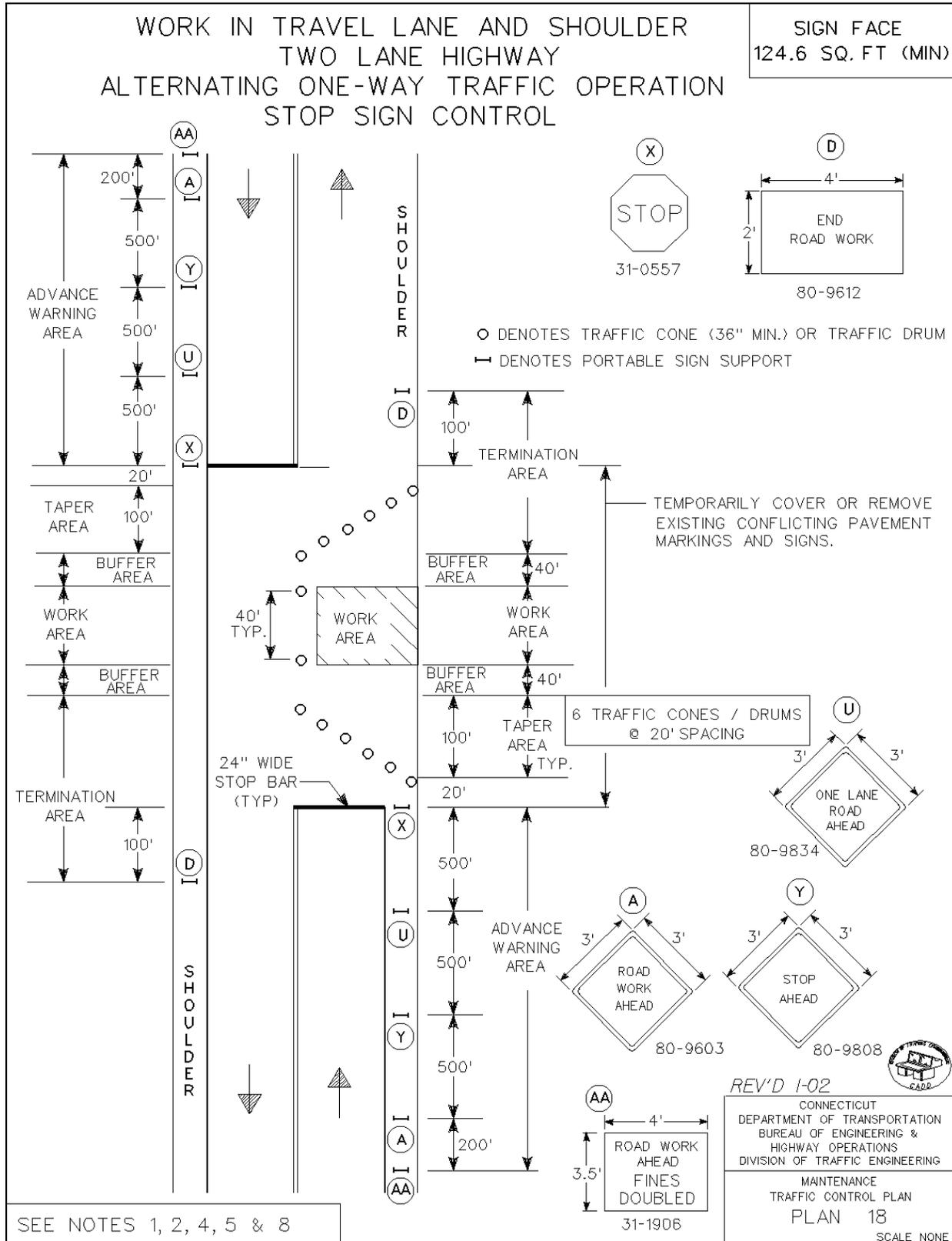


○ DENOTES TRAFFIC CONE (36" MIN.) OR TRAFFIC DRUM
 → DENOTES PORTABLE SIGN SUPPORT

SEE NOTES 1, 2, 5 & 7

APPROVED John F. Carey DATE 11-15-01
 PRINCIPAL ENGINEER

12PSX0242 EXHIBIT A1



SEE NOTES 1, 2, 4, 5 & 8

PUBLIC NOTICE

INVITATION TO BID – TEST PITS: Mosher Avenue (Bridge No. 03903) over Amtrak Railroad, Groton, CT -
Sealed proposals for test pits will be received by Freeman Companies, LLC, until **4:00 pm, Eastern Time, Wednesday, July 25, 2018**. Deliver all bids to Freeman Companies, LLC, 36 John Street, Hartford, Connecticut, 06106 prior to the bid due date/time. The test boring contractor shall comply with CTDOT policies, procedures, and specifications. Bid packages are available upon request at the following email address: ctonzi@freemancos.com.