

TABLE OF CONTENTS OF SPECIAL PROVISIONS

Note: This Table of Contents has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this Table of Contents shall not be considered part of the contract.

Table of Contents

CONTRACT TIME AND LIQUIDATED DAMAGES.....	3
NOTICE TO CONTRACTOR – PREBID QUESTIONS AND ANSWERS	6
NOTICE TO CONTRACTOR – SITE NUMBER DESIGNATIONS.....	7
NOTICE TO CONTRACTOR - CONTRACT DURATION	8
NOTICE TO CONTRACTOR – VERIFICATION OF PLAN DIMENSIONS	9
AND FIELD MEASUREMENTS	9
NOTICE TO CONTRACTOR - COMPASS SUBMITTALS.....	10
NOTICE TO CONTRACTOR – FEDERAL WAGE DETERMINATIONS.....	11
(Davis Bacon Act)	11
NOTICE TO CONTRACTOR – MINIMUM CONCRETE COMPRESSIVE.....	13
STRENGTH.....	13
NOTICE TO CONTRACTOR - PORTLAND CEMENT CONCRETE (PCC)	14
MIX CLASSIFICATIONS.....	14
NOTICE TO CONTRACTOR – CAS CERTIFICATION FOR ABRASIVE.....	15
BLAST CLEANING AND COATING WORK	15
NOTICE TO CONTRACTOR - ARCHITECTURAL AND INDUSTRIAL.....	16
MAINTENANCE COATINGS	16
NOTICE TO CONTRACTOR – USE OF STATE POLICE OFFICERS.....	19
NOTICE TO CONTRACTOR - UTILITY SPECIFICATIONS.....	20
NOTICE TO CONTRACTOR – EXISTING IMS	21
NOTICE TO CONTRACTOR - PROTECTION OF EXISTING UTILITIES.....	22
NOTICE TO CONTRACTOR – HAZARDOUS MATERIALS	23
INVESTIGATIONS	23
NOTICE TO CONTRACTOR - ELECTRONIC ENGINEERING DATA	25
(EED)	25
NOTICE TO CONTRACTOR – 1.05 CONTROL OF THE WORK	26
NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE	27
SECTION 1.02 - PROPOSAL REQUIREMENTS AND CONDITIONS	30
SECTION 1.05 - CONTROL OF THE WORK	31
SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES.....	36
SECTION 1.08 - PROSECUTION AND PROGRESS.....	42
SECTION 1.10 - ENVIRONMENTAL COMPLIANCE	45
SECTION 2.01 - CLEARING AND GRUBBING	49
ON-THE-JOB TRAINING (OJT) WORKFORCE DEVELOPMENT PILOT	52
D.B.E. SUBCONTRACTORS AND MATERIAL SUPPLIERS OR.....	56
MANUFACTURERS.....	56
ITEM #0020765A - GUANO ABATEMENT.....	68
ITEM #0020905A—LEAD COMPLIANCE FOR ABRASIVE BLAST.....	79
CLEANING AND MISCELLANEOUS TASKS.....	79
ITEM #0202530A – REMOVAL OF BITUMINOUS SIDEWALK.....	95
ITEM #0219011A – SEDIMENT CONTROL SYSTEM AT CATCH BASIN.....	96
ITEM #0406999A - ASPHALT ADJUSTMENT COST.....	98
ITEM #0503030A - REMOVAL OF BRIDGE DECK CONCRETE.....	101
ITEM #0503887A - JACKING EXISTING SUPERSTRUCTURE (SITE NO.	102
1)	102
ITEM #0503888A – JACKING EXISTING SUPERSTRUCTURE (SITE NO.	102
2)	102
ITEM #0520036A - ASPHALTIC PLUG EXPANSION JOINT SYSTEM	107
ITEM #0520041A - PREFORMED JOINT SEAL.....	114
ITEM #0521003A – BEARING REPLACEMENT WITH ELASTOMERIC	117
BEARING PADS	117
ITEM #0522155A – REPLACE BRIDGE BEARINGS	122

ITEM #0522178A – CONSTRUCT CONCRETE KEEPER BLOCKS	124
ITEM #0601107A – HIGH EARLY STRENGTH CONCRETE.....	127
ITEM #0601323A - MODIFY CONCRETE BEARING PAD	131
ITEM #0601950A – EPOXY BONDING COMPOUND.....	133
ITEM #0601954A – EPOXY INJECTION CRACK REPAIR.....	136
ITEM #0602910A – DRILLING HOLES AND GROUTING DOWELS.....	145
ITEM #0602980A - CLEAN AND COAT EXPOSED REINFORCING.....	147
STEEL.....	147
ITEM #0603081A – STRUCTURAL STEEL REPAIRS (SITE NO. 1)	150
ITEM #0603082A – STRUCTURAL STEEL REPAIRS (SITE NO. 2)	150
ITEM #0603222A – DISPOSAL OF LEAD DEBRIS FROM ABRASIVE	153
BLAST CLEANING.....	153
ITEM #0603479A - ABRASIVE BLAST CLEANING AND FIELD.....	160
PAINTING OF BEAM ENDS (SITE NO. 1)	160
ITEM #0603480A - ABRASIVE BLAST CLEANING AND FIELD.....	160
PAINTING OF BEAM ENDS (SITE NO. 2)	160
ITEM #0603512A - TEMPORARY DECK PLATE.....	172
ITEM #0603563A - CLASS 1 CONTAINMENT AND COLLECTION OF	176
SURFACE PREPARATION DEBRIS (SITE NO. 1)	176
ITEM #0603564A - CLASS 1 CONTAINMENT AND COLLECTION OF	176
SURFACE PREPARATION DEBRIS (SITE NO. 2)	176
ITEM #0603726A - EMBEDDED GALVANIC ANODES	181
ITEM #0603729A - LOCALIZED PAINT REMOVAL AND FIELD	185
PAINTING OF EXISTING STEEL	185
ITEM #0707031A - MEMBRANE WATERPROOFING (SHEET) (TORCH	192
APPLIED)	192
ITEM #0819002A - PENETRATING SEALER PROTECTIVE COMPOUND.....	197
ITEM #0969062A - CONSTRUCTION FIELD OFFICE, MEDIUM	200
ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC.....	208
ITEM #0974105A – CONCRETE HAUNCH REMOVAL	239
ITEM #0979004A – CONSTRUCTION BARRICADE DETECTABLE.....	241
ITEM #0981101A - OPPOSING TRAFFIC LANE DIVIDER.....	242
ITEM #1206023A - REMOVAL AND RELOCATION OF EXISTING SIGNS.....	244
ITEM #1208931A — SIGN FACE - SHEET ALUMINUM (TYPE IX	245
RETROREFLECTIVE SHEETING)	245
PERMITS AND/OR REQUIRED PROVISIONS:.....	247

JULY 29, 2020
FEDERAL AID PROJECT NO. 0032(204)
STATE PROJECT NO. 0078-0092

REHABILITATION OF BRIDGE NOS. 01708 AND 03374

Town of Marlborough

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818, 2020, is hereby made part of this contract, as modified by the Special Provisions contained herein. Form 818 is available at the following DOT website link <http://www.ct.gov/dot/cwp/view.asp?a=3609&q=430362>. The current edition of the State of Connecticut Department of Transportation's "Construction Contract Bidding and Award Manual" ("Manual"), is hereby made part of this contract. If the provisions of this Manual conflict with provisions of other Department documents (not including statutes or regulations), the provisions of the Manual will govern. The Manual is available at the following DOT website link <http://www.ct.gov/dot/cwp/view.asp?a=2288&q=259258>. The Special Provisions relate in particular to the Rehabilitation of Bridge Nos. 01708 and 03374 in the Town of Marlborough.

CONTRACT TIME AND LIQUIDATED DAMAGES

In order to minimize the hazard, cost and inconvenience to the traveling public and pollution of the environment, it is necessary to limit the time of construction work, which interferes with traffic as specified in Article 1.08.04 of the Special Provisions.

There will be two assessments for liquidated damages and they will be addressed in the following manner:

1. For this contract, an assessment per day for liquidated damages, at a rate of One Thousand Five Hundred Dollars (\$1,500.00) per day shall be applied to each calendar day the work runs in excess of the Two Hundred Forty Four (244) allowed calendar days for the contract.
2. For this contract, an assessment per hour for liquidated damages shall be applied to each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours given in Article 1.08.04 of the Special Provisions. The liquidated damages shall be as shown in the following tables entitled "Liquidated Damages Per Hour" for each hour, or any portion thereof, in which the Contractor interferes with normal traffic operations during the restricted hours.

LIQUIDATED DAMAGES PER HOUR

Project No. 0078-0092

Route 2 E.B. Within project limits 2 Lane Section		
If Working Periods Extends Into	A.M. 1 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	\$ 500	\$ 5,000
2nd Hour of Restrictive Period	\$ 500	\$ 20,000
3rd Hour or any Subsequent Hour of Restrictive Period	\$ 500	\$ 45,000

Route 2 W.B. Within project limits 2 Lane Section		
If Working Periods Extends Into	A.M. 1 Lane Closure	P.M. 1 Lane Closure
1st Hour of Restrictive Period	\$ 2,000	\$ 500
2nd Hour of Restrictive Period	\$ 20,000	\$ 500
3rd Hour or any Subsequent Hour of Restrictive Period	\$ 30,000	\$ 500

The above liquidated damages apply to those hours shown on the Limitation of Operations charts designated with a "2" or "E".

Liquidated damages in the amount of \$500 shall apply for each hour, or part thereof, that the Contractor interferes with existing traffic operations on any ramps or turning roadways during the non-allowable hours.

For the purpose of administering this contract, normal traffic operations are considered interfered with when:

1. Any portion of the travel lanes or shoulders is occupied by any personnel, equipment, materials, or supplies including signs.
2. The transition between the planes of pavement surfaces is at a rate of one inch in less than fifteen feet longitudinally.

NOTICE TO CONTRACTOR – PREBID QUESTIONS AND ANSWERS

Questions pertaining to DOT advertised construction projects must be presented through the CTDOT Pre-Bid Q and A Website. The Department cannot guarantee that all questions will be answered prior to the bid date. **PLEASE NOTE - at 12:01 am, the day before the bid, the subject project(s) being bid will be removed from the Q and A Website, Projects Advertised Section, at which time questions can no longer be submitted through the Q and A Website. At this time, the Q and A for those projects will be considered final, unless otherwise stated and/or the bid is postponed to a future date and time to allow for further questions and answers to be posted.**

If a question needs to be asked the day before the bid date, please contact the Contracts Unit staff and email your question to dotcontracts@ct.gov immediately.

Contractors must identify their company name, contact person, contact email address and phone number when asking a question. The email address and phone number will not be made public.

The questions and answers (if any) located on the Q and A Website are hereby made part of the bid/contract solicitation documents (located on the State Contracting Portal), and resulting contract for the subject project(s). It is the bidder's responsibility to monitor, review, and become familiar with the questions and answers, as with all bid requirements and contract documents, prior to bidding. By signing the bid proposal and resulting contract, the bidder acknowledges receipt of, and agrees to the incorporation of the final list of Q and A, into the contract document.

Contractors will not be permitted to file a future claim based on lack of receipt, or knowledge of the questions and answers associated with a project. All bidding requirements and project information, including but not limited to contract plans, specifications, addenda, Q and A, Notice to Contractors, etc., are made public on the State Contracting Portal and/or the CTDOT website.

NOTICE TO CONTRACTOR – SITE NUMBER DESIGNATIONS

For the purposes of this contract, the following site designations shall apply:

Site No. 1: Bridge No. 01708 – Route 2 EB over West Road

Site No. 2: Bridge No. 03374 – Route 2 WB over West Road

NOTICE TO CONTRACTOR - CONTRACT DURATION

The Contractor is hereby notified that this is not to be considered an ordinary project by any means and that due to the inconvenience to the traveling public that it causes, extra manpower, equipment and workshifts may be required to complete the work in accordance within the specified contract time.

**NOTICE TO CONTRACTOR – VERIFICATION OF PLAN DIMENSIONS
AND FIELD MEASUREMENTS**

The Contractor is responsible for verifying all dimensions before any work is begun. Dimensions of the existing structures shown on the plans are for general reference only; they are not guaranteed. The Contractor shall take all field measurements necessary to assure proper fit of the finished work and shall assume full responsibility for their accuracy. When shop drawings and/or working drawings based on field measurements are submitted for approval and/or review, the field measurements shall also be submitted for reference by the reviewer.

In the field, the Contractor shall examine and verify all existing and given conditions and dimensions with those shown on the plans. If field conditions and dimensions differ from those shown on the plans, the Contractor shall use the field conditions and dimensions and make the appropriate changes to those shown on the plans as approved by the Engineer. All field conditions and dimensions shall be so noted on the drawings submitted for approval.

There shall be no claim made against the Department by the Contractor for work pertaining to modifications required by any difference between actual field conditions and those shown by the details and dimensions on the contract plans. The Contractor will be paid at the unit price bid for the actual quantities of materials used or for the work performed, as indicated by the various items in the contract.

NOTICE TO CONTRACTOR - COMPASS SUBMITTALS

Upon execution of the Contract, the Contractor acknowledges and agrees that contractual submittals for this Project shall be submitted and handled through the Department's project management system, COMPASS.

Contractor submittals including Shop Drawings, Working Drawings, Product Data, RFIs, and RFCs shall be generated and delivered by the Contractor in accordance with the Department's [COMPASS Contractor's User Manual](#). The administering District office will inform the Contractor of other deliverables required to be similarly submitted.

Access credentials for COMPASS will be provided free of charge to the Contractor.

The Department shall not be held responsible for delays, lack of processing or responses to submittals that do not follow the specified guidelines in the COMPASS Contractor's User Manual.

NOTICE TO CONTRACTOR – FEDERAL WAGE DETERMINATIONS
(Davis Bacon Act)

The following Federal Wage Determinations are applicable to this Federal- Aid contract and are hereby incorporated by reference. During the bid advertisement period, it is the bidder’s responsibility to obtain the latest Federal wage rates from the US Department of Labor website, as may be revised 10 days prior to bid opening. Any revisions posted 10 days prior to the bid opening shall be the wage determinations assigned to this contract.

Check Applicable WD# (DOT Use Only)	WD#	Construction Type	Counties
	CT1	Highway	Fairfield, Litchfield, Middlesex, New Haven, Tolland, Windham
	CT2	Highway	New London
X	CT3	Highway	Hartford
	CT5	Heavy Dredging (Hopper Dredging)	Fairfield, Middlesex, New Haven, New London
	CT6	Heavy Dredging	Statewide
	CT13	Heavy	Fairfield
	CT14	Heavy	Hartford
	CT15	Heavy	Middlesex, Tolland
	CT16	Heavy	New Haven
	CT17	Heavy	New London
	CT26	Heavy	Litchfield, Windham
	CT18	Building	Litchfield
	CT19	Building	Windham
	CT20	Building	Fairfield
	CT21	Building	Hartford
	CT22	Building	Middlesex
	CT23	Building	New Haven
	CT24	Building	New London
	CT25	Building	Tolland
	CT4	Residential	Litchfield, Windham
	CT7	Residential	Fairfield
	CT8	Residential	Hartford
	CT9	Residential	Middlesex
	CT10	Residential	New Haven
	CT11	Residential	New London
	CT12	Residential	Tolland

The Federal wage rates (Davis-Bacon Act) applicable to this Contract shall be the Federal wage rates that are current on the US Department of Labor website (<http://www.wdol.gov/dba.aspx>) as may be revised 10 days prior to bid opening. The Department will no longer physically include revised Federal wage rates in the bid documents or as part of addenda documents. These

applicable Federal wage rates will be incorporated in the final contract document executed by both parties.

If a conflict exists between the Federal and State wage rates, the higher rate shall govern.

To obtain the latest Federal wage rates, go to the US Department of Labor website (link above). Under Davis-Bacon Act, choose “Selecting DBA WDs” and follow the instruction to search the latest wage rates for the State, County and Construction Type.

NOTICE TO CONTRACTOR – MINIMUM CONCRETE COMPRESSIVE STRENGTH

The concrete strength or allowable design stress specified in the General Notes is for design purposes only. The minimum compressive strength of concrete in constructed components shall comply with the requirements of Section 6.01 Concrete for Structures.

NOTICE TO CONTRACTOR - PORTLAND CEMENT CONCRETE (PCC) MIX CLASSIFICATIONS

SECTIONS 6.01 and M.03 MIX CLASSIFICATION EQUIVALENCY

Sections 6.01 *Concrete for Structures* and M.03 *Portland Cement Concrete* have been revised to reflect changes to item names and nomenclature for standard Portland Cement Concrete (PCC) mix classifications. Special Provisions, plan sheets and select pay items in this Contract may not reflect this change. Refer to the Concrete Mix Classification Equivalency Table below to associate the Concrete Mix Classifications with Former Mix Classifications that may be present elsewhere in the Contract.

Concrete Mix Classification Equivalency Table

New Mix Classification (Class PCCXXXYZ ¹)	Former Mix Classification
Class PCC03340	Class “A”
Class PCC03360	Class “C”
Class PCC04460 ²	Class “F”
Class PCC04462 ²	High Performance Concrete
Class PCC04481, PCC05581	Class “S”

Table Notes:

1. See Table M.03.02-1, Standard Portland Cement Concrete Mixes, for the new Mix Classification naming convention.
2. Class PCC04462 (formerly Class “HP1” Concrete; also called low permeability concrete) is to be used for the following cast-in-place bridge components: decks, bridge sidewalks, and bridge parapets.

Where called for in the Contract, **Low Permeability Concrete** shall be used, as specified in Sections 6.01 and M.03. Please pay special attention to the requirements for Class PCC04462, including:

- Submittal of a mix design developed by the Contractor and a concrete supplier **at least 90 days prior to placing the concrete**
- Testing and trial placement of the concrete mix is to be developed and discussed with the Department

The Department will not consider any requests for change to eliminate the use of Low Permeability Concrete on this Project.

**NOTICE TO CONTRACTOR – CAS CERTIFICATION FOR ABRASIVE
BLAST CLEANING AND COATING WORK**

This Contract requires abrasive blast cleaning and coating work be done with at least one (1) Coating Application Specialist per four (4) craft-workers. Coating Application Specialist (CAS) certification is available through the Society for Protective Coatings (SSPC). The CAS program is based on the requirements of SSPC ACS-1/NACE 13, a standard published jointly in 2008 by SSPC and NACE International (National Association of Corrosion Engineers). ACS-1 defines training and experience requirements that tradespersons must have in order to qualify to be assessed for certification. CAS QP-1 implementation requires that the CAS Level II certified applicator be on the job during abrasive blast cleaning and painting operations.

The firm proposed to perform abrasive field blast cleaning and coating on this Project must meet the requirements outlined in the special provisions under “Contractor - Subcontractor Qualifications.”

When applicable, the shop painting firm proposed to perform abrasive blast cleaning and shop painting on this Project must meet the requirements outlined in the special provisions under “Qualifications of Shop Painting Firm.”

NOTICE TO CONTRACTOR - ARCHITECTURAL AND INDUSTRIAL MAINTENANCE COATINGS

This Contract includes the application of materials subject to the Volatile Organic Compounds (VOC) content limits stated in the Regulations of Connecticut State Agencies (RCSA) Sections 22a-174-41 and -41a. All architectural and industrial maintenance (AIM) coatings and applications of such coatings must comply with these regulations.

The Contractor shall submit a Material Safety Data Sheet/Safety Data Sheet or Product Technical Data Sheet developed by the manufacturer of each material that may be subject to the Regulations. The submittal must verify both the type of AIM and its VOC Content. VOC content shall be determined based on the formulation data supplied by the materials manufacturer.

The Contractor may only use AIM coatings that contain VOCs below the respective coating category Phase II limits specified in Table 1 if either:

- a) the coating was manufactured on or after May 1, 2018, **or**
- b) the coating is being applied after April 30, 2021.

The Contractor may use AIM coatings that contain VOCs exceeding the respective coating category Phase II limits specified in Table 1 only if all of the following four conditions are met:

- a) the coating is being applied on or before April 30, 2021,
- b) the coating contains VOCs below the applicable Phase I limits specified in Table 1,
- c) the coating was manufactured prior to May 1, 2018, **and**
- d) the coating container(s) are dated (or date coded) as such.

For any coating that is not categorized within Table 1, the Contractor shall classify the coating as follows and apply corresponding limits in Table 1.

- Registers gloss <15 on an 85-degree meter or <5 on a 60-degree meter) – Flat Coating,
- Registers gloss of ≥ 15 on an 85-degree meter and ≥ 5 on a 60-degree meter) - Nonflat Coating,
- Registers gloss of ≥ 70 on a 60-degree meter - Nonflat-High Gloss Coating.

The Contractor must close all containers of coating and solvent when not in use.

Coating container labels must display the date the coating was manufactured, the manufacturer's recommendation regarding thinning with solvent, and the coating's VOC content in grams per liter (g/L) of coating. Certain coating categories as noted in Table 1 have additional labeling requirements.

The Contractor may add additional solvent to a coating only if such addition does not cause the coating to exceed the applicable VOC limit specified Table 1. The Contractor must adhere to type(s) of solvent and maximum amount of solvent recommended by coating manufacturer.

VOC content of a thinned coating shall be the VOC content as listed by the manufacturer after thinning in accordance with its recommendation.

TABLE 1		
Coating Category	Phase I	Phase II
	manufactured prior to May 1, 2018 VOC content limit (g/L)	manufactured on or after May 1, 2018 VOC content limit (g/L)
Aluminum roof coating	--- ¹	450
Antenna coating	530	--- ¹
Antifouling coating	400	--- ¹
Basement specialty coating	--- ¹	400
Bituminous roof coating	300	270
Bituminous roof primer	350	350
Bond breaker	350	350
Calcimine recoater	475	475
Clear wood coating - Clear brushing lacquer ²	680	275
Clear wood coating - Lacquer ^{2,3}	550	275
Clear wood coating - Sanding sealer ^{2,4}	350	275
Clear wood coating - Varnish ²	350	275
Concrete curing compound	350	350
Concrete or masonry sealer/ Waterproofing concrete or masonry sealer	400	100
Concrete surface retarder	780	780
Conjugated oil varnish	--- ¹	450
Conversion varnish	725	725
Driveway sealer	--- ¹	50
Dry fog coating	400	150
Faux finishing coating ²	350	350
Fire resistive coating	350	350
Fire retardant coating - Clear	650	--- ¹
Fire retardant coating - Opaque	350	--- ¹
Flat coating	100	50
Floor coating	250	100
Flow coating	420	--- ¹
Form-release compound	250	250
Graphic arts coating (sign paint)	500	500
High temperature coating	420	420
Impacted immersion coating	780	780
Industrial maintenance coating ²	340	250
Industrial maintenance coating	340	250
Low solids coating	120	120
Magnesite cement coating	450	450

TABLE 1		
Coating Category	Phase I	Phase II
	manufactured prior to May 1, 2018 VOC content limit (g/L)	manufactured on or after May 1, 2018 VOC content limit (g/L)
Mastic texture coating	300	100
Metallic pigmented coating	500	500
Multi-color coating	250	250
Nonflat coating	150	100
Nonflat high gloss coating²	250	150
Nuclear coating	450	450
Pre-treatment wash primer	420	420
Primer, sealer and undercoater	200	100
Quick-dry enamel	250	--- ¹
Quick-dry primer, sealer and undercoater	200	--- ¹
Reactive penetrating carbonate stone sealer²	--- ¹	500
Reactive penetrating sealer²	--- ¹	350
Recycled coating	250	250
Roof coating	250	250
Rust preventive coating²	400	250
Shellac Clear	730	730
Shellac Opaque	550	550
Specialty primer, sealer and undercoater²	350	100
Stain	250	250
Stone consolidant²	--- ¹	450
Swimming pool coating	340	340
Thermoplastic rubber coating and mastic	550	550
Traffic marking coating	150	100
Traffic marking coating	150	100
Tub and tile refinish	--- ¹	420
Waterproofing membrane	--- ¹	250
Waterproofing sealer	250	--- ¹
Wood coating²	--- ¹	275
Wood preservative	350	350
Zinc-rich primer²	--- ¹	340

1 Classify as follows and apply corresponding limits in Table 1.

- Registers gloss <15 on an 85-degree meter or <5 on a 60-degree meter) – Flat Coating,
- Registers gloss of ≥15 on an 85-degree meter and ≥5 on a 60-degree meter) – Nonflat Coating
- Registers gloss of ≥70 on a 60-degree meter – Nonflat-High Gloss Coating

2 Container must be appropriately labeled. See RCSA 22a-174-41a

3 “Clear Wood Coating – Lacquer” includes lacquer sanding sealer

4 “Clear Wood Coating - Sanding Sealer” does not include lacquer sanding sealer

NOTICE TO CONTRACTOR – USE OF STATE POLICE OFFICERS

The Department will reimburse services of State Police Officers as a direct payment to the Department of Emergency Services and Public Protection. Payment for State Police Officers must be approved by the Engineer. Any State Police Officers used by the Contractor for its convenience is the responsibility of the Contractor. A separate payment item for State Police Officers is not included in this Contract.

Any costs associated with coordination and scheduling of State Police Officers shall be included in the lump sum bid price for Item No. 0971001A – Maintenance and Protection of Traffic.

NOTICE TO CONTRACTOR - UTILITY SPECIFICATIONS

The contractor is hereby notified that all utility specifications contained elsewhere herein shall be made a part of this contract, and that the contractor shall be bound to comply with all requirements of such specifications. The requirements and conditions set forth in the subject specifications shall be binding on the contractor just as any other specification would be.

NOTICE TO CONTRACTOR – EXISTING IMS

The Contractor is herein made aware of existing Incident Management System (IMS) conduit and appurtenances located on Route 2 in the vicinity of the project area.

A Roadway Weather Information System and its supporting infrastructure are located on Route 2 Eastbound within the project area.

The Contractor will be responsible for locating, verifying the location of and protecting all of the IMS below and above the ground. Prior to the start of construction, the Contractor shall contact “Call Before You Dig” and all utility within the towns along the project corridor. The Contractor shall also contact Robert Kennedy (860-594-3458) of ConnDOT Highway Operations at to mark out IMS conduit and appurtenances.

Any damage caused to the IMS conduit/equipment will be the responsibility of the Contractor, for repair of damage caused by the Contractor or the Contractor’s Sub-Contractor.

NOTICE TO CONTRACTOR - PROTECTION OF EXISTING UTILITIES

Existing utilities shall be maintained during construction except as specifically stated herein and/or noted on the plans and as coordinated with the utilities. The Contractor shall verify the location of underground, structure mounted and overhead utilities. Construction work within the vicinity of utilities shall be performed in accordance with current safety regulations.

The Contractor shall notify "Call Before You Dig", telephone 1-800-922-4455 for the location of public utility, in accordance with Section 16-345 of the Regulations of the Department of Utility Control.

Representatives of the various utility companies shall be provided access to the work, by the Contractor.

Contractors are cautioned that it is their responsibility to verify locations, conditions, and field dimensions of all existing features, as actual conditions may differ from the information shown on the plans or contained elsewhere in the specifications.

The Contractor shall notify the Engineer prior to the start of work and shall be responsible for all coordination with the Department. The Contractor shall allow the Engineer complete access to the work.

The Contractor shall be liable for all damages or claims received or sustained by any persons, corporations or property in consequence of damage to the existing utilities, their appurtenances, or other facilities caused directly or indirectly by the operations of the Contractor.

Any damage to any existing private and public utility, as a result of the Contractors operations, shall be repaired to the Utilities and Engineer's satisfaction at no cost to the State or the Utilities, including all materials, labor, etc., required to complete the repairs.

The Contractor's attention is directed to the requirements of Section 1.07.13 – "Contractor's Responsibilities for Adjacent Property and Services".

Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., water, sanitary, gas, electric ducts, communication ducts, etc., will be encountered and, if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation, as noted above.

NOTICE TO CONTRACTOR – HAZARDOUS MATERIALS INVESTIGATIONS

A limited hazardous materials site investigation has been conducted at Bridge Nos. 01708 & 03374, Route 2 EB & WB over West Road in Marlborough, CT. The scope of inspection was limited to the representative components projected for impact.

Results of the survey identified lead paint to be present on the structural steel/metal components of Bridge Nos. 01708 & 03374. No detectable levels of lead were identified in the graffiti cover paint on the concrete abutments/piers.

Results obtained from TCLP waste stream sampling and analysis for leachable lead from the paint on the structural steel and metal bridge components characterized the paint waste stream at Bridge No. 01708 & 03374 as CTDEEP/RCRA hazardous waste. Since no detectable amounts of lead were identified in the graffiti cover paint on the concrete abutments/piers, any paint waste generated would be non-hazardous, non-RCRA waste.

All steel and metal generated from work tasks (painted or not) shall be segregated and recycled as scrap metal at a scrap metal recycling facility. The recycling of scrap metal (regardless of lead paint concentration) is exempt from USEPA RCRA and CTDEEP Hazardous Waste Regulation.

At Bridge Nos. 01708 & 03374, rocker panel canvas pads, grey rubbery expansion joints and black brittle tar were sampled and found to be non-ACM.

Bird/pigeon guano accumulations and mouse nests/droppings were identified in accessible areas of Bridge Nos. 01708 & 03374.

Universal Waste/Connecticut Regulated Waste in the forms of fluorescent/mercury vapor/halogen bulbs with ballasts were identified on the undersides of Bridge Nos. 01708 & 03374, however they will not be impacted by the construction project.

No bloodborne pathogen (BBP) concerns were identified at the 2 bridges.

The Contractor is hereby notified that these hazardous materials requiring special management or disposal procedures will be encountered during various construction activities conducted within the project limits. The Contractor will be required to implement appropriate health and safety measures for all construction activities impacting these materials. These measures shall include air monitoring, engineering controls, personal protective equipment and decontamination, equipment decontamination and personnel training. **WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.**

The Department, as Generator, will provide an authorized representative to sign all manifests and waste profile documentation required by disposal facilities for disposal of hazardous materials.

The Sections which shall be reviewed by the Contractor include the following:

- Item No. 0020905A – Lead Compliance for Abrasive Blast Cleaning and Miscellaneous Tasks
- Item No. 0603222A – Disposal of Lead Debris from Abrasive Blast Cleaning
- Item No. 0020765A – Guano Abatement

The Contractor is alerted to the fact that a Department environmental consultant may be on site for abatement and related activities, to collect environmental samples (if necessary), and to observe site conditions for the State.

Information pertaining to the results of the limited hazardous materials investigation discussed can be found in the document listed below. This document shall be available for review electronically.

- HazMat Inspection Letter, Bridge Nos. 01708 & 03374, Route 2 EB & WB over West Road, Marlborough, CT, TRC Environmental Corporation, March 26, 2020.

NOTICE TO CONTRACTOR - ELECTRONIC ENGINEERING DATA (EED)

The EED is an assembly of engineering data files that were used to produce the Contract plans.

Electronic Engineering Data (EED) is provided for information purposes only. In case of conflict between the EED and the Contract plans and specifications, the contract plans and specifications shall govern. The EED has been reviewed by the Department for quality control purposes, but it is the Contractor's responsibility to build the Project per the contract plans and specifications.

The EED is being provided to the Engineer for GPS/RTS inspection. The Contractor may use the EED to assist in bidding, layout and Automated Machine Control/Guidance.

The EED includes geospatially-correct 2D CAD files and may include horizontal and vertical alignment data files, 3D surface model files (break-line features and triangles) and a preference file. The data is being provided in two formats:

- Native Format
 - Bentley MicroStation CAD files (dgn)
 - Bentley SS2 InRoads Alignment Files (alg)
 - Bentley SS2 InRoads Digital Terrain Models (dtm)
 - Bentley SS2 InRoads Preference File (xin)
- Converted Format (for use in GPS/RTS Site equipment)
 - AutoCAD CAD files (dxf)
 - Alignment files (xml)
 - Surface Models (xml)

For a complete list of EED files, see the EED file manifest (PDF) located in the EED_0078-0092.zip file (0078-0092 is the project number) which is posted with the contract PS&E's on the State Contracting portal.

NOTICE TO CONTRACTOR – 1.05 CONTROL OF THE WORK

1.05.03 – CONFORMITY WITH PLANS AND SPECIFICATIONS (INCLUDING QUALITY CONTROL)

The Contractor is hereby notified that a Quality Management Plan will be required for this Project in accordance with Standard Specifications Article 1.05.03 – Conformity with Plans and Specifications (including Quality Control).

NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE

The attached project specific utility work schedules were provided to the Connecticut Department of Transportation (Department) by the utility companies regarding their identified work on this project.

The utility scheduling information is provided to assist the Contractor in scheduling its activities. However, the Department does not ensure its accuracy and Section 1.05.06 of the Standard Specifications still is in force.

The utility scheduling information shall be incorporated into the Contractor's pre-award schedule in accordance with the Department's Bidding and Award Manual and Section 1.05.08 of the Contract.

After award, the Contractor shall conduct a utility coordination meeting or meetings to obtain contemporaneous scheduling information from the utilities prior to submitting its baseline schedule to the Department in accordance with Section 1.05.08 of the Contract.

The Contractor shall incorporate the contemporaneous utility scheduling information into its baseline schedule submittal. The baseline schedule shall include Contractor predecessor and successor activities to the utility work in such detail as acceptable to the Engineer.

UTILITY WORK SCHEDULE Rev 08 02 2016			
CTDOT Project Number:	SHP 78-092	Town:	Marlborough
Project Description:	Replacement of bridge no. 01708 & 03374 over West Rd		
CTDOT Utilities Engineer:	Dionys Quezada		
Phone:	860-290-4100	Email:	Dquezada@cmeengineering.com
Utility Company:	Frontier Communications		
Prepared By:	Marino Limauro	Date Prepared:	5/4/2020
Phone:	203-771-3110	Email:	marino.a.limauro@ftr.com
Scope of Work			
<p>The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.</p> <p>This project involves the relocation of Frontier Communication's outside plant facilities on West Rd in Marlborough, CT. This relocation will be completed in one phase. Frontier will relocate the aerial cable that spans Bridges 01708 & 03374 into UG Conduits. Frontier conduit will hire a contractor to install UG conduits. The existing aerial cable will be removed after the cut-over to the underground cable. Seperate UWS will be provided for plant and conduit work. Services to all existing Frontier customers will remain intact throughout the duration of this project.</p>			
Special Considerations and Constraints			
<p>The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..</p> <p>All work on this time line is dependant on weather, storms, work load and customer high speed data circuit turndowns. All calendar days and work days are approximate. Regarding high speed special circuits to our customers, this part of Frontier's work is dependent on getting permission and a schedule from our customers for these turndowns and may take up to three months to change over. Overtime and afterhours service may be required to complete high speed data service cut-overs. Also, if there are any natural or unnatural disasters that happen within Frontier serving area, crews will be expected to help restore services in the affected area and will return once all services are restored.</p>			

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number: SHP 78-092
 Utility Company: Frontier Communications - Aerial to UG cable relocation.
 Prepared By: Marino Limauro Total Working Days: 37

Schedule

The following schedule identifies each major activity of utility work in sequential order to be performed by the utility or its contractor. The location of each activity of work is identified by the baseline stationing on the CTDOT plans. All activities identify the predecessor activity which must be completed before a utility work activity may progress. The duration provided is the number of working days required to complete the utility work activity based on historical information and production rates.

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (working days)
11+00 to 14+00	Submit work order and order materials	Upon receipt of Notice to Proceed.	30
11+00 to 14+00	Place UG cable from P1924 to P1925. Adjust guying.	All other utilities must be complete with their relocation work.	2
11+00 to 14+00	Splice ug cable and cut out aerial cable.		4
11+00 to 14+00	Remove aerial cable.		1

SECTION 1.02 - PROPOSAL REQUIREMENTS AND CONDITIONS

1.02.01—Contract Bidding and Award:

After the first sentence of the third paragraph, add the Following:

In accordance with the provisions of the Construction Contract Bidding and Award Manual, bidders must be prequalified for 19B – Steel Repairs, to be eligible to bid on this project. Bidders that are not prequalified for this work classification will not be approved to bid on this project.

SECTION 1.05 - CONTROL OF THE WORK

Replace Article 1.05.02 with the following:

1.05.02—Plans, Working Drawings, Shop Drawings, Product Data, Submittal Preparation and Processing - Review Timeframes, Department’s Action:

1. Plans: The plans prepared by the Department show the details necessary to give a comprehensive idea of the construction contemplated under the Contract. The plans will generally show location, character, dimensions, and details necessary to complete the Project. If the plans do not show complete details, they will show the necessary dimensions and details, which when used along with the other Contract documents, will enable the Contractor to prepare Working Drawings, Shop Drawings or Product Data necessary to complete the Project.

Project submittals shall be delivered to the Department using the Department’s project management system COMPASS. The Contractor shall acquire and maintain access to COMPASS for the delivery of submittals as listed herein. The delivery processes and document tracking procedures shall be performed in accordance with this specification and the [COMPASS Contractor's User Manual](#).

2. Working Drawings: When required by the Contract or when ordered to do so by the Engineer, the Contractor shall prepare and submit the Working Drawings, signed, sealed and dated by a qualified Professional Engineer licensed to practice in the State of Connecticut, for review. The Working Drawings shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Working Drawings, procedures or supporting calculations, but the cost thereof shall be considered as included in the general cost of the work.

The Contractor is only required to deliver paper copies that have been stamped with “No Exceptions Noted” or “Exceptions as Noted.” Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

All Working Drawing submission documents shall conform to the following requirements:

A. Drawings:

- i. Delivered in a single multi-page PDF file.
- ii. Shall be sized ANSI D (34 inches × 22 inches).
- iii. Contain a border, title block and a rectangular box, 2.25 inches wide × 1.75 inches high, in the lower right hand corner for the Department’s stamp.
- iv. Text height and width shall be 0.125 inch.
- v. All letter characters shall be uppercase.
- vi. Shall be searchable.
- vii. Shall be black and white.

- viii. Cover Page - shall be digitally signed by the Contractor's Professional Engineer.
- ix. All pages shall include a watermark of the Professional Engineer's stamp in a common area.

B. Calculations:

- i. Delivered in a single PDF file
- ii. Shall be sized ANSI A (8.5 inches × 11 inches).
- iii. Cover Page shall be digitally signed by the Contractor's Professional Engineer.

C. Supporting Documentation:

- i. Delivered as an independent single PDF file
- ii. Shall be sized ANSI A (8.5 inches × 11 inches).

- a. Working Drawings for Permanent Construction: The Contractor shall supply to the Department a certificate of insurance in accordance with 1.03.07 at the time that the Working Drawings for the Project are submitted.

The Contractor's designer, who prepares the working drawings, shall secure and maintain at no direct cost to the State a Professional Liability Insurance Policy for errors and omissions in the minimum amount of \$2,000,000 per error or omission. The Contractor's designer may elect to obtain a policy containing a maximum \$250,000 deductible clause, but if the Contractor's designer should obtain a policy containing such a clause, they shall be liable to the extent of at least the deductible amount. The Contractor's designer shall obtain the appropriate and proper endorsement of its Professional Liability Policy to cover the indemnification clause in this Contract, as the same relates to negligent acts, errors or omissions in the Project work performed by them. The Contractor's designer shall continue this liability insurance coverage for a period of

- (i) 3 years from the date of acceptance of the work by the Engineer, as evidenced by a State of Connecticut, Department of Transportation form entitled "Certificate of Acceptance of Work," issued to the Contractor; or
- (ii) 3 years after the termination of the Contract, whichever is earlier, subject to the continued commercial availability of such insurance.

- b. Working Drawings for Temporary Construction: The Contractor shall submit drawings, calculations, procedures and other supporting data to the Department in accordance with this Specification, with the exception of requirements defined under a. Working Drawings for Permanent Construction.

3. Shop Drawings: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver Shop Drawings to the Department for review.

Shop Drawings shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Shop Drawings but the cost thereof shall be considered as included in the general cost of the work.

The Contractor is only required to deliver paper copies that have been stamped with “No Exceptions Noted” or “Exceptions as Noted.” Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

Shop Drawing submission documents shall conform to the following requirements:

- A. Delivered in a single multi-page PDF file.
- B. Shall be sized ANSI D (34 inches × 22 inches).
- C. Contain a border, title block and a rectangular box, 2.25 inches wide × 1.75 inches high, in the lower right hand corner for the Department’s stamp.
- D. Text height and width shall be 0.125 inch.
- E. All letter characters shall be uppercase.
- F. Shall be searchable.
- G. Shall be black and white.

4. Product Data: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver Product Data to the Department for review.

Product Data shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Product Data but the cost thereof shall be considered as included in the general cost of the work.

The Contractor shall submit the Product Data in a single submittal for each element of construction.

The Contractor shall mark each copy of the Product Data submittal to show applicable choices and options. Where Product Data includes information on several products that are not required, copies shall be marked to indicate the applicable information. Product Data shall include the following information and confirmation of conformance with the Contract to the extent applicable: manufacturer’s printed recommendations, compliance with recognized trade association standards, compliance with recognized testing agency standards, application of testing agency labels and seals, notation of coordination requirements, Contract item number, and any other information required by the individual Contract provisions.

The Contractor is only required to deliver paper copies that have been stamped with “No Exceptions Noted” or “Exceptions as Noted.” Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

Product Data submission documents shall conform to the following requirements:

- A. Delivered in a single PDF file
- B. Shall be sized ANSI A (8.5 inches × 11 inches).
- C. Marked to indicate applicable choices and options.

- D. Where non-applicable information and products are included, notations shall be made to clearly delineate applicable from non-applicable information.

5. Submittal Preparation and Processing – Review Timeframes: If the Department deems a submittal incomplete or unacceptable because not all the required documents were attached, documents are incomplete, or are in the incorrect format, the Department will send the submittal back to the Contractor before reviewing. When a submittal is sent back as incomplete, the associated documents have not been reviewed and the review process and any associated timeframe requirements have not begun.

The Contractor shall allow 30 calendar days for submittal review by the Department, from the date receipt is acknowledged by the Department. For any submittals stamped with “Revise and Resubmit” or “Rejected,” the Department is allowed an additional 20 calendar days for review of any resubmissions.

An extension of Contract time will not be authorized due to the Contractor’s failure to transmit submittals sufficiently in advance of the work to permit processing.

The furnishing of Shop Drawings, Working Drawings or Product Data, or any comments or suggestions by the Designer or Engineer concerning Shop Drawings, Working Drawings or Product Data, shall not relieve the Contractor of any of its responsibility for claims by the State or by third parties, as per 1.07.10.

The furnishing of the Shop Drawings, Working Drawings and Product Data shall not serve to relieve the Contractor of any part of its responsibility for the safety or the successful completion of the Project construction.

6. Department’s Action: The Department will review each submittal, mark each with a self-explanatory action stamp, and return the stamped submittal promptly to the Contractor. The Contractor shall not proceed with the part of the Project covered by the submittal until the submittal is marked “No Exceptions Noted” or “Exceptions as Noted” by the Department. The Contractor shall retain sole responsibility for compliance with all Contract requirements. The stamp will be marked as follows to indicate the action taken:

- a. If submittals are marked “No Exceptions Noted,” the Designer or Engineer has not observed any statement or feature that appears to deviate from the Contract requirements. This disposition is contingent on being able to execute any manufacturer’s written warranty in compliance with the Contract provisions.
- b. If submittals are marked “Exceptions as Noted,” the considerations or changes noted by the Department’s Action are necessary for the submittal to comply with Contract requirements. The Contractor shall review the required changes and inform the Department if they feel the changes violate a provision of the Contract or would lessen the warranty coverage.
- c. If submittals are marked “Revise and Resubmit,” the Contractor shall revise the submittals to address the deficiencies or provide additional information as noted by the

Department. The Contractor shall allow an additional review period as specified in 1.05.02-5.

- d. If submittals are marked "Rejected," the Contractor shall prepare and submit a new submittal in accordance with the Department's notations. The resubmissions require an additional review and determination by the Department. The Contractor shall allow an additional review period as specified in 1.05.02-5.

SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES

Delete Article 1.07.07 in its entirety and replace it with the following:

1.07.07—Safety and Public Convenience: The Contractor shall conduct the Project work at all times in such a manner as to ensure the least possible obstruction to traffic. In a manner acceptable to the Engineer, the Contractor shall provide for the convenience and interests of the general public; the traveling public; parties residing along or adjacent to the highway or Project Site; and parties owning, occupying or using property adjacent to the Project Site, such as commuters, workers, tenants, lessors and operating agencies.

Notwithstanding any other Contract provision, the Contractor shall not close to normal pedestrian or vehicular traffic any section of road, access drive, parking lot, sidewalk, station platform, railroad track, bus stop, runway, taxiway, occupied space within a Site, or occupied space within a building, except with the written permission of the Engineer.

All equipment, materials, equipment or material storage areas, and work areas must be placed, located, and used in ways that do not create a hazard to people or property, especially in areas open to public pedestrian or vehicular traffic. All equipment and materials shall be placed or stored in such a way and in such locations as will not create a hazard to the traveling public or reduce sight lines. In an area unprotected by barriers or other means, equipment and materials must not be stored within 30 feet of any traveled way.

The Contractor must always erect barriers and warning signs between any of its work or storage areas and any area open to public, pedestrian, or vehicular traffic. Such barriers and signs must comply with all laws and regulations, including any applicable codes.

The Contractor must arrange for temporary lighting, snow and ice removal, security against vandalism and theft, and protection against excessive precipitation runoff within its Project work and storage areas, and within other areas specifically designated in the Contract.

In addition to meeting the requirements of Section 9.71, the Contractor shall take all precautions necessary and reasonable for the protection of all persons, including, but not limited to, employees of the Contractor or the Department, and for the protection of property, until the Engineer notifies the Contractor in writing that the Project or the pertinent portion of the Project has been completed to the Engineer's satisfaction.

The Contractor shall comply with the safety provisions of applicable laws, including building and construction codes and the latest edition of the CFR. The Contractor must make available for reference in its field office, throughout the duration of the Project, a copy of the latest edition and all supplements of the CFR pertaining to OSHA.

The Contractor shall make available to the Contractor's employees, subcontractors, the Engineer, and the public, all information pursuant to OSHA 29 CFR Part 1926.59 and The

Hazard Communication Standard 29 CFR 1910.1200, and shall also maintain a file on each job site containing all MSDS for products in use at the Project. These MSDS shall be made available to the Engineer upon request.

The Contractor shall observe all rules and regulations of the Federal, State, and local health officials. Attention is directed to Federal, State, and local laws, rules, and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to the worker's health or safety.

Safety Plan: Before starting work on the Project, the Contractor shall submit to the Engineer a written Safety and Health Plan (hereinafter referred to as the "Plan"). The Plan shall meet or exceed the minimum requirements of this Subsection and any applicable State or Federal regulations.

The Plan shall apply to any work under the Contract whether such work is performed, by way of example and not limitation, by the Contractor's forces, subcontractors, suppliers, or fabricators.

The Plan shall be prepared by the Contractor and submitted to the Engineer for review before the actual start of work on the Project. Within ten (10) calendar days of receipt, the Engineer will determine whether or not the Plan meets the requirements of this Specification. If the Plan does not meet the requirements of this Specification, it will be returned for revision. Work on the Project may not proceed until the Engineer has accepted the Plan. Nothing herein shall be construed, however, to relieve the Contractor from responsibility for the prosecution of the Project.

The Plan shall conform to the following general format:

1. General Introduction.

- a. Description.** The general introduction of the Plan shall include a statement by the Contractor describing its commitment to maintain a safe work environment for its employees, Department representatives, and the public. Implementation procedures and company policies relative to safety shall be summarized or referenced in the Plan.
 - i. The Plan shall include the names, addresses, and telephone numbers of the Contractor's Project Manager, Project superintendent and/or its designee for safety oversight, all competent persons, and the traffic control coordinator. Any changes to the safety management and oversight for the Project shall be promptly communicated to all concerned.
 - ii. The Plan shall provide guidelines for protecting all personnel from hazards associated with Project operations and activities.
 - iii. The Plan shall establish the policies and procedures that are necessary for the Project to be in compliance with the requirements of OSHA and other State and

Federal regulatory agencies with jurisdiction, rules, regulations, standards, or guidelines in effect at the time the work is in progress.

- b. Responsibility, Identification of Personnel, and Certifications.** The Contractor is solely responsible for creating, implementing, and monitoring the Plan.
 - i. The Contractor shall identify and designate on-site supervisory level personnel who shall be responsible for implementing and monitoring the Plan at all times throughout the duration of the Project and shall have authority to take prompt corrective measures to eliminate hazards including the ability to stop work activities.
 - ii. Documentation of training provided to the on-site supervisory level personnel shall be included as part of the Plan.
 - iii. For any work activities wherein the Contractor has identified a competent person as defined by OSHA, that person shall be capable of identifying existing and predictable hazards and have the authority to take prompt corrective measures to eliminate the hazards, including the ability to stop work activities.
 - iv. Documentation of the qualifications of such competent persons identified, including any certifications received, shall be included as part of the Plan.
 - v. The Contractor shall further identify the qualified safety professional responsible for developing the Plan and shall provide that person's qualifications for developing the Plan which shall include, but not be limited to, education, training, certifications, and experience in developing this type of Plan.
 - vi. The Plan shall contain a certification executed by the qualified safety professional that developed the Plan, stating that the Plan complies with OSHA and other applicable State and Federal regulatory agencies with jurisdiction, rules, regulations, standards, or guidelines in effect at the time the work is in progress.

2. Elements of the Plan. The Plan shall address, but not be limited to, the following elements:

- a. Management Safety Policy and Implementation Statement.**
 - i. The Plan shall describe in detail the means by which the Contractor shall implement and monitor the Plan. Implementation and monitoring shall also mean that the Plan shall be a document with provision for change to update the Plan with new information on a yearly basis at a minimum and shall include new practices or procedures, changing site and environmental conditions, or other situations that could adversely affect site personnel. The Plan shall provide guidelines for protecting all personnel from hazards associated with Project operations and activities.
- b. Emergency Telephone Numbers.**
- c. Personnel Responsibilities.**

- i. Management responsibilities
 - ii. Responsibilities of Supervisor(s)
 - iii. Site safety officer(s) responsibilities
 - iv. Employee responsibilities
 - v. Competent person(s) as defined by OSHA responsibilities
- d. Training.**
- i. Regulatory
 - ii. Documentation
 - iii. Site hazard assessment -Daily employee awareness of site operations
- e. Safety Rules.**
- i. General safety rules
 - ii. Personal protective equipment
 - iii. Housekeeping
- f. Safety Checklists.**
- i. Project safety-planning checklist
 - ii. Emergency plans and procedures checklist
 - iii. Documentation checklist
 - iv. Protective materials and equipment checklist
- g. Traffic Control Coordinator Inspections.**
- i. Responsible person
 - ii. Frequency
 - iii. Documentation of actions taken
- h. Record Keeping.**
- i. OSHA 200 log
- i. Reporting.**
- i. Accident(s)
 - ii. On site
 - iii. Legal notice requirement
 - iv. Public liability
 - v. Property damage
 - vi. Department of Labor
 - vii. Hazard Communications
- j. Additional Procedures for Project Specific Situations as Applicable.**
- i. Compressed gas cylinders
 - ii. Confined spaces
 - iii. Cranes
 - iv. Crystalline silica (stone, masonry, concrete, and brick dust)
 - v. Electrical
 - vi. Equipment operators

- vii. Fall protection
- viii. Hand and power tools
- ix. Hearing conservation
- x. Highway safety
- xi. Lead health and safety plan
- xii. Lock out/tag out
- xiii. Materials handling, storage, use, and disposal
- xiv. Areas of environmental concern
- xv. Night work
- xvi. Personal protective equipment
- xvii. Project entry and exit
- xviii. Respiratory protection
- xix. Sanitation
- xx. Signs, signals, and barricades
- xxi. Subcontractors
- xxii. Trenching

3. Appendix for Environmental Health and Safety Plan (HASP). If environmental hazards are identified in the Contract, an Environmental HASP shall be included in an appendix to the Plan, or in a separate document. References to any Environmental HASP shall be included within the Plan, where appropriate.

The Plan shall be kept on the site and shall apply and be available to all workers and all other authorized persons entering the work site. Copies of all updates to the Plan shall be promptly supplied to the Engineer.

If at any time during the Project the Engineer determines that the Contractor is not complying with the requirements of this provision or the updated Plan, the Contractor shall correct such deficiencies immediately. Failure to remediate such deficiencies may result in suspension of the Contractor's operations until the deficiencies have been corrected. Suspensions ordered due to safety deficiencies will not be considered compensable or excusable delays.

The Contractor is responsible for implementation of the Plan. Pursuant to Article 1.07.10, the Contractor shall indemnify, and save harmless the State from any and all liability related to the Plan in proportion to the extent that the Contractor is held liable for same by an arbiter of competent jurisdiction.

The Contractor shall allow onto the Project site any inspector of OSHA or other legally responsible agency involved in safety and health administration upon presentation of proper credentials, without delay and without the presentation of an inspection warrant.

Article 1.07.13 – Contractor’s Responsibility for Adjacent Property, Facilities and Services is supplemented as follows:

The following company and representative shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities:

Mr. Richard Russo
District 2 Electrical Supervisor
Department of Transportation
Colchester, Connecticut
(860) 537-8942/8943

Ms. Lynne DeLucia
Manager – Engineering & Construction
The Southern New England Telephone Company dba Frontier Communications of Connecticut
1441 North Colony Road
Meriden, CT 06450-4101
(203) 238-5000; Mobile: (860) 967-4389
lynne.m.delucia@ftr.com
Record Drawings Request: FTR-CT-MAPREQUEST@ftr.com

All work shall be in conformance with Rules and Regulations of Public Utility Regulatory Authority (PURA) concerning Traffic Signals attached to Public Service Company Poles.

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.04 - Limitation of Operations - Add the following:

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be permitted to perform any work which will interfere with the described traffic operations on all project roadways as follows:

Route 2

The Contractor shall not perform any work that will interfere with traffic operations during the below State observed Legal Holidays and Legal Holiday Periods.

A. On the following State observed Legal Holidays:

New Year's Day	Labor Day
Good Friday	Thanksgiving Day
Memorial Day	Christmas Day
Independence Day	

B. During the following Legal Holiday Periods:

- i. When an above Legal Holiday is celebrated on a Sunday or Monday: From 6:00 a.m. the immediately preceding Friday to 6:00 a.m. the immediately following Tuesday.
- ii. When an above Legal Holiday is celebrated on a Tuesday, Wednesday, or Thursday: From 6:00 a.m. the day before to 6:00 a.m. the day after, except Thanksgiving (see below for Thanksgiving specific restrictions).
- iii. When an above Legal Holiday is celebrated on a Friday or Saturday: From 6:00 a.m. the immediately preceding Thursday to 6:00 a.m. the immediately following Monday.
- iv. Thanksgiving: From 6:00 a.m. the Wednesday before to 6:00 a.m. the Monday after.

During all other times:

- A. The Contractor shall maintain and protect traffic as shown on the accompanying "Limitation of Operations" charts, which dictate the maximum number of lanes allowed to be closed and the allowable hours for implementing a rolling roadblock operation for each day of the week.
- B. The Contractor will be allowed to halt traffic for a period not to exceed 10 minutes to actively perform deck end rehabilitation and joint replacement, as approved by the Engineer, between 12:01 a.m. and 5:00 a.m. during all non-Legal Holiday Periods.

Project No. 0078-0092
Limitation of Operations Chart
Minimum Number of Lanes to Remain Open

Route: Route 2 Eastbound Location: Within Project Limits Number of Through Lanes: 2								Route: Route 2 Westbound Location: Within Project Limits Number of Through Lanes: 2							
Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Hour Beginning	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Mid	1	1	1	1	1	1	1	Mid	1	1	1	1	1	1	1
1 AM	1	1	1	1	1	1	1	1 AM	1	1	1	1	1	1	1
2 AM	1	1	1	1	1	1	1	2 AM	1	1	1	1	1	1	1
3 AM	1	1	1	1	1	1	1	3 AM	1	1	1	1	1	1	1
4 AM	1	1	1	1	1	1	1	4 AM	1	1	1	1	1	1	1
5 AM	1	1	1	1	1	1	1	5 AM	1	1	1	1	1	1	1
6 AM	1	1	1	1	1	1	1	6 AM	2	2	2	2	2	1	1
7 AM	1	1	1	1	1	1	1	7 AM	2	2	2	2	2	1	1
8 AM	2	2	2	2	2	2	1	8 AM	2	2	2	2	2	1	1
9 AM	2	2	2	2	2	2	2	9 AM	2	2	1	2	2	1	1
10 AM	2	2	2	2	2	2	2	10 AM	2	1	1	2	2	2	2
11 AM	2	2	2	2	2	2	2	11 AM	2	1	1	2	2	2	2
Noon	2	2	2	2	2	E	2	Noon	2	1	1	2	2	2	2
1 PM	2	2	2	2	2	E	2	1 PM	2	1	1	2	2	2	2
2 PM	2	2	2	2	2	E	2	2 PM	2	2	2	2	2	2	2
3 PM	2	2	2	2	E	2	2	3 PM	2	2	2	2	2	2	E
4 PM	2	2	2	2	E	2	2	4 PM	2	2	2	2	2	2	E
5 PM	2	2	2	2	E	2	2	5 PM	2	2	2	2	2	2	E
6 PM	2	2	2	2	2	2	1	6 PM	2	2	2	2	2	2	E
7 PM	1	1	1	1	2	2	1	7 PM	1	1	1	1	1	2	2
8 PM	1	1	1	1	1	1	1	8 PM	1	1	1	1	1	2	2
9 PM	1	1	1	1	1	1	1	9 PM	1	1	1	1	1	2	1
10 PM	1	1	1	1	1	1	1	10 PM	1	1	1	1	1	2	1
11 PM	1	1	1	1	1	1	1	11 PM	1	1	1	1	1	2	1

On Holidays and within Holiday Periods, all Hours shall be ‘E.’

‘E’ = maintain existing traffic operations = all available travel lanes, including exit only lanes, climbing lanes and all available shoulder widths shall be open to traffic during this period

Route 2 Ramps

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.

West Road

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

Additional Restrictions:

- A. During the full depth pavement reconstruction, the Contractor shall be allowed to maintain an alternating one-way traffic operation controlled by flagmen between the hours of 7:00 a.m. and 5:00 p.m. for a duration not to exceed 2 consecutive weeks.

All Other Roadways

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

West Road Commuter Lot

The Contractor shall be allowed to close the commuter lot located on West Road to the north of the Route 2 WB Bridge for a duration that shall not exceed one week. This closure shall coincide with the full depth pavement reconstruction of West Road.

Additional Lane Closure Restrictions

It is anticipated that work on adjacent projects will be ongoing simultaneously with this project. The Contractor shall be aware of those projects and anticipate that coordination will be required to maintain proper traffic flow at all times on all project roadways, in a manner consistent with these specifications and acceptable to the Engineer.

The Contractor will not be allowed to perform any work that will interfere with traffic operations on a roadway when traffic operations are being restricted on that same roadway, unless there is at least a one mile clear area length where the entire roadway is open to traffic or the closures have been coordinated and are acceptable to the Engineer. The one mile clear area length shall be measured from the end of the first work area to the beginning of the signing pattern for the next work area.

SECTION 1.10 - ENVIRONMENTAL COMPLIANCE

In Article 1.10.03--Water Pollution Control: REQUIRED BEST MANAGEMENT PRACTICES

Add the following after Required Best Management Practices Number 13:

14. The Contractor is hereby notified that the State listed endangered species timber rattlesnake (*Crotalus horridus*), is present within the Project limits. In Connecticut, timber rattlesnakes are active between April 1 and October 31. Timber rattlesnakes are one of Connecticut's **venomous** snakes. These rattlesnakes are more likely to be out basking during the day in spring and fall. Snakes cannot regulate their body temperature internally and must warm themselves in the sun. Over the warmer months they are more nocturnal. This Project Site is located within their summer foraging range. Timber rattlesnake encounters are possible and the Contractor shall take all precautions to avoid harming the snakes and their habitat and also in protecting workers.

All construction activities taking place within the Project will need to be coordinated with the Office of Environmental Planning (OEP) through the Engineer. At least 10 days prior to the commencement of any construction activities, the Contractor shall, through the Engineer, arrange for an CT DOT Environmental Scientist from the OEP or their authorized representative to meet and discuss proper protocol for maintaining environmental commitments made for the protection of this species and habitat. OEP will provide oversight through the Engineer to ensure that the following protocols are followed and maintained during the course of the Project.

For any work done during the timber rattlesnake's active period (April 1 to October 31) the Department will require the following precautionary measures to protect the timber rattlesnake and timber rattlesnake habitat:

- a. All construction personnel working within the timber rattlesnake habitat must be apprised of the species description and the possible presence of a listed species.
- b. Exclusionary practices will be required in order to prevent any timber rattlesnakes access to construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.
- c. Exclusionary fencing shall be at least 20" tall and must be secured to and remain in contact with the ground. It shall be regularly inspected / maintained to prevent any gaps or openings at ground level. Standard silt fence is adequate; fencing with netting shall not be used.
- d. The Contractor must search the work area each morning for the presence of this listed species prior to any work being done.

- e. Any timber rattlesnakes encountered within the work area shall be left alone and immediately reported to the Engineer. These snakes are venomous and will strike if agitated. Construction workers shall not attempt to handle, guide or relocate them. Prior to any ground activities, an on-Site meeting with construction staff will be conducted by an Environmental Scientist from the OEP to discuss this species biology, life cycle, and proper protocol as well as the proper procedures when encountering a snake and where to seek medical help if bitten. **This meeting is required for all personnel working in the Project area.**
- f. All staging and storage areas in the vicinity of snake habitat, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed by and receive written approval from OEP through the Engineer.
- g. No heavy machinery or vehicles may be parked in any timber rattlesnake habitat.
- h. Exclusionary fencing shall be removed when it is no longer needed, and silt fence shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.

Work may take place during the timber rattlesnakes inactive (hibernation) period (November 1 to March 31) with the following additional precautionary measure:

- a. Exclusionary fencing must be installed and the area inspected for snakes by the Engineer or Engineer's approved representative prior to October 1.

These practices will be applied to the entire Project unless a sketch is attached, which identifies specific areas of concern.

This species is protected by State laws, which prohibit killing, harming, taking, or keeping them in your possession. Photographs and the laws protecting timber rattlesnakes shall be posted in the Contractor's and DOT field offices (species ID sheets will be provided by OEP).

15. The Contractor is hereby notified that the State listed species of Special Concern eastern box turtle (*Terrapene carolina carolina*), is present within the Project limits. In Connecticut, this terrestrial turtle lives in a variety of habitats, including woodlands, field edges, thickets, marshes, bogs, and stream banks. Typically however, eastern box turtles are found in well-drained forest bottomlands and open deciduous forests. They will use wetland areas at various times during the season. During the hottest part of a summer day, they will wander to find springs and seepages where they can burrow into the moist soil. Eastern box turtles overwinter in upland forest, typically covered by leaf litter or woody debris. As temperatures drop, the turtles burrow down into soft ground.

All construction activities taking place within the Project limits will need to be coordinated

with the Office of Environmental Planning (OEP) through the Engineer. At least 10 days prior to the commencement of any construction activities, the Contractor shall, through the Engineer, arrange for a CT DOT Environmental Inspector from the OEP or their authorized delegate to meet and discuss proper protocol for maintaining environmental commitments made for the protection of this species and habitat. OEP will provide oversight through the Engineer to ensure that the following protocols are followed and maintained during the course of the Project.

For any work done during the eastern box turtle's active period (April 1 to October 31) the Department will require the following precautionary measures to protect the eastern box turtle and eastern box turtle habitat:

- a. All areas within the Project limits must be surveyed and cleared of any turtles immediately prior to the commencement of initial clearing and grubbing activities.
- b. All construction personnel working within eastern box turtle habitat must be apprised of the species description and the possible presence of this listed species.
- c. Exclusionary practices will be required in order to prevent any eastern box turtle access to construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.
- d. Exclusionary fencing shall be at least 20" tall and must be secured to and remain in contact with the ground. It shall be regularly inspected / maintained to prevent any gaps or openings at ground level. Standard silt fence is adequate; fencing with netting shall not be used.
- e. The Contractor must search the work area each morning for the presence of this listed species prior to any work being done.
- f. Any eastern box turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and the Engineer shall be immediately informed in order to contact OEP with the location.
- g. All staging and storage areas in the vicinity of turtle habitat, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed by and receive written approval from OEP through the Engineer.
- h. No heavy machinery or vehicles may be parked in any unapproved eastern box turtle habitat.
- i. Exclusionary fencing shall be removed when it is no longer needed, and silt fence shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.

Work may take place during the eastern box turtle's inactive (hibernation) period (November 1 to March 31) with the following additional precautionary measure:

- b. Exclusionary fencing must be installed and the area inspected for turtles by the Engineer or Engineer's approved representative prior to October 1.

These practices will be applied to the entire Project unless a sketch is attached, which identifies specific areas of concern.

This species is protected by State laws, which prohibit killing, harming, taking, or keeping them in your possession. Photographs and the laws protecting eastern box turtles shall be posted in the Contractor's and DOT field offices (species ID sheets will be provided by OEP).

SECTION 2.01 - CLEARING AND GRUBBING

Replace Section 2.01 in its entirety with the following:

2.01.01—Description: This work shall consist of clearing the ground of trees, stumps, brush, refuse, rubbish, debris, dislodged materials, cut vegetation and all objectionable material in accordance with these specifications or as directed by the Engineer. The limits of this specified work shall provide for a useable width to accomplish the work as shown on the Contract Drawings. This item shall also include the removal of any extraneous aggregate materials not used to achieve the final grades and lines as shown on the Contract Drawings. This work shall also include the clearing of the ground necessary for the construction and installation of drainage, structures, ditches, channels, fences and other appurtenances. Included in this work shall be the preservation from injury or defacement of vegetation and objects designated to remain.

2.01.03—Construction Methods: The Contractor shall mark all trees, shrubs and plants to be removed in accordance with the plans and these specifications. The Engineer shall have 7 days to field review the markings and make any adjustments prior to the start of the clearing operation. Within the excavation lines all trees shall be cut off and stumps removed to a depth of not less than 12 inches below the graded surface.

Within the fill lines where an embankment is to be made not more than 5 feet deep, trees, stumps, roots, etc., shall be removed. Where the embankments to be made exceed 5 feet deep, trees, stumps, roots, etc., shall be cut off to within 6 inches of the ground surface.

In areas where clearing is necessary for the construction and installation of various appurtenances, all trees and stumps shall be cut flush with the ground; and all dead or uprooted trees, brush, roots or otherwise objectionable material shall be removed as directed unless otherwise indicated on the plans.

Prior to clearing operations, a meeting must be held. Those attending the meeting should include the Contractor, the Engineer, the designer, local tree warden or equivalent, and the District Environmental Coordinator. All clearing issues shall be resolved to the satisfaction of the Engineer before any trees are cut.

All trees scheduled to be removed outside of the proposed gutter or curb lines shall be visibly marked or flagged by the Contractor at least 7 days prior to cutting of such trees.

The Engineer will inspect the identified trees within 7 days of the marking of the trees and verify the limits of clearing and grubbing prior to the Contractor proceeding with his cutting operation.

All branches of trees extending within the roadway shall be trimmed as directed to provide a 16-foot minimum vertical clearance including selective trimming of such trees as directed.

The Contractor shall dispose of all such trees, stumps, brush, etc., in a satisfactory manner and shall remove all rubbish and refuse from within the highway limits.

All excavations made below subgrade surface by the removal of trees, stumps, etc., shall be filled with suitable material, which shall be compacted thoroughly in accordance with the provisions governing formation of embankments.

All fences, stonewall fences and ornamental and utilitarian domestic accessories, such as, but not limited to garden pools, arbors, stair railings, fireplaces, sheds and incinerators, within the highway limits shall be removed as directed. However, the removal of materials in stonewalls, that are to be removed and not used in a new stonewall fences, will be paid for according to the provisions of Section 2.02.

All road signs, mail boxes, etc., shall be removed and reset as directed.

2.01.04—Method of Measurement: When no price for "Clearing and Grubbing" is asked for on the proposal form, the cost of the work as described above shall be included in the cost of the grading items and no direct payment for "Clearing and Grubbing" will be made.

When a price is asked for on the proposal form on a lump sum basis, this shall include all the work as described above, which may be necessary to properly complete the Project, unless the item is included under another Project pay item.

Should the Project be increased in length or the scope of work increased due to construction changes beyond the requirements hereinabove, any additional work required will be paid for as extra work. Should the Project be decreased in length, a suitable credit, mutually agreed upon and based on the reduction in actual work or scope, will be taken by the State.

The work, material, tools, equipment and labor incidental to the disposal of trees, stumps, etc., will not be measured for payment.

2.01.05—Basis of Payment: Prior to beginning work, the Contractor shall submit a proposed schedule of values for review and concurrence by the Engineer. If the bid price for this item exceeds 4% of the original Contract value, the amount in excess of 4% of the original Contract value will not be paid until 90% of all work in the Contract is complete.

All costs incidental to the removal and disposal of temporary precast barrier curbs, extraneous aggregate material, objectionable debris, etc., will be included in the price of "Clearing and Grubbing."

All costs incidental to the removal and disposal of temporary precast barrier curbs, extraneous aggregate material, objectionable debris, etc., will be included in the price of "Clearing and Grubbing."

Payment for this work will be at the Contract lump sum for "Clearing and Grubbing," except as

noted above, and shall include all equipment, tools and labor incidental to the completion of this item.

All costs incidental to the disposal of trees, stumps, etc., shall be included in the price of "Clearing and Grubbing."

Pay Item	Pay Unit
Clearing and Grubbing	l.s.

ON-THE-JOB TRAINING (OJT) WORKFORCE DEVELOPMENT PILOT

Description

To provide construction industry related job opportunities to minorities, women and economically disadvantaged individuals; and to increase the likelihood of a diverse and inclusive workforce on Connecticut Department of Transportation (ConnDOT) projects.

All contractors (existing and newcomers) will be automatically placed in the Workforce Development Pilot. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level for new projects. Instead, these requirements will be applicable on an annual basis for each contractor performing work on ConnDOT projects.

The OJT Workforce Development Pilot will allow a contractor to train employees on Federal, State and privately funded projects located in Connecticut. However, contractors should give priority to training employees on ConnDOT Federal-Aid funded projects.

Funding

The Department will establish an OJT fund annually from which contractors may bill the Department directly for eligible trainee hours. The funds for payment of trainee hours on federal-aid projects will be allocated from the ½ of 1% provided for OJT funding, and will be based on hours trained, not to exceed a maximum of \$25,000.00 per year; per contractor.

Minorities and Women

Developing, training and upgrading of minorities, women and economically disadvantaged individuals toward journeyman level status is the primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority, women and economically disadvantaged individuals as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training whether a member of a minority group or not.

Assigning Training Goals

The Department, through the OJT Program Coordinator, will assign training goals for a calendar year based on the contractor's past two year's activities and the contractor's anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time, the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from one (1) to six (6) per

contractor per calendar year. Each January, a summary of the trainees required and the OJT Workforce Development Pilot package will be sent to participating contractors. The number of trainees assigned to each contractor in the summary will increase proportionately not to exceed 6, as shown in the following table. This package will also be provided to contractors as they become newly eligible for the OJT Workforce Development Pilot throughout the remainder of the year. Projects awarded after September 30 will be included in the following year's Program.

The dollar thresholds for training assignments are as follows:

\$4.5 – 8 million=	1 trainee
\$ 9 – 15 million=	2 trainees
\$16 – 23 million=	3 trainees
\$24 – 30 million=	4 trainees
\$31 – 40 million=	5 trainees
\$41 – and above=	6 trainees

Training Classifications

Preference shall be given to providing training in the following skilled work classifications. However, the classifications established are not all-inclusive:

Equipment Operators	Electricians
Laborers	Painters
Carpenters	Iron / Reinforcing Steel Workers
Concrete Finishers	Mechanics
Pipe Layers	Welders

The Department has on file common training classifications and their respective training requirements; that may be used by the contractors. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and the number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

Where feasible, 25% percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

Records and Reports

The Contractor shall maintain enrollment in the program and submit all required reports documenting company compliance under these contract requirements. These documents and any other information shall be submitted to the OJT Program Coordinator as requested.

Upon the trainee's completion and graduation from the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

Trainee Interviews

In order to determine the continued effectiveness of the OJT Program in Connecticut, the department will periodically conduct personal interviews with current trainees and may survey recent graduates of the program. This enables the OJT Program Coordinator to modify and improve the program as necessary. Trainee interviews are generally conducted at the job site to ensure that the trainees' work and training is consistent with the approved training program.

Trainee Wages

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

60 percent	of the journeyman wage for the first half of the training period
75 percent	of the journeyman wage for the third quarter of the training period
90 percent	of the journeyman wage for the last quarter of the training period

In no case, will the trainee be paid less than the prevailing rate for general laborer as shown in the contract wage decision (must be approved by the Department of Labor).

Achieving or Failing to Meet Training Goals

The Contractor will be credited for each trainee currently enrolled or who becomes enrolled in the approved training program and providing they receive the required training under the specific training program. Trainees will be allowed to be transferred between projects if required by the Contractor's schedule and workload. The OJT Program Coordinator must be notified of transfers within five (5) days of the transfer or reassignments by e-mail (Phylisha.Coles@ct.gov).

Where a contractor does not or cannot achieve its annual training goal with female or minority trainees, they must produce adequate Good Faith Efforts documentation. Good Faith Efforts are those designed to achieve equal opportunity through positive, aggressive, and continuous result-oriented measures. 23 CFR § 230.409(g) (4). Contractors should request minorities and females from unions when minorities and females are under-represented in the contractor's workforce.

Whenever a contractor requests ConnDOT approval of someone other than a minority or female, the contractor must submit documented evidence of its Good Faith Efforts to fill that position with a minority or female. When a non-minority male is accepted, a contractor must continue to attempt to meet its remaining annual training goals with females and minorities.

Where a contractor has neither attained its goal nor submitted adequate Good Faith Efforts documentation, ConnDOT will issue a letter of non-compliance. Within thirty (30) days of receiving the letter of non-compliance, the contractor must submit a written Corrective Action Plan (CAP) outlining the steps that it will take to remedy the non-compliance. The CAP must be approved by ConnDOT. Failure to comply with the CAP may result in your firm being found non-responsive for future projects.

Measurement and Payment

Optional reimbursement will be made to the contractor for providing the required training under this special provision on ConnDOT Federal-Aid funded projects only.

Contractor will be reimbursed at \$0.80 for each hour of training given to an employee in accordance with an approved training or apprenticeship program. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement.

Reimbursement for training is made annually or upon the trainees completion and not on a monthly basis. No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor.

Program reimbursements will be made directly to the prime contractor on an annual basis. To request reimbursement, prime contractors must complete the Voucher for OJT Workforce Development Pilot Hourly Reimbursement for each trainee in the OJT Program. This form is included in the OJT Workforce Development Pilot package and is available on the Department's web site at:

www.ct.gov/dot

The completed form must be submitted to the Office of Contract Compliance for approval. The form is due on the 15th day of January for each trainee currently enrolled and for hours worked on ConnDOT Federal-Aid funded projects only.

D.B.E. SUBCONTRACTORS AND MATERIAL SUPPLIERS OR MANUFACTURERS

January 2013

I. ABBREVIATIONS AND DEFINITIONS AS USED IN THIS SPECIAL PROVISION

A. *CTDOT* means the Connecticut Department of Transportation.

B. *USDOT* means the U.S. Department of Transportation, including the Office of the Secretary, the Federal Highway Administration (“FHWA”), the Federal Transit Administration (“FTA”), and the Federal Aviation Administration (“FAA”).

C. *Broker* means a party acting as an agent for others in negotiating Contracts, Agreements, purchases, sales, etc., in return for a fee or commission.

D. *Contract, Agreement or Subcontract* means a legally binding relationship obligating a seller to furnish supplies or services (including but not limited to, construction and professional services) and the buyer to pay for them. For the purposes of this provision, a lease for equipment or products is also considered to be a Contract.

E. *Contractor* means a consultant, second party or any other entity under Contract to do business with CTDOT or, as the context may require, with another Contractor.

F. *Disadvantaged Business Enterprise (“DBE”)* means a for profit small business concern:

1. That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and
2. Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it; and
3. Certified by CTDOT under Title 49 of the Code of Federal Regulations, Part 26, (Title 49 CFR Part 23 of the Code of Federal Regulations for Participation of Disadvantaged Business Enterprise in Airport Concessions)

G. *USDOT-assisted Contract* means any Contract between CTDOT and a Contractor (at any tier) funded in whole or in part with USDOT financial assistance.

H. *Good Faith Efforts (“GFE”)* means all necessary and reasonable steps to achieve a DBE goal or other requirement which by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

I. *Small Business Concern* means, with respect to firms seeking to participate as DBEs in USDOT-assisted Contracts, a small business concern as defined pursuant to Section 3 of the Small Business Act and Small Business Administration (“SBA”) regulations implementing it (13 CFR Part 121) that also does not exceed the cap on average annual gross receipts in 49 CFR Part 26, Section 26.65(b).

J. *Socially and Economically Disadvantaged Individual* means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is:

1. Any individual who CTDOT finds, on a case-by-case basis, to be a socially and economically disadvantaged individual.
2. Any individuals in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:
 - “Black Americans”, which includes persons having origins in any of the Black racial groups of Africa;
 - “Hispanic Americans”, which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;
 - “Native Americans”, which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians.
 - “Asian-Pacific Americans”, which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, or Federated States of Micronesia;
 - “Subcontinent Asian Americans”, which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
 - Women;
 - Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

K. *Commercially Useful Function (“CUF”)* means the DBE is responsible for the execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved with its own forces and equipment. The DBE must be responsible for procuring, determining quantity, negotiating price, determining quality and paying for all materials (where applicable) associated with their work. The DBE must also perform at least 30% of the total cost of its contract with its own workforce.

II. ADMINISTRATIVE REQUIREMENTS

A. General Requirements

A DBE goal percentage equaling **thirteen percent (13%)** of the Contract value has been established for this Contract. This DBE goal percentage will be applied to the final Contract value to ultimately determine the required DBE goal. If additional work is required, DBE firms should be provided the appropriate opportunities to achieve the required DBE goal.

In order to receive credit toward the Contract DBE goal, the firms utilized as DBE subcontractors or suppliers must be certified as DBEs in the type of work to be counted for credit by CTDOT’s Office of Contract Compliance prior to the date of the execution of the subcontract. Neither CTDOT nor the State of Connecticut’s Unified Certification Program (UCP) makes any representation as to any DBE’s

technical or financial ability to perform the work. Prime contractors are solely responsible for performing due diligence in hiring DBE subcontractors.

All DBEs shall perform a CUF for the work that is assigned to them. The Contractor shall monitor and ensure that the DBE is in compliance with this requirement. The Connecticut DBE UPC Directory of certified firms can be found on the CTDOT website <http://www.ct.gov/dot>. The directory lists certified DBE firms with a description of services that they are certified to perform. Only work identified in this listing may be counted towards the project's DBE goal. A DBE firm may request to have services added at any time by contacting CTDOT's Office of Contract Compliance. No credit shall be counted for any DBE firm found not to be performing a CUF.

Once a Contract is awarded, all DBEs that were listed on the pre-award DBE commitment document must be utilized. The Contractor is obligated to provide the value and items of the work originally established in the pre-award documentation to the DBE firms listed in the pre-award documentation. Any modifications to the pre-award commitment must follow the procedure established in Section II-C.

The Contractor shall designate a liaison officer who will administer the Contractor's DBE program. Upon execution of this Contract, the name of the liaison officer shall be furnished in writing to CTDOT's unit administering the Contract, CTDOT's Office of Contract Compliance and CTDOT's Office of Construction ("OOC"). Contact information for the designated liaison officer shall be furnished no later than the scheduled date for the pre-construction meeting.

The Contractor shall submit a bi-monthly report to the appropriate CTDOT unit administering the Contract. This report shall indicate what work has been performed to date, with the dollars paid and percentage of DBE goal completed.

Verified payments made to DBEs shall be included in this bi-monthly report. A sample form is included on the CTDOT website.

In addition, the report shall include:

1. A projected time frame of when the remaining work is to be completed for each DBE.
2. A statement by the Contractor either confirming that the approved DBEs are on schedule to meet the Contract goal, or that the Contractor is actively pursuing a GFE.
3. If retainage is specified in the Contract specifications, then a statement of certification that the subcontractors' retainage is being released in accordance with 1.08.01 (Revised or supplemented).

Failure by the Contractor to provide the required reports may result in CTDOT withholding an amount equal to one percent (1%) of the monthly estimate until the required documentation is received.

The Contractor shall receive DBE credit when a DBE, or any combination of DBEs, perform work under the Contract in accordance with this specification.

Only work actually performed by and/or services provided by DBEs which are certified for such work and/or services, as verified by CTDOT, can be counted toward the DBE goal. Supplies and equipment a DBE purchases or leases from the Contractor or its affiliate cannot be counted toward the goal.

Monitoring of the CUF will occur by CTDOT throughout the life of the project. If it is unclear that the DBE is performing the work specified in its subcontract with the prime Contractor, further review may be required. If it is determined that the DBE is not performing a CUF, then the work performed by that DBE will not be counted towards the DBE goal percentage.

B. Subcontract Requirements

The Contractor shall submit to CTDOT's OOC all requests for subcontractor approvals on the standard CLA-12 forms provided by CTDOT. The dollar amount and items of work identified on the CLA-12 form must, at minimum, equal the dollar value submitted in the pre-award commitment. CLA-12 forms can be found at <http://www.ct.gov/dot/construction> under the "Subcontractor Approval" section. All DBE subcontractors must be identified on the CLA-12 form, regardless of whether they are being utilized to meet a Contract goal percentage. A copy of the legal Contract between the Contractor and the DBE subcontractor/supplier, a copy of the Title VI Contractor Assurances and a copy of the Required Contract Provision for Federal Aid Construction Contracts (Form FHWA-1273) (Federal Highway Administration projects only) must be submitted along with a request for subcontractor approval. These attachments cannot be substituted by reference.

If retainage is specified in the Contract specifications, then the subcontract agreement must contain a prompt payment mechanism that acts in accordance with Article 1.08.01 (Revised or supplemented).

If the Contract specifications do not contain a retainage clause, the Contractor shall not include a retainage clause in any subcontract agreement, and in this case, if a Contractor does include a retainage clause, it shall be deemed unenforceable.

In addition, the following documents are to be included with the CLA-12, if applicable:

- An explanation indicating who will purchase material.
- A statement explaining any method or arrangement for utilization of the Contractor's equipment.

The subcontract must show items of work to be performed, unit prices and, if a partial item, the work involved by all parties. If the subcontract items of work or unit prices are modified, the procedure established in Section II-C must be followed.

Should a DBE subcontractor further sublet items of work assigned to it, only lower tier subcontractors who are certified as a DBE firm will be counted toward the DBE goal. If the lower tier subcontractor is a non-DBE firm, the value of the work performed by that firm will not be counted as credit toward the DBE goal.

The use of joint checks between a DBE firm and the Contractor is acceptable, provided that written approval is received from the OOC prior to the issuance of any joint check. Should it become necessary to issue a joint check between the DBE firm and the Contractor to purchase materials, the DBE firm must be responsible for negotiating the cost, determining the quality and quantity, ordering the material and installing (where applicable), and administering the payment to the supplier. The Contractor should not make payment directly to suppliers.

Each subcontract the Contractor signs with a subcontractor must contain the following assurance:

“The subcontractor/supplier/manufacturer shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor/subcontractor/supplier/manufacturer to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.”

C. Modification to Pre-Award Commitment

Contractors may not terminate for convenience any DBE subcontractor or supplier that was listed on the pre-award DBE commitment without prior written approval of the OOC. This includes, but is not limited to, instances in which a Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Prior to approval, the Contractor must demonstrate to the satisfaction of the OOC, that it has good cause, as found in 49CFR Part 26.53 (f)(3), for termination of the DBE firm.

Before transmitting its request for approval to terminate pre-award DBE firms to the OOC, the Contractor must give written notice to the DBE subcontractor and include a copy to the OOC of its notice to terminate and/or substitute, and the reason for the notice.

The Contractor must provide five (5) days for the affected DBE firm to respond. This affords the DBE firm the opportunity to advise the OOC and the Contractor of any reasons why it objects to the termination of its subcontract and why the OOC should not approve the Contractor’s action.

Once the Contract is awarded, should there be any amendments or modifications of the approved pre-award DBE submission other than termination of a DBE firm, the Contractor shall follow the procedure below that best meets the criteria associated with the reason for modification:

1. If the change is due to a scope of work revision or non-routine quantity revision by CTDOT, the Contractor must notify CTDOT’s OOC in writing or via electronic mail that their DBE participation on the project may be impacted as soon as they are aware of the change. In this case, a release of work from the DBE firm may not be required; however the Contractor must concurrently notify the DBE firm in writing, and copy the OOC for inclusion in the project DBE file. This does not relieve the Contractor of its obligation to meet the Contract specified DBE goal, or of any other responsibility found in this specification.
2. If the change is due to a factor other than a CTDOT directive, a request for approval in writing or via electronic mail of the modification from the OOC must be submitted, along with an explanation of the change(s), prior to the commencement of work. The Contractor must also obtain a letter of release from the originally named DBE indicating their concurrence with the change, and the reason(s) for their inability to perform the work. In the event a release cannot be obtained, the Contractor must document all efforts made to obtain it.
3. In the event a DBE firm that was listed in the pre-award documents is **unable** or **unwilling** to perform the work assigned, the Contractor shall:
 - Notify the OOC Division Chief immediately and make efforts to obtain a release of work from the firm.

- Submit documentation that will provide a basis for the change to the OOC for review and approval prior to the implementation of the change.
- Use the DBE Directory to identify and contact firms certified to perform the type of work that was assigned to the unable or unwilling DBE firm. The Contractor should also contact CTDOT's Office of Contract Compliance for assistance in locating additional DBE firms to the extent needed to meet the contract goal.

Should a DBE subcontractor be terminated or fail to complete work on the Contract for any reason, the Contractor must make a GFE to find another DBE subcontractor to substitute for the original DBE. The DBE replacement shall be given every opportunity to perform at least the same amount of work under the Contract as the original DBE subcontractor.

If the Contractor is unable to find a DBE replacement:

- The Contractor should identify other contracting opportunities and solicit DBE firms in an effort to meet the Contract DBE goal requirement, if necessary, and provide documentation to support a GFE. (Refer to GFE in Section III.)
- The Contractor must demonstrate that the originally named DBE, who is unable or unwilling to perform the work assigned, is in default of its subcontract, or identify other issues that affected the DBE firm's ability to perform the assigned work. **The Contractor's ability to negotiate a more advantageous agreement with another subcontractor is not a valid basis for change.**

III. GOOD FAITH EFFORTS

The DBE goal is **NOT** reduced or waived for projects where the Contractor receives a Pre-Award GFE determination from the Office of Contract Compliance prior to the award of the Contract. It remains the responsibility of the Contractor to make a continuing GFE to achieve the specified Contract DBE goal. The Contractor shall pursue every available opportunity to obtain additional DBE firms and document all efforts made in such attempts.

At the completion of all Contract work, the Contractor shall submit a final report to CTDOT's unit administering the Contract indicating the work done by and the dollars paid to DBEs. Only verified payments made to DBEs performing a CUF will be counted towards the Contract goal.

Goal attainment is based on the total Contract value, which includes all construction orders created during the Contract. If the Contractor does not achieve the specified Contract goal for DBE participation or has not provided the value of work to the DBE firms originally committed to in the pre-award submission, the Contractor shall submit documentation to CTDOT's unit administering the Contract detailing the GFE made during the performance of the Contract to satisfy the goal.

A GFE should consist of the following, where applicable (CTDOT reserves the right to request additional information):

1. A detailed statement of the efforts made to replace an unable or unwilling DBE firm, and a description of any additional subcontracting opportunities that were identified and offered to DBE firms in order to increase the likelihood of achieving the stated goal.
2. A detailed statement, including documentation of the efforts made to contact and solicit bids from certified DBEs, including the names, addresses, and telephone numbers of each DBE firm contacted; the date of contact and a description of the information provided to each DBE regarding the scope of services and anticipated time schedule of work items proposed to be subcontracted and the response from firms contacted.
3. Provide a detailed explanation for each DBE that submitted a subcontract proposal which the Contractor considered to be unacceptable stating the reason(s) for this conclusion.
4. Provide documentation, if any, to support contacts made with CTDOT requesting assistance in satisfying the specified Contract goal.
5. Provide documentation of all other efforts undertaken by the Contractor to meet the defined goal. Additional documentation of efforts made to obtain DBE firms may include but will not be limited to:
 - Negotiations held in good faith with interested DBE firms, not rejecting them without sound reasons.
 - Written notice provided to a reasonable number of specific DBE firms in sufficient time to allow effective participation.
 - Those portions of work that could be performed by readily available DBE firms.

In instances where the Contractor can adequately document or substantiate its GFE and compliance with other DBE Program requirements, the Contractor will have satisfied the DBE requirement and no administrative remedies will be imposed.

IV. PROJECT COMPLETION

At the completion of all Contract work, the Contractor shall:

1. Submit a final report to CTDOT's unit administering the Contract indicating the work done by, and the dollars paid to DBEs.
2. Submit verified payments made to all DBE subcontractors for the work that was completed.
3. Submit documentation detailing any changes to the DBE pre-award subcontractors that have not met the original DBE pre-award commitment, including copies of the Department's approvals of those changes.
4. Retain all records for a period of three (3) years following acceptance by CTDOT of the Contract and those records shall be available at reasonable times and places for inspection by authorized representatives of CTDOT and Federal agencies. If any litigation, claim, or audit is started before the expiration of the three (3) year period, the records shall be retained until all litigation, claims, or audit findings involving the records are resolved.

If the Contractor does not achieve the specified Contract goal for DBE participation in addition to meeting the dollar value committed to the DBE subcontractors identified in the pre-award commitment, the Contractor shall submit documentation to CTDOT's unit administering the Contract detailing the GFE made during the performance of the Contract to satisfy the goal.

V. SHORTFALLS

A. Failure to meet DBE goals

As specified in (II-A) above, attainment of the Contract DBE goal is based on the final Contract value. The Contractor is expected to achieve the amount of DBE participation originally committed to at the time of award; however, additional efforts must be made to provide opportunities to DBE firms in the event a Contract's original value is increased during the life of the Contract.

The Contractor is expected to utilize the DBE subcontractors originally committed in the DBE pre-award documentation for the work and dollar value that was originally assigned.

If a DBE is terminated or is unable or unwilling to complete its work on a Contract, the Contractor shall make a GFE to replace that DBE with another certified DBE to meet the Contract goal.

The Contractor shall immediately notify the OOC of the DBE's inability or unwillingness to perform, and provide reasonable documentation and make efforts to obtain a release of work from the firm.

If the Contractor is unable to find a DBE replacement, then the Contractor should identify other contracting opportunities and solicit DBE firms in an effort to meet the Contract DBE goal requirement, if necessary, and provide documentation to support a GFE.

When a DBE is unable or unwilling to perform, or is terminated for just cause, the Contractor shall make a GFE to find other DBE opportunities to increase DBE participation to the extent necessary to at least satisfy the Contract goal.

For any DBE pre-award subcontractor that has been released appropriately from the project, no remedy will be assessed, provided that the Contractor has met the criteria described in Section II-C.

B. Administrative Remedies for Non-Compliance:

In cases where the Contractor has failed to meet the Contract specified DBE goal or the DBE pre-award commitment, and where no GFE has been demonstrated, then one or more of the following administrative remedies will be applied:

1. A reduction in Contract payments to the Contractor as determined by CTDOT, not to exceed the shortfall amount of the **DBE goal**. The maximum shortfall will be calculated by multiplying the Contract DBE goal (adjusted by any applicable GFE) by the final Contract value, and subtracting any verified final payments made to DBE firms by the Contractor.

2. A reduction in Contract payments to the Contractor determined by CTDOT, not to exceed the shortfall amount of the **pre-award commitment**. The maximum shortfall will be calculated by subtracting any verified final payments made by the Contractor to each DBE subcontractor from the amount originally committed to that subcontractor in the pre-award commitment.
3. A reduction in Contract payments to the Contractor determined by CTDOT for any pre-award DBE subcontractor who has not obtained the dollar value of work identified in the DBE pre-award commitment and has not followed the requirements of Section II-C or for any DBE firm submitted for DBE credit that has not performed a CUF.
4. The Contractor being required to submit a written DBE Program Corrective Action Plan to CTDOT for review and approval, which is aimed at ensuring compliance on future projects.
5. The Contractor being required to attend a Non-Responsibility Meeting on the next contract where it is the apparent low bidder.
6. The Contractor being suspended from bidding on contracts for a period not to exceed six (6) months.

VI. CLASSIFICATIONS OTHER THAN SUBCONTRACTORS

A. Material Manufacturers

Credit for DBE manufacturers is 100% of the value of the manufactured product. A manufacturer is a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Contractor.

If the Contractor elects to utilize a DBE manufacturer to satisfy a portion of, or the entire specified DBE goal, the Contractor must provide the OOC with:

- Subcontractor Approval Form (CLA-12) indicating the firm designation,
- An executed "Affidavit for the Utilization of Material Suppliers or Manufacturers" (sample attached), and
- Substantiation of payments made to the supplier or manufacturer for materials used on the project.

B. Material Suppliers (Dealers)

Credit for DBE dealers/suppliers is limited to 60% of the value of the material to be supplied, provided such material is obtained from an approved DBE dealer/supplier.

In order for a firm to be considered a regular dealer, the firm must own, operate, or maintain a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. At least one of the following criteria must apply:

- To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in

question.

- A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating or maintaining a place of business if the person both owns and operates distribution equipment for the products. Any supplementing of the regular dealers' own distribution equipment shall be by long term lease agreement, and not on an ad hoc or contract to contract basis.
- Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph.

If the Contractor elects to utilize a DBE supplier to satisfy a portion or the entire specified DBE goal, the Contractor must provide the OOC with:

- Subcontractor Approval Form (CLA-12) indicating the firm designation,
- An executed "Affidavit for the Utilization of Material Suppliers or Manufacturers" (sample attached), and
- Substantiation of payments made to the supplier or manufacturer for materials used on the project.

C. Brokering

- Brokering of work for DBE firms who have been listed by the Department as certified brokers is allowed. Credit for those firms shall be applied following the procedures in Section VI-D.
- Brokering of work by DBEs who have been approved to perform subcontract work with their own workforce and equipment is not allowed, and is a Contract violation.
- Firms involved in the brokering of work, whether they are DBEs and/or majority firms who engage in willful falsification, distortion or misrepresentation with respect to any facts related to the project shall be referred to the U.S. DOT, Office of the Inspector General for prosecution under Title 18, U.S. Code, Part I, Chapter 47, Section 1020.

D. Non-Manufacturing or Non-Supplier DBE Credit

Contractors may count towards their DBE goals the following expenditures with DBEs that are not manufacturers or suppliers:

- Reasonable fees or commissions charged for providing a bona fide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment materials or supplies necessary for the performance of the Contract, provided that the fee or commission is determined by the OOC to be reasonable and consistent with fees customarily allowed for similar services.
- The fees charged only for delivery of materials and supplies required on a job site when the hauler, trucker, or delivery service is a DBE, and not the manufacturer, or regular dealer of the materials and supplies, and provided that the fees are determined by the OOC to be reasonable and not excessive as compared with fees customarily allowed for similar services.

- The fees or commissions charged for providing bonds or insurance specifically required for the performance of the Contract, provided that the fees or commissions are determined by CTDOT to be reasonable and not excessive as compared with fees customarily allowed for similar services.

E. Trucking

While technically still considered a subcontractor, the rules for counting credit for DBE trucking firms are as follows:

- The DBE must own and operate at least one fully licensed, insured, and operational truck used on the Contract.
- The DBE receives credit for the total value of the transportation services it provides on the Contract using trucks it owns, insures and operates using drivers it employs.
- The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the Contract.
- The DBE may lease trucks from a non-DBE firm; however the DBE may only receive credit for any fees or commissions received for arranging transportation services provided by the non-DBE firms. Additionally, the DBE firm must demonstrate that they are in full control of the trucking operation for which they are seeking credit.

VII. Suspected DBE Fraud

In appropriate cases, CTDOT will bring to the attention of the USDOT any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take the steps, e.g. referral to the Department of Justice for criminal prosecution, referral to USDOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules provided in 49 CFR Part 31.

**CONNECTICUT DEPARTMENT OF TRANSPORTATION
(OFFICE OF CONSTRUCTION)
BUREAU OF ENGINEERING AND CONSTRUCTION**

This affidavit must be completed by the State Contractor's DBE notarized and attached to the contractor's request to utilize a DBE supplier or manufacturer as a credit towards its DBE contract requirements; failure to do so will result in not receiving credit towards the contract DBE requirement.

State Contract No.

Federal Aid Project No.

Description of Project

I, _____, acting in behalf of _____,
(Name of person signing Affidavit) (DBE person, firm, association or corporation)

of which I am the _____ certify and affirm that _____
(Title of Person) (DBE person, firm, association or corporation)

is a certified Connecticut Department of Transportation DBE. I further certify and affirm that I have read and understand 49 CFR, Sec. 26.55(e)(2), as the same may be revised.

I further certify and affirm that _____ will assume the actual and
(DBE person, firm, association or Corporation)
for the provision of the materials and/or supplies sought by _____.

If a manufacturer, I operate or maintain a factory or establishment that produces, on the premises, the materials, supplies, articles or equipment required under the contract an of the general character described by the specifications.

If a supplier, I perform a commercially useful function in the supply process. As a regular dealer, I, at a minimum, own and operate the distribution equipment for bulk items. Any supplementing of my distribution equipment shall be by long-term lease agreement, and not on an ad hoc or contract-by-contract basis.

I understand that false statements made herein are punishable by Law (Sec. 53a-157), CGS, as revised).

(Name of Corporation or Firm)

(Signature & Title of Official making the Affidavit)

Subscribed and sworn to before me, this _____ day of _____ 20 _____.

Notary Public (Commissioner of the Superior Court)

My Commission Expires _____

CERTIFICATE OF CORPORATION

I, _____, certify that I am the _____
(Official) (President)

of the Corporation named in the foregoing instrument; that I have been duly authorized to affix the seal of the Corporation to such papers as require the seal; that _____, who signed said instrument on behalf of the Corporation, was then of said corporation; that said instrument was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporation powers.

(Signature of Person Certifying) (Date)

ITEM #0020765A - GUANO ABATEMENT

Description:

Work under this item shall include the abatement of accumulations of pigeon, bat, bird or other rodent/animal guano and associated work by persons who are knowledgeable, qualified, and trained in the abatement of guano and the subsequent cleaning of the affected environment.

These Specifications govern all work activities that disturb guano. All activities shall be performed in accordance with the current revision of the OSHA General Duty Clause 29 CFR 1910 Section 5(a)(1), OSHA Respiratory Protection Standard 29 CFR 1910.134, OSHA Construction Standards 29 CFR 1926 and applicable Industry Standards and Guidelines on Guano/Microbial Remediation, such as; ACGIH *Bioaerosols: Assessment and Control*, OSHA SHIB 03-10-10 *A Brief Guide to Mold in the Work Place*, and NIOSH Publication 97-146 *Histoplasmosis: Protecting Workers at Risk*.

The guano abatement work shall include the removal and disposal of all guano accumulations as identified on the Contract Plans and Specifications or as directed by the Engineer.

Deviations from these Specifications require the written approval of the Engineer.

Materials:

All materials shall be delivered to the job site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description.

No damaged or deteriorating materials shall be used. If material becomes contaminated with guano, the material shall be decontaminated or disposed of as guano waste material. The cost to decontaminate and dispose of this material shall be at the expense of the Contractor.

Fire retardant polyethylene sheet shall be in roll size to minimize the frequency of joints, with factory label indicating four (4) or six (6) mil thickness.

Six (6) mil polyethylene disposable bags.

Tape (or equivalent) capable of sealing joints in adjacent polyethylene sheets and for the attachment of polyethylene sheets to finished or unfinished surfaces must be capable of adhering under both dry and wet conditions.

Cleaning detergents, both non-toxic and biodegradable.

Spray equipment must be capable of mixing necessary chemical agents with water, generating sufficient pressure and volume; and equipped with adequate hose length to access all necessary work areas.

Sanders, grinders, wire brushes and needle-gun type removal equipment shall be equipped with a High Efficiency Particulate Air (HEPA) filtered vacuum dust collection system.

Containers for storage, transportation and disposal of guano waste material shall be impermeable and both air and watertight.

Any planking, bracing, shoring, barricades and/or temporary sheet piling, necessary to appropriately perform work activities shall meet all applicable federal, state and local regulations.

Air filtration devices and vacuum units shall be equipped with HEPA filters.

Construction Methods:

(1) Pre-Abatement Submittals and Notices

- (a) Fifteen (15) working days prior to the commencement of guano abatement work, the Contractor shall submit to the Engineer for review and acceptance and/or acknowledgment of the following:
1. Documentation dated within the previous twelve (12) months, certifying that all employees have received hazard communication training and understand the use and limits of respiratory equipment to be used; on an initial and annual basis.
 2. Documentation dated within the previous twelve (12) months, from a physician certifying that all employees who may be exposed to airborne guano and mold spores in excess of background level have been provided with an opportunity to be medically monitored to determine whether they are physically capable of working while wearing the respirator required without suffering adverse health affects. Employees shall also be informed of the specific types of respirators they shall be required to wear and the work he/she will be required to perform as well as special workplace conditions such as high temperature, high humidity and chemical contaminants to which he/she may be exposed.
 3. Documentation dated within the previous twelve (12) months, of respiratory fit testing for all employees who must don a tight-fitting face piece respirator in order to perform guano abatement activities. This fit testing shall be in accordance with qualitative procedures as detailed in 29 CFR 1910.134.
 4. Project time schedule for each phase of work.
 5. Name and qualifications of the OSHA Competent Person for the guano abatement activities, shall have a minimum of three years working experience as an environmental abatement site supervisor, shall be capable of identifying existing guano hazards and shall have the authority to implement corrective measures to

eliminate such hazards. The OSHA Competent Person shall be on-site at all times guano abatement is occurring, shall comply with applicable Federal, State and Local regulations which mandate work practices, and shall be capable of performing the work of this contract.

- (b) No abatement shall commence until a copy of all required submittals have been received and found acceptable to the Engineer. Those employees added to the Contractor's original list will be allowed to perform work only upon submittal to, and receipt of, all required paperwork by the Engineer.

(2) Guano Abatement Provisions:

(a) General Requirements

The Abatement Contractor/Subcontractor shall have an OSHA Competent Person on site and in control on the job site at all times during abatement work.

All labor, materials, tools, equipment, services, testing, insurance (with specific coverage for work on guano/spores), and incidentals which are necessary or required to perform the work in accordance with applicable governmental regulations, industry standards and codes, and these Specifications shall be provided by the Contractor. The Contractor shall be prepared to work all shifts and weekends throughout the course of this project as directed by the Engineer.

Prior to beginning work, the Contractor shall perform a visual survey of each work area and review conditions at the site for safety reasons. In addition, the Contractor shall instruct all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this project.

The Contractor shall:

- Shutdown and isolate heating, cooling, and ventilating air systems to prevent contamination and spore dispersal to the other areas of the building.

- Shut down and lock out/tag out electrical power, including all receptacles and light fixtures, when feasible. The use or isolation of electrical power will be coordinated with all other ongoing uses of electrical power at the site.

- Coordinate all power and fire alarm isolation with the appropriate representatives.

- When necessary, provide temporary power and adequate lighting and ensure safe installation of electrical equipment, including ground fault protection and power cables, in compliance with applicable electrical codes and OSHA requirements. The Contractor is responsible for proper connection and installation of electrical wiring.

If sufficient electrical service is unavailable, the Contractor may need to supply electrical power to the site by fuel operated generator(s). Electrical power supply shall be sufficient for all equipment required for this project in operation throughout the duration of the project.

In each interior work area, negative pressure must be continuously maintained until the area achieves satisfactory reoccupancy criteria and is approved by the Project Monitor to be deregulated. If interior work phases cannot be subdivided into manageable work areas that can be completed within one shift, negative air pressure must be maintained twenty-four (24) hours per day and the Contractor shall establish temporary electrical service to the site, rather than utilize generators.

Water service may not be available at the site. Contractor shall supply sufficient water for each shift to operate the decontamination shower units as well as to maintain the work areas adequately wet.

Ladders and/or scaffolds shall be in compliance with OSHA requirements, and of adequate length, strength and sufficient quantity to support the scope of work. Use of ladders/scaffolds shall be in conformance with OSHA 29 CFR 1926 Subpart L and X requirements.

Work performed at heights exceeding six feet (6') shall be performed in accordance with the OSHA Fall Protection Standard 29 CFR 1926 Subpart M including the use of fall arrest systems as applicable.

Any data provided to the Contractor regarding guano accumulations identified throughout the structure(s) is for informational purposes only. Under no circumstances shall this information be the sole means used by the Contractor for determining the presence and location of all guano accumulations. Prior to commencement of work, the **Contractor shall verify all field conditions and quantities affecting performance/completion of the work** as described in these Specifications in accordance with OSHA, USEPA, USDOT, DEP standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.

The Engineer will provide a Project Monitor to oversee the activities of the Contractor. No abatement work shall be performed until the Project Monitor is on-site. Environmental sampling may be conducted as deemed necessary by the Project Monitor.

Warning signs shall be posted at each entrance to the work area which clearly indicates the area has been regulated as a MICROBIAL REMEDIATION WORK AREA – AUTHORIZED PERSONNEL ONLY.

(b) Worker Decontamination Enclosure System

The Contractor shall establish contiguous to the Regulated Work Area, a Worker Decontamination Enclosure System consisting of Equipment Room and Clean Room in series, as detailed below. Access to the Regulated Area shall only be through this enclosure.

Access between rooms in the Worker Decontamination Enclosure System shall be through airlocks. Other effective designs are permissible. The Clean Room and Equipment Room located within the Worker Decontamination Enclosure, shall be contiguously connected with taped airtight edges, thus ensuring the sole source of airflow originates from outside the regulated areas, once a negative pressure differential within Interior Regulated Areas is established.

The Clean Room shall be adequately sized to accommodate workers and shall be equipped with a suitable number of hooks, lockers, shelves, etc., for workers to store personal articles and clothing. Changing areas of the Clean Room shall be suitably screened from areas occupied by the public.

The Equipment Room shall be of sufficient capacity to accommodate the number of workers. The Equipment Room shall be utilized by personnel to remove protective clothing, decontaminate through the use of HEPA vacuums and a wash facility, and clean off sealed waste containers ready for removal from the work area. No worker or other person shall leave a Regulated Area without decontaminating.

(c) Containment of Interior Work Areas

Pre-clean the work areas using HEPA filtered equipment (vacuum) and/or wet methods as appropriate, collecting and properly containing all dust and debris as guano contaminated waste. Vacuum units, of suitable size and capabilities for the project, shall have HEPA filters capable of trapping and retaining at least 99.97 percent of all monodispersed particles of three micrometers in diameter or larger. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

After pre-cleaning, movable objects not designated for relocation by others shall be removed from the work areas with the utmost care to prevent damage of any kind and relocated to a temporary storage location coordinated with the Engineer. The Contractor is responsible for protecting all fixed objects that are permanent fixtures or are too large to remove and remain inside the Regulated Area. Fixed objects shall be enclosed with one layer of six (6) mil polyethylene sheeting sealed with tape.

Engineering controls must be implemented to ensure that debris is not dispersed outside of the work area during cleaning/removal process. Such controls involve source containment, limited critical barriers, full poly containment enclosures and/or negative pressure enclosures, based on the size and magnitude of contamination, as directed by the Engineer, and in accordance with Industry Standards and Guidelines.

Critical barriers consisting of a minimum of one (1) layer of six (6) mil polyethylene sheeting, secured at the edges with duct tape, shall be installed to seal off all windows, doorways, skylights, ducts, grilles, diffusers, vents, light fixtures, suspended ceiling tile systems and any other openings between the Regulated Work Areas and the surrounding uncontaminated areas, including the outside of the building. Complete isolation of the work area from adjacent areas

using a minimum of one (1) layer of six (6) mil polyethylene sheeting to create an enclosure and seal with duct tape. HVAC systems within the work area cannot be operating.

HEPA filtered negative air filtration units will be used with the intake in the general work area and exhaust outdoors during removal/cleaning of large or extensive contamination areas, and/or as directed by the Engineer, so as to provide local exhaust ventilation and create a negative pressure enclosure work area. Negative pressure must be maintained continuously in each work area until the area achieves satisfactory verification criteria and is approved by the Engineer for deregulation. A sufficient number of negative air filtration units shall be utilized in each work area to create a negative pressure differential in the range of 0.02 to 0.04 inches of water column between the Regulated Area and surrounding areas, and allow a sufficient flow of air through the area to provide four (4) air changes per hour. Negative air filtration units shall be equipped with four stages of filtration, with the final stage being High Efficiency Particulate Air (HEPA) filtration, and incorporate an automatic warning system to indicate pressure drop or unit failure. Negative pressure shall be measured in each work area by a recording manometer, during the entire project.

Following construction of the containment work area, the containment shall pass a pre-abatement visual inspection by the Competent Person and the Project Monitor prior to commencement of abatement work.

(d) Alternate work area containment requirements for exterior abatement procedures

In lieu of the establishment of a negative pressure enclosure (NPE) system as described above, guano accumulations will be removed from exterior work areas within an outdoor Regulated Area(s). The regulated work areas will be established by the use of appropriately labeled barrier tape and postings, as well as source containment, poly drop cloths and local HEPA exhaust ventilation. A remote personnel decontamination unit will also be required.

(e) Personnel Protection

The Contractor shall utilize all appropriate engineering controls and safety and protective equipment while performing the work in accordance with applicable standards and guidelines.

Abatement workers should have received hazard communication awareness training on safe work practices associated with guano/microbial abatement, and health effects of guano/microbial spore exposure, be medically approved to perform such work and have received fit testing for respirator use.

Abatement workers conducting the cleaning/removal and all personnel entering the work areas will be required to wear personal protective equipment including the following minimum. The Contractors Competent Person shall ultimately make the exposure/hazard assessment judgement on whether upgraded PPE is required.

1. Negative Pressure Respirators equipped with N-95 filter cartridges
2. Disposable coveralls with a hood
3. Eye protection
4. Appropriate gloves

Respiratory protection shall be provided and shall meet the requirements of OSHA as required in 29 CFR 1910.134. A formal respiratory protection program must be implemented in accordance with 29 CFR 1910.134. The Contractor shall provide respirators from among those approved as being acceptable for protection by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

All other necessary personnel protective equipment (i.e. hardhat, work boots, safety glasses, hearing protection, etc.) required to perform the abatement work activities, as deemed necessary by the Competent Person, shall conform to all applicable federal, state and local regulations.

All other qualified and authorized persons entering into a Regulated Area (i.e. Project Monitor, Regulatory Agency Representative) shall adhere to the requirements of personnel protection as stated in this section.

Contractor shall ensure that all workers and authorized persons who enter and leave the work area use a personnel decontamination system.

Contractor shall ensure HEPA filtered local exhaust ventilation is provided in all areas where extensive guano accumulations are to be cleaned/removed to reduce the potential for airborne exposure to spores.

Non-abatement workers shall be kept out of the immediate areas where abatement is ongoing.

(f) Removal and Cleaning Methods

The general cleaning/removal procedures specified herein are to be used as a guideline throughout the project. Deviations from specified methods of removal/cleaning must be approved in writing by the Engineer prior to their implementation.

The following details the extent of each phase of operation designated for this project. Phase areas may be combined or divided at the direction of the Engineer. Proceed through the sequencing of the work phases under the direction of the Engineer.

Bridge Nos. 01708 & 03374, Route 2 EB & WB over West Road, Marlborough, CT

Abutments (on & beneath on ground cover), Piers & Structural Steel (Girders, Bearings Crossbeams, etc.) on Underside of Bridge Nos. 01708 & 03374

Using trained and appropriately protected staff, remove and dispose of all accumulations of guano, feathers, carcasses, etc. as directed by the Engineer. Clean the areas where removal occurs using biodegradable/non-toxic detergent solutions and HEPA vacuuming. Regulated area(s) shall be established at the perimeter of the work area(s), and access shall be controlled by the Contractor. Utilize dust suppression methods such as misting (not soaking) materials prior to abatement. Poly drop cloths should be used as appropriate to protect objects in direct proximity to the work areas from contamination, and prevent the release of contamination/debris to outside areas. After cleaning the area(s) should be left dry and visibly free from contamination and debris. Utilize damp wiping and HEPA filtered vacuuming techniques for final area cleanup. A remote personnel decontamination unit shall also be utilized. Waste generated from the cleaning process should be removed from the work space in sealed plastic bags to prevent dispersal of spores to non-affected building/work spaces and disposed of as general bulky C&D waste debris. Removal shall be undertaken in accordance with Industry Guidelines. Care should be exercised during guano removal/cleaning to not disturb or release any underlying lead paint which may be present. *Contractor shall be responsible for the erection and safe maintenance of any and all necessary apparatus/equipment to gain access to the work areas and perform the required abatement.*

Contractor shall wet mist all materials/accumulations/surfaces scheduled for removal/cleaning prior to commencing work to minimize airborne dust/spore generation and use damp methods throughout the removal/cleanup process.

Contaminated materials, accumulations and debris that are to be removed must be removed with as little disturbance as possible.

The Contractor shall promptly place the removed material in disposal containers (six (6) mil polyethylene bags, fiber drums, etc.) as it is removed. Large components removed intact may be wrapped in two (2) layers of six (6) mil polyethylene sheeting secured with tape. As the disposal containers are filled, the Contractor shall promptly seal the containers and clean the containers before removal from the work area. Bags shall be securely sealed to prevent accidental opening and leakage by taping in gooseneck fashion. Materials with sharp-edged components (e.g. nails, screws, metal lath, tin sheeting) which could tear polyethylene bags and sheeting shall be placed in clean drums and sealed with locking ring tops. All waste containers shall be leak-tight, (typically consisting of two layers of 6 mil poly (or bags)). Containers shall be decontaminated by wet cleaning and HEPA vacuuming within the decontamination area prior to exiting the regulated area. On site storage of waste containers shall be as dictated and allowed by the Engineer within the extent of construction operations. On site storage of waste containers in public areas, outside of construction containment areas shall not be allowed.

Following material/accumulation removal, Contractor shall thoroughly clean the work area. Cleaning of surfaces and content items, shall utilize wet/damp wiping coupled with a non-toxic, biodegradable detergent wash. Following cleaning, the areas shall be dried and HEPA vacuumed to remove all associated dirt and debris.

The use of biocides, including chlorine bleach, is not recommended during guano/microbial abatement. Biocides are toxic to humans and may cause damage to underlying building substrates. Any use of biocides, fungicides, disinfectants or encapsulants can be done only with the written approval of the Engineer.

After cleaning, the Competent Person and Project Monitor shall perform a post remediation visual inspection of each work area to ensure remediation is complete, that no dust or debris remains on surfaces in the work areas as the result of removal/cleaning operations and the areas have been dried. All surfaces within the Regulated Work Areas, including but not limited to ledges, beams, and hidden locations shall be inspected for visible residue. Evidence of guano/microbial accumulations/contamination and/or debris identified during this inspection will necessitate further cleaning as heretofore specified. The area shall be re-cleaned at the Contractor's expense, until the standard of cleaning is achieved.

If at any time, the Project Monitor should suspect contamination of areas outside the Regulated Area, the Contractor shall immediately stop all abatement work and take steps to decontaminate these areas and eliminate causes of such contamination.

(g) Quality Assurance/Verification

At a minimum, the affected areas shall be free of visible guano accumulations and debris, free of moldy odors and be left dry.

Surface and airborne types and levels of microbial spores may be tested by the Project Monitor upon completion of the cleaning and sanitizing to assure that the affected areas have been returned to a level equivalent to non-affected/ambient areas. Where samples are collected, acceptable results shall be considered levels less than background (interior non-affected and/or ambient) areas for all microbial genera with similar microbial types and rank order and which do not indicate amplification. Any samples collected shall be analyzed at a laboratory accredited by the AIHA EMPAT program. When sampling is performed, it shall be conducted no less than 1 hour after abatement cleanup work has been completed.

The Engineers on-site Project Monitor will verify compliance with these specifications, conduct post-abatement work area inspections and/or collect post abatement samples, photographs, and/or videos of the cleaned surfaces/work areas as deemed necessary.

If any areas fail inspection/testing, the failed area shall be re-cleaned by the Contractor and retested at no cost to the Engineer.

(h) Post Abatement Work Area Deregulation

The Contractor shall remove all remaining polyethylene, including critical barriers, and Decontamination Enclosure Systems leaving negative air filtration devices in operation as long as feasible. HEPA vacuum and/or wet wipe any visible residue which is uncovered during this process. All waste generated during this disassembly process shall be discarded as abatement waste.

A final visual inspection of the work area shall be conducted by the Competent Person and the Project Monitor to ensure that all visible accumulations of suspect materials have been removed and that no equipment or materials associated with the abatement project remain.

The Contractor shall restore all work areas and auxiliary areas utilized during work to conditions equal to or better than original. Any damage caused during the performance of the work activity shall be repaired by the Contractor at no additional expense to the Engineer.

(i) Waste Disposal

Waste generated from the removal of guano, while an environmental health hazard, is not classified as a biological waste or hazardous waste. All waste materials generated during abatement shall be disposed of as bulky C&D waste in accordance with CTDEP Solid Waste Management requirements. Contractor shall supply to the Engineer completed shipping papers for each load of waste transported for disposal, indicating the solid waste landfill name and location and quantity of waste disposed of.

(3) Project Closeout Data:

The Contractors site supervisor shall keep a logbook to document daily site activity. The log book shall document the preparation tasks, schedule, engineering controls utilized, abatement work conducted, daily lists of employees on site, exposure/hazard assessment judgements, negative pressure manometric measurement readings, PPE utilized, waste shipping papers, etc.

The Contractor will submit the original log book and any other related documentation to the Engineer within 30 days of completion of work.

Final payment to the Contractor shall not be approved without submission of the reporting materials.

Method of Measurement:

The quantity of guano abatement shall be the actual number of cubic feet removed for disposal, completed and accepted, within the lines of the work area as shown on the plans or as ordered by the Engineer.

Basis of Payment:

The work will be paid for at the contract unit price per cubic foot for “Guano Abatement”, completed, which price shall include the specialty services of the Guano Removal Contractor including: labor, materials, equipment, insurance, submittals, personal protective equipment, temporary enclosures, apparatus/equipment necessary for work area access, utility costs, incidentals, fees and labor incidental to the removal, transport and disposal of guano, including close out documentation.

Final payment for guano abatement will not be made until all the project closeout data submittals have been completed and provided to the Engineer. Once the completed package has been received in its entirety, the Engineer will make the final payment to the Contractor.

<u>Pay Item</u>	<u>Pay Unit</u>
Guano Abatement	Cubic Foot

ITEM #0020905A—LEAD COMPLIANCE FOR ABRASIVE BLAST CLEANING AND MISCELLANEOUS TASKS

Description: Work under this item shall include the special handling measures and work practices required for abrasive blast cleaning activities and other miscellaneous tasks, principally involved in bridge coating removal/painting and other renovation operations, which impact materials containing or covered by lead paint. Examples of typical miscellaneous exterior tasks includes: work impacting signs, guiderails, minor bridge rehabilitation, catenary structures, canopy structures, spot/localized paint removal, etc. Lead paint includes paint found to contain any detectable amount of lead by Atomic Absorption Spectrophotometry (AAS) or X-Ray Fluorescence (XRF).

All activities shall be performed in accordance with the OSHA Lead in Construction Regulations (29 CFR 1926.62), the USEPA RCRA Hazardous Waste Regulations (40 CFR Parts 260 through 274), the CTDEEP Hazardous Waste Regulations (RCSA 22a-209-1 and 22a-449(c)), and SSPC Guide 6 – Guide for Containing Debris Generated During Paint Removal Operations.

All activities shall be performed by individuals with appropriate levels of OSHA lead awareness and hazard communication training, supervised at all times by the Contractor's Competent Person, and periodically inspected by personnel working for an industrial hygiene firm (IH firm), retained by the Contractor, under the direct supervision of a Certified Industrial Hygienist (CIH). Periodic inspections shall be conducted at least weekly while work impacting lead is occurring, but shall be as frequent as necessary to maintain Contractor compliance with the OSHA Lead Construction Standards. The Contractor's Competent Person shall be on-Site at all times that the work impacting lead is being performed and shall be capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and has authorization to take prompt corrective measures to eliminate them.

Deviations from these Specifications require the written approval of the Engineer.

This item does not include the work to remove existing paint. Refer to other Contract items for paint removal special provisions.

Materials:

All materials shall be delivered to the Site in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name and product technical description, with MSDS sheets as applicable.

No damaged or deteriorating materials shall be used. If material becomes contaminated with lead, the material shall be decontaminated or disposed of as lead-containing waste material. The cost to decontaminate and dispose of said material shall be at the Contractor's expense.

The following material requirements shall be met, where applicable:

Fire retardant polyethylene sheet shall be in roll size to minimize the frequency of joints, with factory label indicating minimum six (6) mil thickness.

Polyethylene disposable bags shall be minimum six (6) mils thick.

Tape (or equivalent product) capable of sealing joints in adjacent polyethylene sheets and for the attachment of polyethylene sheets to finished or unfinished surfaces must be capable of adhering under both dry and wet conditions.

Cleaning Agents and detergent shall be lead specific, such as TriSodium Phosphate (TSP).

Chemical strippers and chemical neutralizers shall be compatible with the substrate as well as with each other. Such chemical stripper shall contain less than 50% volatile organic compounds (VOCs) by weight in accordance with RCSA 22a-174-40 Table 40-1.

Labels and warning signs shall meet 29 CFR 1926.62, 40 CFR 260 through 274 and 49 CFR 172 as appropriate.

Air filtration devices and vacuum units shall be equipped with High-Efficiency Particulate Air (HEPA) filters.

Construction Methods:

(1) Pre-Abatement Submittals and Notices

A. Prior to the start of **any** work that will generate hazardous lead waste above conditionally exempt small quantities (greater than 100 kg/month or greater than 1000 kg stored at any time), the Contractor shall obtain from the Engineer, on a contiguous per Site basis, a temporary EPA Hazardous Waste Generators ID number, in accordance with this Item #0020905A, unless otherwise directed by the Engineer. Temporary EPA ID numbers are good for six (6) months from the date they are issued and can be extended once, for a maximum of six (6) months and shall not be used for longer than one (1) year. The Contractor shall notify the Engineer when an extension is needed.

B. Fifteen (15) working days prior to beginning work that impacts lead paint, the Contractor shall submit four (4) copies of each of the following to the Engineer:

1. A written Site-specific Lead Compliance Work Plan, prepared and stamped by a Certified Industrial Hygienist (CIH) that covers all workers on the Project (Contractor, Subcontractor and CTDOT representatives). The Lead Compliance Work Plan shall be prepared in accordance with 29 CFR 1926.62(e), and shall include: descriptions of each activity impacting lead; procedures for engineering controls, methods of containment, work practices, and administrative controls to be employed; daily on-Site inspections by the Competent Person; periodic on-Site inspections by IH firm personnel (describe

frequency and inspection criteria); hazard communication/training; medical surveillance; biological monitoring; exposure assessment; air monitoring; personal protective equipment (PPE); respiratory protection; housekeeping; decontamination; procedures for waste containment, storage, handling and disposal; contents of the job completion close-out report; and all other procedures that may be necessary to comply with 29 CFR 1926.62 and 40 CFR 260 – 274 and minimize employee exposure and prevent the spread of lead contamination outside the Regulated Area, as defined herein.

2. Copies of all employee certificates, dated within the previous twelve (12) months, relating to OSHA lead awareness and hazard communication training and training in the use of lead-safe work practices. SSPC training programs, such as SSPC C-5 Deleading of Industrial Structures may be accepted as meeting these requirements if it can be demonstrated that such training addressed all required OSHA topics.

This information shall be updated and resubmitted annually, or as information changes, for the duration of lead removal work in order to verify continued compliance.

3. Name and qualifications of Contractor's OSHA Competent Person, as defined under 29 CFR 1926.62, who will be on-Site at all times that the work impacting lead paint is being performed.
4. Name and qualifications of IH firm personnel that will be performing the periodic on-Site inspections. Such personnel shall work under the direct supervision of the same CIH who stamped the Lead Compliance Work Plan and have training within the previous twelve (12) months for OSHA lead awareness and the use of lead-safe work practices or equivalent. Such personnel shall also have a minimum of two (2) years' work experience related to the OSHA Lead in Construction Standard and be capable of recognizing the hazards associated therewith.
5. Documentation from the Contractor, on company letterhead and signed by the Contractor, certifying that all employees listed therein have received the following, and are medically fit to perform the work impacting lead:
 - a. medical monitoring within the previous twelve (12) months, as required in 29 CFR 1926.62;
 - b. biological monitoring within the previous six (6) months, as required in 29 CFR 1926.62;
 - c. respirator fit testing within the previous twelve (12) months, as required in 29 CFR 1910.134 (for employees who wear a tight-fitting face piece respirator)

This information shall be updated and resubmitted every six (6) months, or as information changes, for the duration of lead removal work in order to verify continued compliance.

6. Name(s) of the proposed non-hazardous, non RCRA lead debris waste disposal facility.

7. Name(s) of the proposed scrap metal recycling facility. The Contractor shall submit to the Engineer all documentation necessary to demonstrate the selected facility is able to accept lead-painted metal.
8. Name(s) of the proposed hazardous waste disposal facility (selected from the Department-approved list provided under Item 0603222A), and copies of each facilities' acceptance criteria and sampling frequency requirements.
9. Copies of the proposed hazardous waste transporters' current USDOT Certificate of Registration for Hazardous Materials Transport, and the proposed transporters' current Hazardous Waste Transporter Permits for the State of Connecticut and the waste destination State.
10. Negative exposure assessments conducted within the previous twelve (12) months documenting that employee exposure to lead for each task is below the OSHA Action Level of 30 $\mu\text{g}/\text{m}^3$. If a negative exposure assessment has not been conducted, the Contractor shall submit its air monitoring program for the work tasks as part of the Lead Compliance Work Plan. Until a negative exposure assessment is developed for each task impacting lead paint, the Contractor shall ensure that all workers and authorized persons entering the Regulated Area wear protective clothing and respirators in accordance with OSHA 29 CFR 1926.62.

No activity shall commence until all required submittals have been received and found acceptable to the Engineer. Those employees added to the Contractor's original list will be allowed to perform work only upon submittal of acceptable documentation to, and review by, the Engineer.

The Contractor shall provide the Engineer with a minimum of 48 hours' notice in advance of scheduling, changing or canceling work activities.

(2) Lead Abatement Provisions

A. General Requirements:

All employees of the Contractor who perform work impacting lead paint shall be properly trained to perform such duties. In addition, the Contractor shall instruct all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this Project.

The Contractor shall provide all labor, materials, tools, equipment, services, testing, and incidentals which are necessary or required to perform the work in accordance with applicable governmental regulations, industry standards and codes, and these Specifications.

Prior to beginning work, the Engineer and Contractor shall perform a visual survey of each work area and review conditions.

As necessary, the Contractor shall:

- Shut down and lock out electrical power, including all receptacles and light fixtures, where feasible. The use or isolation of electrical power will be coordinated with all other ongoing uses of electrical power at the Site.
- Coordinate all power and fire alarm isolation with the appropriate representatives.

If adequate electrical supply is not available at the Site, the Contractor shall supply temporary power. Such temporary power shall be sufficient to provide adequate lighting and power the Contractor's equipment. The Contractor is responsible for proper connection and installation of electrical wiring and shall ensure safe installation of electrical equipment in compliance with applicable electrical codes and OSHA requirements.

If water is not available at the Site for the Contractor's use, the Contractor shall supply sufficient water for each shift to operate the wash facility/decontamination shower units in addition to the water needed at the work area.

The Engineer may provide a Project Monitor to monitor compliance of the Contractor and protect the interests of the Department. In such cases, no activity impacting lead paint shall be performed until the Project Monitor is on-Site. Where no Project Monitor is provided, Contractor shall proceed at the direction of the Engineer. Environmental sampling, including ambient air sampling, TCLP waste stream sampling, and dust wipe sampling, will be conducted by the State as it deems necessary throughout the Project. Any Project Monitor provided by the Engineer is supplementary to the requirement for the Contractor to have periodic inspections performed at a frequency to ensure/document Contractor compliance with the regulations and the requirements of the Contractor's Lead Compliance Work Plan. Air monitoring to comply with the Contractor's obligations under OSHA remains solely the responsibility of the Contractor.

If at any time, procedures for engineering, work practice, administrative controls or other topics are anticipated to deviate from those documented in the submitted and accepted Lead Compliance Work Plan, the Contractor shall submit a modification of its existing plan for review and acceptance by the Engineer prior to implementing the change.

If air samples collected outside of the Regulated Area during activities impacting lead paint indicate airborne lead concentrations greater than original background levels or 30 ug/m³, whichever is larger, or if at any time visible emissions of lead paint extend out from the Regulated Area, an examination of the Regulated Area shall be conducted and the cause of such emissions corrected. Cleanup of surfaces outside the Regulated Area using HEPA vacuum equipment or wet cleaning techniques shall be done prior to resuming work.

Work outside the initial designated area(s) will not be paid for by the Engineer. The Contractor will be responsible for all costs incurred from these activities including repair of any damage.

B. Regulated Area:

The Contractor shall establish a Regulated Area through the use of appropriate barrier tape or other means to control unauthorized access into the area where activities impacting lead paint are occurring. Warning signs meeting the requirements of 29 CFR 1926.62 shall be posted at all approaches to Regulated Areas. These signs shall read:

DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK, OR SMOKE IN THIS AREA

The Contractor shall also implement appropriate engineering controls, such as poly drop cloths, local exhaust ventilation, wet dust suppression methods, etc., as necessary, or where Abrasive Blast Cleaning is to be performed, a full negative pressure enclosure, in accordance with Item #0603563A “Class I Containment & Collection of Surface Preparation Debris (Site No. X),” and wet dust suppression methods, etc., as necessary, and as approved by the Engineer, to prevent the spread of lead contamination beyond the Regulated Area in accordance with the Contractor’s approved Lead Compliance Work Plan. Should the previously submitted plan prove to be insufficient to contain the contamination, the Contractor shall submit a modified plan for review by the Engineer.

Any air exhausted from the containment enclosure, abrasive-recycling equipment or vacuum equipment shall be passed through a HEPA filtering system. The Contractor is responsible for the design, effectiveness and maintenance of this filtering system. No discharge of debris dust shall be allowed.

C. Wash Facilities:

The Contractor shall provide handwash facilities in compliance with 29 CFR 1926.51(f) and 29 CFR 1926.62 regardless of airborne lead exposure.

If employee exposure to airborne lead exceeds the OSHA Permissible Exposure Limit of 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), shower rooms must be provided. The Shower Room shall be of sufficient capacity to accommodate the number of workers. One (1) shower stall shall be provided for each eight (8) workers. Showers shall be equipped with hot and cold or warm running water. Shower water shall be collected and filtered using best available technology and disposed of in accordance with all Federal, State and local laws, regulations and ordinances.

D. Personal Protection:

The Contractor shall initially determine if any employee performing construction tasks impacting lead paint may be exposed to lead at or above the OSHA Action Level of 30 $\mu\text{g}/\text{m}^3$. Assessments shall be based on initial air monitoring results as well as other relevant information. The Contractor may rely on historical air monitoring data obtained within the past twelve (12) months under workplace conditions closely resembling the process, type of material, control methods, work practices and environmental conditions used and prevailing in the Contractors current operations to satisfy the exposure assessment requirements. Monitoring shall continue as specified in the OSHA standard until a negative exposure assessment is developed.

Until a negative exposure assessment is developed for each task impacting lead paint, the Contractor shall ensure that all workers and authorized persons entering the Regulated Area wear protective clothing and respirators in accordance with OSHA 29 CFR 1926.62. Protective clothing shall include impervious coveralls with elastic wrists and ankles, head covering, gloves and foot coverings. Sufficient quantities shall be provided to last throughout the duration of the Project.

Protective clothing provided by the Contractor and used during chemical removal operations shall be impervious to caustic materials. Gloves provided by the Contractor and used during chemical removal shall be of neoprene composition with glove extenders.

Respiratory protective equipment shall be provided and selection shall conform to 42 CFR Part 84, 29 CFR Part 1910.134, and 29 CFR Part 1926.62. A formal respiratory protection program must be implemented in accordance with 29 CFR Part 1926.62 and Part 1910.134.

E. Air Monitoring Requirements:

The Contractor shall:

1. Provide air monitoring equipment including sample filter cassettes of the type and quantity required to properly monitor operations and personnel exposure surveillance throughout the duration of the Project.
2. Conduct initial exposure monitoring to determine if any employee performing construction tasks impacting lead paint may be exposed to lead at or above the OSHA Action Level of 30 micrograms per cubic meter. Monitoring shall continue as specified in the OSHA standard until a negative exposure assessment is developed.
3. Conduct personnel exposure assessment air sampling, as necessary, to assure that workers are using appropriate respiratory protection in accordance with OSHA Standard 1926.62 or the approved Lead Compliance Work Plan. Documentation of air sampling results must be recorded at the work Site within twenty-four (24) hours and shall be available for review until the job is complete.

F. Periodic Inspections of Abrasive Blast Cleaning Operations:

Where Abrasive Blast Cleaning Operations are to take place, the Contractor shall retain the services of IH firm personnel, working under the direct supervision of the same CIH who stamped the Lead Compliance Work Plan, to perform periodic inspections of the Site work practices and engineering controls, on a frequency to ensure/document Contractor compliance with the regulations. Periodic inspections shall be performed at least weekly while work impacting lead is occurring, but shall be at the frequency necessary to maintain Contractor compliance with the OSHA Lead in Construction Standard. Any exceptions to 29 CFR 1926.62 or the accepted Lead Compliance Work Plan shall be reported to the Contractor and the Engineer prior to the IH firm personnel leaving the Site and corrected immediately.

All findings of such periodic inspections shall be documented in writing to the Engineer no later than ten (10) days following the Site visit. At a minimum, the inspection report shall document the following:

1. Description of current work activities
2. Description of engineering controls being implemented
3. Description of PPE being utilized
4. Description of visual review of containment system effectiveness
5. Results of all air sampling received since date of last report
6. Narrative interpreting sample results and making recommendations as necessary
7. Description of waste management practices being utilized
8. Descriptions of exceptions noted and corrective action taken

The report shall include a signature from the IH firm employee that performed the Site inspection verifying that the Contractor's work practices are in compliance with 29 CFR 1926.62 and the previously submitted and accepted Lead Compliance Work Plan. The CIH shall sign verifying their concurrence.

G. Lead Abatement Procedures:

The Contractor's Competent Person shall be at the Site at all times during work impacting lead.

Work impacting lead paint shall not begin until authorized by the Engineer, following a pre-work visual inspection by the Project Monitor or Engineer to verify existing conditions.

Any activity impacting lead painted surfaces shall be performed in a manner which minimizes the spread of lead dust contamination and generation of airborne lead.

The Contractor shall conduct exposure assessments for all tasks which impact lead paint in accordance with 29 CFR 1926.62(d) and shall implement appropriate personal protective equipment until negative exposure assessments are developed.

All work impacting the lead containing/coated materials shall be conducted within an established Regulated Area with a remote wash facility/decontamination system in accordance with "C. Wash Facilities" and the OSHA Lead in Construction Standard. In

accordance with 29 CFR 1926.62, engineering controls and work practices shall be utilized to prevent the spread of lead dust and debris beyond the Regulated Area and limit the generation of airborne lead. For Abrasive Blast Cleaning Operations, such engineering controls shall include the use of a full negative pressure enclosure (NPE) in accordance with SSPC Guide 6 and Item #0603563A. All wastes containing lead paint shall be properly contained and secured for storage, transportation and disposal.

The Contractor shall ensure proper entry and exit procedures for workers and authorized persons who enter and leave the Regulated Area. All workers and authorized persons shall leave the Regulated Area and proceed directly to the wash or shower facilities where they will HEPA vacuum gross debris from work suit, remove and dispose of work suit, wash and dry face and hands, and vacuum clothes. Lead chips and dust must not be removed by blowing or shaking of clothing. Wash water shall be collected, filtered, and disposed of in accordance with Federal, State and local water discharge standards. Any permit required for such discharge shall be the responsibility of the Contractor.

Personnel shall be advised that they must not eat, drink, smoke, chew gum or tobacco, nor apply cosmetics while in the Regulated Area.

Data from the limited lead testing performed by the Engineer is documented in the reports listed in the “Notice to Contractor – Hazardous Materials Investigations” or is presented herein. Under no circumstances shall this information be the sole means used by the Contractor for determining the extent of lead painted materials. The Contractor shall be responsible for verification of all field conditions affecting performance of the work as described in these Specifications in accordance with OSHA, USEPA, USDOT and CTDEEP standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.

Bridge Nos. 01708 & 03374, Route 2 EB & WB over West Road, Marlborough, CT

- Detectable amounts of lead were identified on the painted structural steel/metal bridge components.
- No detectable amounts of lead were identified on the painted concrete bridge abutments/piers.

Girders, Cross Beams, Beam Ends, Bearings, Rockers, Diaphragms, Connection plates, etc.	Metal	Grey	8.9-10.1 mg/cm²
Concrete abutments/piers (graffiti cover paint)	Concrete	Grey	0.0 mg/cm² ND<0.10% by weight

- The projected paint waste stream from the structural steel/metal bridge components at Bridge Nos. 01708 & 03374 was characterized as CTDEEP/RCRA hazardous waste.

Bridge Nos. 01708 & 03374 paint debris (structural steel)	350 mg/L
--	-----------------

- **Since no detectable amounts of lead in paint were identified on the structural concrete abutments/piers, any paint waste generated from the abutments/piers would be characterized as non-hazardous, non-RCRA.**

The Contractor shall submit a Lead Compliance Work Plan to CTDOT outlining the exact procedures that will be used to perform the work, contain the spread of lead debris and protect the employees performing the required renovation work impacting the lead paint. No work shall be started by the Contractor until the Work Plan is approved by the Engineer.

All work impacting the lead paint materials shall be conducted within an established Regulated Area with a remote wash facility/decontamination system in accordance with “C. Wash Facilities” and the OSHA Lead in Construction Standard. In accordance with 29 CFR 1926.62, engineering controls and work practices shall be utilized to prevent the spread of lead dust and debris beyond the Regulated Area and limit the generation of airborne lead. All wastes containing lead paint shall be properly contained and secured for storage, transportation and disposal.

Where abrasive blast cleaning techniques are to be utilized on surfaces coated with lead paint they must be conducted in accordance with the OSHA worker protection and USEPA RCRA/CTDEEP waste disposal standards, and shall be conducted in accordance with Item #0603479A and 06034780A “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site Nos. 1 & 2)” following SSPC-SP10 “Near White Blast Cleaning” procedures and utilizing a full negative pressure enclosure (NPE) in accordance with SSPC Guide 6 and Item #0603563A.

At Bridge Nos. 01708 & 03374, The Engineer has characterized the projected paint waste stream associated with the painted metal bridge surfaces as CTDEEP/RCRA hazardous waste. If the paint is to be removed from the bridge surfaces by abrasive blast cleaning and/or miscellaneous tasks, the paint shall be handled and disposed of in accordance Item #0603222A “Disposal of Lead Debris from Abrasive Blast Cleaning.”

Any scrap metal components generated shall be segregated and recycled as scrap metal at the Contractor’s previously submitted scrap metal recycling facility. The recycling of scrap metal (regardless of lead paint concentration) is exempt from USEPA RCRA and CTDEEP Hazardous Waste Regulation.

Should lead contamination be discovered outside of the Regulated Area, the Contractor shall immediately stop all work in the Regulated Area, eliminate causes of such contamination and take steps to decontaminate non-work areas.

Special Requirements for miscellaneous renovation activities impacting lead (other than abrasive blast cleaning operations):

1. Demolition/Renovation:

- a. Demolish/renovate in a manner which minimizes the spread of lead contamination and generation of lead dust.
- b. Implement dust suppression controls, such as misters or local exhaust ventilation, to minimize the generation of airborne lead dust.
- c. Segregate work areas from non-work areas through the use of barrier tape or drop cloths.
- d. Clean up immediately after renovation/demolition has been completed.

2. Chemical Removal (if allowed by the Engineer):

- a. Apply chemical stripper in quantities and for durations specified by manufacturer.
- b. Where necessary, scrape lead paint from surface down to required level of removal (such as stabilized surface or bare substrate with no trace of residual pigment). Use sanding, hand scraping, and dental picks to supplement chemical methods as necessary.
- c. Apply neutralizer compatible with substrate and chemical agent to substrate following removal in accordance with manufacturer's instructions.
- d. Protect adjacent surfaces from damage from chemical removal.
- e. Maintain a portable eyewash station in the work area.
- f. Require that workers wear respirators that protect them from chemical vapors.
- g. Do not apply caustic agents to aluminum surfaces.

3. Mechanical Paint Removal:

- a. Provide sanders, grinders, rotary wire brushes, or needle gun removers equipped with a HEPA filtered vacuum dust collection system. Cowling on the dust collection system for orbital-type tools must be capable of maintaining a continuous tight seal with the surface being abated. Cowling on the dust collection system for reciprocating-type tools shall promote an effective vacuum flow of loosened dust and debris. Inflexible cowlings may be used on flat surfaces only. Flexible contoured cowlings are required for curved or irregular surfaces.

- b. Provide HEPA vacuums that are high performance designed to provide maximum static lift and maximum vacuum system flow at the actual operating vacuum condition with the shroud in use. The HEPA vacuum shall be equipped with a pivoting vacuum head.
- c. Remove lead paint from surface down to required level of removal (i.e. stabilized surface, bare substrate with no trace of residual pigment, etc.). Use chemical methods, hand scraping, and dental picks to supplement abrasive removal methods as necessary.
- d. Protect adjacent surfaces from damage from abrasive removal techniques.
- e. "Sandblasting" or other abrasive blast cleaning type removal techniques shall not be allowed unless in accordance with methods as specified within this Item.

4. Component Removal/Replacement:

- a. Wet down components which are to be removed to reduce the amount of dust generated during the removal process.
- b. Remove components utilizing hand tools, and follow appropriate safety procedures during removal. Remove the components by approved methods which will provide the least disturbance to the substrate material. Do not damage adjacent surfaces.
- c. Clean up immediately after component removals have been completed. Remove any dust located behind the component removed.

H. Prohibited Removal Methods:

The use of heat guns in excess of 700 °Fahrenheit to remove lead paint is prohibited.

The use of sand, steel grit, air, CO₂, baking soda, water jet, or any other blasting media to remove lead or lead paint without the use of a HEPA ventilated contained negative pressure enclosure is prohibited.

Power/pressure washing shall not be used to remove lead paint, unless explicitly specified for use by the Engineer.

Compressed air shall not be utilized to remove lead paint, unless explicitly specified for use by the Engineer.

Power tool assisted grinding, sanding, cutting, or wire brushing of lead paint without the use of cowed HEPA vacuum dust collection systems is prohibited.

Lead paint burning, busting of rivets painted with lead paint, welding of materials painted with lead paint, and torch cutting of materials painted with lead paint is prohibited. Where cutting, welding, busting, or torch cutting of materials is required, lead paint in the affected area must be removed first.

Chemical stripping of coatings from bridge components is prohibited in areas where Abrasive Blast Cleaning is to be performed, and is generally prohibited in all areas unless specifically allowed by the Engineer.

Chemical strippers containing Methylene Chloride are always prohibited.

I. Clean-up and Visual Inspection:

The Contractor shall remove and containerize all lead waste material and visible accumulations of debris, paint chips and associated items.

During clean-up the Contractor shall use rags and sponges wetted with lead-specific detergent and water as well as HEPA filtered vacuum equipment.

The Engineer will conduct a visual inspection of the work area(s) in order to document that all surfaces have been maintained as free as practicable of accumulations of lead in accordance with 29 CFR 1926.62(h). If visible accumulations of waste, debris, lead paint chips or dust are found in the work area, the Contractor shall repeat the cleaning, at the Contractor's expense, until the area is in compliance. The visual inspection will detect incomplete work, damage caused by the abatement activity, and inadequate clean up of the work Site.

During Abrasive Blast Cleaning Operations:

All debris shall be contained and vacuum collected daily or more frequently as directed by the Engineer, due to debris buildup. Such debris, abrasive blast residue, rust and paint chips shall be stored in leakproof storage containers in the secured storage area, or as directed by the Engineer. The storage containers and storage locations shall be reviewed by and be acceptable to the Engineer and shall be located in areas not subject to ponding.

All storage containers (roll offs or drums) shall have a protective liner and removable lid. These containers shall not have any indentations or damage that would allow seepage of the contained material.

If 55 gallon barrels are used, staging is required: 55 gallon barrels shall be stored together in two (2) rows of five (5). The Contractor shall maintain a minimum lane clearance of 36 inches between each (barrel lot of ten (10)).

The Contractor shall maintain a secure storage area, which shall be large enough to handle all debris. The Contractor shall store debris only in the secured storage area. During abrasive blast cleaning operations, all surface preparation debris shall be vacuum collected from the containment enclosure and removed to the abrasive recycling reclaimer unit, and the coating debris shall be conveyed to the secured storage area at the conclusion of the work shift. The Contractor shall account for all coating debris conveyed to the secured storage area and all coating debris transported from the Project for disposal.

The secure storage area shall consist of an eight- (8-) foot high fenced-in area with a padlocked entrance. Storage containers shall not be used on the Project until and unless they have been reviewed and approved by the Engineer. Storage containers and areas shall be located so as not to cause any traffic hazard. Container storage areas shall be in locations that are properly drained, where runoff water shall not be allowed to pool, and shall be out of the 100-year flood plain. The containers shall be placed on pallets or other approved material and not directly on the ground.

Storage containers shall be closed and covered with a waterproof tarpaulin at all times except during placement, sampling and disposal of debris.

J. Post-Work Regulated Area Deregulation:

Following an acceptable visual inspection, any engineering controls implemented may be removed.

A final visual inspection of the work area shall be conducted by the Competent Person and the Project Monitor or Engineer to ensure that all visible accumulations of suspect materials have been removed and that no equipment or materials associated with the lead paint removal remain. If this final visual inspection is acceptable, the Contractor will reopen the Regulated Area and remove all associated signs.

The Contractor shall restore all work areas and auxiliary areas used during work to conditions equal to or better than original. Any damage caused during the performance of the work activity shall be repaired by the Contractor at no additional expense to the State.

K. Waste Disposal/Recycling:

Metallic debris shall be segregated and recycled as scrap metal at an approved metal recycling facility.

Concrete, brick, etc. coated with any amount of lead paint cannot be crushed, recycled or buried on-site to minimize waste disposal unless tested and found to meet the RSR GA/Residential standards.

All hazardous lead debris shall be disposed of in accordance with Item 0603222A "Disposal of Lead Debris from Abrasive Blast Cleaning."

L. Project Closeout Data:

Provide the Engineer, within thirty (30) days of completion of the work under this item, a compliance package which shall include the following:

1. Competent person's (supervisor) job log;

2. Certification that all requirements of the Lead Compliance Work Plan and OSHA Lead in Construction Standards, including training, medical surveillance, biological monitoring and medical removal protection, have been followed;
3. Copies of each periodic inspection report;
4. Report on regulatory compliance prepared by the CIH based on the periodic inspections performed.
5. OSHA-compliant personnel air sampling data;
6. Completed waste shipment papers for non-hazardous lead debris waste disposal or recycling and scrap metal recycling.

M. Non Compliance:

Failure of the Contractor to implement the requirements of 29 CFR 1926.62, its Lead Compliance Work Plan, or any other requirement of this item will, at the sole discretion of the Engineer, result in the suspension of all Contract work until such deficiencies are corrected.

Method of Measurement:

This item will include all noted services, equipment, facilities, testing and other associated work, including up to three (3) CTDOT Project representatives. Services provided to any CTDOT Project representatives in excess of three (3) representatives will be measured for payment in accordance with Article 1.09.04 – “Extra and Cost-Plus Work.”

1. Within thirty (30) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for acceptance a breakdown of its lump sum bid price for this item detailing:
 - a. The development costs associated with preparing the Lead Compliance Work Plan in accordance with these Specifications.
 - b. The cost per month for the duration of the Project to implement the Lead Compliance Work Plan and provide the services of the CIH and IH firm.
2. If the lump sum bid price breakdown is unacceptable to the Engineer; substantiation showing that the submitted costs are reasonable shall be required.
3. Upon acceptance of the payment schedule by the Engineer, payments for work performed will be made as follows:
 - a. The lump sum development cost will be certified for payment.
 - b. The Contractor shall demonstrate to the Engineer monthly that the Lead Compliance Work Plan has been kept current and is being implemented and the monthly cost will be certified for payment.

- c. Any month where the Lead Compliance Work Plan is found not to be current or is not being implemented, the monthly payment for this item will be deferred to the next monthly payment estimate. If the Lead Compliance Work Plan is not current or being implemented for more than thirty (30) calendar days, there will be no monthly payment.
- d. Failure of the Contractor to implement the Lead Compliance Work Plan in accordance with this Specification will result in the withholding of all Contract payments.

Basis of Payment:

The lump sum price bid for this item shall include: services, materials, equipment, all permits, notifications, submittals, personal air sampling, personal protection equipment, incidentals, temporary enclosures, fees and labor incidental to activities impacting lead removal, treatment and handling of lead contaminated materials and the transport and disposal of any non-hazardous, non RCRA lead debris waste and scrap metal.

Final payment will not be made until all Project closeout data submittals have been completed and provided to the Engineer. Once the completed package has been received in its entirety and has been accepted by the Engineer, final payment will be made to the Contractor.

<u>Pay Item</u>	<u>Pay Unit</u>
Lead Compliance for Abrasive Blast Cleaning & Miscellaneous Tasks	Lump Sum

ITEM #0202530A – REMOVAL OF BITUMINOUS SIDEWALK

Work under this item shall conform to the requirements of Section 2.02, amended as follows:

2.02.01 – Description: Add the following:

Bituminous sidewalks or driveway ramps shall be removed and disposed of in accordance with these specifications, where shown on the contract plans or as ordered by the Engineer.

2.02.03 –Construction Methods: Add the following:

Wherever portions of bituminous sidewalks or driveway ramps are to be removed, such removals shall be made to neat lines. Partial removals shall generally be to existing joints except when a location other than a joint is set as the limit by the Engineer due to construction staging limits. At removal limits where a joint is not present, the Contractor shall sawcut the bituminous full depth to create a neat line.

2.02.04 – Method of Measurement: Add the following:

The work of removing bituminous sidewalk or bituminous driveway ramps shall be measured in place before removal for payment by the number of square yards of bituminous sidewalk or ramp removed.

2.02.05 – Basis of Payment: Add the following:

The removal of bituminous sidewalk will be paid for at the contract unit price per square yard for “Removal of Bituminous Sidewalk” which price shall include all materials, equipment, tools and labor incidental thereto and all disposal costs.

<u>Pay Item</u>	<u>Pay Unit</u>
Removal of Bituminous Sidewalk	s.y.

ITEM #0219011A – SEDIMENT CONTROL SYSTEM AT CATCH BASIN

Description: This work shall consist of furnishing, installing, cleaning, maintaining, replacing, and removing sedimentation control at catch basins at the locations and as shown on plans and as directed by the engineer.

Materials

Sacks shall be manufactured from a specially designed woven polypropylene geotextile sewn by a double needle machine, using a high strength nylon thread. Sacks shall be manufactured by one of the following or an approved equal:

Dandy Sack™

Dandy Products Inc.

P.O. Box 1980 Westerville, Ohio 43086

Phone: 800-591-2284 Fax: 740-881-2791

Email: dlc@dandyproducts.com Website: www.dandyproducts.com

FleXstorm Inlet Filters

24137 W. 111th St - Unit A Naperville, IL 60564

Telephone: (866) 287-8655

Fax: (630) 355-3477

Website: www.inletfilters.com

The sack will be manufactured to fit the opening of the catch basin or drop inlet. Sacks will have the following features: two dump straps attached at the bottom to facilitate the emptying of sacks and lifting loops as an integral part of the system to be used to lift sacks from the basin. The sacks shall have a restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls, this cord is also a visual means of indicating when the sack should be emptied. Once the strap is covered with sediment, or sack is ½ full, the sack should be emptied, cleaned and placed back into the basin.

Construction Methods:

Installation, removal, and maintenance shall be per manufacturer instructions and recommendations.

Method of Measurement: Sediment Control at Catch Basin will be measured as each installed, maintained, accepted, and removed. There will be no separate measurement for maintenance or replacement associated with this item.

Basis of Payment:

Sediment Control at Catch Basin will be paid for at the contract unit price each complete in place and accepted, which price shall include all maintenance throughout construction,

materials, equipment, tools, and labor incidental thereto.

Pay Item	Pay Unit
Sediment Control System at Catch Basin	ea.

ITEM #0406999A - ASPHALT ADJUSTMENT COST

Description: The Asphalt Adjustment Cost will be based on the variance in price for the performance-graded binder component of hot mix asphalt (HMA), Polymer Modified Asphalt (PMA), and Ultra-Thin Bonded Hot-Mix Asphalt mixtures completed and accepted during the Contract.

The Asphalt Price is available on the Department of Transportation website at:

<http://www.ct.gov/dot/asphaltadjustment>

Construction Methods:

An asphalt adjustment will be applied only if all of the following conditions are met:

- I. For HMA and PMA mixtures:
 - a. The HMA or PMA mixture for which the adjustment would be applied is listed as a Contract item with a pay unit of tons.
 - b. *The total quantity for all HMA and PMA mixtures in the Contract or individual purchase order (Department of Administrative Service contract awards) exceeds 1000 tons or the Project duration is greater than 6 months.*
 - c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than \$5.00 per ton.
- II. For Ultra-Thin Bonded HMA mixtures:
 - a. The Ultra-Thin Bonded HMA mixture for which the adjustment would be applied is listed as a Contract item.
 - b. The total quantity for Ultra-Thin Bonded HMA mixture in the Contract exceeds:
 - i. 800 tons if the Ultra-Thin Bonded HMA item has a pay unit of tons.
 - ii. 30,000 square yards if the Ultra-Thin Bonded HMA item has a pay unit of square yards.

Note: The quantity of Ultra-Thin Bonded HMA measured in tons shall be determined from the material documentation requirements set forth in the Ultra-Thin Bonded HMA item Special Provision.
 - c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than \$5.00 per ton.
 - d. No Asphalt Adjustment Cost will be applied to the liquid emulsion that is specified as part of the Ultra-Thin Bonded HMA mixture system.
- III. Regardless of the binder used in all HMA or PMA mixtures, the Asphalt Adjustment Cost will be based on PG 64-22.

The Connecticut Department of Transportation (CTDOT) will post on its website, the average per ton selling price (asphalt price) of the performance-graded binder. The average is based on the high and low selling price published in the most recent available issue of the **Asphalt**

Weekly Monitor® furnished by Poten & Partners, Inc. under the “East Coast Market – New England, New Haven, Connecticut area,” F.O.B. manufacturer’s terminal.

The selling price furnished from the Asphalt Weekly Monitor ® is based on United States dollars per standard ton (US\$/ST).

Method of Measurement:

Formula: $HMA \times [PG\%/100] \times [(Period\ Price - Base\ Price)] = \$ \underline{\hspace{2cm}}$

where

- **HMA:**
 1. For HMA, PMA, and Ultra-Thin Bonded HMA mixtures with pay units of tons:
The quantity in tons of accepted HMA, PMA, or Ultra-Thin Bonded HMA mixture measured and accepted for payment.
 2. For Ultra-Thin Bonded HMA mixtures with pay units of square yards:
The quantity of Ultra-Thin Bonded HMA mixture delivered, placed, and accepted for payment, calculated in tons as documented according to the Material Documentation provision (Construction Methods, paragraph G) of the Ultra-Thin Bonded HMA Special Provision.
- **Asphalt Base Price:** The asphalt price posted on the CTDOT website 28 days before the actual bid opening posted.
- **Asphalt Period Price:** The asphalt price posted on the CTDOT website during the period the HMA or PMA mixture was placed.
- **PG%:** Performance-Graded Binder percentage
 1. For HMA or PMA mixes:
 - PG% = 4.5 for HMA S1 and PMA S1
 - PG% = 5.0 for HMA S0.5 and PMA S0.5
 - PG% = 6.0 for HMA S0.375, PMA S0.375, HMA S0.25 and PMA S0.25
 2. For Ultra-Thin Bonded HMA mixes:
PG% = Design % PGB (Performance Graded Binder) in the approved job mix formula, expressed as a percentage to the tenth place (e.g. 5.1%)

The asphalt adjustment cost shall not be considered as a changed condition in the Contract as result of this provision since all bidders are notified before submission of bids.

Basis of Payment: The "Asphalt Adjustment Cost" will be calculated using the formula indicated above. A payment will be made for an increase in costs. A deduction from monies due the Contractor will be made for a decrease in costs.

The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this item will be considered the bid price although the adjustment will be made as described above. The estimated cost figure is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be

disregarded, and the original cost figure will be used to determine the amount of the bid for the Contract.

Pay Item	Pay Unit
Asphalt Adjustment Cost	est.

ITEM #0503030A - REMOVAL OF BRIDGE DECK CONCRETE

Work under this item shall meet the requirements of Section 5.03 of the Standard Specifications amended as follows:

5.03.01 - Description: *Replace the entire article with the following:*

This work shall consist of the removal and satisfactory disposal of the superstructure concrete at the deck ends within the limits as shown on the plans. The Contractor is herein notified that the existing rebar is to remain and that the Contractor shall exercise caution when removing the concrete.

5.03.03 - Construction Methods: *Replace the entire Article with the following:*

Saw cut concrete to neat lines as shown on the plans. All work shall proceed as directed by and to the satisfaction of the Engineer and in accordance with the construction staging and details shown on the plans, or as approved by the Engineer.

The removal shall not result in damage to any permanent construction (new or existing) or to adjoining property below. If damage does occur, it shall be repaired by the Contractor to the satisfaction of the Engineer at no additional expense to the State.

5.03.03 – Method of Measurement *Replace the entire Article with the following:*

The quantity of concrete shall be the actual volume in cubic yards removed and accepted within the neat lines as shown on the plans or as ordered by the Engineer. Saw cutting of concrete will not be measured for payment.

5.03.05 - Basis of Payment: *Replace with the following:*

This work shall be paid for at the contract price per cubic yard for "Removal of Bridge Deck Concrete", which price shall include all work incidental to the removal of the superstructure concrete and all materials, equipment, tools, labor, incidental thereto. It shall also include the saw cutting of concrete deck and the satisfactory removal and disposal of all waste materials.

Pay Item
Removal of Bridge Deck Concrete

Pay Unit
C.Y.

ITEM #0503887A - JACKING EXISTING SUPERSTRUCTURE (SITE NO. 1)

ITEM #0503888A – JACKING EXISTING SUPERSTRUCTURE (SITE NO. 2)

Description:

Work under this item shall consist of designing, furnishing, installing, maintaining and removing temporary jacking systems (falsework bents or devices) that can raise the existing superstructure members the minimum amount necessary to permit work on the replacement of existing expansion and fixed bearings.

Where called for in the Plans, or if required by the Contractor's design, work under this item shall also include the installation of stiffeners onto the webs of existing girders or components thereof to prevent buckling of said members during jacking operations. Cleaning and painting for repairs to existing structural steel and bearings will occur under the items “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)”.

Jacking the girders shall be done simultaneously along the same bearing line for installing and removing the temporary support system and installing the proposed bearings.

Materials:

Steel, timber or any other material or combination of materials may be used for the temporary jacking and supporting of the girders.

The materials used shall be of satisfactory quality, and capable of safely carrying the anticipated loads. All materials shall be approved by the Engineer before use.

Steel bearing stiffeners shall meet at minimum, the requirements of ASTM A36. If bearing stiffeners are required, the Contractor may elect to bolt or weld the stiffeners to the existing beams or diaphragms. High strength bolts used for bolted bearing stiffeners shall meet ASTM F3125 Grade A325. Bolts and hardware shall meet M.06.02-3.

Construction Methods:

Before jacking the superstructure members, the Contractor shall coordinate with the Engineer.

Wherever arc gouging, flame cutting or welding will be used, existing lead paint must first be removed from the area to be affected. Removal of paint shall be paid for under the item “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No.X)”.

Welding details, procedures and testing methods shall meet the latest ANSI/AASTO/AWS D1.5: Bridge Welding Code, unless otherwise noted.

The Contractor shall prepare and submit to the Engineer Working Drawings, design computations and Catalog Cuts for review in accordance with Article 1.05.02. Jacking loads have been included in the contract plans. A Professional Engineer licensed in the State of Connecticut shall seal the Working Drawings and design calculations. Each page of the Working Drawings shall have the seal of the Professional Engineer. Only the first page of the design calculations shall have the seal of the Professional Engineer. No work shall begin until acceptance of the drawings has been obtained from the Engineer.

The jacking design shall meet the following specifications as applicable:

1. 2017 AASHTO LRFD Standard Specifications for Highway Bridges with the latest interims.
2. AASHTO Guide Design Specifications for Bridge Temporary Works 2002 with latest interims
3. The Manual of Steel Construction (AISC).
4. Design Manual for Engineered Wood Construction.

The design computations shall include the following:

1. Material designations and material lists.
2. Allowable loads or capacities for all structural members and components. Include appropriate reductions in allowable stresses and loads when materials that are not new or undamaged are used in the construction of the temporary jacking system.
3. Soil or pavement bearing capacities, if applicable.
4. Computed lifting loads to validate the jacking loads provided in the Contract Plans including impact.
5. Anticipated design loads and stresses on structural members and components.
6. The Contractor shall determine the need for jacking stiffeners for jacking the existing Superstructure. If stiffeners are required they shall be designed by the Contractor.
7. References for all design equations.

The Working Drawings shall include the following:

1. General Notes.
2. Model number and capacity for each jack. The jack shall have a rated capacity at least 1.5 times the anticipated lifting load. The jacks shall be designed to support all dead loads and live loads. Each jack shall have its rated capacity clearly shown on the attached manufacturer's name plate. The Contractor shall use hydraulically operated jacks that are equipped with a mechanical lock off device.
3. Schematic diagram showing the jacks, hoses, pumps, gages and any other jacking equipment. The Contractor shall provide a table equating the hydraulic pressure to the force in the jack so that the Engineer can monitor the pressure gages or other load

measuring devices during the jacking process. Use of jacks individually employed or joined to operate collectively is permitted.

4. Maximum anticipated lifting load for each jacking point location.
5. Anticipated lift at each jacking point location.
6. Jacking procedures outlining the complete sequence of operations to be followed when jacking, supporting and lowering the beam ends.
7. A plan showing the layout of the jacking point locations and the details of the bracing and supporting members. The plans shall show all connection details.
8. Details of proposed modifications to the existing structure and the methods of restoration, including modifications and restoration due to temporary scaffolding configurations. When the jacking operation is no longer required, the Contractor shall remove all modifications to the bridge unless the Engineer permits the modifications to remain. The Contractor shall remove the welds by grinding or "arc" gouging without damaging the base metal that is to remain. When arc gouging, a minimum of 1/8 inch of weld metal shall be left in place and the remaining weld metal shall be removed by grinding. Welders who perform arc gouging shall be SMAW certified. Fire resistant tarps shall be used as required to protect property below.
9. Details or descriptions of how the jacks will accommodate movements of the bridge superstructure. Such movements include but are not limited to thermal movements, braking forces, and vibrations.

The furnishing of design calculations and Working Drawings shall not serve to relieve the Contractor of any responsibility for the safety of the work or the successful completion of the work.

The Contractor shall field verify all Working Drawing dimensions before fabricating any materials. The jacking system, once installed, shall not prohibit the Contractor from performing any work required by the contract.

If part of the jacking system (falsework bents, etc.) is placed adjacent to vehicular traffic, then the Contractor shall protect the jacking system from potential vehicular collision. Jacking systems at locations where there is a pier between the jacking system and adjacent traffic does not need to be protected. At locations where there is metal beam rail between the jacking system and adjacent traffic, the deflection clear zone of the beam rail shall be evaluated by the Contractor to determine if the jacking system is adequately protected. The Contractor's Working Drawings shall indicate the method of protection of the jacking system. The protection system proposed on the Working Drawings shall be pre-approved by the Engineer.

Jacking against the concrete deck or any portion thereof is not permitted.

While jacking the superstructure members, the Contractor shall set the jack level and simultaneously jack as many girders as are necessary to a minimum amount necessary to complete the work. At no time shall the jacking exceed ¼ inch. The differential lift between adjacent beams shall not exceed 1/8 inch at any time during the jacking or lowering of the

beams. When the beams are jacked to the minimum amount necessary, the jacks shall be locked off and the hydraulic pressure released.

At no point shall the lifting force at any jacking point exceed the maximum lifting load specified in the design computations.

The Contractor shall carefully inspect and maintain the jacking system during its use.

After the beams are raised, blocking shall be installed under the beam ends to support the superstructure while work is performed on the bearings and substructure components.

After the bearings have been installed and accepted, the beam ends shall be lowered until all loads are carried by the bearings. The beam ends shall be lowered uniformly if required by the Working Drawings and contract plans.

The Contractor shall promptly remove and dispose of the equipment and materials. The Contractor shall restore the area to its original condition and to the satisfaction of the Engineer.

Bearing stiffeners installed onto girder webs, for the purpose of stiffening the web, will permanently remain, unless otherwise indicated on the plans, and will receive the same paint system as specified for other steel in the contract. The cost of painting the Contractor installed bearing stiffeners will be included under item "Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)".

The Contractor is responsible for any damage caused to any part of the structure, pavement below, or vehicular traffic as a result of the work required by this special provision. The Contractor shall repair and/or replace any such damage to the satisfaction of the Engineer at no cost to the State.

One week before jacking the superstructure members, the Engineer shall contact the Office of Oversize/ Over Weight Permits at (860)594-2880 or dot.osowpermits@ct.gov and inform the office when the superstructure members will be jacked and the duration of jacking operations.

Method of Measurement:

This item being paid for on a lump sum basis will not be measured for payment.

Basis of Payment:

This work will be paid for at the contract lump sum for "Jacking Existing Superstructure (Site No. X)", completed and accepted, which price shall include the design, installation and removal of the jacking system, member modification, jacking stiffeners, scaffolding/temporarily supports, protection of the jacking system, and all materials, tools, equipment and labor incidental thereto.

Pay Item

Jacking Existing Superstructure (Site No. 1)
Jacking Existing Superstructure (Site No. 2)

Pay Unit

L.S.
L.S.

ITEM #0520036A - ASPHALTIC PLUG EXPANSION JOINT SYSTEM

Description: Work under this item shall consist of furnishing and installing an asphaltic plug expansion joint system (APJ) in conformance with ASTM D6297, as shown on the plans, and as specified herein.

Work under this item shall also consist of the removal and disposal of bituminous concrete, membrane waterproofing, existing joint components and sealing elements, cleaning and sealing median barrier joints, parapet joints, and sidewalk joints.

Work under this item excludes the removal of Portland cement concrete headers.

Materials: The APJ component materials shall conform to ASTM D6297 and the following:

Aggregate: The aggregate shall meet the following requirements:

- a) Loss on abrasion: The material shall show a loss on abrasion of not more than 25% using AASHTO Method T96.
- b) Soundness: The material shall not have a loss of more than 10% at the end of five cycles when tested with a magnesium sulfate solution for soundness using AASHTO Method T 104.
- c) Gradation: The aggregate shall meet the requirements of Table A below:
- d) Dust: aggregate shall not exceed 0.5% of dust passing the #200 sieve when tested in accordance with AASHTO T-11.

Table A

<u>Square Mesh Sieves</u>	1" (25.0 mm)	¾" (19.0 mm)	½" (12.5 mm)	⅜" (9.5 mm)	No. 4 (4.75 mm)
% passing	100	90 - 100	20 - 55	0 - 15	0 - 5

A sample of the aggregate shall be submitted to the Department with a Certified Test Report in accordance with Article 1.06.07 for each 20 tons of loose material or its equivalent number of bags delivered to the job site. The Certified Test report must include a gradation analysis resulting from a physical test performed on the actual material that accompanies the report.

Anti-Tacking Material: This material shall be a fine graded granular material with 100% passing the 3/16" sieve and no more than 5% passing the #200 when tested in accordance with AASHTO T-27.

Backer Rod: All backer rods shall satisfy the requirements of ASTM D5249, Type 1.

Bridging Plate: The bridging plates shall be steel conforming to the requirements of ASTM A36 and be a minimum ¼" thick and 8" wide. For joint openings in excess of 3" the

minimum plate dimensions shall be $\frac{3}{8}$ " thick by 12" wide. Individual sections of plate shall not exceed 4' in length. Steel locating pins for securing the plates shall be size 16d minimum, hot-dip galvanized, and spaced no more than 12" apart.

Concrete Leveling Material: Shall be a cementitious-based material that conforms to ASTM C928 Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repair, for R3 performance requirements in Table 1 and achieve the following:

- a. Final set in 45 Minutes
- b. 2500 psi compressive strength in 24 hours
- c. 5000 psi compressive strength in 7 days

Parapet Sealant: The sealant used in parapet joint openings shall be a single component non-sag silicone sealant that conforms to the requirements of ASTM D5893.

Sidewalk Sealant: The sealant used in sidewalk joint openings shall be a rapid cure, self-leveling, cold applied, two-component silicone sealant. The silicone sealant shall conform to the requirements listed in Table B:

Table B

Properties - As Supplied	Test Method	Requirement
Extrusion Rate	ASTM C1183	200-600 grams/min
Leveling	ASTM C639	Self-Leveling
Specific Gravity	ASTM D792	1.20 to 1.40
Properties - Mixed	Test Method	Requirement
Tack Free Time	ASTM C679	60 min. max.
Joint Elongation – Adhesion to concrete	ASTM D5329 ^{1,2,3}	600% min
Joint Modulus @ 100% elongation	ASTM D5329 ^{1,2,3}	15 psi max
Cure Evaluation	ASTM D5893	Pass @ 5 hours

1. Specimens cured at $77\pm 3^{\circ}\text{F}$ and $50\pm 5\%$ relative humidity for 7 days
2. Specimens size: $\frac{1}{2}$ " wide by $\frac{1}{2}$ " thick by 2" long
3. Tensile Adhesion test only

The date of manufacture shall be provided with each lot. No sealant shall be used beyond its maximum shelf-life date.

The two-part silicone sealants shown in Table C are known to have met the specified requirements:

Table C

Product	Supplier
Dow Corning 902RCS	Dow Corning Corporation 2200 W Salzburg Road Auburn, Michigan 48611
Wabo SiliconeSeal	BASF/Watson Bowman Acme Corporation 95 Pineview Drive Amherst, New York 14228

Other two-component silicone joint sealants expressly manufactured for use with concrete that conform to the aforementioned ASTM requirements will be considered for use provided they are submitted in advance for approval to the Engineer. Other joint sealants will be considered for use only if a complete product description is submitted, as well as documentation describing at least five installations of the product. These documented installations must demonstrate that the product has performed successfully for at least three years on similar bridge expansion joint applications.

A Materials Certificate and Certified Test Report for the asphaltic binder shall be submitted by the Contractor in accordance with the requirements of Article 1.06.07 certifying that the asphaltic binder satisfies the requirements of the most current version of ASTM D6297.

A Materials Certificate for all other components of the APJ, leveling material, backer rod and sealant used in sealing parapet and sidewalk joint openings, shall be submitted by the Contractor in accordance with the requirements of Article 1.06.07

Construction Methods: The APJ shall be installed at the locations shown on the plans and in stages in accordance with the traffic requirements in the special provisions “Maintenance and Protection of Traffic” and “Prosecution and Progress”.

At least 30 days prior to start of the work, the Contractor shall submit to the Engineer for approval a detailed Quality Control Plan for the installation of the APJ. The submittal shall include:

- a) A list of all manufactured materials and their properties to be incorporated in the joint system, including, but not limited to the asphaltic binder, anti-tack material, backer rod, sealant, leveling material, as well as the aggregate’s source.
- b) A detailed step by step installation procedure and a list of the specific equipment to be used for the installation. The Quality Control Plan must fully comply with the specifications and address all anticipated field conditions, including periods of inclement weather.

The APJ shall not be installed when bituminous concrete overlay or joint cutout is wet. The APJ shall only be installed when the bridge superstructure surface temperature is within the limits specified in Table D and when the ambient air temperature is within the range of 45⁰F to 95⁰F.

The bridge superstructure surface temperature range is determined using the thermal movement range provided on the contract plans for the proposed APJ deck installation location and the selected APJ product.

Table D

Installation Restrictions	
Designed Deck Joint Thermal Movement Range²	Bridge Superstructure Surface Temperature¹
0" to 1"	45° F to 95° F
1-1/8"	45° F to 90° F
1-1/4"	45° F to 80° F
1-3/8"	45° F to 70° F
1-1/2"	45° F to 65° F

- The superstructure surface temperature shall be determined from the average of three or more surface temperature readings taken at different locations on the interior girder surfaces by the Contractor as directed by the Engineer. Temperature measurements of the superstructure shall be taken by the contractor with a calibrated hand held digital infrared laser-sighted thermometer on the surfaces of an interior steel girder, or interior concrete girder protected from direct sunlight. The infrared thermometer to be supplied by the Contractor for this purpose shall meet certification requirements of EN61326-1, EN61010-1, and EN60825-1 maintained by the European Committee for Electrotechnical Standardization (CENELEC). The thermometer shall have a minimum distance-to-spot ratio of 50:1 and shall have adjustable emissivity control. The thermometer shall have a minimum accuracy value of $\pm 1\%$ of reading or $\pm 2^{\circ}\text{F}$, whichever is greater. The thermometer shall be used in strict accordance with the manufacturer's written directions. An additional infrared thermometer satisfying the same standards to be used in this application shall also be provided to the Engineer for quality assurance purposes.*
- Linear interpolation may be used to determine an allowable surface temperature range for thermal movement ranges in between values shown in the table, as approved by the Engineer.*

Prior to installing the APJ, the Contractor shall determine the exact location of the deck joint beneath the bituminous concrete overly.

The APJ shall be installed symmetrically about the deck joint opening to the dimensions shown on the plans or as directed by the Engineer; not to exceed 24 inches measured perpendicular to the deck joint. The proposed saw cut lines shall be marked on the bituminous concrete overlay by the Contractor and approved by the Engineer, prior to saw-cutting. The saw-cuts delineating the edges of the APJ shall extend full depth of the bituminous concrete overlay.

The existing bituminous concrete overlay, waterproofing membrane and/or existing expansion joint material, within the saw cut limits shall be removed and disposed of by the Contractor to create the joint cutout.

Concrete surfaces that will support the bridging plates shall be smooth and form a plane along and across the deck joint. Rough or damaged concrete surfaces shall be repaired with a leveling compound meeting the requirements of this specification. Deteriorated concrete areas within the joint limits shall be repaired as directed by the Engineer: such repairs, when deemed necessary by the Engineer, shall be compensated for under the applicable concrete deck repair items in the Contract. The existing and repaired concrete surfaces shall provide continuous uniform support for the bridging plate and prevent the plate from rocking and deflecting.

Prior to the installation of the backer rod, all horizontal and vertical surfaces of the joint cutout shall be abrasive blast cleaned using an oil-free, compressed air supply. The entire cutout shall then be cleared of all loose blast media, dust, debris and moisture using an oil-free, hot air lance capable of producing an air stream at 3,000°F with a velocity of 3,000 feet per second.

A single backer rod, with a diameter at least 25% greater than the existing joint opening at the time of installation, shall be installed at an inch below the bridging plate in the existing deck joint opening between the concrete edges.

Asphaltic binder shall be heated to a temperature within the manufacturer's recommended application temperature range which shall be provided in the Quality Control Plan. During application, the temperature of the binder shall be maintained within this range. In no case shall the temperature of the binder go below 350° F nor exceed the manufacturer's recommended maximum heating temperature.

Asphaltic binder shall then be poured into the joint opening until it completely fills the gap above the backer rod. A thin layer of binder shall next be applied to the all horizontal and vertical surfaces of the joint cutout.

Bridging plates shall be abrasive blast-cleaned on-site prior to installation and then placed over the deck joint opening in the joint cutout. The plates shall be centered over the joint opening and secured with locating pins along its centerline. The plates shall be placed end to end, without overlap, such that the gap between plates does not exceed ¼". The plates shall extend to the gutter line and be cut to match the joint's skew angle, where concrete support exists on both sides of the joint. Within APJ installation limits, where concrete support does not exist at both sides of the joint opening (such as where a bridge deck end abuts a bituminous concrete roadway shoulder), bridging plates shall not be installed. Installed bridging plates shall not rock or deflect

in any way. After installation of bridging plates, a thin layer of asphaltic binder shall be applied to all exposed surfaces of the plates.

The remainder of the joint cutout shall then be filled with a mixture of hot asphaltic binder and aggregate prepared in accordance with the submitted Quality Control Plan and the following requirements:

- The aggregate shall be heated in a vented, rotating drum mixer by the use of a hot-compressed air lance to a temperature of between 370° F. to 380° F. This drum mixer shall be dedicated solely for the heating and, if necessary, supplemental cleaning of the aggregate. Venting of the gas and loose dust particles shall be accomplished through ¼” drilled holes spaced no more than 3” on center in any direction along the entire outside surface of the drum
- Once the aggregate has been heated, it shall then be transferred to a secondary drum mixer where it shall be fully coated with asphaltic binder. A minimum of two gallons of binder per 100lbs of stone is required.
- The temperature of the aggregate and binder shall be monitored by the contractor with a calibrated digital infrared thermometer.
- The coated aggregate shall be loosely placed in the joint cutout in lifts not to exceed 2 inches.
- Each lift shall be leveled, compacted and then flooded with hot asphaltic binder to the level of the aggregate to fill all voids in the coated aggregate layer. The surface of each lift shall be flooded until only the tips of the aggregate protrude out of the surface.
- The final lift shall be placed such that no stones shall project above the level of the adjacent overlay surface following compaction of the coated aggregate.
- Following installation of the final lift, sufficient time and material shall be provided to allow all voids in the mixture to fill. This step may be repeated as needed.
- The joint shall then be top-dressed by heating the entire area with a hot-compressed air lance and applying binder. The final joint surface must be smooth with no protruding stones and be absent of voids.
- Once top-dressed, the joint shall have an anti-tack material spread evenly over the entire surface to prevent tracking.

The Contractor shall be responsible for removing all binder material that leaks through the joint and is deposited on any bridge component, including underside of decks, headers, beams, diaphragms, bearings, abutments and piers.

Traffic shall not be permitted over the joint until it has cooled to 130° F when measured with a digital infrared thermometer. Use of water to cool the completed joint is permitted.

Sidewalk, parapet, and/or curb joint openings

Before placement of any sealing materials in parapets, curbs, or sidewalks, the joints shall be thoroughly cleaned of all scale, loose concrete, dirt, dust, or other foreign matter by abrasive blast cleaning. Residual dust and moisture shall then be removed by blasting with oil free compressed air using a hot air lance. Projections of concrete into the joint space shall also be

removed. The backer rod shall be installed in the joint as shown on the plans. The joint shall be clean and dry before the joint sealant is applied. Under no circumstances is the binder material to be used as a substitute for the joint sealant.

Whenever abrasive blast cleaning is performed under this specification, the Contractor shall take adequate measures to ensure that the abrasive blast cleaning will not cause damage to adjacent traffic or other facilities.

The joint sealant shall be prepared and placed in accordance with the manufacturer's instructions and with the equipment prescribed by the manufacturer. Extreme care shall be taken to ensure that the sealant is placed in accordance with the manufacturer's recommended thickness requirements.

The joint sealant shall be tooled, if required, in accordance with the manufacturer's instructions.

Primer, if required, shall be supplied by the sealant manufacturer and applied in accordance with the manufacturer's instructions.

When the sealing operations are completed, the joints shall be effectively sealed against infiltration of water. Any sealant which does not effectively seal against water shall be removed and replaced at the Contractor's expense.

Any installed joint that exhibits evidence of failure, as determined by the Engineer, such as debonding, cracking, rutting, or shoving of the APJ mixture shall be removed and replaced full-width and full-depth to a length determined by the Engineer at no additional cost to the State.

Method of Measurement: This work will be measured for payment by the number of cubic feet of "Asphaltic Plug Expansion Joint System" installed and accepted within approved horizontal limits. No additional measurement will be made for furnishing and installing backer rod and joint sealant in the parapets, concrete medians, curbs and/or sidewalks.

Basis of Payment: This work will be paid for at the contract unit price per cubic foot for "Asphaltic Plug Expansion Joint System," complete in place, which price shall include the saw-cutting, removal and disposal of bituminous concrete, membrane waterproofing, existing joint components and sealing elements, the furnishing and placement of the leveling compound, cleaning of the joint surfaces, furnishing and installing bridging plates, the furnishing and installing of the asphaltic plug joint mixture, the cost of furnishing and installing joint sealant in the parapets, concrete medians, curbs and sidewalks, and all other materials, equipment including, but not limited to, portable lighting, tools, and labor incidental thereto. No additional payment shall be made for the 12" wide bridging plates that are required for deck joint openings with widths in excess of 3".

If directed by the Engineer, additional deck repairs will be addressed and paid for under the applicable concrete deck repair items in the Contract.

ITEM #0520041A - PREFORMED JOINT SEAL

Description: Work under this item consists of furnishing and installing a preformed joint seal as shown on the plans. Work also includes a pre-installation survey to measure the pavement depth at all locations where the joint meets the curb.

Materials: One of the following Preformed Joint Seals specified on the plans shall be supplied:

V-Shaped Silicone Seals:

1. Silicoflex:
RJ Watson, Inc.
11035 Walden Ave
Alden, New York 14004
Tel: (716) 901-7020
Website: <http://www.rjwatson.com>
2. V-Seal:
D.S. Brown Company
300 East Cherry Street
North Baltimore, Ohio 45872
Tel: (419) 257-3561
Website: <http://www.dsbrown.com>

Foam-Supported Silicone Seals:

3. Bridge Expansion Joint System (B.E.J.S.):
EMSEAL Joint Systems Ltd.
25 Bridle Lane,
Westborough, MA 01581
Tel: (508) 836-0280
Website: <http://www.emseal.com>
4. Wabo FS Bridge Seal
Watson Bowman Acme Corp.
95 Pineview Drive
Amherst, NY 14228
Tel: (716) 691-9239
Website: <https://wbacorp.com/products/bridge-highway/joint-seals/wabofsbridge/>

When foam-supported silicone joint seals are the only type allowed on the plans (such as at bridge joints that extend through sidewalks), the CTDOT will consider products from other foam-supported silicone joint manufacturers, if the products have been installed by another State Department of Transportation, are functioning

successfully in a similar climate to Connecticut's for at least one year, and are deemed by the CTDOT to be suitable for use in the specific application for which the Contractor is requesting. To be considered, the Contractor shall submit documentation indicating the product name, manufacturer, the contact information for a Department of Transportation official who can confirm the successful installation and continued success of the product, the date of installation and the nature of the installation, including thermal movement range and skew of the installed joint.

A Materials Certificate for all components of the selected preformed joint seal shall be submitted by the Contractor in accordance with the requirements of Article 1.06.07

Construction Methods: All work at each joint location shall be accomplished in accordance with "Maintenance and Protection of Traffic" and "Prosecution and Progress."

Submittals:

Prior to ordering preformed joint seals, and prior to forming block-outs for the preformed joint seals in the headers, the Contractor shall submit the following to the Engineer:

- The Manufacturer and product information of the selected joint system;
- Material safety data sheets (MSDS) and technical product information;
- Name and credentials of a qualified technical representative supplied by the manufacturer and acceptable to the Engineer. This person shall be available to provide assistance at the beginning of the work and be available to provide training and guidance throughout the project.
- A detailed, step-by-step installation procedure, including surface preparation, splicing of the preformed joint seal, and a list of the specific equipment to be used for the installation.

Installation: The technical representative of the accepted joint system shall be notified of the scheduled installation a minimum of 2 weeks in advance and be present to provide direction and assistance for the first joint installation and succeeding joint installations until the Contractor becomes proficient in the work and to the satisfaction of the Engineer.

The minimum ambient temperature for installing any of the qualified, preformed joint seals is 40°F and rising. When the manufacturer's requirement for minimum installation temperature is greater than 40°F, the manufacturer's requirement will govern.

All concrete surfaces to which sealing glands will be bonded shall be prepared in accordance with International Concrete Repair Institute (ICRI) concrete surface profile standards. The minimum acceptable surface profile is CSP2 (grinding), but CSP3 (light abrasive blast) is preferred. Any discontinuities or sharp projections into the plane of the joint shall be ground smooth prior to blasting. Whenever abrasive blast cleaning is performed, the Contractor shall take adequate measures to ensure that the abrasive blast cleaning will not cause damage to adjacent traffic or other facilities. Traffic will not be allowed to pass over the joint after blasting has occurred.

Following blasting, the joint surfaces shall be wiped down or blown clean as recommended by the manufacturer.

The joint surfaces shall be completely dry before installing any of the components of the selected joint seal. The selected joint seal shall not be installed immediately after precipitation or if precipitation is forecast. Joint preparation and installation of the selected preformed joint seal must be done during the same day.

The selected joint sealing system shall be installed continuously with no field splices in the preformed seal in the roadway section, unless field splices are allowed by the manufacturer of the selected preformed joint seal. In no case shall field splices of the preformed joint seal be allowed in a wheel path or within the roadway shoulder. When splices cannot be avoided due to traffic constraints, the splice shall be at a painted lane line.

After the joint seal has been installed, water shall not be able to penetrate the joint. Any joint seal that does not effectively seal against water shall be removed and replaced at the Contractor's expense.

Method of Measurement: This work will be measured for payment by the number of linear feet of preformed joint sealing system installed and accepted. The measurement will be made along the centerline of the joint at the top surface of header, curb, sidewalk and parapet.

Basis of Payment: This work will be paid for at the Contract unit price per linear foot for "Preformed Joint Seal," complete in place, including all materials, equipment, tools, and labor incidental thereto.

The Contract unit price shall include the cost of assistance from a technical representative of the selected joint system.

Pay Item	Pay Unit
Preformed Joint Seal	l.f.

ITEM #0521003A – BEARING REPLACEMENT WITH ELASTOMERIC BEARING PADS

Description: Work under this item shall consist of the removal and disposal of existing bearing assemblies, furnishing and installing new elastomeric bearing pads, beveled sole plates and load plates as shown on the plans, in accordance with these specifications, and as directed by the Engineer.

Work under this item shall also include furnishing and installing steel plates over slotted holes on the bottom flange of beams where anchor bolts have been removed, obtaining field measurements of the existing bearings and existing concrete bearing pads, the removal of any steel keeper assemblies and the cutting of existing anchor bolts.

Materials:

1. Elastomer: The elastomeric compound, used in the construction of the bearings, shall contain only virgin polychloroprene (Neoprene) as the raw polymer. The elastomer shall have a specified shear modulus of 0.095 ksi. It shall meet the requirements of Section 18.2 of the AASHTO LRFD Bridge Construction Specifications and AASHTO M 251. The elastomer shall be low- temperature Grade 3 as defined by ASTM D4014.

Each steel-laminated elastomeric bearing shall have marked on it, with indelible ink, the following: the Manufacturer's identification code or symbol, the month and year of manufacture, the orientation, order number, lot number, bearing identification number, and elastomer type and grade (Neoprene, Grade 3). The markings shall be placed on a side of the bearing that is visible after installation.

The Contractor shall furnish test bearings in addition to the bearings shown on the plans for each type (size and thickness) of bearings for destructive testing. The furnished test bearings shall not include sole plates or load plates.

The Contractor shall furnish a Certified Test Report, confirming that the elastomeric bearings satisfy the requirements of these specifications, in conformance with the requirements set forth in Article 1.06.07.

2. Steel Laminae: The internal steel laminae shall meet the requirements of ASTM A 1011 Grade 36. The internal steel laminae edges shall be ground smooth or otherwise rounded before molding the bearing.

3. External Steel Plates: Steel sole and load plates shall be AASHTO M270, Grade 36 and shall meet the requirements of Article M.06.02.

All surfaces of the sole plate or load plates shall be abrasive blast cleaned before being hot bonded to the bearing during vulcanization.

Adhesive bonding of the elastomer portion of the bearings to external steel plates or concrete is not permitted.

4. Elastomeric Shims: The elastomer for shims shall meet the same requirements as the bearing elastomer and be 1/16 inches to 1/8 inches thick, if directed by the Engineer.

5. Adhesive: The adhesive for bonding the shims shall consist of a long lasting, high strength, cold applied, air cured, water and heat resistant material specifically formulated for bonding neoprene and shall meet the following requirements:

Property	Requirement	ASTM Test Procedure
Adhesion	30#/in.	D 429, Method B
Hardness	50 \pm 5 Shore A points	D 2240
Tensile Strength, min	1800 psi	D 412
Elongation before breaking, min.	750 %	D 412

6. Bolts, Nuts and Washers: High strength bolts shall meet the requirements of ASTM F3125 Grade A325. The nuts shall meet the requirements of ASTM A563, Grade DH or DH3. The washers shall meet the requirements of ASTM F436 Type 1.

7. Non-Shrink Grout: Non-shrink grout shall meet the requirements of Article M.03.05.

Construction Methods:

Before submitting Shop Drawings, the Contractor shall obtain field measurements of the existing bearings and concrete bearing pads in order to verify compatibility with the elastomeric bearings as detailed. The Contractor shall record the grade of each beam to accurately produce a new beveled sole plate. The Contractor shall submit field measurements with the Shop Drawings. See “Appendix – A: Bearing Assembly Field Measurements” of this special provision for a sample of the information to be submitted.

The Contractor shall notify the Engineer prior to submitting Shop Drawings if after taking field measurements of the existing bearing assembly height, it is determined the proposed sole plate thickness at the center line of bearing is less than 1.5 inches.

The Contractor shall submit Shop Drawings to the Engineer, for review and approval, in accordance with Subarticle 1.05.02. These drawings shall include, the following information: Manufacturer’s name, complete details of the bearings, material designations, nominal hardness of the elastomer, the quantity of bearings required, including test bearings, and the location of the bearing identification.

A minimum of thirty (30) days prior to the installation of the elastomeric bearings, the Contractor shall deliver to the job site the required number of bearings for installation plus the required number of test bearings. The Contractor shall pack the bearings in containers holding no more than ten (10) bearings. Bearings in one container shall contain the same type and size of bearing required for one

structure only. The Contractor shall mark the container with the project number, the bridge number, the number of bearings, the intended location on the structure, the name of the Manufacturer and the lot number.

The Contractor shall remove the existing bearing assemblies using methods that do not damage them or the existing beam. Existing welds shall be removed by machining, grinding, chipping, or air carbon-arc gouging and in such a manner that the remaining base metal is not wicked or undercut. A minimum of 1/8" of weld metal shall be left in place if arc gouging is the selected removal method and the remaining weld metal shall be removed by grinding. Welders who perform arc gouging shall be SMAW certified. Use of flame cutting equipment to cut the anchor bolts is not allowed. The Contractor shall remove the bolts by sawing the anchor bolt unless another method is approved by the Engineer. The Contractor shall grind smooth the portion of welds remaining after removal of the existing soleplate.

Wherever arc gouging, flame cutting or welding will be used, existing lead paint must first be removed from the area to be affected. Removal of paint shall be accomplished by methods described in the special provision "Abrasive Blast Cleaning and Field Painting Beam Ends (Site No.X)".

The Engineer will inspect the concrete bearing pads before the installation of the elastomeric bearings. Portions of protruding anchor bolts shall be cut off below the surface of the concrete and the void filled in with non-shrink grout. All other cracks, spalls, or deterioration shall be repaired as ordered by the Engineer.

The concrete bearing pads shall have smooth, even, and level surfaces. They shall show no variation from a true plane greater than 1/16 inches over the entire area upon which the elastomeric bearings are to rest. The Contractor shall grind the concrete as required to achieve these requirements.

Before installing the elastomeric bearings, the Contractor shall clean the concrete bearing pad of dirt, grease, oil, or other foreign material.

The Contractor shall install the elastomeric bearings as shown on the plans. The Contractor shall install the elastomeric bearings when the temperature of the ambient air and the bearings is between 40 deg. F to 80 deg. F and has been within this range for at least 2 hours.

Adhesive bonding of the elastomeric bearings to steel and concrete surfaces is not permitted. Welding with the elastomeric bearings in place will not be permitted unless there is more than 1/4" of steel between the weld and the elastomer. In no case shall the elastomer be exposed to temperatures greater than 400 deg. F. Temperature Indicating Crayons shall be used during field welding to assure that these temperature restrictions are not exceeded.

Welding details, procedures and testing methods shall meet the latest ANSI/AASHTO/AWS D1.5: Bridge Welding Code, unless otherwise noted. Silicone based caulking material approved by the Engineer shall be used to seal between sole plate and bottom flange weld where weld is discontinued. The caulking material shall bond well with steel and be compatible with the paint

system used for field painting. The elastomeric bearings shall rest uniformly on the concrete bearing pads when the bearings are under the full dead load of the superstructure. If uniform contact is not present, the Contractor shall fill the gaps beneath the bearing by inserting elastomeric shims that are slightly thinner than the gaps. The Contractor, in the presence of the Engineer, shall measure the gaps to determine the locations and sizes of the shims.

The Contractor shall bond the individual shims to the elastomer portion of the bearing with adhesive applied over the entire shim interface. The surface preparation, application and curing of the adhesive shall comply with the Manufacturer's recommendations. If shims in excess of 1/8 inches are required, bonding of multiple shims is permitted. In areas that vary in thickness, the Contractor shall shim by stepping shims.

After the existing bearing anchor bolts are removed and before painting, the Contractor shall furnish and seal weld ¼ inch steel plates over the slotted holes as shown on the plans.

The Contractor shall provide the Engineer with safe access to the work for inspection purposes.

Method of Measurement: This work will be measured for payment by the actual number of elastomeric bearing pads installed and accepted. Test bearings will not be measured for payment.

Basis of Payment: This work will be paid for at the contract unit price each for "Bearing Replacement with Elastomeric Bearing Pads" complete, in place and accepted, which price shall include obtaining field measurements of existing bearings and concrete bearing pads, non-shrink grout, furnishing and installing sole plates and load plates, furnishing and installing elastomeric bearings, steel plates over slotted holes, test bearings, shims, adhesive for shims, disposal of the existing bearings, access to bearing locations and all materials, equipment, tools and labor incidental thereto.

Surface preparation and painting of the beveled sole plates, load plates, and the steel plates over slotted holes shall be paid for under the item "Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)".

Pay Item

Bearing Replacement with Elastomeric Bearing Pads

Pay Unit

EA.

APPENDIX – A: Bearing Assembly Field Measurements

Provide all dimensions in inches.

A	B	C	D

Dimension “B” is the bearing assembly height taken at the centerline of bearing.

Concrete Bearing Pad Information:

Transverse Dimension (Width) = _____

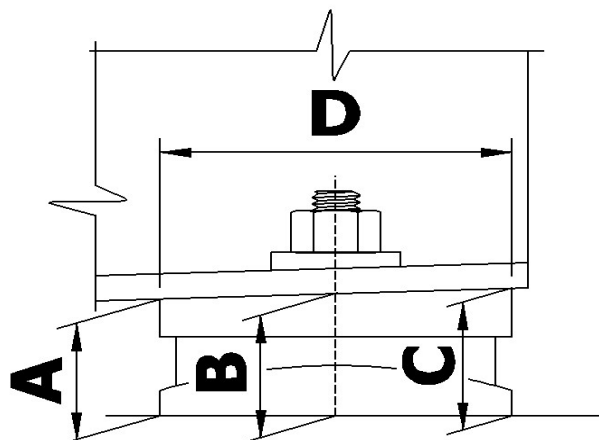
Longitudinal Dimension (Length) = _____

Center line of beam to the top right edge of bevel (measured transversely to the beam) = _____

Center line of beam to the top left edge of bevel (measured transversely to the beam) = _____

Grade of concrete bearing pad to level = _____

Bottom Flange Width = _____



Bridge No. _____ Abutment No. _____ Pier No. _____ Beam No. _____

ITEM #0522155A – REPLACE BRIDGE BEARINGS

Descriptions: Work under this item shall consist of removal and disposal of the existing fixed bearing devices and installation of new fixed bearings in kind at locations delineated on the plans. This work includes obtaining any necessary field measured dimensions of the existing bearing components.

Materials:

1. Steel Plates: Steel plates and shims shall be AASHTO M270, Grade 50T2 and meet the requirements of Article M.06.02.
2. Anchor Bolts: Anchor bolts shall be headed anchor bolts and shall meet the requirements of F1554 Grade 36 steel.
3. Non-Shrink Grout: Non-shrink grout shall meet the requirements of Article M.03.05.

Construction Methods: Before fabricating any materials, the Contractor shall submit Shop Drawings to the Engineer, for review and approval, in accordance with Article 1.05.02. These drawings shall include the following information: manufacturer's name, complete details of the bearings, material designations, the quantity of bearings required, and the location of the bearing identification.

Existing bearing assemblies shall be removed in their entirety and properly disposed of off-site.

New sole plates shall be welded to the bottom of the girders as shown on the plans. All steel surfaces of the new bearing assemblies, not galvanized, shall be painted under Item "Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)".

Tarps shall be used by the Contractor to prevent debris from the work operations from falling onto the ground or into the street below. This debris shall be disposed of properly under the applicable contract items.

The bearings shall rest uniformly on the concrete bearing pads when the bearings are under the full dead load of the completed superstructure. If uniform contact is not present the gaps shall be filled by inserting steel shims that are slightly thinner than the gaps. The Contractor, in the presence of the Engineer, shall measure the gaps to determine the locations and sizes of the shims.

The Contractor shall provide the Engineer with safe access to the work for inspection purposes.

Weld details, procedures and testing methods shall meet the requirements of ANSI/AASHTO/AWS D1.5 Bridge Welding Code (latest version), unless otherwise noted.

Anchor bolts shall be erected as specified in the Subarticle 6.01.03-II-1(k). Anchor bolts shall

be headed anchor bolts F1554 grade 36.

Silicone based caulking material approved by the Engineer shall be used in transverse joints to seal between sole plate and bottom flange. The caulking material shall be compatible with the paint system used for field painting.

Wherever existing sole plate removal or welding will be used, existing lead paint shall first be removed.

Method of Measurement: This work shall be measured for payment by the actual number of fixed bearing devices installed and accepted.

Basis of Payment: This work shall be paid for at the contract unit price each for “Replace Bridge Bearings” complete, in place and accepted, which price shall include obtaining field measurements of existing bearing assemblies, removal of existing bearing assemblies, disposal of the existing bearings, furnishing and installing bridge bearings, and all materials, equipment, tools and labor incidental thereto. The cost of any localized paint removal required to install the new bearing shall also be included for payment under “Abrasive Blast Cleaning and Field Painting Beam Ends (Site No.X)”.

Pay Item
Replace Bridge Bearings

Pay Unit
EA

ITEM #0522178A – CONSTRUCT CONCRETE KEEPER BLOCKS

Description:

This item shall consist of constructing a concrete keeper block including the furnishing and placing of reinforcing steel, drilling and grouting, chemical anchoring material, steel keeper plates, welded studs and concrete. This work shall be done as indicated on the plans, in accordance with these specifications, and as directed by the Engineer.

Materials:

The steel keeper plates shall meet the requirements of ASTM A36 steel.

Steel for welded studs shall meet the requirements of Subarticle M.06.02-4.

The chemical anchoring material shall be a resin compound specially formulated to anchor steel bars in holes drilled into concrete for the purpose of resisting tension pull-out. The chemical anchoring material shall be a product listed on the latest Connecticut Department of Transportation Qualified Products List for Chemical Anchors.

Concrete shall be Class PCC03340 meeting the requirements of Section M.03.

Reinforcement shall meet the requirements of ASTM A615, Grade 60.

The steel keeper plates shall be galvanized after fabrication and welding of the studs in accordance with M.06.03.

Certification: A Materials Certificate and a Certified Test Report shall be required for the adhesive bonding material and the steel keeper plates in accordance with Article 1.06.07, certifying the accordance of these materials to the requirements stated herein.

All materials shall be approved by the Engineer before use.

Construction Methods:

The installation of the keeper blocks shall be done after the two adjacent elastomeric bearings have been installed.

Prior to installing any reinforcing steel, the Contractor shall submit the following to the Engineer for approval: type of drill, diameter of bit, method of cleaning holes, and method of placement of the chemical anchoring material. Specifications and recommendations for the aforementioned may be obtained from the manufacturer of the chemical anchoring material. The weight of the drill shall not exceed 20 pounds.

Holes shall be drilled into the concrete at the locations shown on the plans.

Drilling methods shall not cause spalling, cracking, or other damage to the concrete. Those areas damaged by the Contractor shall be repaired in a manner acceptable to the Engineer and at no expense to the State.

The reinforcing steel and chemical anchoring material shall be installed in the holes in accordance with the manufacturer's recommendations.

If existing reinforcing bars are encountered during the drilling operation, the hole shall be relocated to clear the existing reinforcing as directed by the Engineer. Incomplete holes shall be filled with the chemical anchoring material and finished smooth to the contour of the surrounding concrete surface. Care shall be taken not to damage exposed reinforcing bars.

The surface on which the concrete keeper is to be poured shall be intentionally roughened to a depth of 1/4 inch.

Fabrication and placement of reinforcing steel shall meet the requirements of Article 6.02.03.

The installation of welded studs shall be in accordance with the requirements of Article 5.08.03. Mixing, placing, curing, and finishing of the concrete shall be in accordance with Article 6.01.03.

The Contractor shall make test cylinders under the supervision of the representative of the Department. The dimensions, type of cylinder mold and number of cylinders shall be specified by the Engineer.

The Contractor, as directed by the Engineer, shall take adequate precautions to prevent any materials from dropping to the area below, which may result in damage to any existing construction or to adjoining property. Should any damage occur to the structure as a result of the Contractor's operations, the Contractor shall make repairs at their own expense. The repair work shall be approved in advance and shall be of a quality acceptable to the Engineer.

At no time during the Contractor's work will interruption in traffic carried by the structure be permitted solely as a result of constructing the keeper block.

Before fabricating any materials, the Contractor shall submit Shop Drawings to the Engineer for review in accordance with Article 1.05.02-3. These drawings shall include the following: Location and sizes of all reinforcing steel including splice lengths, steel plates and studs, material lists and material designations.

Method of Measurement: This work will be measured for payment by the number of concrete keeper blocks, as described above, completed and accepted by the Engineer.

Basis of Payment: This work will be paid for at the contract unit price each for "Construct Concrete Keeper Blocks", complete in place, which price shall include furnishing and placing reinforcing steel, steel keeper plates and welded studs, drilling and grouting of reinforcing steel, concrete, and all materials, equipment, tools and labor incidental thereto.

<u>Pay Item</u>	<u>Pay Unit</u>
Construct Concrete Keeper Blocks	EA.

ITEM #0601107A – HIGH EARLY STRENGTH CONCRETE

Work under this item shall conform to Section 6.01 Concrete for Structures as supplemented and amended herein to provide for High Early Strength Concrete.

6.01.01 – Description: Add the following

High early strength concrete shall be used to accelerate the construction of the bridge. The goal of this work is:

- Meet the required compressive strength (both interim and final) in an accelerated manner.
- Reduce the cure time for the concrete
- Provide durable (low permeability) concrete
- Provide low shrinkage properties to reduce cracking in the field

The Contractor shall develop a high early strength concrete mix design for use in the deck ends at the deck joints. This high early strength concrete shall also be used in other cast-in-place concrete work.

6.01.02 – Materials: Add the following:

The high early strength concrete shall conform to the requirements of M.03.01 and the following criteria:

1. Portland cement shall be Type II, IIA or III conforming to AASHTO M85 or M240, as appropriate.
2. All cement used in the manufacture of the members shall be the same brand, type and color, unless otherwise permitted.
3. Use Portland cement conforming to AASHTO M85 with compatible admixtures and air entraining agent.
4. Water-cementitious material ratio shall not exceed 0.4 by weight, including water in the admixture solution and based on saturated surface dry condition of aggregates.
5. Use a maximum size coarse aggregate of $\frac{3}{4}$ ".
6. The amount of entrained air shall be 6.0 +/- 1.5%.
7. High early strength concrete shall achieve a minimum 28-day compressive strength of 6000 psi.
8. The early strength characteristics of the concrete shall be commensurate with the intended construction procedure that is developed by the Contractor.
9. A shrinkage reducing admixture shall be added to the concrete mix according to the manufacturer's recommendation such that there will be no cracks at 14 days in the sample tested in AASHTO T334 (see below). A shrinkage reducing admixture shall be tested by an approved testing lab and meet the requirements of ASTM C494-10 Type S, except that in Table 1 length change shall be measured as: Length Change (percent of

control) shall be a minimum of 35% less than that of the control. Table 1 Length Change (increase over control) shall not apply. Shrinkage reducing admixtures shall not contain expansive metallic materials.

10. The maximum allowable total chloride content in concrete shall not exceed 0.1% by weight of cement.

Mix Design Requirements

Concrete shall be controlled, mixed, and handled as specified in the pertinent portions of Section 6.01 Concrete for Structures, Supplemental Specifications and as indicated below:

The Contractor shall design and submit for approval the proportions and test results for a concrete mix which shall attain the minimum final design compressive strength and the early compressive strength as defined by the approved Assembly Plan and consistent with the approved Quality Control Plan.

The concrete mix design shall have a rapid chloride ion permeability of 2000 Coulombs at not more than 28 days using AASHTO T 277 and the air entrainment shall be targeted at a value of 6.0 percent +/-1.5 percent. Contractor may opt to take multiple tests prior to 28 days which will be considered accepted once the target value of 2,000 coulombs is reached. Testing shall be in accordance with AASHTO T 119 and T 152. Multiple samples shall be tested using the intended curing methods in order to establish the required cure times for the mix.

Should a change in sources of material be made, a new mix design shall be established and approved prior to incorporating the new material. When unsatisfactory results or other conditions make it necessary, the Department will require a new mix design.

The concrete mix design shall be submitted to the Department for review and approval. The Department shall be notified at least 48 hours prior to the test batching and shall be present to witness the testing.

All tests necessary to demonstrate the adequacy of the concrete mix shall be performed by the Contractor, witnessed by the Department, including, but not limited to: slump, air content, temperature, initial set and final set (AASHTO T197). Compressive strength tests shall be determined on field cured cylinders (6" X 12" cylinders) at 9 hours, 12 hours, 15 hours, 18 hours, 24 hours, 30 hours, 36 hours, 42 hours, 2 days and 3 days, and standard cured cylinders at 7 days and 28 days. Additionally, the Contractor shall arrange for a confined shrinkage test as outlined in the AASHTO T334 - Practice for Estimating the Crack Tendency of Concrete which shall be performed by an AASHTO accredited laboratory. The results of these tests (documenting zero cracks at 14 days) shall be submitted to the Department.

Test Batching

In addition, a trial batching shall be done a minimum of (90) ninety days before the intended date of the initial deck end placement. The Contractor will be required to demonstrate proper mix design, batching, placement, finishing and curing of the high early strength concrete. The trial batching shall simulate the actual job conditions in all respects including plant conditions,

transit equipment, travel conditions, admixtures, forming, the use of bonding compounds, restraint of adjacent concrete, placement equipment, and personnel.

The trial shall also demonstrate the ability of the concrete to accept the installation of the membrane waterproofing system that is to be used. A representative portion of the trial concrete shall be coated with the membrane waterproofing in accordance with the specifications for the waterproofing. The timing of the installation of the waterproofing on the trial concrete shall be commensurate with the intended construction procedure and schedule that is developed by the Contractor. The Contractor shall demonstrate that the waterproofing meets all the requirements of the specifications.

The details for the trial placement configuration are shown in Figure 1. Acceptance criteria for the trial placement shall be as follows:

- The trial placement concrete shall not exhibit cracking or separation from the test panel in excess of 0.016 inches wide
- There shall be no more than one transverse crack in excess of 0.010 inches wide in the 10 foot long pour.
- The evaluation of the trial batches shall take place 14 days after placement.

If the trial batches fail these criteria, the Contractor will be required to submit a corrective action plan on how repairs of these crack sizes will be performed. The Department may require the Contractor to conduct more trial batches and trial placements. The costs of trial batches and the removal of trial batches concrete from the job site is incidental to the work and will not be measured for payment. The requirement for multiple test batches shall not be cause for a time extension.

The final accepted trial placement testing shall be used to establish the final acceptance testing protocol for the field placements.

6.01.03 Construction Methods: Add the following:

The Contractor shall engage an AASHTO accredited laboratory to provide testing facilities which are qualified laboratories under the NETTCP program to perform all Quality Control field testing. All personnel performing tests shall be qualified NETTCP Concrete Technicians and certified ACI Laboratory and Concrete Strength Technicians. Anytime the Contractor moves the laboratory, all associated equipment shall be recalibrated. This requirement is intended to minimize the movement of test cylinders.

The Contractor is required to perform initial set and final set tests (AASHTO T197) in addition to slump, air content and temperature on concrete from each concrete truck used in the placing of this High Early Strength Concrete. Field cured cylinders (6" X 12" cylinders) will be made from the first and last concrete trucks. A set of three (3) field- cured cylinders shall be made for each informational test associated with early structural loading. The Contractor is advised to fabricate adequate sets of cylinders to allow multiple tests to verify field

concrete strength. The Department shall be allowed to witness the test and comment on all the tests performed by the Contractor. The Contractor shall not open the roadway to traffic until the final strength has been met and when the Department has directed that the roadway can be opened to traffic.

All testing and equipment shall conform to AASHTO T 22, and the making and curing of concrete cylinders shall conform to AASHTO T 23. All costs associated with the on-site mobile testing facilities, personnel and field testing, equipment calibration and verification to demonstrate the field concrete strength shall be incidental to the work.

Acceptance tests will be performed by the Department on standard cured cylinders at 7 days and 28 days. Cylinder breaks at 3 days and 7 days must be at least 10% above the approved trial batch results. The Contractor will be notified of any verification tests that do not meet these requirements and will be required to develop a contingency corrective action plan if final strength is not achieved. Concrete will be accepted and traffic shall be allowed on the concrete only if a strength of 4000 psi is achieved.

Curing Methods

The concrete curing methods shall be developed by the Contractor as part of the Quality Control Plan. The curing methods used in the production placements shall be the same as the curing methods used for the trial placement.

High Early Strength Concrete Crack Inspection

The Contractor shall inspect the finished high early strength concrete surface for cracks. Inspection of the deck for cracking shall be completed prior to the preparation of the deck for placement of the membrane waterproofing system.

The Contractor shall document the location and frequency of cracks on the deck end pours (number of cracks per square foot). Cracks greater than 0.016 inches in width shall be repaired as required by the membrane waterproofing manufacturer

Basis of Payment: Add the following

The work completed under this Item will be paid for at the contract price per actual number of cubic yards of high early strength concrete that is measured complete in place. Payment under this Item includes full compensation for all testing and approval of the mix design.

<u>Pay Item</u>	<u>Pay Unit</u>
High Early Strength Concrete	C.Y.

ITEM #0601323A - MODIFY CONCRETE BEARING PAD

Description: Work under this item shall consist of modifying a concrete bearing pad to accommodate a new elastomeric bearing assembly at the proposed elevations. This includes cutting/removal of existing concrete bearing pad and cutting rebars, roughening of existing concrete and furnishing and placing new unreinforced concrete grout mix (less than 4" in height) to the elevations shown in the contract plans. Grout pads resulting in a thickness of 4 inches or greater shall be reinforced as shown in the plans and shall receive PCC04460 in lieu of non-shrink grout. The Contractor shall perform work as indicated on the plans, in accordance with these specifications and as directed by the Engineer.

Materials: The materials shall meet the following requirements:

1. Non shrink grout shall meet the requirements of Article M.03.05
2. The Contractor shall submit to the Engineer a grout mix design for approval which will provide a 28 days strength of 4000 psi. The Contractor shall further provided a certificate stating that the mix submitted meets requirements.
3. Column and Cap Concrete shall be Class PCC04460 conforming to Section M.03.

In lieu of a Contractor designed grout mix, the Contractor may at no additional cost to the State, submit for approval one of the following bagged repair mortars:

MasterEmaco T415 Rapid Strength Repair Mortar

Manufactured by: BASF Building Systems
889 Valley Park Drive
Shakopee, MN 55379

MasterEmaco T430 Rapid Strength Repair Mortar

Manufactured by: BASF Building Systems
889 Valley Park Drive
Shakopee, MN 55379

Rapid Set DOT Repair Mortar

Manufactured by: CTS Cement Manufacturing Corporation
11065 Knott Avenue, Suite A
Cypress, CA 90630

Five Star Structural Concrete V/O

Manufactured by: Five Star Products Inc.
750 Commerce Drive
Fairfield, CT 06825

All materials shall be approved by the Engineer before use.

Construction Methods: Before construction, the Contractor shall submit Shop Drawings to the Engineer for review in accordance with Article 1.05.02. Additionally, the Contractor shall verify existing elevations and determine the thickness of the new concrete pads based on as-built elevations and the desired proposed elevations shown in the plans. The field measurements and the thicknesses of the new/modified concrete pads shall be shown in the shop drawings. Grout pads resulting in a thickness of 4 inches or greater shall be reinforced as shown in the plans and shall be constructed with PCC04460 in lieu of non-shrink grout.

These drawing shall include the following:

1. Material lists.
2. Material designations.
3. Method of removal of existing concrete and cutting reinforcing bars

The surface on which the new concrete is to be placed shall be intentionally roughened to a depth of ¼” and wetted. There shall be no standing water on the surface. Mixing, placing, curing and finishing of the concrete shall be in accordance with Article 6.01.03. Furnishing and placing reinforcing steel shall be in accordance with Section 6.02.

The Contractor, as directed by the Engineer, shall take adequate precautions to prevent any materials from dropping to the areas below which may result in damage to any existing construction, traffic or to adjoining property. Should any damage occur as a result of the Contractor’s operations, the Contractor shall repair or replace any such damage to the satisfaction of the Engineer at no cost to the State.

Method of Measurement: This work will be measured for payment by the number of modified concrete bearing pads constructed and accepted by the Engineer.

Basis of Payment: This work will be paid for at the contract unit price each for “Modify Concrete Bearing Pad”, complete in place, which price shall include removal of existing concrete, cutting of existing reinforcing bars, furnishing and placing bagged repair mortar/grout, furnishing and placing access and all materials, equipment, tools and labor incidental thereto.

Concrete for bearing pads 4 inches or greater in thickness shall be paid under item “Column and Cap Concrete”. Reinforcing steel for bearing pads 4 inches or greater in thickness shall be paid under Items “Deformed Steel Bars - Galvanized”.

Pay Item
Modify Concrete Bearing Pad

Pay Unit
EA.

ITEM #0601950A – EPOXY BONDING COMPOUND

Description:

This item shall consist of filling and sealing gaps between the girders and the underside of the concrete deck with a two component low-viscosity, high-strength epoxy adhesive as shown on the plans or as directed by the Engineer and in accordance with these specifications.

The Contractor shall not perform this work without prior approval by the Engineer for gap filling locations and limits.

Materials:

1. Epoxy Compound: The epoxy compound shall be:

Sikadur 35, Hi-Mod LV
Manufactured by: Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071

or an approved two-component, moisture tolerant system with a solids content of 100%, and a low-viscosity, high-strength, epoxy adhesive which meets the following requirements:

(a) Physical Requirements of (Mixed) Epoxy Compound: A mixture of both components in the proportions recommended by the Manufacturer shall have the following properties and meet the following test requirements:

Viscosity – approximately 375 centipoises

Pot life – approximately 25 minutes

Tensile Properties (ASTM D638) – Tensile Strength 14 day Neat ... 8,900 psi.

Flexural Properties (ASTM D790) – Flexural Strength 14 day Neat ... 14,000 psi.

Shear Strength (ASTM D732) – Shear Strength 14 day Neat ... 5,100 psi.

(b) Packaging and Marking: The two components of the epoxy compound system furnished under these specifications shall be supplied in separate containers, which are non-reactive with the materials contained therein. The size of the container shall be such that the recommended proportions of the final mixture can be obtained by combining one container of one component with one or more whole containers of the other component.

Containers shall be identified and shall show the mixing directions and usable temperature range as defined by these specifications. Each container shall be marked with the name of the manufacturer, the lot or batch number, the date of packaging, pigmentation if any, and the quantity contained therein in pounds and gallons.

Printed instructions from the manufacturer for mixing and applying the material shall be included.

Potential hazards shall be so stated on the package in accordance with the Federal Hazardous Products Labeling Act.

2. Sampling: A minimum of 30 days prior to installing the epoxy bonding compound the Contractor shall submit to the Engineer acceptable test results meeting all requirements of this specification performed by a Department approved laboratory. The Contractor shall mix samples provided for laboratory testing. The entire lot of both components may be rejected if samples submitted for testing fail to meet any requirements of this specification.

3. Control of Materials: A Materials Certificate will be required in accordance with Article 1.06.07, certifying the conformance of the epoxy bonding compound to the requirements set forth in this specification.

Construction Methods:

A survey shall be undertaken by the Engineer on the areas designated on the plans to determine the exact limits and location of the repair areas under this item. The Contractor shall submit the procedure for gap filling along with field measurements of the gaps to the Engineer for review.

At the time of mixing, Components A and B and the substrate temperature shall be between 40°F and 90°F.

Prior to installing epoxy compound, the steel shall be mechanically cleaned and the gap shall be cleaned free of dust, silt and any other material which would impair the filling and sealing of the gap. Cleaning shall be done with oil-free compressed air or other approved methods.

Injection ports shall be inserted in the gaps at locations recommended by the epoxy manufacturer. The Contractor may use either surface or inserted injection ports, whichever is recommended by the epoxy manufacturer. Spacing of the ports shall be such that the injected adhesive will substantially fill the gap without excessive waste. The spacing of the ports shall be adjusted as the injection process progresses in order to meet this requirement.

The perimeter of the gap shall be sealed with a surface sealant which is capable of retaining the epoxy adhesive in the gap during pressure injection and shall remain in place until the epoxy adhesive has hardened.

Epoxy compound shall be pumped into the gaps through the injection ports. The pump, hose, injections gun and appurtenances shall properly proportion and mix the epoxy and shall be capable of injecting the epoxy at a sufficient rate and pressure to completely fill all designated gaps.

Pumping shall start at the widest opening of the gap and filling the gap until the epoxy

compound is flowing out of the port at the smallest opening and the operator is sure the gap has been completely filled.

To aid in assuring proper installation of the epoxy compound in the field, the Contractor shall have available at the job site the services of a qualified installation technician who is a full time employee of the manufacturer of the epoxy compound to be installed on this project. Recommendations made by the epoxy compound manufacturer’s installation technician and approved by the Engineer shall be adhered to by the Contractor.

Methods of Measurements: The quantity of epoxy compound will be measured for payment by the number of gallons furnished, applied, completed and accepted on the Project and approved by the Engineer.

Basis of Payment: This work will be paid for at the contract unit price per gallon for “Epoxy Bonding Compound”, complete in place, which price shall include cleaning and preparing gaps to be filled with epoxy compound material, all materials, equipment, tools, labor and clean up incidental thereto.

Pay Item
Epoxy Bonding Compound

Pay Unit
GAL.

ITEM #0601954A – EPOXY INJECTION CRACK REPAIR

Description:

This item shall consist of surveying the existing areas, locating all cracks to be repaired under this item, and rebonding the cracked concrete structures with a two component modified epoxy resin system injected into the cracked structure under low pressure using continuous positive displacement metering and mixing equipment as directed in accordance with these specifications.

Work under this item shall also include providing of a safe access to the structure for the delineation of the repair locations and review of the performed repair work. The Contractor shall not perform any repair work without prior approval of the Engineer for location, limits and types of repairs.

Materials:

The modified epoxy resin shall be a pre-qualified epoxy resin (see Appendix A). A Materials Certificate and a Certified Test Report in accordance with Article 1.06.07 shall accompany each batch or lot of the material delivered to the job site, to verify the epoxy resin's accordance with the manufacturer's supplied infrared spectroscopy test results.

A batch of each component will be defined as that quantity of material that has been subjected to the same unit chemical or physical mixing process intended to make the final product substantially uniform.

Each component shall be packaged in steel containers not larger than 5 gallons in volume. The containers shall have lug type crimp lids with ring seals, shall be new, not less than 0.024-inch nominal thickness, and shall be well sealed to prevent leakage. If a lining is used in the container, it shall be of such character as to resist any action by the components. Each container shall be clearly labeled with the designation (component A or B), manufacturer's name and date of manufacturer, batch number and the following warning:

Any material, which shows evidence of crystallization or a permanent increase in viscosity or settling of pigments that cannot be readily redispersed with a paddle, shall not be used.

Construction Methods:

A survey shall be undertaken by the Contractor on the area designated to be repaired, under the direction and to the satisfaction of the Engineer, to determine the exact limits and location of the area to be repaired under this item.

At the time of mixing, components A and B and the substrate temperature shall be between 50° and 85° Fahrenheit, unless the material has been pre-qualified at a temperature less than 75°

Fahrenheit, in which case this lesser temperature shall govern the use of the material. Any heating of the adhesive components shall be done by application of indirect heat. Immediately prior to filling the tanks of the mixing equipment, each component shall be thoroughly stirred with a paddle. Separate paddles shall be used to stir each component.

Cracks less than 1/8 inch in width shall not be repaired under this item unless directed by the Engineer, but shall be sealed by the application of "Penetrating Sealer Protective Compound".

Prior to sealing, the crack shall be cleaned free of dust, silt and any other material, which would impair bond. Cleaning shall be done with oil free compressed air jets or preferably by vacuum cleaning with an industrial vacuum cleaner (such as Black and Decker No. 95 Vackar or equivalent).

Injection ports shall be inserted in the cracks at intervals not less than the thickness of the concrete being injected. At the end of a crack or at a point where the thickness of the crack becomes less than 0.125 inches, the first port shall be half the distance from this point. The Contractor may use either surface injection ports or insertable injection ports as recommended by the manufacturer of the epoxy.

Drilling of the injection ports shall be done with a hollow drill bit to which vacuum is applied with an industrial vacuum cleaner (such as Black and Decker No. 95 Vackar or equivalent). The drill shall not contact any steel reinforcing or pre-stressing strands or ducts. A pachometer shall be used to locate the embedded steel.

Spacing of the ports shall be such that the injected adhesive will substantially fill the crack without excessive waste. If necessary to meet this requirement, the spacing of the ports shall be revised as approved by the Engineer as the injection process progresses.

The surface of the crack between ports shall be sealed with tape or other temporary surface sealant, which is capable of retaining the epoxy adhesive in the crack during pressure injection, and shall remain in place until the epoxy has hardened. Sealant tape and/or temporary surface sealant shall also be removed and any spillage of epoxy shall also be removed.

Epoxy adhesive shall be pumped into the cracks through the injection ports. The pump, hose, injection gun and appurtenances shall properly proportion and mix the epoxy and shall be capable of injecting the epoxy at a sufficient rate and pressure to completely fill all designated cracks. A suitable gasket shall be used on the head of the injection gun to prevent the adhesive from running down the face of the concrete. Pumping pressure shall be kept as low as practicable.

The temperature of the concrete shall not be less than 50° Fahrenheit at the time epoxy is injected, unless the epoxy has been pre-qualified at a lower temperature as here in before provided, in which case the lower temperature shall govern.

For a crack with uniform thickness, the epoxy adhesive shall be forced into the first port at one

end of the crack until adhesive runs in substantial quantity from the next adjacent port. The first port shall then be sealed and injection started at the next port. Injection shall then continue from port to port in this manner until the crack is fully injected.

Cracks with non-uniform thickness shall have the epoxy adhesive forced into the port at the widest separation in the crack until adhesive runs in substantial quantity from the two adjacent ports. The first port shall then be sealed and injection started at the adjacent port corresponding to the shortest length of the crack. Injection shall then continue from port to port in this manner until the short side of the crack is fully injected. Then, beginning with the port that is filled with epoxy adhesive but not sealed, injection shall continue from port to port until the crack is fully injected.

For slanting or vertical cracks, pumping shall start at the lower end of the crack. Where approximately vertical and horizontal cracks intersect, the vertical crack below the intersection shall be injected first. The ports shall be sealed by removing the fitting, filling the void with epoxy and covering with tape or surface sealant.

Before starting injection work and at 2-hour intervals during injection work when requested by the Engineer, a 3-fluid ounce sample of mixed epoxy shall be taken from the injection gun. Should these samples show any evidence of improper proportioning or mixing, injection work shall be suspended until the equipment or procedures are corrected.

Samples obtained above shall be used directly, without further stirring, to make test pieces for the Slant Shear Strength on Dry Concrete. One test piece shall be made at the beginning, middle and end of daily operations. The samples shall be allowed to cure for 7 days in the "Concrete Cylinder Curing Box". On the 7th day the samples shall be removed, and sent to the Department's laboratory and tested in accordance with the requirements for Slant Shear Strength (see Appendix A, attached).

Each sample shall be numbered consecutively and dated (with a waterproof marker) and it shall be noted which sample represents which part of the structure.

Technical Advisor: The Contractor shall obtain the services of a Technical Advisor who is employed by the manufacturer of the epoxy resin. The Technical Advisor shall assist the Engineer and the Contractor in the correct use of the injection resin. The Advisor shall be a qualified representative approved by the Engineer, and shall be at the site of the work when the work begins in connection with the epoxy injection and at such other times as the Engineer may request until completion of this item.

Method of Measurement:

This work will be measured for payment by the number of linear feet, designated by the Engineer to be injected and which were subsequently filled with epoxy.

Where cracks are designated for injection on opposite sides of a concrete member and the

epoxy adhesive injected on one side penetrates through the members to completely fill the crack on the opposite side, payment will be made for the cracks in both sides as though injection had been performed on both sides, except that no payment will be made for such cracks on the opposite side that were not designated by the Engineer for injection. No payment will be made for such cracks on the opposite side that are also smaller than 1/8”.

Where a crack designated for injection extends around the corner of a concrete member, the length of crack on both faces will be measured for payment.

Providing of a safe access for delineation and inspection of the performed repairs will not be measured for payment.

Basis of Payment:

This work will be paid for at the Contract unit price per linear foot for "Epoxy Injection Crack Repair", complete in place, which price shall include all preparation, materials, inspection access for delineation and inspection of performed repairs, services of qualified technical advisor, and all equipment, tools, labor and cleanup incidental thereto.

<u>Pay Item</u>	<u>Pay Unit</u>
Epoxy Injection Crack Repair	LF

APPENDIX A

Prequalification Procedure

The Prequalification Procedure shall consist of the following test procedure on the mixed epoxy resin at a temperature of 77°F, unless the Contractor desires to use the material at a lower temperature than 50°F, in which case the lower temperature shall be used to condition the material and test pieces.

TEST: VISCOSITY

Requirements: 900 centipoise max. @20°F (±2°)
 4,000 centipoise max. @any test

temperature Test Method: ASTM D 2393

TEST: GEL TIME (POT LIFE)

Requirement: 4 to 60 minutes

Test Method:

A. Apparatus

1. Unwaxed paper cups, 8 oz., 2¼ inches at base (Dixie Cup No. 4338 or equivalent).
2. Wooden tongue depressor with ends cut square (Puritan No. 705 or equivalent).
3. Stainless steel spatula with blade 6" x 1" and with end cut square.
4. Stopwatch, 1 second or smaller divisions.
5. Balance, 0.1 gram divisions.

B. Test Procedure

1. Condition both A and B components to required temperature (±2°F).
2. Measure proper volumes of well-mixed components A and B into an 8-oz. unwaxed cup to yield total mass of 60 (±2.0 grams).
3. Start stopwatch immediately and mix components for 60 seconds, stirring with a wooden tongue decompressor taking care to scrape the sides and bottom of the cup periodically.
4. Place the sample at the required temperature (±2°F) on a wooden bench top, which is free of excessive drafts.
5. Probe the mixture once with the tongue depressor every 30 seconds starting 4 minutes from the time of mixing.
6. The time at which a soft stringy mass forms in the cup is the gel time.

TEST: SLANT SHEAR STRENGTH ON WET CONCRETE

Requirements: 1700 psi min. after 7 days of cure in air at the required temperature ($\pm 2^\circ\text{F}$)

TEST: SLANT SHEAR STRENGTH ON DRY CONCRETE

Requirements: 4500 psi min. after 7 days of cure in air at the required temperature ($\pm 2^\circ\text{F}$)

TEST: SLANT SHEAR STRENGTH

A. Materials

1. Ottawa sand, ASTM C109
2. Portland cement, Type II
3. Water

B. Apparatus

1. Suitable mold to make diagonal concrete mortar blocks with a square base with 2-inch sides and having one diagonal face 2" x 4" starting about 3/4-inch above the base. The diagonal faces of two such blocks are bonded together producing a block of dimensions 2" x 2" x 5".
2. Block made from the following composition:

- Ottawa sand, ASTM C109	30.1 lbs.
- Portland cement, Type II	12.1 lbs.
- Water	4.8 lbs.

Cure blocks 28 days in a fog room. Dry and lightly sandblast diagonal faces.

3. Suitable test press.

C. Test Procedure

Condition the components for 4 hours at the required temperature ($\pm 2^\circ\text{F}$). Without entrapping air, stir the separate components for 30 seconds and place the proper volumes of each component on a plate and mix with a spatula for 60 + 5 seconds. Apply a coat approximately 0.010-inch thick to each diagonal surface. Place four 1/8-inch square pieces of shim stock 0.012-inch thick on one block to control final film thickness. Before pressing the coated surface together, leave the blocks so that the coated surfaces are horizontal until the epoxy reacts slightly to prevent excessive flow. Press diagonal surfaces of each block together by hand and remove excess epoxy adhesive.

Align the blocks so that the ends and sides are square and form a block 2" x 2" x 5". Use blocks of wood or metal against each 2" x 2" end, to keep diagonal faces from slipping until epoxy hardens.

After the required cure time, apply a suitable capping compound to each of the 2" x 2" bases, and test by applying a compression load with a Universal Test Machine or other suitable testing apparatus at the rate of 5000 lbs./min, until failure.

Report results in pounds per square inch

$$= \frac{\text{Load in Pounds}}{4}$$

For wet shear strength, soak another set of blocks in water for 24 hours at the required temperature ($\pm 2^{\circ}\text{F}$). Remove and wipe off excess water. Prepare, cure, and test sample according to above test procedure.

TEST: TENSILE STRENGTH

Requirements: 4500 psi Min.

TEST: ELONGATION

Requirements: 15% Max.

Test Method: TENSILE STRENGTH AND ELOGATION

A. Apparatus

1. Leveling table about 12" x 8" with removable rim ¼-inch thick by ½-inch wide.
2. Mylar or similar plastic sheeting 0.004-inches thick.
3. Air circulation oven capable of maintaining 158°F ($\pm 3^{\circ}\text{F}$).
4. Cutting die, Figure I
5. Thickness gauge, ⅛-inch.
6. Release agent, non-silicone type.

B. Procedure

1. Place Mylar sheet on leveling table.
2. Coat inside edge and bottom of rim with the release agent and secure to table with screws.
3. Level the table.

4. Mix sufficient volume of well-mixed component A and well mixed component B in the proper volumes so as to be able to form a layer $\frac{1}{8}$ -inch deep when placed inside the ring on the leveling table.
5. Introduce as few bubbles as possible during mixing.
6. Flush surface of epoxy with a heat gun or Bunsen burner to remove air bubbles on surface. Repeat if necessary.
7. Allow the specimen to cure for 18 hours at the required temperature ($\pm 2^{\circ}\text{F}$).
8. Remove specimen from table and strip off Mylar sheet. Cure specimen for 5 hours at 158°F ($\pm 3^{\circ}\text{F}$).
9. Allow specimen to cool to the required temperature and cut specimens using cutting die shown in Figure I.
10. Proceed as specified in ASTM D 638, using 0.2-inches/minute test rate and 1-inch gauge length.

TEST: INFRARED SPECTROSCOPY

Requirement: Infrared Spectroscopy Tests shall be obtained of Components A and B

Test Method: RECORDING SPECTROPHOTOMETER

A. Apparatus

1. Perkin–Elmer Model 137-B Infracord Spectrophotometer, automatic recording system from 2.5 microns to 15 microns with a two-speed recorder. Comparable results can be obtained with similar resolution.
2. Disk holder for a one-inch diameter disk.
3. Two sodium chloride crystal disks one-inch in diameter.
4. Sorvall SS-3 Automatic Superspeed Centrifuge, or comparable centrifuge, which is able to separate the liquid and solid phases of the epoxy components without previous dilution with solvents.

B. Procedure

1. Place 15 grams of component A into a stainless steel centrifuge tube.
2. Counterbalance with component B in a second centrifuge tube.
3. Centrifuge the two components at 17000 rpm until there is a supernatant liquid layer present in each tube. This takes 20 to 30 minutes.
4. Place a drop of component A liquid layer on a sodium chloride disk.
5. Place another sodium chloride disk over the drop, rotate, and press down until the liquid has flowed into a uniform layer of proper thickness between the two sodium chloride disks.
6. Place the disks in the holder and run an absorption curve with the infrared spectrophotometer.

7. More or less liquid may be used between the disks so as to produce a maximum absorption of 0.7 to 1.0 for the strongest absorption point on the curve.
8. Clean the disks with toluene and dry.
9. Repeat steps 4 through 8 with the liquid layer from component B.
10. Record each curve in order that they may be used for comparison purposes with lots of material delivered to the job site.

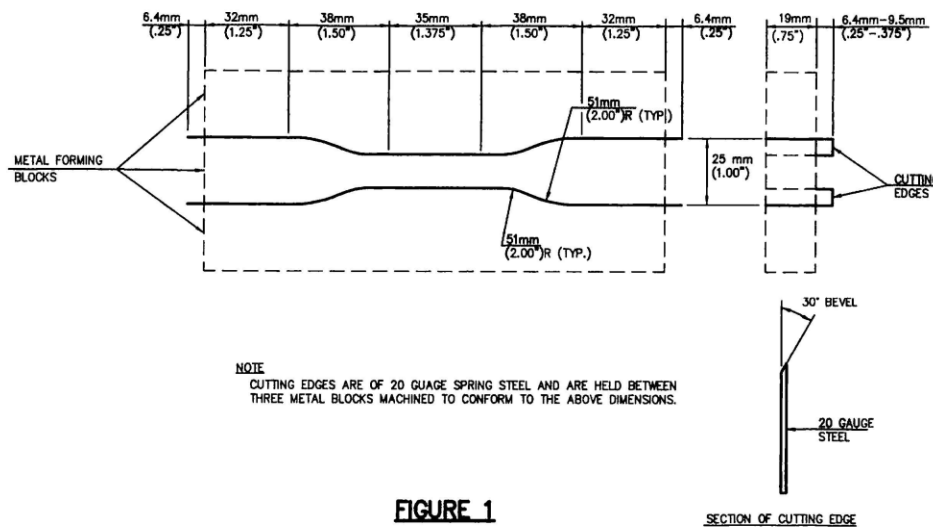


FIGURE 1
CUTTING DIE FOR TENSILE TEST
 N.T.S.

ITEM #0602910A – DRILLING HOLES AND GROUTING DOWELS

Description:

Work under this item shall consist of drilling holes in concrete and grouting dowels at the locations shown on the plans, in accordance with the plans, the manufacturer's recommendations, and as directed by the Engineer.

Materials:

The chemical anchoring material shall conform to Article M.03.07 – Chemical Anchors.

Construction Methods:

Before fabricating any materials, the Contractor shall submit manufacturer's specifications and installation instructions for the chemical anchoring material to the Engineer for review in accordance with Article 1.05.02. This shall include, but not be limited to, the type of drill, diameter of bit, method of cleaning holes and method of placement of the adhesive bonding material. The weight of the drill shall not exceed 15 pounds.

Holes for the dowels shall be located as shown on the plans. The holes shall clear the existing reinforcement and provide the minimum cover as shown on the plans. A pachometer shall be used to locate existing reinforcing steel. If existing reinforcing is encountered during the drilling operation, the holes shall be relocated.

The depth and diameter of each hole shall be as shown on the plans. If the depth and diameter of a hole are not shown on the plans, the hole shall conform to the manufacturer's recommendations for the diameter of the dowel being anchored such that the grouted dowels will be able to develop a pull-out resistance of 125 percent of its nominal yield strength or 100 percent of its tensile strength, whichever is greater.

Hole drilling methods shall not cause spalling, cracking, or other damage to the existing concrete. Those areas damaged by the Contractor shall be repaired in a manner acceptable to the Engineer and at no expense to the State.

Prior to placing the chemical anchoring material in the holes, the holes shall be cleaned of all dirt, moisture, concrete dust and other foreign material. The dowel and the chemical anchoring material shall be installed in the holes in accordance with the chemical anchoring material manufacturer's recommendations.

The Contractor, as directed by the Engineer, shall take adequate precautions to prevent any materials from dropping to the area below, which may result in damage to any existing construction or to adjoining property. Should any damage occur to the structure as a result of the

Contractor's operations, the Contractor shall make repairs at his own expense. The repair work shall be approved in advance and shall be of a quality acceptable to the Engineer

Method of Measurement:

This work will be measured for payment by the completed number of holes drilled and dowels grouted, and accepted.

Basis of Payment:

This work will be paid for at the contract unit price per dowel for “Drilling Holes and Grouting Dowels”, which price shall include drilling holes, preparing holes, applying adhesive bonding material, and installation of the dowels. It shall also include all material, excluding dowels, and all equipment, tools and labor incidental thereto. Dowel Bars shall be paid under “Deformed Steel Bars – Galvanized”.

Pay Item

Drilling Holes and Grouting Dowels

Pay Unit

EA.

ITEM #0602980A - CLEAN AND COAT EXPOSED REINFORCING STEEL

Description: This item includes cleaning and coating exposed reinforcing steel with a zinc-rich coating system. This work also includes removal and disposal of loose or delaminated concrete and severely deteriorated reinforcing steel as determined by the Engineer.

Materials: The Contractor may select one of the following products and shall submit a Materials Certificate in accordance with 1.06.07:

Crown Cold Galvanize Coating
93% Zinc Rich
7007VG
Aervoe Industries, Inc.
P.O. Box 485
Gardnerville, NV 89410
1-800-227-0196 or 1-775-783-3100
www.aervoe.com

ZRC Cold Galvanizing Repair Compound
ZRC 221
ZRC Worldwide
145 Enterprise Drive
Mansfield, MA 02050-2132
1-800-831-3275 or 1-781-319-0404
www.zrcworldwide.com

The Contractor may propose other products for the Engineer's acceptance by submitting a Materials Certificate and Certified Test Report in accordance with 1.06.07, showing that the coating meets these requirements:

- ASTM A780, Annex A2 with zinc dust concentration above 92% in the dried film;
- Zinc dust pigment shall conform to ASTM D520, Type III;
- The VOC content shall meet the current DEEP Air Compliance regulations for the coating category "zinc-rich primer;"
- Corrosion Performance Criteria: Must pass a minimum of 2000 hours of salt spray testing for a minimum of 2 mils of zinc in the dry film, without failure according to ASTM B117.

Construction Methods:

Submittals: The Contractor shall prepare and submit written procedures and working drawings in accordance with 1.05.02.

The Submittals shall address the following:

- Proposed equipment and removal methods;
- Debris shields and access;
- Coating product information, including coating manufacturer, product name, application instructions, technical data and MSDS/SDS;
- The Manufacturer's written application instructions at a minimum shall contain the following:
 - Number of coats needed to meet the Corrosion Performance Criteria

- Minimum wet film and dry film thickness per coat
- Minimum and maximum recoat time
- Thinning requirements if allowed by the Manufacturer.

1. **Inspection of the Repair Area:** The limits of concrete removal around the exposed reinforcing steel to be coated will be determined by the Engineer. The Engineer will also identify any severely corroded reinforcing steel that requires removal.

The Contractor shall provide clear access to the repair areas to determine the limits of concrete removal. During this time, the Engineer will perform an inspection of the repair area and designate where concrete removal is required. The inspection will use visual assessment as well as sounding for delamination (hammer tapping).

The Contractor must inform the Engineer, in writing, of the date that the repair location will be available for inspection operations and the method that will be used for access. Notification shall be given to the Engineer at least 7 days prior to the date so that the Engineer can plan accordingly and verify that the proposed method of access is acceptable.

The Contractor shall not perform any work to the repair location until all necessary inspection operations have been performed, unless given permission in writing by the Engineer. The Contractor shall include the time required for inspection in its overall construction schedule and shall include all costs associated with providing access for the Engineer.

2. **Removal of Deteriorated Concrete:** All deteriorated concrete designated for removal under this item shall be removed within the limits shown on the plans and where ordered by the Engineer. The limits of each area of concrete to be removed will be delineated by the Engineer and suitably marked.

Hand tools shall be used first to remove loose and hollow sounding concrete. If the concrete cannot be removed with hand tools, the Engineer may authorize the use of pneumatic hammers. The weight of pneumatic hammers, when used shall not exceed 15 pounds. The Contractor shall provide structurally adequate shields approved by the Engineer for protection of adjacent areas.

Where reinforcing steel is identified by the Engineer to be removed, a portion of the reinforcing steel shall be cut and removed.

3. **Cleaning Exposed Reinforcing Steel:** The surface of the exposed reinforcing steel shall be power tool cleaned according to SSPC-SP3 requirements to remove all concrete fragments, loose or powder-like rust, dust, dirt, loose particles, and other bond inhibiting matter. Surfaces shall be wiped down to remove the remaining dust and contaminants. Cleaning shall be done just prior to coating.

4. **Coating Exposed Reinforcing Steel:** The zinc-rich coating shall be prepared according to the Manufacturer's recommendations. During application, the container shall be agitated often to provide a homogenous mixture. The coating material shall be brush-applied in accordance with the manufacturer's written requirements. The surrounding concrete shall not be coated. Care shall be taken to coat all exposed portions of each bar's perimeter and all exposed surfaces where bars overlap or are in contact with each other. Manufacturer's requirements for recoat times shall be strictly adhered to.

5. **Supply and Storage of Material:** All coatings shall be supplied in sealed containers bearing the Manufacturer's name, product designation and expiration date. Coating shall be furnished in the Manufacturer's original, sealed and undamaged containers. The Contractor shall provide a suitable facility for the storage of the coating, which is in accordance with the latest federal and state regulations.

Method of Measurement: This work will be measured for payment by the actual number of linear feet of reinforcing steel cleaned and coated and accepted by the Engineer. The length of coated reinforcing steel shall be measured along the exposed face of the bar. Where bars are adjacent to each other, the length of each bar shall be measured. No deduction in length shall be made where bars overlap.

Basis of Payment: This work will be paid for at the Contract unit price per linear foot for "Clean and Coat Exposed Reinforcing Steel," complete and accepted, which price shall include all materials, equipment, tools and labor incidental thereto, including access to the repair areas for repair and inspection, debris shields and disposal of debris.

Pay Item	Pay Unit
Clean and Coat Exposed Reinforcing Steel	l.f.

ITEM #0603081A – STRUCTURAL STEEL REPAIRS (SITE NO. 1)

ITEM #0603082A – STRUCTURAL STEEL REPAIRS (SITE NO. 2)

Work under this item shall meet the requirements of Section 6.03, amended as follows:

Description: The following is added to Article 6.03.01:

Work under this item shall consist of removing existing deteriorated structural steel and furnishing, fabricating, transporting, storing, handling and installing new structural steel repair plates, angles, and channels for the purpose of strengthening beam webs, beam flanges, connection plates, bearing stiffeners and replacing support members as shown on the plans, furnishing and installing new high strength bolts into crack arrest holes as directed by the Engineer and in accordance with these specifications.

Materials: The materials for this work shall meet the requirements of Article M.06 and the following:

Materials for this work shall be stored off the ground before, during, and after fabrication. It shall be kept free from dirt, grease and other contaminants and shall be reasonably protected from corrosion.

Epoxy-Based Filler: Shall conform to ASTM C881, Grade 3. The epoxy-based filler material shall be Flexolith® Gel as manufactured by Tamms, Kop-Coat A-788 as manufactured by Carboline, Steel-Seam FT910 as manufactured by Sherwin-Williams, or Engineer approved equivalent product.

Construction Methods: The following is added to Article 6.03.03:

- 6. Removal of Deteriorated Steel and Installation of Repair Steel:** Wherever arc gouging, flame cutting, or welding will be used, existing lead paint must first be removed. All steel repairs shall be performed after the existing paint is removed. The removal of paint shall be performed per the requirements of item “Localized Paint Removal and Field Painting of Existing Steel ” or “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)”.

Existing deteriorated steel shall be cut out and removed in accordance with the plans and as ordered by the Engineer. Existing welds shall be removed by machining, grinding, chipping, or air carbon-arc gouging and in such a manner that the remaining base metal is not wicked or undercut. A minimum of 1/8” of weld metal shall be left in place if arc gouging is the selected removal method and the remaining weld metal shall be removed by grinding. Welders who perform arc gouging shall be SMAW certified.

Plates shall be installed as shown on the plans and any match marks shall be followed. The plates shall be carefully handled so they will not be bent or otherwise damaged.

Hammering which will injure or distort new or existing members is not permitted. All surfaces to remain in permanent contact shall be cleaned before the final welding.

The Contractor shall provide the Engineer access to the deteriorated beam end locations and to the portions of the girders that have previous damage from impact or collision as noted in the plans, for the purpose of inspection whenever so requested. Contractor shall grind all gouges found on existing steel flanges and cover plates from previous impact or collision damage as noted in the plans. Prior to performing corrective work to straighten and rehabilitate the steel member, the Contractor shall submit to the Engineer for approval, their procedure for grinding and straightening existing steel. No corrective work shall begin until the Contractor's procedure to rehabilitate the steel has been approved by the Engineer.

The epoxy-based filler material shall be used to fill corrosion areas of steel surfaces to the level of their original surface profile. The epoxy-based filler material shall also be used to plug open gaps between the existing steel and the steel repair plates created from discontinuing welds as shown on the Plans or as directed by the Engineer.

Method of Measurement: Delete the entire article and add the following to Article 6.03.04: "Structural Steel Repairs (Site No. X)" will be measured in accordance with Connecticut Department of Transportation Standard Specifications Article 6.03.04, on the net hundredweight determined by computation.

The weight of the structural steel to be measured for payment under this item shall be computed on the basis of the net finished dimensions of the plates based on measurements taken by the Engineer. The weight of weld metal and temporary erection bolts, boxes, crates, and other containers used for shipping, materials used for supporting members during transportation and erection, and weld metal will not be measured for payment.

There shall be no measurement or separate payment for grinding copes, gouges and cuts.

Basis of Payment: Delete the entire article and add the following to Article 6.03.05:

The structural steel, incorporated in the completed and accepted structure, will be paid for at the Contract unit price per hundredweight for "Structural Steel Repairs (Site No. X)."

Payment shall be for structural steel, complete in place, which price shall include removing deteriorated steel, grinding copes, gouges and cuts and straightening of steel, fabricating, furnishing, transporting, storing, erecting and installing the new repair plates, bolts with compatible nuts and washers, all welding and weld inspection, and all other materials, equipment, tools, labor and work incidental thereto.

The final cleaning and application of paint on new steel plates added as a result of the steel repair shall be paid for under the item "Localized Paint Removal and Field Painting of Existing Steel" or "Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)".

Pay Item
Structural Steel Repairs (Site No. X)

Pay Unit
cwt

ITEM #0603222A – DISPOSAL OF LEAD DEBRIS FROM ABRASIVE BLAST CLEANING

Description:

Work under this item shall include the handling, loading, packing, storage, transportation and final off-site disposal of hazardous lead debris which has been generated in conjunction with work conducted under Item 0020905A – Lead Compliance For Abrasive Blast Cleaning and Miscellaneous Tasks.

The Engineer has characterized the lead debris at the Sites as follows:

<u>Bridge Nos.</u>	<u>TCLP Results</u>
Bridge Nos. 01708 & 03374 (structural steel & metal bridge components) Paint waste	350 mg/L

The Contractor shall comply with the latest requirements of the USEPA RCRA Hazardous Waste Regulations 40 CFR 260-274 and the DEEP Hazardous Waste Management Standards 22a-449(c).

Hazardous lead debris shall be transported from the Project by a licensed hazardous waste transporter approved by the Department and disposed of at an EPA-permitted and Department-approved hazardous waste landfill within 90 days from the date of generation.

The Contractor must use one or more of the following Department-approved disposal facilities for the disposal of hazardous waste:

Clean Earth of North Jersey, Inc., (CENJ) 115 Jacobus Avenue, South Kearny, NJ 07105 Phone: (973) 344-4004; Fax: (973) 344-8652	Clean Harbors Environmental Services, Inc. 2247 South Highway 71, Kimball, NE 69145 Phone: (308) 235-8212; Fax: (308) 235-4307
Clean Harbors of Braintree, Inc. 1 Hill Avenue, Braintree, MA 02184 Phone: (781) 380-7134; Fax: (781) 380-7193	Clean Harbors - Spring Grove Facility 4879 Spring Grove Ave., Cincinnati, OH 45232 Phone: (513) 681-6242; Fax: (513) 681-0869
Triumvirate (EnviroSafe Corporation Northeast) (Jones Environmental Services (NE), Inc.) 263 Howard Street, Lowell, MA 01852	Environmental Quality US Ecology Detroit, Inc. 1923 Frederick Street, Detroit, MI 48211 Phone: (800) 495-6059; Fax: (313) 923-3375

Stericycle (Republic Environmental Systems) 2869 Sandstone Drive, Hatfield, PA 19440 Phone: (215) 822-8995; Fax: (215) 997-1293	Stericycle (Northland Environmental, Inc.) (PSC Environmental Systems) 275 Allens Avenue, Providence, RI 02905 Phone: (401) 781-6340; Fax: (401) 781-9710
Environmental Quality Company: Wayne Disposal Facility 49350 North I-94 Service Drive Belleville, MI 48111 Phone: (800) 592-5489; Fax: (800) 592-5329	ACV Enviro (Cycle Chem) 217 South First Street, Elizabeth, NJ 07206 Phone: (908) 354-0210; Fax (908) 355-0562
Envirite of PA (US Ecology) 730 Vogelsong Road, York, PA 17404 Phone: (717) 846-1900; Fax: (717) 854-6757	Stablex, Canada, Inc. 760 Industrial Blvd. Blainville, Quebec J7C3V4 Phone: (451) 430-9230; Fax: (451) 430-4642

Construction Methods:

A. Submittals

The Contractor shall submit in writing, (1) a letter listing the names of the hazardous waste disposal facilities (from the above list) that the Contractor will use to receive hazardous material from this Project, and (2) a copy of each facility's acceptance criteria and sampling frequency requirements.

No facility may be substituted for the one(s) designated in the Contractor's submittal without the Engineer's prior approval. If the material cannot be accepted by any of the Contractor's designated facilities, the Department will supply the Contractor with the name(s) of other acceptable facilities.

B. EPA ID Number:

Prior to the generation of any hazardous waste on a contiguous per site basis, the Contractor shall notify the Engineer of its selected hazardous waste transporter and disposal facility. The Contractor must submit to the Engineer (1) the transporter's current US DOT Certificate of Registration and (2) the transporter's current Hazardous Waste Transporter Permits for the State of Connecticut, the hazardous waste destination state and any other applicable states. The Engineer will then obtain on a contiguous per site basis a temporary EPA Generators ID number for the site that he will forward to the Contractor. Temporary EPA ID numbers are good for six months from the date they are issued and can be extended once, for a maximum of six months and can't be used for longer than one year. The Contractor will be responsible for notifying the Engineer when an extension is needed. Any changes in transporter or facility shall be immediately forwarded to the Engineer for review.

C. General:

Handling, storage, transportation and disposal of hazardous waste materials generated as a result of execution of this project shall comply with all Federal, State and Local regulations including the USEPA RCRA Hazardous Waste Regulations (40 CFR Parts 260-271), the CTDEEP Hazardous Waste Regulations (22a-209 and 22a-449(c)), and the USDOT Hazardous Materials Regulations (49 CFR Part 171-180).

All debris shall be contained and collected daily or more frequently as directed by the Engineer, due to debris buildup. Debris shall be removed by HEPA vacuum collection. Such debris, abrasive blast residue, rust and paint chips shall be stored in leak-proof storage containers in the secured storage site, or as directed by the Engineer. The storage containers and storage locations shall be reviewed by the Engineer and shall be located in areas not subject to ponding.

All storage containers (roll offs or drums) shall have a protective liner and removable lid. These containers shall not have any indentations or damage that would allow seepage of the contained material.

If 55 gallon barrels are used, staging is required: 55 gallon barrels shall be stored together in two rows of five. The Contractor shall maintain a minimum lane clearance of 36 inches between each (barrel lot of ten).

The Contractor shall maintain a secure storage site, which shall be large enough to handle all debris. The Contractor shall store debris only in the secured storage site. All lead debris shall be conveyed to the secured storage site at the conclusion of the work shift. The Contractor shall account for all debris conveyed to the secured storage site and all debris transported from the project for disposal.

The secure storage site shall consist of an 8-ft. high fenced-in area with a padlocked entrance. Storage containers shall not be used on the project until and unless they have been reviewed and approved by the Engineer. Storage containers and sites shall be located so as not to cause any traffic hazard. Container storage sites shall be in areas that are properly drained and runoff water shall not be allowed to pool and shall be out of the 500-year flood plain. The containers shall be placed on pallets or other approved material and not directly on the ground.

Storage containers shall be closed and covered with a waterproof tarpaulin at all times except during placement, sampling and disposal of debris.

The Engineer previously analyzed a representative sample of the lead debris prior to generation and found leachable lead above RCRA-hazardous levels. A copy of the analytical results can be supplied to the Contractor at the time of waste disposal upon request.

Materials other than direct paint related debris which are incidental to the paint removal work activities (tarps, poly, plywood, PPE, gloves, decontamination materials, etc) which may be contaminated with lead, shall be stored separately from the direct paint debris, and shall be

sampled by the Engineer for waste disposal characterization testing. Such materials characterized as hazardous shall be handled/disposed of as described herein, while materials characterized as non-hazardous shall be disposed of as non-hazardous, non-RCRA lead waste under Item 0020905A.

Project construction waste materials unrelated to the paint removal operations shall NOT be combined/stored with paint debris waste and/or incidental paint removal materials as they are not lead contaminated and shall NOT be disposed of as hazardous waste. The Engineer's on-site Inspectors shall conduct inspections to verify materials remain segregated.

Hazardous waste materials are to be properly packed and labeled for transport by the Contractor in accordance with EPA, CTDEEP and USDOT regulations. The disposal of debris characterized as hazardous waste shall be completed within 90 calendar days of the date on which it began to be accumulated in the lined containers. Storage of containers shall be in accordance with current DEEP/EPA procedures.

The Contractor shall label containers with a 6-inch square, yellow, weatherproof, Hazardous Waste sticker in accordance with USDOT regulations.

The Contractor shall obtain and complete all paperwork necessary to arrange for material disposal, including disposal facility waste profile sheets. It is solely the Contractor's responsibility to co-ordinate the disposal of hazardous materials with its selected treatment/recycling/disposal facility(s). Upon receipt of the final approval from the facility, the Contractor shall arrange for the loading, transport and treatment/recycling/disposal of the materials in accordance with all Federal and State regulations. **No claim will be considered based on the failure of the Contractor's disposal facility(s) to meet the Contractor's production rate or for the Contractor's failure to select sufficient facilities to meet its production rate.**

The Contractor shall process the hazardous waste such that the material meets the requirements of the selected treatment/disposal facility including specified size and dimension. Refusal on the part of the treatment/disposal facility to accept said material solely on the basis of non-conformance of the material to the facility's physical requirements is the responsibility of the Contractor and no claim for extra work shall be accepted for reprocessing of said materials to meet these requirements.

All DOT shipping documents, including the Uniform Hazardous Waste Manifests utilized to accompany the transportation of the hazardous waste material shall be prepared by the Contractor and reviewed/signed by an authorized agent representing ConnDOT, as Generator, for each load of hazardous material that is packed to leave the site. The Contractor shall not sign manifests on behalf of the State as Generator. The Contractor shall forward the appropriate original copies of all manifests to the Engineer the same day the material leaves the Project site.

Materials not related to lead paint removal and/or characterized as non-hazardous waste shall NOT be shipped for hazardous waste disposal in accordance with USEPA RCRA hazardous waste minimization requirements.

A load-specific certificate of disposal, signed by the authorized agent representing the waste disposal facility, shall be obtained by the Contractor and promptly delivered to the Engineer for each load.

D. Material Transportation

Materials determined to be hazardous shall be transported in compliance with the applicable federal/state regulations. Transport vehicles shall have a protective liner and removable lid, shall not have any indentations or damage and must be free from leaks, and discharge openings must be securely closed during transportation.

In addition to all pertinent Federal, State and local laws or regulatory agency policies, the Contractor shall adhere to the following precautions during the transport of hazardous materials off-site:

- All vehicles departing the site are to be properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume, and contents of materials carried. Vehicles shall display the proper USDOT placards for the type and quantity of waste;
- No materials shall leave the site unless a disposal facility willing to accept all of the material being transported has agreed to accept the type and quantity of waste;
- Documentation must be maintained indicating that all applicable laws have been satisfied and that the materials have been successfully transported and received at the disposal facility; and,
- The Contractor shall segregate the waste streams (i.e. concrete, wood, etc.) as directed by the receiving disposal facility.

Any spillage of debris during disposal operations during loading, transport and unloading shall be cleaned up in accordance with EPA 40 CFR 265 Subparts C & D, at the Contractors expense.

The Contractor is liable for any fines, costs or remediation costs incurred as a result of their failure to be in compliance with this Item and all Federal, State and Local laws.

E. Equipment Decontamination:

All equipment shall be provided to the work site free of gross contamination. The Engineer may prohibit from the site any equipment that in his opinion has not been thoroughly decontaminated prior to arrival. Any decontamination of the Contractor's equipment prior to arrival at the site

shall be at the expense of the Contractor. The Contractor is prohibited from decontaminating equipment on the Project that has not been thoroughly decontaminated prior to arrival.

The Contractor shall furnish labor, materials, tools and equipment for decontamination of all equipment and supplies that are used to handle Hazardous Materials. Decontamination shall be conducted at an area designated by the Engineer and shall be required prior to equipment and supplies leaving the Project, between stages of the work.

The Contractor shall use dry decontamination procedures. Residuals from dry decontamination activities shall be collected and managed as Hazardous Materials. If the results from dry methods are unsatisfactory to the Engineer, the Contractor shall modify decontamination procedures as required.

The Contractor shall be responsible for the collection and treatment/recycling/disposal of any liquid wastes that may be generated by its decontamination activities in accordance with applicable regulations.

F. Project Closeout Documents:

The Contractor shall provide the Engineer, within 30 days of completion of the work, a compliance package; which shall include the following:

1. Copies of completed Hazardous Waste Manifests (signed by authorized disposal facility representative)
2. Completed Waste Shipment Records/Bills of Lading (signed by authorized disposal facility representative)
3. Completed Weigh Bills (indicating each loads net weight).

Method of Measurement:

The work of “DISPOSAL OF LEAD DEBRIS FROM ABRASIVE BLAST CLEANING” shall be measured for payment as the actual net weight in tons delivered to the treatment/disposal facility. Such determinations shall be made by measuring each hauling vehicle on the permanent scales at the treatment/disposal facility. Total weight shall be the summation of weigh bills issued by the facility specific to this project and waste stream.

The disposal of any lead painted debris, originally anticipated to be hazardous, but determined by characterization sampling not to contain hazardous concentrations of lead will not be measured for payment under this Item. Disposal of these materials will be handled in accordance with the provisions of Item 0020905A.

The collection and treatment/disposal of materials and liquids generated during equipment decontamination activities and cleaning/disposal of personal protective equipment (PPE) shall be considered incidental to work under this Item and will not be measured for separate payment. Materials incidental to the construction, which become contaminated due to the lead debris removal,

such as but not limited to, gloves, coveralls, tarps and filters shall be disposed of in accordance with this specification. These incidental materials shall be kept separate from the debris. These materials will not be measured for payment, but will be included in the general cost of the work.

Basis of Payment:

This work shall be paid for at the contract unit price per ton, which shall include the processing, loading, storage (including containers) and transportation of said materials from the temporary storage area to the final to the treatment/disposal facility; the treatment/disposal or recycling of said materials; the preparation of all related paperwork including manifests; fees; and all equipment, materials, tools, labor and work incidental to loading, transporting, treating/recycling and disposal of materials.

No separate payment shall be made under this Item for the on-site processing, transportation and treatment/disposal of materials not found to be hazardous based upon characterization sampling results.

No separate payment shall be made for the disposal of wastes generated in conjunction with equipment decontamination or the disposal of personal protective equipment (PPE). The cost of such disposal shall be considered incidental to the work under this Item.

Final payment will not be approved until completed copies of all Manifest(s) and Bills of Lading signed by an authorized disposal facility representative and all associated weight bills indicating each loads net weight have been provided to the Engineer. Once completed and facility-signed copies of all Manifest(s), Bills of Lading and associated weigh bills have been received in their entirety, the Engineer will review and approve the release of final payment to the Contractor.

<u>Pay Item</u>	<u>Pay Unit</u>
Disposal of Lead Debris from Abrasive Blast Cleaning	Ton

ITEM #0603479A - ABRASIVE BLAST CLEANING AND FIELD PAINTING OF BEAM ENDS (SITE NO. 1)

ITEM #0603480A - ABRASIVE BLAST CLEANING AND FIELD PAINTING OF BEAM ENDS (SITE NO. 2)

Description: Work under this item shall consist of surface preparation and field painting of steel components with a **2-coat system** as shown on the plans, as directed by the Engineer and in accordance with these specifications.

Components to be painted include the following: ends of beams and girders, diaphragms and cross frames, steel fixed bearings, steel components of expansion bearings, scuppers, drainage pipes and troughs, state-owned utility conduits, structural steel utility supports, all new structural steel installed for repair purposes, and all other metal components that are an integral part of the bridge system.

Privately-owned utilities, bridge rails, stay-in-place forms, fences, elastomeric bearing pads and bronze components shall be protected from damage by surface preparation and painting operations and are not to be painted. Any damage resulting from surface preparations, containment and/or overspray from paint operations shall be repaired by the Contractor at no cost to the State.

The amount of steel to be painted under this special provision varies by bridge Site, and is to be determined by the Contractor based on the information contained in the plans. Bidders shall examine the structures in this Contract and shall make their own determinations as to the work involved and conditions to be encountered.

Lead paint is present on the structural steel/metal components of both bridges.

Submittals: A minimum of 20 calendar days before starting any surface preparation and coating application work, the painting contractor shall submit the following to the Engineer for acceptance:

1. A copy of the firm's written Quality Control Program used to control the quality of surface preparation and coating application including, but not limited to, ambient conditions, surface cleanliness and profile, coating mixing, dry film thickness, and final film continuity.
2. A copy of the firm's written surface preparation and application procedures detailing the Materials and Construction Methods for both accessible and inaccessible areas. All areas are deemed accessible, except those areas specifically designated as inaccessible. The Engineer will be the sole judge in determining the exact locations of said inaccessible areas. Inaccessible areas may include: Between back to back angles, edges of top flanges of steel members in contact with concrete, and areas of visible non-removable impacted rust. Such locations designated as inaccessible shall be coated with special materials, such as penetrating sealer or equivalent, as recommended by the Manufacturer of the selected paint

system (see Materials section below for paint systems). This written program must contain a description of all the equipment that will be used for removal of laminar and stratified rust, for surface preparation, including the remediation of soluble salts, and for paint mixing and application, including stripe coating. Coating repair procedures shall be included for both accessible and inaccessible areas.

3. A detailed description of the Contractor's enforcement procedures and the authority of personnel.
4. If the application of heat is proposed for coating application purposes, provide information on the heat containment and procedures that will be used, with data sheets for the equipment. Note: If heat is used for coating operations, the heat and containment must be maintained to provide the required temperatures for the duration of the cure period.
5. Containment plans (paint removal/collection of debris, surface preparation, coating applications, coating applications with heat, etc.).
6. Proof of SSPC-QP 1 qualifications, CAS-certification(s) and QP 2 qualifications, as applicable.
7. Coating product information, including coating manufacturer, product name, application instructions, technical data, MSDS and color chips.
8. Abrasive product information, including abrasive manufacturer, product name, technical data, and MSDS.

The Contractor shall not begin any paint removal work until the Engineer has accepted the submittals. The Contractor shall not construe Engineer acceptance of the submittals to imply approval of any particular method or sequence for conducting the work, or for addressing health and safety concerns. Acceptance of the programs does not relieve the Contractor from the responsibility to conduct the work in strict accordance with the requirements of Federal, State, or local regulations, this specification, or to adequately protect the health and safety of all workers involved in the Project and any members of the public who may be affected by the Project. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

Materials: The materials for the coating system for this work shall conform to the requirements of Section M.07.02 amended as follows:

The coating system shall be one of the following **2-coat systems**:

Carbomastic 15	
Carbothane 133 LV, manufactured by:	Carboline
	2150 Schuetz Road
	St. Louis, MO 63146
	(800) 848-4645

Epoxy Mastic Aluminum II
HS Poly 250, manufactured by:

Sherwin Williams
425 Benton Street
Stratford, CT 06615
(203) 377-1711
(800) 474-3794

Carbomastic 90
Carbothane 134 HS, manufactured by:

Carboline
2150 Schuetz Road
St. Louis, MO 63146
(800) 848-4645

All materials for the complete coating system shall be furnished by the same coating material manufacturer with no subcontracted manufacturing allowed. Intermixing of materials within and between coating systems will not be permitted. Thinning of paint shall conform to the manufacturer's written recommendations. All components of the coating system and the mixed paint shall comply with the Volatile Organic Compounds (VOC) Content Limits and Emission Standards stated in the Connecticut Department of Energy and Environmental Protection's Administration Regulation for the Abatement of Air Pollution, Sections 22a-174-41 through 41a and 22a-174-20(s), respectively.

Note: If any of the above and/or following stipulated Contract specifications differ from those of the Manufacturer's recommended procedures or ranges, the more restrictive of the requirements shall be adhered to unless directed by the Engineer in writing.

The abrasive media for blast cleaning shall be recyclable steel grit.

Construction Methods:

Contractor - Subcontractor Qualifications: Contractors and subcontractors doing this work are required to be certified by the SSPC Painting Contractor Certification Program (PCCP) to QP 1 entitled "Standard Procedure for Evaluating Qualifications of Painting Contractors ("Field Application to Complex Structures"). When the work involves the disturbance of lead-containing paint, the Contractor and subcontractor are also required to be certified to SSPC-QP 2 "Standard Procedure for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint."

Contractors and subcontractors are required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)**-certified (Level II-Interim Status-Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each painting/blasting crew during blast cleaning and spray application (Atmospheric and Immersion Service) operations. A crew-member is a person who is on the job performing hand-held nozzle

blast cleaning and/or spray application of protective coatings on a steel structure. The certification(s) must be kept current for the duration of the Project work. If a Contractor's, subcontractor's or any craft-worker's certification expires, the firm will not be allowed to do any work on this item until the certification is reissued.

Requests for extension of time for any delay to the completion of the Project due to an inactive certification will not be considered and liquidated damages will apply. In addition, if any recoat times are exceeded, the affected areas shall be abrasive blast cleaned to SSPC-SP 6 and coatings reapplied in accordance with these specifications at no additional cost to the State. At the option of the Engineer, if such a delay will adversely impact the successful and timely completion of the Project, the Department may require the Contractor to engage another SSPC certified contractor to do the painting work at the prime contractor's expense.

Quality Control Inspections: The Contractor shall perform first line, in process Quality Control (QC) inspections. The Contractor shall implement a Quality Control Program accepted by the Engineer, including written daily reports, that ensures that the work accomplished complies with these specifications. Copies of these reports shall be provided daily to the Engineer. Contractor QC inspections shall include, but not be limited to the following:

- Suitability of protective coverings and containments
- Ambient conditions
- Surface preparation (solvent cleaning, hand/power tool or abrasive blast cleaning, etc.)
- Coating application (mixing, thinning, and wet/dry film thickness)
- Recoat times and cleanliness between coats
- Coating continuity (freedom from runs, sags, overspray, dryspray, pinholes, shadow-through, skips, misses, etc.)
- Final film acceptance

The personnel managing and performing the quality control program shall be NACE Certified Coating Inspector(s) (successfully completed Sessions I, II, III and Peer Review) or must be SSPC certified BCI level 2. The personnel performing the quality control tests shall be trained in the use of the quality control instruments. Documentation of training shall be provided. These personnel shall not perform surface preparation and painting.

Test Equipment and Materials: The Contractor shall furnish the following new test equipment and materials for use by the QC Inspector: Two PTC Surface Temperature Thermometers

1. Psychron 566 Psychrometer (Battery Operated) with two sets of batteries or a Bacharach Sling Psychrometer
2. U.S. Weather Bureau Psychrometric Tables
3. Hypodermic Needle Pressure Gage for nozzle pressure tests.
4. SSPC Visual Standards VIS 1, VIS 3, and/or VIS 4, as applicable.
5. Testex Spring Micrometer
6. Testex Press-O-Film Replica Tape, one roll (100 pieces) each of coarse and extra-coarse per bridge span, or as specified by the Engineer.
7. Wet film thickness gage
8. PosiTest, Mikrotest or Elcometer Dry Film Thickness Gauge (FM)

9. SSPC Type 2 Dry Film Thickness Gauge per PA2
10. NIST (NBS) Calibration Standards Range: 0 – 39 mils

Quality Assurance Inspections: The Engineer may conduct Quality Assurance (QA) observations of any or all phases of the work. The presence or activity of Engineer inspections in no way relieves the Contractor of the responsibility to provide all necessary daily Quality Control inspections of its own and to comply with all requirements of this Specification.

The Contractor shall facilitate the Engineer's inspections as required, including allowing ample time for the inspections and providing suitable lighting (50 foot candles minimum at the surface as defined later in this specification). The Contractor shall furnish, erect and move scaffolding or other mechanical equipment to permit inspection and close observation of all surfaces to be cleaned and painted. This equipment shall be provided during all phases of the work. The Contractor shall notify the Engineer in advance of plans to remove staging used in cleaning and painting operations in order to allow for inspection. The QA inspection will be performed with the QA inspector's equipment when verifying the Contractor's test results in the field.

Safety: All Contractor activities associated with the coating work described and specified herein shall be conducted according to all applicable Federal (OSHA), State of Connecticut safety regulations and SSPC-PA Guide 3 entitled "A Guide to Safety in Paint Application."

Ambient Conditions: Surface preparation and coating application work shall only be done inside a containment enclosure as specified elsewhere in these specifications. Surface preparation or coating work shall be performed inside the containment enclosure meeting the following:

- The relative humidity is at or below 90 percent.
- The substrate is not damp or covered by frost or ice.
- The surface temperature and air temperature are between 50° F and 100° F.
- The surface temperatures of the steel and air are more than 5° F above the dewpoint temperature, as determined by a surface temperature thermometer and electric or sling psychrometer.

If the requirements of the coating manufacturer differ from the ranges provided above, comply with the most restrictive requirements unless directed otherwise by the Engineer in writing.

Protective Coverings: The Contractor shall protect property, pedestrians, vehicular, and other traffic upon, underneath, or near the bridge, and all portions of the bridge superstructure and substructure against abrasive blast cleaning damage or disfigurement from splatters, splashes, or spray of paint or paint materials. See the specification for "Class 1 - Containment and Collection of Surface Preparation Debris (Site No. X)." All coating overspray, drips and spills shall be contained. Maintain the integrity and security of all protective coverings and containment materials throughout the entire Project.

Any paint chips, paint removal media (e.g., abrasives), coating or solvent that has escaped the Contractor's containment enclosure shall be cleaned up immediately. For bridges over water, the

Contractor shall have on Site a sufficient quantity of spill containment boom and pads to contain a spill. The length of containment boom on Site shall be at least equal to twice the length of the active work site over the water.

Observed Steel Defects: If significant deficiencies, such as cracks or section losses, are found during cleaning or coating operations, the Contractor shall immediately notify the Engineer as to their extent. Significant deficiencies include the following:

- a) Cracks in any part of the superstructure
- b) Section loss more than 1/8" or section loss equal to or greater than 5 percent of flange thickness in the maximum moment areas (i.e. section loss in the middle one half of a single span structure).
- c) Section loss more than 1/4" or section loss equal to or greater than 25 percent of the flange thickness in other than the maximum moment areas (i.e. section loss up to quarter points of the middle one half of a single span structure).
- d) Section loss more than 1/8" or section loss equal to or greater than 33 percent of web thickness in the maximum shear areas (i.e. section loss within five feet of the bearing center line).

Heating Devices: The Contractor may use heating devices to obtain and maintain a condition within the containment enclosure that is suitable for surface preparation and painting application, up to and including the minimum time to recoat, or minimum time to dry for service or topcoat. Heating devices shall be limited to gas or oil-fired indirect air heaters in which the combustion products are discharged separately from the forced airstream to an area outside the containment enclosure. The heating devices must be configured so as not to form condensation on cold surfaces or cause rust-back and must be automatically controlled. Information describing the proposed heating devices and the proposed heating procedures shall be provided a minimum of 20 days in advance for Engineer acceptance.

Lighting Requirements: A minimum illumination level of 20 foot-candles shall be provided throughout the inside of the containment enclosure during surface preparation and coating application work. A minimum illumination level of 50 foot-candles shall be provided at the location of the specific work task and for inspection. All lighting fixtures and related connectors located inside the containment enclosure must be explosion proof and UL listed.

Material Storage: The Contractor shall provide a suitable facility for the storage of paint that complies with all Federal and State laws and regulations.

This facility shall provide protection from the elements and ensure that the paint is stored at temperatures within the more stringent of (1) the manufacturer's written recommended temperatures, or (2) between 40° F and 100° F. If paint application takes place in conditions that require heating of the containment, then the temperature of the stored paint shall be maintained at a similar temperature. Storage of paint shall be in reasonable proximity to the painting locations. The Engineer shall be provided access to the stored paint for inspection and to witness removal of the materials. The Contractor's facility for the storage of paint shall be subject to the approval of the Engineer.

Equipment: All equipment used in surface preparation and removal of debris, such as hoses, hoppers, recycling and vacuum machines that the Contractor brings to the Site, shall be clean and free of any prior debris.

Spray equipment, brushes and rollers used in application of coatings shall be sized sufficiently and be in proper working order to accomplish the work according to the manufacturer's written recommendations.

Compressed Air: All compressed air sources shall have oil and moisture separators, attached and functional, and properly designed and sized. The compressed air sources shall deliver air to the blast nozzle, for blowing down the surfaces, or for conventional spray application that is free of oil and moisture and of sufficient pressure to accomplish the associated work efficiently and effectively. The tanks on the air compressor and moisture separator shall be drained at the end of each workday. The compressed air source shall produce a minimum pressure of 90 psi at the nozzle during abrasive blast cleaning.

The Contractor shall verify that the compressed air is free of moisture and oil contamination in accordance with the requirements of ASTM D4285. The tests shall be conducted at least every four hours for each compressor system in operation. Sufficient freedom from oil and moisture is confirmed if soiling or discoloration is not visible on the paper. If air contamination is evidenced, the Contractor shall change filters, clean traps, add moisture separations or filters, or make other adjustments as necessary to achieve clean, dry, air.

Test Sections: Prior to surface preparation, the Contractor shall prepare a test section(s) on each structure to be painted in a location(s) that the Engineer considers to be representative of the existing surface condition and steel type for the structure as a whole. The test section(s) shall be prepared using the same equipment, materials and procedures as the production operations. The Contractor shall prepare the test section(s) to the specified level according to the appropriate SSPC written specifications and visual standards. The written requirements of the specification prevail in the event of a conflict with the SSPC visual standards. Only after a test section area has been approved shall the Contractor proceed with surface preparation operations. The test section(s) shall cover approximately 10 square feet each. Additional compensation will not be allowed the Contractor for preparation of test sections.

For the production cleaning operations, the specifications and written definitions, the test section(s), and the SSPC visual standards shall be used in that order for determining compliance with the Contract requirements.

Surface Preparation:

1 – Laminar and Stratified Rust: All laminar and stratified rust or corrosion products that have formed on any area of the existing steel surfaces and accessible rust formed along edges of connected plates or shapes of structural steel shall be removed. The tools used to remove these corrosion products shall be identified in the submittals and accepted by the Engineer. If the

surface preparation or removal of rust results in nicks or gouges, the work will be suspended. The Contractor shall demonstrate that the necessary adjustments have been made to prevent a reoccurrence of the damage prior to resuming work.

2 – Commercial Blast Cleaning (SSPC-SP 6): Steel surfaces, including all new steel plates installed for structural repairs, shall be cleaned by the specified methods described in the SSPC Steel Structures Painting Manual, Volume 2 - Systems and Specifications, latest edition. The structural steel shall be abrasive blast cleaned according to SSPC-SP 6 “Commercial Blast Cleaning.” Before and after blast cleaning, all dissolvable foreign matter, such as oil, grease, and dust shall be removed by wiping or scrubbing the surface with rags or brushes wetted with solvent in accordance with the provisions SSPC-SP 1 “Solvent Cleaning.” Clean solvent and clean rags or brushes shall be used for the final wiping.

All foreign materials such as dirt, dust, rust scale, sand, bird droppings, and all materials loosened by abrasive blasting operations shall be completely removed by vacuuming before any painting operations are begun.

Following completion of the initial abrasive blast cleaning operations, the Contractor shall proceed with installation of new structural steel plates where required by the plans and as directed by the Engineer. The plates shall be delivered already coated with a zinc primer coat. After the plates have been welded in place and accepted, the new plates shall be coated with the same paint system used for the existing steel.

The cleaned surface shall be accepted by the Engineer before any painting. If the surface is determined to meet the requirements of SSPC-SP 6, painting operations can commence. The base coat shall be applied to the steel before the end of the day that preparation was performed and before the formation of any flash rusting or rerusting of the steel. Flash rusting or rerusting of the surface is unacceptable and requires additional blast cleaning prior to painting.

Failure of the Contractor to prepare and clean the surfaces to be painted according to these specifications shall be cause for rejection by the Engineer. All surfaces that are rejected shall be recleaned to the satisfaction of the Engineer according to these specifications, at no additional cost to the State.

3 – Steel Grit Abrasive Mix: The recyclable steel grit abrasive mix shall be maintained and monitored such that the final surface profile is within the range specified elsewhere in these specifications.

Before each reuse, the recyclable steel grit abrasive shall be cleaned of millscale, rust, paint, and other contaminants by an abrasive reclaimer.

On a weekly basis during blast cleaning operations, the Contractor shall verify that the recycled steel grit abrasives meet the requirements of SSPC-AB 2. If the abrasive fails the testing, all abrasive blast cleaning operations shall be suspended. The abrasive reclaimer shall be repaired and another abrasive sample will be required for testing after grit recovery and reclassification.

For test results within the acceptable limits, abrasive blast cleaning may resume. Test results outside of the acceptable limits will require additional equipment repairs or replacement at no cost to the State. If additional repairs were performed, another sample will be required for testing after grit recovery and reclassification. If the test results continue to remain outside of the acceptable limits, the Contractor shall replace the abrasive reclaiming at no cost to the State.

4 - Surface Profile: The specified height of the steel surface profile shall be according to the manufacturer's written instructions and shall be uniform. Verification of the profile height will be done with Testex Replica Tape. A surface profile correction factor will be measured according to SSPC-PA 2, Section 2.2.4 with the dry film thickness gauge.

Painting Operation:

1 - General: All coatings shall be supplied in sealed containers bearing the manufacturer's name, product designation, batch number and mixing/thinning instructions. Leaking containers shall not be used. Storage, opening, mixing, thinning and application of coating materials shall be accomplished in strict accordance with the written requirements and procedures published by the respective coating material manufacturer and supplier. In the event of a conflict, the Contractor shall notify the Engineer in writing, and unless directed otherwise in writing, the requirements of this specification shall prevail. The Contractor shall always have at the Project Site the current copies of all material safety data sheets (MSDS), technical data, recommendations and procedures published by the coating manufacturer for the coating materials.

2 - Paint Mixing and Thinning: Thinning shall be performed only to the extent allowed by the manufacturer's written instructions, and only with the manufacturer's approved thinner. In no case shall thinning be permitted that would cause the coating to exceed the local VOC restrictions. For multiple component paints, only complete kits shall be mixed and used. Partial mixing is not allowed.

The ingredients in the containers of paint shall be thoroughly mixed by mechanical power mixers in the original containers, or as directed by the manufacturer, before use or mixing with other containers of paint. The paint shall be mixed in a manner that will break up all lumps, completely disperse pigment and result in a uniform composition. Paint shall be carefully examined after mixing for uniformity and to verify that no unmixed pigment remains on the bottom of the container. Excessive skinning or partial hardening due to improper or prolonged storage will be cause for rejection of the paint, even though it may have been previously inspected and accepted.

Multiple component coatings shall be discarded after the expiration of the pot life. Single component paint shall not remain in spray pots, painter's buckets or similar containers overnight. It shall be stored in a covered container and remixed before use.

The Engineer reserves the right to sample field paint (individual components and/or the mixed material) and have it analyzed. If the paint does not meet the product requirements due to

excessive thinning or because of other field problems, the coating shall be removed from that section of the structure and replaced as directed by the Engineer.

3 – Methods of Application: All applicators of the specified coating material shall show proficiency on a test panel, or a portion of the structure as selected by the Engineer, to the satisfaction of the Engineer before commencing full-scale application.

The preferred method for coating application shall be by airless spray equipment. For striping and for application in areas where complex shapes or tight clearances will not allow spray application, the Contractor shall apply the coating material by appropriately designed and constructed rollers and brushes.

4 – Recoat Times: The recoat time of each coat of paint shall not deviate from the written recommendation of the manufacturer or the times specified in these specifications, complying with the most restrictive requirements unless directed otherwise by the Engineer in writing. If any individual time is exceeded, the affected areas shall be abrasive blast cleaned to SSPC-SP 6 and coatings reapplied in accordance with these specifications at no additional cost to the State.

5 – Film Continuity: All applied coatings shall exhibit no running, streaking, sagging, wrinkling, holidays, pinholes, top coat color or gloss variation, or other film defects. Failure of the Contractor to apply coatings that are free of film defects shall be cause for rejection by the Engineer. All coatings rejected shall be repaired to the satisfaction of the Engineer, at no additional cost to the State. Before doing any coating repair work, the Contractor shall submit to the Engineer for approval the procedures that will be used to repair the coating.

6 - Technical Advisor: It is mandatory that the Contractor obtain the services of a qualified technical advisor employed by the coating manufacturer. This advisor shall be familiar with the technical properties of the coating products and proper application methods. The technical advisor shall assist the Engineer and the Contractor in establishing correct application methods for the complete coating system. He/she shall be present at the work Site before the opening of the material containers and shall remain at the Site until the Engineer is satisfied that the Contractor's personnel have mastered the proper handling, mixing and application of the material. The Engineer may call the technical advisor back to the Site if there are concerns that the Contractor is not handling, mixing or applying the material correctly.

7 - Containment Plan: For each individual Site, the Contractor shall submit a plan of containment to the Engineer for acceptance. The plan shall be submitted twenty days before commencing painting operation. The minimum containment enclosure for the intermediate and top coat shall conform to the requirements of SSPC Guide 6, Class 1A and the following. Components of the containment system must be made from flame retardant materials. Tarpaulin material shall be clean and impermeable to air and water. Joints shall be fully sealed except for entryways. Entryways shall use multiple flap overlapping door tarps to minimize dust escape through the entryway. All mists or dust shall be filtered with collection equipment. For truss bridges a ceiling shall also be included.

8 - Application:**2-COAT SYSTEM:**

A - Primer Coat Application: All prepared surfaces shall be cleaned by vacuuming to remove dust, remaining debris, and other surface contaminants before coating. Such surfaces shall then be sprayed, brushed or rolled within the specified abrasive blast cleaning containment enclosure before the end of the day or before any visible rust-back occurs. If rust-back occurs, affected surfaces shall be recleaned to the satisfaction of the Engineer according to these specifications, at no additional cost to the state. All surfaces shall receive 1 coat of the primer coat. Temperature ranges (both steel and air) shall be the more restrictive of that specified in the Manufacturer's written application instructions or between 50° F. to 100° F., unless directed otherwise by the Engineer in writing. The dry film thickness shall be according to the Manufacturer's written instructions. The primer coat shall be of a contrasting color to the topcoat color. The dry film thickness will be checked for compliance per the guidelines of SSPC-PA 2.

All plate and shape edges, plate seams, back to back angle seams, pitted steel, and other sharp discontinuities shall be hand-stripped with a brush in the longitudinal direction with the primer coat. Bolted connections shall also have all bolt heads and nuts hand-stripped in a circular brush motion with the primer coat material. Stripe coats shall be applied before or after the full primer coat application. The primer coat material used for hand-stripping shall be tinted to distinguish it from material used for the full primer coat application.

B - Top Coat Application: After the primer coat has cured per the Manufacturer's written recommendations (not to exceed 10 days), all previously coated surfaces shall receive the top coat. The cured and dry primer coat shall be clean and free of all surface and embedded contamination and dry-spray. If it is not clean and free of all contamination, and dry-spray, the surfaces shall be cleaned by using clean rags or brushes to water wipe, solvent wipe, or detergent wash and rinse. Power washing is not allowed. Temperature ranges (both steel and air) shall be the more restrictive of that specified in the Manufacturer's written application instructions or between 50° F. to 100° F., unless directed otherwise by the Engineer in writing. The dry film thickness shall be according to the Manufacturer's written instructions.

9 – Painting of New Steel: All new steel shall be painted with the same coating system selected for use at the beam ends, unless permitted otherwise in writing. After the new steel has been fabricated, the steel shall be painted with the primer coat after preparation of the steel surfaces in accordance with the relevant requirements of this special provision including abrasive blast cleaning. All paint that is damaged by field welding operations or by any other operation shall be removed, the area cleaned to the satisfaction of the Engineer, and the affected areas repainted with the primer coat. The new steel shall then be painted with the rest of the paint system.

Method of Measurement: This item, being paid for on a lump sum basis for each bridge Site, will not be measured for payment.

Basis of Payment: This work will be paid for at the Contract lump sum price for “Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X),” which price shall include all materials, equipment, abrasive blast cleaning and surface preparation, painting, coating of inaccessible areas, overspray containment enclosure, heating devices, tools, labor, and services of the technical advisor. No direct payment will be made for the cost of storage or hauling the paint and other materials to and from the bridge Site, but the cost thereof shall be included in the lump sum price as noted above.

The containment and collection of surface preparation debris shall be paid for under the item “Class 1 Containment and Collection of Surface Preparation Debris (Site No. X).”

Disposal of spent abrasive contaminated by lead shall be paid for under the item, “Disposal of Lead Debris from Abrasive Blast Cleaning.”

Pay Item	Pay Unit
Abrasive Blast Cleaning and Field Painting of Beam Ends (Site No. X)	l.s.

ITEM #0603512A - TEMPORARY DECK PLATE

Description: Work under this item covers the temporary bridging of the roadway or sidewalk to temporarily accommodate vehicular and pedestrian traffic during construction. Steel plates are to be used in areas where portions of the deck are being removed to facilitate rehabilitation or replacement of an existing deck joint while being able to maintain continued movement of traffic. When joint rehabilitation work cannot be completed during off peak hours, steel plates (meeting the requirements below) may be used to temporarily cover the joint.

Any traffic control costs incurred solely for the temporary plate including survey, installation, maintenance, inspection and removal etc. are included under the general cost of this item. If this work is performed in conjunction with other joint repair work, then the cost of traffic control is included under the Item "Maintenance and Protection of Traffic" and will be paid under the applicable items.

Materials:

The steel for plate(s) shall be either ASTM A 36 Grade 36 (Yield Strength of 36,000 psi) or ASTM A 572 Grade 50 (Yield Strength of 50,000 psi).

All plating used shall be without deformations (warping, cracking, etc.) and shall be subject to straightedge testing. Plate removal will be required if plate is permanently deformed. Steel plate deformation may occur during loading, but if a steel plate is deformed without loading to at least 0.5 inch per 10 feet in length the plate shall be removed and replaced.

Attachment hardware for bolting the plate to the concrete deck shall be a carbon steel reusable concrete anchor system that is suitable to be removed and reused.

Any timber blocking (if used) shall be an appropriate hardwood with a high perpendicular to grain compression strength that is suitable for the anticipated loads.

Steel grates may also be used if all the requirements of this specification and the contract plans can be satisfied. Use of steel grates needs to be approved by the Engineer.

Material for temporary transition/wedge pavement leading to the plate and final course (if reqd.) after removal of the temporary bridging plate shall be in accordance with Section M.04 of the special provisions and as shown on the plans.

Construction Methods:

Design:

The Contractor shall survey the joint location where the deck plate is to be used and shall develop a cross section of the deck that the temporary deck plate needs to conform to. The

survey should identify cross slope break lines. The survey shall be included as part of the working drawing submission for this item.

The temporary bridging plate system including the plate, blocking, and anchors shall be designed by a Professional Engineer licensed in the State of Connecticut.

The Contractor shall submit stamped working drawings and calculations to the Engineer for Review in accordance with the requirements of the standard specifications and meeting all the requirements shown on the contract drawings and specifications herein.

The plate shall be designed for the following loads per AASHTO LRFD for both STRENGTH and SERVICE Limit States.

The minimum width of an individual section of plate transverse to traffic shall be 4 feet.

Live Loads including dynamic allowance: Each transverse plate section and anchorages shall be designed for the following conditions at a minimum and shall consider the effects from the actual wheel placement:

32 kip wheel load over a 4' transverse width of plate.

64 kips axle load over a 6' transverse width of plate.

Dynamic load allowance shall be 1.75 as specified for joints as noted in Article 3.6.2 of LRFD Spec)

Braking Forces: The plate and the anchor system shall be designed for the forces resulting from a truck braking on the plate.

Wind: The anchor system shall be designed to resist any uplift force that may occur due to high winds.

Thermal: The plates shall be designed to accommodate the anticipated movement of the bridge during the duration of construction using a slotted hole on the anchor at one end. The minimum design temperature swing shall be 30 degrees.

The plate(s) must extend beyond the edge of the deck to safely and adequately support the traffic loads on it. Plate(s) shall be large enough to allow minimum of 1.0 feet longitudinally and 1.0 feet transversely beyond the limits of the deck being demolished at any given stage of construction.

The plate(s) must clear the top of deck/ header by at least ½" so that the plate does not contact the header/top of newly poured deck during vehicular movement on the plate. Plates shall be placed perpendicular or parallel to the direction of travel and shall be fabricated to accommodate any skews. In all situations, the longitudinal edges of the steel plates shall not be in the wheel path.

The minimum thickness of plate shall be 1½". The maximum live load deflection allowed is 'L'/800. Where 'L' is the span between the anchor locations as noted on the plans. The minimum gap between the plate and the top of concrete header shall be the maximum deflection plus 1/8".

All plate(s) shall be visibly identified with the contractor's name and 24-hour notification telephone number. All plates must be installed such that there will not be any rocking, noise, hammering or shaking.

The details of the plates should include traction rods to maintain a non-skid surface on the plate. Alternative Skid resistant treatments may be approved at the discretion of the engineer. Plate(s) without the required skid-resistant surfacing will require removal. Surfacing requirements are not required in areas not exposed to traffic or pedestrian movements. Epoxy-coated plates are not approved for use. The Contractor shall be responsible for periodically monitoring skid resistance, reporting results to the Engineer, and removing deficient plates from service. If imprinted waffle-shaped patterns or right-angle undulations to achieve skid resistance on the steel plate is used, the maximum vertical deviation within the pattern shall be no more than 0.25 inch.

Installation:

Traffic control devices shall be in place before and during plating period in accordance with the requirements of the Maintenance and Protection of Traffic and Prosecution and Progress.

Each plate must be fully supported around the perimeter to prevent wobbling or rocking with non-asphaltic shims and installed to operate with minimum noise.

The plates shall be secured to prevent any movement. The anchor bolts shall be secured to the plate using lock washers to prevent the bolts from coming loose due to vehicular traffic. If the plates are to be left in place for an extended period of time, the anchor bolts shall be inspected every 3 days, at the Contractor's expense to ensure that they have not become loose.

Plates shall not be overlapped or stacked on top of another plate. Steel plate bridging shall be secured against displacement by using adjustable cleats, shims, blocking or other devices. Securing devices shall not extend above the wearing surface of the plate. When steel plates are removed, the anchor bolt holes in the concrete deck shall be backfilled with a pre-approved pre-mix non-shrink rapid set concrete material

The gap between the edge of the plate(s) and the adjacent pavement (not being reconstructed) shall be filled with a temporary bituminous overlay wedge.

Plates shall be secured and ramped on all sides using temporary pavement in accordance with these specifications to ensure a smooth transition from the road surface to the top of the plate surface and back to the road surface.

Ramping transition slope shall be as noted in Section 4.06 – Bituminous Concrete.

Removal of existing wearing surface to facilitate installation of temporary transition pavement shall be done in accordance with the special provision for Item #0409005 - Removal of Existing Wearing Surface.

A “Bump Ahead” warning traffic sign shall be installed, as directed by the Engineer, ahead of each location where a Temporary Deck Plate is being used.

Method of Measurement: The work for this item will be measured for payment by the linear feet between curbs measured along the skew, for which temporary deck plates are being used to facilitate construction, as approved and directed by the Engineer.

Basis of Payment: This work will be paid for at the Contract unit price per linear foot at each joint location for which "Temporary Deck Plate" is approved and used to facilitate reconstruction of the deck ends and joint, which price shall include the design, all materials, daily removal and installation of plate to provide access to the joint, temporary pavement wedge transitions, milling to install temporary wedge transition, removing and restoring wedge transitions, traffic signs warning of “bump ahead” and any equipment, material or labor incidental thereto.

ITEM #0603563A - CLASS 1 CONTAINMENT AND COLLECTION OF SURFACE PREPARATION DEBRIS (SITE NO. 1)

ITEM #0603564A - CLASS 1 CONTAINMENT AND COLLECTION OF SURFACE PREPARATION DEBRIS (SITE NO. 2)

Description: Work under this item shall consist of furnishing and erecting SSPC Guide 6 Class 1 containment enclosures with negative air pressure as required to contain and collect debris resulting from the removal of coatings in the preparation of steel surfaces for painting. Also included are the vacuum collection and the storage of debris in suitable containers.

The containment and collection of debris shall be done in strict conformance with current Federal Environmental Protection Agency (EPA) and Connecticut Department of Energy and Environmental Protection (DEEP) regulations.

Materials: Materials and equipment shall be of satisfactory quality to perform the work and shall not be used on the Project until and unless they have been reviewed and accepted by the Engineer.

Rigid walls for the containment enclosure shall be comprised of plywood panels or corrugated panels of steel, aluminum or reinforced fiberglass. Flexible containment walls constructed of fire retardant tarpaulin material shall be impermeable to air and water.

Fifty Five (55) gallon barrels with resealable lids, or lined storage containers sized for the job shall be leakproof; shall conform to the Code of Federal Regulations Title 49, Chapter 1, Paragraph 173.510A (1), (5), and Paragraph 178.118; and shall not be used on the Project until and unless they have been reviewed and accepted by the Engineer.

In meeting the requirements of these specifications, the Contractor shall supply portable battery-operated manometers with a pressure range of -1.00 to 10.00 in increments of 0.01 inches of water and a velocity range of 50 to 9990 feet per minute; and one or more portable lightmeters with a scale of 0.0-50.0 foot candles.

Construction Methods: The Contractor shall proceed with one of the following containment methods:

- A. Containment enclosure with a suspended platform, or
- B. Containment enclosure without a suspended platform.

A. Containment enclosures with a suspended platform:

At least two (2) months prior to any abrasive blast cleaning activities, the Contractor shall submit to the Department ten (10) complete copies of detailed working drawings and calculations prepared and stamped by a Professional Engineer licensed in Connecticut, which drawings shall detail as described below, the proposed methods for such activities. The Contractor shall not commence

with containment enclosure erection and abrasive blast cleaning until and unless the working drawings have been reviewed and accepted by the Engineer, and shall proceed with such work only within accepted containment enclosures.

The working drawings shall include the following:

1. A construction plan and drawings detailing proposed coating removal operations, abrasive debris classification and separation, removal and transport of waste to a secure storage site.
2. A plan and drawings detailing the proposed containment enclosure, including details of the following:
 - A. Rigid, solid floor or platform.
 - B. Containment walls with rigid and flexible materials.
 - C. Rigid supports and bracing for the floor and wall panels, rigid or flexible supports and bracing for flexible walls.
 - D. Calculations including localized overstress conditions, member stresses, H.S. load rating and maximum dead and live load imposed on the bridge by the containment enclosure, grit blasting/recycling equipment and HVAC equipment.
 - E. Maximum allowable load for the floor/platform.
 - F. Wind load and wind stresses imposed on the bridge by the containment enclosure shall be calculated and submitted.
 - G. Airflow and air re-circulation within the enclosure including a minimum negative pressure of 0.03 inches of water column (W.C.) relative to external ambient air and calculations. Airflow shall meet the SSPC Guide 6 requirements of 100 feet/minute cross draft and 50 feet/minute downdraft and the OSHA Ventilation Standards. The maximum cross sectional area for airflow within the enclosure shall be 400 square feet.
 - H. Connections to the bridge, i.e., clamps, rollers. (Note: Welding and bolting is not allowed.) Each connection to the bridge shall be designed by the Contractor's professional engineer, including the locations of all necessary load cells to verify compliance with the containment drawings and allowable containment construction loads. A digital load indicator shall be connected to the bridge connection load cells and be located in an area accessible to the Engineer. The load cell shall be capable of storing peak load readings.
 - I. Auxiliary stationary source lighting.
 - J. Dust collection and filtration equipment, including the equipment data sheets and airflow capacity.
 - K. Air intake points including filters, louvers, baffles, etc.
 - L. Entrance/Exit compartment completely sealed with airlocks.
 - M. Location of equipment and impact on traffic.
 - N. Elevation view of the containment enclosure with indications of any encroachments on the surroundings. The bridge vertical clearance shall be maintained throughout the Project.

NOTE: The structure loading for containment design shall be in accordance with AASHTO using HS-20 loads. The allowable overstress for all conditions shall not exceed 20%.

B. Containment enclosures without a suspended platform:

At least two (2) months prior to any abrasive blast cleaning activities, the Contractor shall submit to the Department ten (10) complete copies of detailed working drawings and calculations prepared and stamped by a Professional Engineer licensed in Connecticut, which drawings shall detail, as described below, the proposed methods for such activities. The Contractor shall not commence with containment enclosure erection and abrasive blast cleaning until and unless the working drawings have been reviewed and accepted by the Engineer, and shall proceed with such work only within accepted containment enclosures.

The working drawings shall include the following:

1. A construction plan and drawings detailing proposed coating removal operations, abrasive debris classification and separation, removal and transport of waste to a secure storage site.
2. A plan and drawings detailing the proposed containment enclosure, including details of the following:
 - A. Containment walls with rigid and flexible materials.
 - B. Rigid supports and bracing for the floor and wall panels, rigid or flexible supports and bracing for flexible walls.
 - C. Airflow and air re-circulation within the enclosure including a minimum negative pressure of 0.03 inches of water column (W.C.) relative to external ambient air and calculations. Airflow shall meet the SSPC Guide 6 requirements of 100 feet/minute cross draft and 50 feet/minute downdraft and the OSHA Ventilation Standards. The maximum cross sectional area for airflow within the enclosure shall be 400 square feet.
 - D. Connections to the bridge, i.e., clamps, rollers. (Note: Welding and bolting is not allowed.)
 - E. Auxiliary stationary source lighting.
 - F. Dust collection and filtration equipment, including the equipment data sheets and airflow capacity.
 - G. Air intake points including filters, louvers, baffles, etc.
 - H. Entrance/Exit compartment completely sealed with airlocks.
 - I. Location of equipment and impact on traffic.
 - J. Elevation view of the containment enclosure with indications of any encroachments on the surroundings. The bridge vertical clearance shall be maintained throughout the Project.

In addition, if the bridge vertical clearance is greater than 30 feet, the wind load and wind stresses imposed on the bridge by the containment enclosure shall be calculated and submitted.

Reference information on enclosures can be obtained from the following sources:

- SSPC Guide 6
- Steel Structures Painting Manual, Volume 1
- NCHRP Report 265

The containment enclosure shall be sealed across the bridge deck underside between the girders with a rigid material. The floor shall be covered with a waterproof tarpaulin attached and sealed to the enclosure wall and floor around the entire enclosure perimeter. All edges of tarpaulins shall

have a 2 foot flap that clamps over the connected edges around the entire perimeter. These flaps shall be completely fastened 12 inches on center for both edges and sealed completely with the tarpaulin manufacturer's recommended tape and caulk.

All equipment placement and work shall be in strict conformance with the Contract special provisions "Prosecution and Progress" and "Maintenance and Protection of Traffic." The Contractor shall perform all work in accordance with the requirements of any permits for this Project.

During abrasive blast cleaning, if the containment enclosure is allowing debris to escape, the Contractor shall immediately stop such work until the enclosure is repaired. Any debris released from the enclosure shall be cleaned up by the Contractor immediately.

The containment enclosure shall be disassembled if the wind velocity is greater than 40 miles per hour, if it is forecast to be higher or when directed by the Engineer. However, if the wind velocity is below 40 MPH, but high enough to cause the containment enclosure to billow and emit dust, the Contractor shall immediately cease abrasive blast cleaning and, after cleaning up all the debris, disassemble the enclosure.

All debris resulting from surface preparation shall be contained and vacuum collected daily or more frequently as directed by the Engineer, due to debris buildup. Such debris, abrasive blast residue and paint chips removed by hand or power tool cleaning, shall be stored in leakproof storage containers in the secured storage site, or as directed by the Engineer. Debris storage shall be in accordance with Connecticut Hazardous Waste Management Regulations.

If 55 gallon barrels are used, staging is required: 55 gallon barrels shall be stored together in 2 rows of 5. The Contractor shall maintain a minimum lane clearance of 36 inches between each lot (10 barrels per lot).

The Contractor shall maintain a secure storage site, which shall be large enough to handle all coating debris that is collected and stored on the Project Site at any time. The Contractor shall store coating debris only in the secured storage site. During abrasive blast cleaning operations, all surface preparation debris shall be vacuum collected from the containment enclosure and removed to the abrasive recycling reclaimer unit, and the coating debris shall be conveyed to the secured storage site at the conclusion of the work shift. The Contractor shall account for all coating debris conveyed to the secured storage site and all coating debris transported from the Project to the hazardous waste treatment/disposal facility. The Contractor is responsible for the proper handling of the surface preparation debris and coating debris. All spillage shall be cleaned up immediately.

The secure storage site shall consist of an 8 foot high fenced-in area with a padlocked entrance. Storage containers shall not be used on the Project until and unless they have been reviewed and accepted by the Engineer. Storage containers and sites shall be located so as not to cause any traffic hazard. Container storage sites shall be in areas that are properly drained and runoff water shall not be allowed to pond. The containers shall be placed on pallets or other acceptable material and not directly on the ground.

Storage containers shall be closed and covered with a waterproof tarpaulin at all times except during placement, sampling, and disposal of the debris.

The Contractor shall furnish the inspector with two (2) new portable battery-operated manometers and light meters, per containment enclosure. Negative pressure verification with the portable manometers shall be done by the Engineer before and during abrasive blast cleaning and during vacuum collection of all surface preparation debris. The supplied instruments will become the property of the State upon Project completion.

Light at the steel surface within the enclosure shall be maintained by the Contractor at a minimum of 50 foot-candles as measured by a light meter. Such lighting shall be maintained throughout the surface preparation, painting, and inspection activities.

Equipment noise in excess of 90 decibels as measured at the closest residential, commercial or recreational areas, shall be lowered by the Contractor to a maximum of 90 decibels by the use of mufflers or other equipment accepted by the Engineer prior to its use for this purpose.

Any air exhausted from the containment enclosure, abrasive-recycling equipment or vacuum equipment shall be passed through a filtering system. The Contractor is responsible for the design, effectiveness and maintenance of this filtering system. No discharge of debris dust shall be allowed.

The Contractor is liable for any fines, costs, or remediation costs incurred as a result of their failure to be in compliance with this special provision and all Federal, State, and local laws.

Method of Measurement: Work under this item will not be measured for payment, but will be paid for at the Contract lump sum price for each site. A site shall consist of an entire bridge structure, unless otherwise noted on the plans.

Basis of Payment: This work will be paid for at the Contract lump sum price for "Class 1 Containment and Collection of Surface Preparation Debris (Site No. X)," at the site designated. The price shall include all materials, equipment, tools, labor and work incidental thereto.

Pay Item	Pay Unit
Class 1 Containment and Collection of Surface Preparation Debris (Site No. X)	l.s.

ITEM #0603726A - EMBEDDED GALVANIC ANODES

Description: This item includes furnishing all labor, tools, materials, equipment and services necessary to install embedded galvanic anodes within areas of concrete repair or in other locations as shown on the plans.

Materials: The galvanic anodes shall have a cast zinc core meeting the requirements of ASTM B418 Type II (Z13000) and shall be one of the following:

1. Vector Corrosion Technologies, Inc.
Galvashield XP4
8413 Laurel Fair Circle, Suite 200A
Tampa, FL 33610
Tel: (813) 830-7566
Website: www.vector-corrosion.com

2. Sika Corporation
Sika FerroGard - 675
201 Polito Avenue
Lyndurst, NJ 07071
Tel: (800)-933-7452
Website: www.sikaconstruction.com

3. BASF Corporation
Master Builders Solutions – MASTERPROTECT 8160CP
889 Valley Park Drive
Shakopee, MN 55379
Tel: (800)-243-6739
Website: www.basf.com

4. Euclid Chemical Company
Sentinel Gold
19215 Redwood Road
Cleveland, OH 44110
Tel: (800)-321-7628
Website: www.euclidchemical.com

A Materials Certificate shall be submitted to the Engineer in accordance with 1.06.07 that certifies the anode as one of the listed products above.

Construction Methods:

Submittals:

The following information shall be submitted to the Engineer:

- The Manufacturer and product name, written instructions, including Manufacturer limitations on time during which anodes may be submersed in water as the substrate of the repair area is saturated.
- NACE CP2 Cathodic Protection Technician Certification of the Qualified Technical Representative (QTR). The Qualified Technical Representative supplied by the anode manufacturer shall hold and maintain such certification throughout the project.

Installation:

A minimum of two (2) weeks in advance of the scheduled installation of the anodes, the Contractor shall arrange for a Qualified Technical Representative (QTR) to train the employees of the Contractor and Department. The QTR shall review the plans and tailor the training to address specific details of the project. Training shall also include inspection procedures to detect different reinforcing bar configurations, installation procedures, quality control procedures, and documentation. The QTR shall be present to provide direction until the Contractor becomes proficient in the work to the satisfaction of the Engineer. The QTR shall also be available for consultation at such additional times during the work as requested by the Engineer.

In addition to the Contract documents, the work for this item shall be performed as directed by the Engineer, in accordance with the Manufacturer's recommendations and written instructions, and recommendations of the QTR.

Should the Engineer determine that the reinforcing steel size and spacing differs from the expected reinforcing layout, the Engineer will direct the Contractor regarding placement of anodes. The actual reinforcing bar density may be obtained by entering the bar size and spacing in the "Table of Reinforcing Steel Density Ratios" in the Appendix. Anode spacing shall not exceed that shown in the Appendix. Any spacing deviations shall allow for sufficient clearance around the anodes to allow concrete to encase the anode and be properly consolidated.

Reinforcing steel shall be clean and securely fastened together with tie wires to provide electrical connectivity. The Contractor shall secure the galvanic anodes to the reinforcing bars along the edge of the repair as shown on the plans, using the anode tie wires. The tie wires shall be wrapped around the cleaned reinforcing steel and twisted tightly to allow little or no free movement and to allow concrete to encase the anode. The Contractor shall place the anodes along a single bar or at the intersection between two bars. In addition, the Contractor shall place the anodes to provide two (2) inches of cover between the proposed form and the anodes. *[Note: this is to prevent the finished patch from sounding hollow when hammer-tapped.]* If less cover will result due to shallow bar location, additional localized removal of concrete may be required to place the anode behind the bar.

The Contractor shall test the connections between anodes and reinforcing steel for electrical

continuity, as instructed by the QTR. The Contractor shall place additional tie wires or re-tie connections as directed to provide the specified continuity. The Contractor's testing shall:

- Confirm electrical connection between anode tie wire and reinforcing steel by measuring DC resistance in ohms (Ω) or potential (mV). Electrical connection is acceptable if the DC resistance measured is less than 1 Ω or the DC potential is less than 1 mV.
- Confirm electrical continuity of the exposed reinforcing steel within the repair area. Electrical continuity between test areas is acceptable if the DC resistance is less than 1 Ω or the potential is less than 1 mV.

The Contractor shall install anodes and concrete following preparation and cleaning of the steel reinforcement to ensure proper connectivity of the anodes. If significant surface rust forms before the concrete is placed, the bar must be re-cleaned and the anode-to-steel and bar-to-bar connectivity shall be re-verified and corrected as necessary.

Once anodes are installed, precautions shall be taken to prevent water from soaking the anodes prior to concrete placement. The substrate shall be saturated immediately prior to concrete placement, however, the anodes shall not be immersed longer than recommended by the Manufacturer.

Method of Measurement: This work will be measured for payment by the number of anodes installed and accepted.

Basis of Payment: This work will be paid for at the Contract unit price each for "Embedded Galvanic Anodes," complete and accepted in place, which price shall include all applicable materials, equipment, tools, and labor incidental thereto. All services of a QTR, and testing of installed anodes are included in the Contract unit price.

The concrete and concrete removal will be paid under a separate item(s).

Pay Item	Pay Unit
Embedded Galvanic Anodes	ea.

APPENDIX TO ITEM #0603726A – EMBEDDED GALVANIC ANODES

MAXIMUM ANODE SPACING Based on 160g Zinc Mass	
Steel Density Ratio	Maximum Anode Spacing (Inches)
< 0.31	24
0.31 - 0.60	20
0.61 - 0.90	16
0.91 - 1.20	14
1.21 - 1.50	10
1.51 - 1.80	8
1.81 - 2.10	6

Enter the left column in the table above with the Steel Density Ratio from TABLE OF REINFORCING STEEL DENSITY RATIOS below. Select the maximum anode spacing in the right column in the table above.

TABLE OF REINFORCING STEEL DENSITY RATIOS

Bar Size (#)	Spacing (inches)	5				6				7				8				9			
		6	9	12	18	6	9	12	18	6	9	12	18	6	9	12	18	6	9	12	18
5	6	0.65	0.55	0.49	0.44	0.72	0.59	0.52	0.46	0.79	0.63	0.56	0.48	0.85	0.68	0.59	0.50	0.92	0.72	0.62	0.52
	9	0.55	0.44	0.38	0.33	0.61	0.48	0.41	0.35	0.68	0.52	0.45	0.37	0.74	0.57	0.48	0.39	0.81	0.61	0.51	0.41
	12	0.49	0.38	0.33	0.27	0.56	0.43	0.36	0.29	0.62	0.47	0.39	0.32	0.69	0.51	0.43	0.34	0.75	0.56	0.46	0.36
	18	0.44	0.33	0.27	0.22	0.50	0.37	0.31	0.24	0.57	0.41	0.34	0.26	0.63	0.46	0.37	0.28	0.70	0.50	0.40	0.31
6	6	0.72	0.61	0.56	0.50	0.79	0.65	0.59	0.52	0.85	0.70	0.62	0.55	0.92	0.74	0.65	0.57	0.98	0.79	0.69	0.59
	9	0.59	0.48	0.43	0.37	0.65	0.52	0.46	0.39	0.72	0.57	0.49	0.41	0.79	0.61	0.52	0.44	0.85	0.65	0.56	0.46
	12	0.52	0.41	0.36	0.31	0.59	0.46	0.39	0.33	0.65	0.50	0.43	0.35	0.72	0.55	0.46	0.37	0.79	0.59	0.49	0.39
	18	0.46	0.35	0.29	0.24	0.52	0.39	0.33	0.26	0.59	0.44	0.36	0.28	0.65	0.48	0.39	0.31	0.72	0.52	0.43	0.33
7	6	0.79	0.68	0.62	0.57	0.85	0.72	0.65	0.59	0.92	0.76	0.69	0.61	0.98	0.81	0.72	0.63	1.05	0.85	0.75	0.65
	9	0.63	0.52	0.47	0.41	0.70	0.57	0.50	0.44	0.76	0.61	0.53	0.46	0.83	0.65	0.57	0.48	0.89	0.70	0.60	0.50
	12	0.56	0.45	0.39	0.34	0.62	0.49	0.43	0.36	0.69	0.53	0.46	0.38	0.75	0.58	0.49	0.40	0.82	0.62	0.52	0.43
	18	0.48	0.37	0.32	0.26	0.55	0.41	0.35	0.28	0.61	0.46	0.38	0.31	0.68	0.50	0.41	0.33	0.74	0.55	0.45	0.35
8	6	0.85	0.74	0.69	0.63	0.92	0.79	0.72	0.65	0.98	0.83	0.75	0.68	1.05	0.87	0.79	0.70	1.11	0.92	0.82	0.72
	9	0.68	0.57	0.51	0.46	0.74	0.61	0.55	0.48	0.81	0.65	0.58	0.50	0.87	0.70	0.61	0.52	0.94	0.74	0.64	0.55
	12	0.59	0.48	0.43	0.37	0.65	0.52	0.46	0.39	0.72	0.57	0.49	0.41	0.79	0.61	0.52	0.44	0.85	0.65	0.56	0.46
	18	0.50	0.39	0.34	0.28	0.57	0.44	0.37	0.31	0.63	0.48	0.40	0.33	0.70	0.52	0.44	0.35	0.76	0.57	0.47	0.37
9	6	0.92	0.81	0.75	0.70	0.98	0.85	0.79	0.72	1.05	0.89	0.82	0.74	1.11	0.94	0.85	0.76	1.18	0.98	0.88	0.79
	9	0.72	0.61	0.56	0.50	0.79	0.65	0.59	0.52	0.85	0.70	0.62	0.55	0.92	0.74	0.65	0.57	0.98	0.79	0.69	0.59
	12	0.62	0.51	0.46	0.40	0.69	0.56	0.49	0.43	0.75	0.60	0.52	0.45	0.82	0.64	0.56	0.47	0.88	0.69	0.59	0.49
	18	0.52	0.41	0.36	0.31	0.59	0.46	0.39	0.33	0.65	0.50	0.43	0.35	0.72	0.55	0.46	0.37	0.79	0.59	0.49	0.39

How to use the Table of Reinforcing Steel Density Ratios:

1. Enter the table with the first bar size and spacing in the top two rows. Identify that column.
2. Enter the bar size and spacing in the transverse direction in the first two columns. Identify that row.
3. Follow the identified column and row to their intersection and read the reinforcing steel density in that cell.
4. Enter the Maximum Anode Spacing Table with the Reinforcing Steel Density to select the maximum anode spacing.

ITEM #0603729A - LOCALIZED PAINT REMOVAL AND FIELD PAINTING OF EXISTING STEEL

Description: Work under this item shall consist of paint removal and field painting of the existing steel at designated areas. The work shall include containments, paint removal, collection of paint and associated debris, surface preparation and field painting. Designated areas include: areas specifically designated on the plans and those areas where construction activities require the removal of the existing coatings to accomplish other Contract work (such as, but not limited to, arc gouging or welding). The paint removal is required because of the possible presence of hazardous paint containing lead or other hazardous metals. The paint removal is required to comply with OSHA and DEEP regulations.

Privately-owned utilities, bridge rails, stay-in-place forms, fences, elastomeric bearing pads and bronze components shall be protected from damage by surface preparation and painting operations and are not to be painted.

Submittals: A minimum of 20 calendar days before starting any paint removal, surface preparation and coating application work, the painting Contractor shall submit the following to the Engineer for acceptance:

1. A copy of the firm's written Quality Control Program used to control the quality of surface preparation and coating application including, but not limited to, ambient conditions, surface cleanliness and profile, coating mixing, dry film thickness and final film continuity.
2. A copy of the firm's written surface preparation and application procedures. This written program must contain a description of the equipment that will be used for surface preparation, including the remediation of soluble salts, and for paint mixing and application. Coating repair procedures shall be included.
3. A detailed description of the Contractor's enforcement procedures and the authority of personnel.
4. Containment plans (paint removal/collection of debris, surface preparation, coating applications, coating applications with heat, etc.).
5. If the application of heat is proposed for coating application purposes, provide information on the heat containment and procedures that will be used, with data sheets for the equipment.
Note: If heat is used for coating operations, the heat and containment must be maintained to provide the required temperatures for the duration of the **cure** period.
6. Proof of SSPC-QP1 qualifications, CAS-certification(s) and QP2 qualifications, as applicable.
7. Coating product information, including coating manufacturer, product name, application instructions, technical data, MSDS and color chips.

The Contractor shall not begin any paint removal work until the Engineer has accepted the submittals. The Contractor shall not construe Engineer acceptance of the submittals to imply approval of any particular method or sequence for conducting the Work, or for addressing health and safety concerns. Acceptance of the programs does not relieve the Contractor from the

responsibility to conduct the work in strict accordance with the requirements of Federal, State, or local regulations, this specification, or to adequately protect the health and safety of all workers involved in the Project and any members of the public who may be affected by the Project. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

Materials: The paint shall be one of the following **2-coat systems**:

Carbomastic 15
Carbothane 133 LV, manufactured by: Carboline
2150 Schuetz Road
St. Louis, MO 63146
(800) 848-4645

Epoxy Mastic Aluminum II
HS Poly 250, manufactured by: Sherwin Williams
425 Benton Street
Stratford, CT 06615
(203) 377-1711
(800) 474-3794

Carbomastic 90
Carbothane 133 LV, manufactured by: Carboline
2150 Schuetz Road
St. Louis, MO 63146
(800) 848-4645

All materials for the complete coating system shall be furnished by the same coating material manufacturer with no subcontracted manufacturing allowed. Intermixing of materials within and between coating systems will not be permitted. Thinning of paint shall conform to the manufacturer's written recommendations. The coating thickness shall be in accordance with the Manufacturer's printed instructions. All components of the coating system and the mixed paint shall comply with the Volatile Organic Compounds (VOC) Content Limits and Emission Standards stated in the Connecticut Department of Energy and Environmental Protection's Administration Regulation for the Abatement of Air Pollution, Sections 22a-174-41 through 41a and 22a-174-20(s), respectively.

Control of Materials: A Materials Certificate will be required for the selected paint system in accordance with Article 1.06.07, confirming the conformance of the paint to the requirements set forth in these specifications. The selected Topcoat shall conform (as close as possible) in color to the existing topcoat.

Note: If any of the above and/or following stipulated Contract specifications differ from those of the manufacturer's recommended procedures or ranges, the more restrictive of the requirements shall be adhered to unless directed by the Engineer in writing.

Construction Methods:

Contractor - Subcontractor Qualifications: Contractors and subcontractors doing this work are required to be certified by the SSPC Painting Contractor Certification Program (PCCP) to QP 1 entitled "Standard Procedure for Evaluating Qualifications of Painting Contractors ("Field Application to Complex Structures"). When the work involves the disturbance of lead-containing paint, the Contractor and subcontractor are also required to be certified to SSPC-QP 2 "Standard Procedure for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint." The certification(s) must be kept current for the duration of the work. If a Contractor's or subcontractor's certification expires, the firm will not be allowed to do any work related to this item until the certification is reissued. Requests for extension of time for delay to the completion of the Project due to an inactive certification will not be considered and liquidated damages will apply. In addition, if any recoat times are exceeded, the affected areas shall be cleaned to SSPC-SP 15 and coatings reapplied in accordance with these specifications at no additional cost to the State.

Contractors and subcontractors are required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)**-certified (Level II-Interim Status-Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each surface preparation/painting crew during surface preparation cleaning/removal and spray application (Atmospheric and Immersion Service) operations. A crew-member is a person who is on the job performing hand/power tool cleaning and/or spray application of protective coatings on a steel structure. The certification(s) must be kept current for the duration of the Project work. If a Contractor's, subcontractor's or any craft-worker's certification expires, the firm will not be allowed to do any work on this item until the certification is reissued.

All Contractor activities associated with the work described and specified herein shall be conducted in accordance with all applicable Federal, State of Connecticut and local safety regulations and guidelines.

Quality Control Inspections: The Contractor shall perform first line, in process Quality Control (QC) inspections. The Contractor shall implement a Quality Control Program accepted by the Engineer, including written daily reports, that ensures that the work accomplished complies with these specifications. All Quality Control Reports must be reviewed and signed by either a NACE Coating Inspector Level 2 - Certified (must have completed sessions I, II and III) or SSPC – BCI Level I Inspector (Minimum qualifications). Copies of these reports shall be provided daily to the Engineer. Contractor QC inspections shall include, but not be limited to the following:

- Suitability of protective coverings and containments
- Ambient conditions

- Surface preparation (solvent cleaning or hand/power tool cleaning)
- Coating application (mixing, thinning, and wet/dry film thickness)
- Recoat times and cleanliness between coats
- Coating continuity (freedom from runs, sags, pinholes, shadow-through, skips, misses, etc.)
- Final film acceptance

Limits of Paint Removal and Field Painting: Prior to applying the heat of welding equipment to localized areas of existing steel superstructures, the existing paint shall be removed to a width of 6 inches from wherever the heat will be applied, or as directed by the Engineer. The locations of the paint removal and field painting shall be reviewed and accepted by the Engineer prior to commencement of the work. Such acceptance by the Engineer does not relieve the Contractor of his responsibility for complying with applicable OSHA and DEEP regulations.

Containment for Paint Removal and Collection of Debris: The containment(s) shall be designed and erected to contain, as well as facilitate the collection of debris from the paint removal operations. Drawings and details of the containment(s) shall be submitted to the Engineer for review and comments prior to any paint removal. Review of the containment by the Engineer shall in no way relieve the Contractor of his responsibility for the containment. The containment shall conform to the requirements found within the SSPC Guide 6. The class of the containment shall be a minimum of Class 3P, modified to include the following:

- A. The containment materials shall be air and water impenetrable and fire resistant.
- B. With the exception of the entryways, all seams in the containment enclosure shall be lapped a minimum of 24 inches and shall be tied off at intervals not to exceed 18 inches.
- C. All attachments to bridge parapets or the underside of the bridge deck shall be sealed to prevent the escape of dust and debris.

The above specified containment must be used for **all** paint removal and collection of debris operations. The containment must remain in place until all associated debris has been collected.

Storage and Disposal of Collected Debris: All of the debris resulting from the paint removal operations shall be contained and collected. Debris within containment enclosures shall be removed by HEPA vacuum collection prior to disassembly of the enclosures. All the debris, rust and paint chips shall be stored in leak-proof storage containers at the Project site. Debris storage shall be in accordance with Connecticut Hazardous Waste Management Regulations. The storage containers and storage locations shall be reviewed by the Engineer and shall be located in areas not subject to ponding. Storage containers shall be placed on pallets and closed and covered with tarps at all times except during placement, sampling, and disposal of the debris.

Prior to generation of any hazardous waste, the Contractor shall notify the Engineer of its selected hazardous waste transporter and disposal facility. The Contractor must submit to the Engineer: (1) the transporter's current U.S DOT Certificate of Registration and (2) the transporter's current Hazardous Waste Transporter Permits for the State of Connecticut, the hazardous waste destination state and any other applicable states. The Engineer will then obtain an EPA ID number that will be

forwarded to the Contractor. Any changes in transporter or facility shall be immediately forwarded to the Engineer for review.

The Contractor shall conform to the latest requirements of the Hazardous Waste Management Regulations prepared by the DEEP's Hazardous Waste Management Section, subject to regulations of Section 22a-449(c) of the Connecticut General Statutes.

Disposal of the debris shall be in strict conformance with all Federal E.P.A. and DEEP regulations for hazardous materials.

All necessary forms, including the "Uniform Hazardous Waste Manifest" obtained from the Hazardous Waste Management Section of DEEP, must be filled out, approved and signed by the Department's Project Engineer (Construction), and appropriate copies returned to the Department's Division of Environmental Compliance.

A licensed hazardous waste transporter and a licensed hazardous waste treatment/disposal facility must be secured from lists available from the DEEP and approved by the Department's Division of Environmental Compliance.

The Contractor is liable for any fines, costs, or remediation costs incurred as a result of their failure to be in compliance with this special provision and all Federal, State and Local laws.

Paint Removal/Surface Preparation: The existing structural steel shall be power tool cleaned according to SSPC-SP 15 "Commercial Grade Power Tool Cleaning." The power tools (needle guns, grinders, etc.) shall be equipped with HEPA vacuum attachments. Before the power tool cleaning, all dissolvable foreign matter, such as oil, grease, and dust shall be removed by wiping or scrubbing the surface with rags or brushes wetted with solvent in accordance with the provisions of SSPC-SP 1 "Solvent Cleaning." Clean solvent and clean rags or brushes shall be used for the final wiping. The cleaned surface shall be accepted by the Engineer. If the surface is determined to meet the requirements of SSPC-SP 15, painting operations can commence.

Note: Chemical stripping and abrasive blast cleaning will not be permitted.

Existing Steel Surfaces to be Painted: After the designated areas have been inspected and accepted according to the surface preparation specification, SSPC SP 15, the steel surfaces which are to receive the field touch-up paint shall be cleaned immediately prior to coating operations by wiping or scrubbing the surface with rags or brushes wetted with solvent. Use clean solvent and clean rags for the final wiping.

- Solvent must be compatible with the specified coatings. Solvent cleaned surfaces shall be primed before any detrimental recontamination or corrosion occurs. Follow manufacturer's safety recommendations when using any solvent.
- All foreign materials such as dirt, dust, loose rust scale, sand, bird droppings, and all materials loosened or deposited on the steel surface by cleaning operations shall also be completely removed by vacuuming before any painting operations commence.

- Failure by the Contractor to properly prepare and clean surfaces to be painted in accordance with the specifications shall be cause for rejection by the Engineer. All surfaces that are rejected shall be cleaned and painted to the satisfaction of the Engineer in accordance with the specifications, at no additional cost to the State.

Application of Field Paint: The method for coating application shall be by brush and roller equipment. The containment for paint application shall consist of drop cloths and a solid platform bottom.

Storage, opening, mixing, thinning and application of the paint shall be accomplished in strict accordance with the specified Contract requirements and procedures published by the paint manufacturer and supplier. The Contractor shall have at the Project site, at all times, the current copies of all technical data, recommendations and procedures published by the paint manufacturer. All coatings shall be supplied in sealed containers bearing the manufacturers name, product designation, batch number and mixing/thinning instructions. Leaking containers shall not be used. Paint shall be furnished in the manufacturer's original sealed and undamaged containers. For multiple component paints, only complete kits shall be mixed and used. Partial mixing is not allowed. The paint shall be applied to produce a uniform smooth coat without runs, streaks sags, wrinkles, or other defects.

The Contractor shall provide a suitable facility for the storage of paint, which is in accordance with the latest Federal and State regulations. This facility must provide protection from the elements and insure that the paint is not subjected to temperatures outside the manufacturer's recommended extremes. Storage for paint must be located in reasonable proximity to the painting locations. The Engineer shall be provided access to the stored paint at any time, for inspection and to witness removal of the materials. The Contractor's facility for the storage of paint is subject to the approval of the Engineer.

Ambient Conditions: Solvent cleaning just prior to coating application or coating application work shall be performed when the conditions are as follows:

- The relative humidity is at or below 80% and when there is no falling rain or dew present, or anticipated, before a prepared surface can be coated.
- The substrate is not damp or covered by frost or ice.
- The surface temperature and air temperature are between 50°F and 100°F.
- The surface temperatures of the steel and air are more than 5°F above the dew point temperature, as determined by a surface temperature thermometer and electric or sling psychrometer.

If the requirements of the coating manufacturer differ from the ranges provided above, comply with the most restrictive requirements unless directed otherwise by the Engineer in writing.

The Contractor is liable for any fines, costs, or remediation costs incurred as a result of his failure to be in compliance with this special provision and all federal, state, and local laws.

Method of Measurement: This work will be measured by the actual square foot of existing steel at designated areas where paint was removed, surfaces cleaned, re-painted and accepted. **Note:** In some instances when **new steel** is being added to the designated areas where the paint was removed, the removal area may not equal the area to be re-painted. Measurement in these cases will be by the actual square foot of existing steel where the paint was removed and accepted.

Basis of Payment: This work will be paid for at the Contract unit price per square foot for "Localized Paint Removal and Field Painting of Existing Steel," complete in place, which price shall include all materials, containments, containers, equipment, tools, labor, heating devices, services of the technical advisor and for any incidental work. No direct payment will be made for the cost of storage or hauling the paint and other materials, including paint chips and associated debris, to and/or from the bridge site, but the cost thereof shall be included in the Contract unit price.

Pay Item	Pay Unit
Localized Paint Removal and Field Painting of Existing Steel	s.f.

ITEM #0707031A - MEMBRANE WATERPROOFING (SHEET) (TORCH APPLIED)

Description: Work under this item shall consist of furnishing and applying a waterproofing membrane system to the surface of concrete structures, through localized application of heat, at the locations shown on the plans or as ordered.

Work under this item shall also consist of applying torch applied membrane strips to the back of vertical wall stems as required by the plans.

Materials: The membrane material shall consist of a prefabricated reinforcement of synthetic nonwoven material, thoroughly impregnated and coated with styrene-butadiene-styrene (SBS) modified bitumen. The torch applied membrane system shall be one of the following two products or approved equal:

1) Armourbridge

Manufactured by:
IKO Industries, LTD
40 Hansen Road, South
Brampton, ON L6W 3H4
Tel. (905) 457-2880

Distributed by:
Venture Construction Inc.
1105 N. Market Street
Wilmington, DE 19849
Tel: 888-491-6444

2) Flam Antirock

Manufactured by:
Soprema
310 Quadral Drive
Wadsworth, OH 44281
(800) 356-3521

Distributed by:
Quinn-Brown Associates (QBA)
24 Woodland Drive
Woodstock, CT 06281
(860) 963-9438

The selected system shall include a primer which provides an adhesive bond between the concrete deck and the membrane.

Curb bitumen shall be an SBS modified liquid bitumen that conforms to the following tests: Softening Point; ASTM D-2398: Penetration at 77°F; ASTM D-5: Flexibility; CGSB 37-GP-50M: Elongation at 77°F; 700%; Flash Point; ASTM D-92: Flow at 140°F; ASTM D-1191.

Certified Test Reports and Material Certificates for each batch or lot of material shall be submitted in accordance with Article 1.06.07.

Construction Methods:

General: All work shall be done in accordance with the manufacturer's recommendations. The entire system shall be applied by an applicator certified by the manufacturer. The Engineer shall

receive written certification from the manufacturer regarding the applicator's qualifications at least two weeks prior to the application of any system component. The certification shall apply only to the named individual(s) performing the application. At least two weeks prior to the scheduled work, the Contractor shall submit to the Department the manufacturer's recommended installation method which shall include:

- 1) Substrate preparation requirements/methods,
- 2) Substrate moisture check procedure,
- 3) Primer application procedure,
- 4) waterproof membrane application and installation procedure
- 5) waterproof membrane repair procedure.

An experienced technical representative of the membrane's manufacturer shall be available during the installation of the torch-applied membrane waterproofing system. The representative shall provide to the Contractor aid and instruction as required to obtain an installation satisfactory to the Engineer. The Contractor shall have on site all necessary product information relative to proper installation of the membrane system.

Surface Conditions: The surface of the concrete shall have a smooth, fine textured finish. The surface of the deck to be membraned shall be free of sharp protrusions or depressions greater than 1/8". Areas not meeting this requirement shall be ground to form a smooth transition across the deck surface. The entire bridge deck and the approach slabs shall be abrasive blast cleaned with oil free air to achieve an anchor profile that is clean and free of laitance, oil, and foreign materials. Prior to blasting the surface shall be dry.

Weather limitations: Waterproofing shall not be done in rainy weather or when the temperature is below 40° F without the authorization of the Engineer.

Application of Primer: Prior to application of primer, the concrete deck shall be cured such that the moisture content reaches 6% or less. The primer shall only be applied when the moisture content of the substrate surface is 6 percent or less, and when the temperature of the substrate exceeds the dew point by at least 5° F. Moisture tests shall be performed (minimum 1 each per every 50 square yards) at locations determined by, and in the presence of, the Engineer using a Contractor-supplied portable electronic surface moisture meter that is calibrated annually and a copy of the calibration certification shall accompany the meter.

Immediately prior to priming, air temperature and substrate temperature shall be at least 40° F and rising.

The primer shall be applied in one coat so that it thoroughly covers the entire surface to be membraned with an overall coverage rate of 200 s.f./gal or as recommended by the manufacturer. The primer may be applied by brush, roller, or sprayer. The primer shall cure tack-free in accordance with the manufacturer's recommendations before application of the waterproofing membrane.

Application of Membrane: The waterproofing membrane shall be applied by equipment recommended by the manufacturer and approved by the Engineer. The equipment shall be capable of applying the membrane in a uniform manner onto the prepared substrate in accordance with the manufacturer's recommendations to assure bond with the primed surface and elimination of air bubbles.

Unless required otherwise by the manufacturer, butt the first strip as close as possible to the face of the curb. The subsequent membrane strips shall be installed in a shingled pattern so that water is permitted to drain to the low areas of the deck without accumulating against seams. The laps shall be a minimum of 3". Laps shall be staggered at the beginning and ends of rolls, shall overlap the previous roll and shall be sealed in accordance with the manufacturer's recommendations.

The waterproofing membrane shall be welded by torch onto the prepared substrate in accordance with the manufacturer's recommended procedure to assure bond with the primed surface and elimination of air bubbles. The Contractor shall be responsible for the protection of adjacent areas.

In small areas, the membrane shall be hand welded by torch around drains, joints, and along the curb as directed by the Engineer.

Damaged membrane or membrane that is not properly bonded to the deck surface shall be patched or repaired in accordance with the manufacturer's recommendations.

If so directed, additional strips of membrane shall be placed over any other areas of the concrete surface which are believed to require special attention.

Prior to suspension of work for any reason, all exposed edges shall be heated, troweled and sealed in accordance with the manufacturer's recommendations.

Curb Treatment: After all the membrane has been welded to the deck, the curb bitumen shall be placed along the curb edges to a minimum width of 18".

The curb bitumen shall be contained in double jacketed melters or shall be delivered directly to the job site by tanker truck. Curb bitumen in melters shall be heated to a temperature between 300 and 460° F. The temperature of the curb bitumen in tanker trucks shall not exceed 480° F. Melters and tanker trucks shall be equipped with approved thermometers. Melters shall be equipped with an agitation system to prevent local overheating.

Protection of Membrane: No traffic shall be permitted on an exposed membrane surface. Care shall be exercised to prevent damage to the completed membrane, especially during paving operations. All damaged areas shall be cleaned and patched to the satisfaction of the Engineer.

The specified hot mix asphalt shall be placed on the membrane within three days after application. Failure to adhere to this requirement may result in the development of an excessive amount of blisters prior to, during, and following the pavement application.

A rubber tired or rubber-tracked paver shall be used to place the bottom course of bituminous mix.

The temperature of the bituminous concrete pavement to be placed on the membrane shall be as recommended by the membrane manufacturer and approved by the Engineer.

If recommended by the manufacturer, the Contractor shall maintain a small supply of Portland cement on the project during the time of paving. The cement dust shall be sparingly cast over the membrane surface to reduce tackiness and thereby prevent the paver or truck tires from sticking to the membrane and damaging it.

The paver operator shall be directed not to ride the curb lines while paving such areas since the screed shoe may damage the materials previously applied on the vertical curb face.

Protection of Exposed Surfaces: The Contractor shall exercise care in the application of the waterproofing materials to prevent surfaces not receiving treatment from being spattered or marred. Particular reference is made to the face of curbs, copings, finished surfaces, substructure exposed surfaces, and outside faces of the bridge. Any material that spatters on these surfaces shall be removed and the surfaces cleaned to the satisfaction of the Engineer.

Care shall be taken to prevent injury to the finished membrane by the passage of workers and equipment. Vehicular traffic shall not be allowed to pass over the finished membrane waterproofing. Any damage which may occur shall be patched or repaired in accordance with the manufacturer's recommendations and any significant areas showing a lack of bond shall be cause for removal and re-application of the waterproofing membrane at no additional cost to the State.

Prior to application of bituminous overlay, any blisters found in the applied membrane shall be punctured with a torch-heated pick inserted at an approximate 45° angle. Blisters found subsequent to paving shall be punctured in the same manner.

Drainage holes, if and where required, will be provided by the State before the start of the Contractor's work. The waterproofing membrane shall be neatly slit and folded down into the drain holes. An 8-inch square of ¼-inch galvanized wire mesh (23 gauge) supplied by the Contractor, shall be placed over the drain then the membrane system torch-welded as required.

At the vertical expansion joints between the wing wall stems and the abutment stems, a single sheet of membrane shall be applied to cover the joint, and torch applied as required to achieve acceptable adhesion to the concrete surfaces. The concrete surfaces shall be cleaned prior to application of the strip. The width of the strip shall be 10" minimum or as recommended by the Manufacturer. The membrane shall be shingled a minimum of 3" wherever laps are required. Dampproofing shall be applied after the torch applied sheets have been installed.

Method of Measurement: This work will be measured for payment by the actual number of square yards of waterproofed surface in the completed and accepted work.

Basis of Payment: This work will be paid for at the contract unit price per square yard for “Membrane Waterproofing (Sheet) (Torch Applied)” which price shall be full compensation for furnishing all material, equipment, labor and incidentals, including abrasive blast cleaning of concrete surfaces, and including all on-site time for the manufacturer’s representative, necessary to complete the item.

Pay Item	Pay Unit
Membrane Waterproofing (Sheet)(Torch Applied)	s.y.

ITEM #0819002A - PENETRATING SEALER PROTECTIVE COMPOUND

Description: Work under this item shall consist of cleaning concrete surfaces of dirt, dust and debris, and furnishing and applying a clear, penetrating sealer where shown on the plans, to provide a hydrophobic barrier against the intrusion of moisture. This work also includes furnishing, installing and removing platforms, scaffolding, ladders and other means of access as well as shields, as required, to protect adjacent areas from overspray. Penetrating sealer shall not be applied to concrete surfaces that have been previously treated with coatings or curing compounds that would hinder penetration of the sealer into the concrete.

Materials: The penetrating sealer shall be a single component, 100% silane or silane siloxane from the list of materials below. The material shall be selected in anticipation of the expected ambient and surface temperature at the time of installation.

The following products may be used when ambient and surface temperatures are 40°F and above:

SIL-ACT ATS-100 (Silane)
Advanced Chemical Technologies, Inc.
9608 North Robinson Ave.
Oklahoma City, OK 73114
405-843-2585
www.advchemtech.com

Armor SX 5000 EXT-100 or SX 5000 WB (Silane Siloxane)
Foundation Armor, LLC.
472 Amherst St. STE 14
Nashua, NH 03063
866-306-0246
www.foundationarmor.com

Aquinil Plus 100 (Silane)
ChemMasters
300 Edwards Street
Madison, OH 44057
440-428-2105, 800-486-7866
www.chemmasters.net/Aquanil100.php

The following product may be used when ambient and surface temperatures are 20°F and above:

Certi-Vex Penseal 244 100% (Silane)
Vexcon Chemicals
7240 State Road
Philadelphia, PA 19135
888-839-2661
www.Vexcon.com

Construction Methods:

Submittals: The Contractor shall submit to the Engineer Safety Data Sheets (SDS) and product literature for the selected product. The literature shall include written instructions how to apply the product to vertical and horizontal surfaces, and where required, overhead surfaces.

The Contractor shall submit to the Engineer, in accordance with Article 1.05.02, written procedures for cleaning the concrete surfaces. The submittal shall include proposed equipment and materials and shall address how adjacent traffic and other areas shall be protected from dust, debris and overspray during the cleaning and application processes. Where the sealer is to be applied to parapets before pavement is placed, the submittal shall address protecting the deck and curb to which membrane waterproofing will be applied. Should the membrane already be present, the submittal shall address protecting the membrane. It shall also indicate how vegetation shall be protected from overspray. The submittal shall address the conditions under which work may proceed, including wind speed, temperature and precipitation. It shall also include procedures to be followed to protect the work should unfavorable weather conditions occur before the product has been absorbed.

The Contractor shall inspect the surfaces to be sealed to identify surface cleaning needs before submitting the procedures. The Contractor shall identify conditions that need repair or surfaces that may require special attention or cleaning procedures. Such observations shall be addressed in the written procedures.

Surface Preparation: Concrete surfaces to which penetrating sealer will be applied shall be dry, clean and free of grease, oil and other surface contaminants. New concrete and newly placed repair concrete shall be allowed to cure for at least 28 days before applying sealer. After rain or water cleaning, allow existing concrete surfaces to dry for at least 8 hours before applying sealer. Dry surfaces may be cleaned by sweeping with brushes or brooms, and blowing clean with oil-free, compressed air. The Contractor shall take care not to damage the concrete surface finish during cleaning operations. Care shall be taken so that cleaning methods do not damage joint sealant or other components of the structure.

Application: Application of the sealer can only begin after the Engineer evaluates the concrete surfaces for cleanliness and moisture, and determines that conditions are appropriate for application.

The sealer shall saturate the concrete surface with a rate of application of 200 square feet per gallon of sealer. The dispersion shall run six to eight inches down a vertical surface from the spray pattern. The maximum run-down is 12 inches. The Contractor shall monitor and record the number of square feet per gallon of sealer used to verify that the required application rate is being met. Additional sealer may be needed if surfaces are porous, rough or textured.

The Engineer will inspect the concrete surface during application and after the sealer has had adequate time to penetrate. As a test, water sprayed from a bottle on the sealed surface shall

bead up and not be absorbed. Should water be absorbed into the concrete at a test area, additional areas shall be tested to determine which areas should receive additional application of sealer. The Contractor shall apply additional sealer to the identified areas until absorption of water is prevented.

Method of Measurement: This work will be measured for payment by the actual number of square yards of concrete, coated completely and accepted, within the designated limits. The area will be measured once, regardless of the number of applications required.

Basis of Payment: This work will be paid for at the Contract unit price per square yard for “Penetrating Sealer Protective Compound,” complete, which price shall include all equipment tools, labor and materials, incidental thereto, including the preparation of the concrete surfaces and proper disposal of debris.

<u>Pay Item</u>	<u>Pay Unit</u>
Penetrating Sealer Protective Compound	s.y.

ITEM #0969062A - CONSTRUCTION FIELD OFFICE, MEDIUM

Description: Under the item included in the bid document, adequate weatherproof office quarters with related furnishings, materials, equipment and other services, shall be provided by the Contractor for the duration of the work, and if necessary, for a close-out period determined by the Engineer. The office, furnishings, materials, equipment, and services are for the exclusive use of CTDOT forces and others who may be engaged to augment CTDOT forces with relation to the Contract. The office quarters shall be located convenient to the work site and installed in accordance with Article 1.08.02. This office shall be separated from any office occupied by the Contractor. Ownership and liability of the office quarters shall remain with the Contractor.

Furnishings/Materials/Supplies/Equipment: All furnishings, materials, equipment and supplies shall be in like new condition for the purpose intended and require approval of the Engineer.

Office Requirements: The Contractor shall furnish the office quarters and equipment as described below:

Description \ Office Size	Small	Med.	Large	Extra Large
Minimum Sq. Ft. of floor space with a minimum ceiling height of 7 ft.	400	400	1000	2000
Minimum number of exterior entrances.	2	2	2	2
Minimum number of parking spaces.	7	7	10	15

Office Layout: The office shall have a minimum square footage as indicated in the table above, and shall be partitioned as shown on the building floor plan as provided by the Engineer.

Tie-downs and Skirting: Modular offices shall be tied-down and fully skirted to ground level.

Lavatory Facilities: For field offices sizes Small and Medium the Contractor shall furnish a toilet facility at a location convenient to the field office for use by CTDOT personnel and such assistants as they may engage; and for field offices sizes Large and Extra Large the Contractor shall furnish two (2) separate lavatories with toilet (men and women), in separately enclosed rooms that are properly ventilated and comply with applicable sanitary codes. Each lavatory shall have hot and cold running water and flush-type toilets. For all facilities the Contractor shall supply lavatory and sanitary supplies as required.

Windows and Entrances: The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. All keys to the construction field office shall be furnished to the CTDOT and will be kept in their possession while State personnel are using the office. Any access to the entrance ways shall meet applicable building codes, with appropriate handrails. Stairways shall be ADA/ABA compliant and have non-skid tread surfaces. An ADA/ABA compliant ramp with non-skid surface shall be provided with the Extra-Large field office.

Lighting: The Contractor shall equip the office interior with electric lighting that provides a minimum illumination level of 100 foot-candles at desk level height, and electric outlets for each desk and drafting table. The Contractor shall also provide exterior lighting that provides a minimum illumination level of 2 foot-candles throughout the parking area and for a minimum distance of 10 ft. on each side of the field office.

Parking Facility: The Contractor shall provide a parking area, adjacent to the field office, of sufficient size to accommodate the number of vehicles indicated in the table above. If a paved parking area is not readily available, the Contractor shall construct a parking area and driveway consisting of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

Field Office Security: Physical Barrier Devices - This shall consist of physical means to prevent entry, such as: 1) All windows shall be barred or security screens installed; 2) All field office doors shall be equipped with dead bolt locks and regular day operated door locks; and 3) Other devices as directed by the Engineer to suit existing conditions.

Electric Service: The field office shall be equipped with an electric service panel, wiring, outlets, etc., to serve the electrical requirements of the field office, including: lighting, general outlets, computer outlets, calculators etc., and meet the following minimum specifications:

- A. 120/240 volt, 1 phase, 3 wire
- B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.
- C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.
- D. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each desk and personal computer table (workstation) location.
- E. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.
- F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.
- G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120 volt, straight blade.
- H. After work is complete and prior to energizing, the State's CTDOT electrical inspector, must be contacted at 860-594-2240. (Do Not Call Local Town Officials)
- I. Prior to field office removal, the CTDOT Office of Information Systems (CTDOT OIS) must be notified to deactivate the communications equipment.

Heating, Ventilation and Air Conditioning (HVAC): The field office shall be equipped with sufficient heating, air conditioning and ventilation equipment to maintain a temperature range of 68°-80° Fahrenheit within the field office.

Telephone Service: The Contractor shall provide telephone service with unlimited nation-wide calling plan. For a Small, Medium and Large field office this shall consist of the installation of two (2) telephone lines: one (1) line for phone/voice service and one (1) line dedicated for the facsimile machine. For an Extra-Large field office this shall consist of four (4) telephone lines: three (3) lines for phone/voice service and one (1) line dedicated for facsimile machine. The Contractor shall pay all charges.

Data Communications Facility Wiring: Contractor shall install a Category 6 568B patch panel in a central wiring location and Cat 6 cable from the patch panel to each PC station, Smart Board location, Multifunction Laser Printer/Copier/Scanner/Fax, terminating in a (Category 6 568B) wall or surface mount data jack. The central wiring location shall also house either the data circuit with appropriate power requirements or a category 5 cable run to the location of the installed data circuit. The central wiring location will be determined by the CTDOT OIS staff in coordination with the designated field office personnel as soon as the facility is in place.

For Small, Medium and Large field offices the Contractor shall run a CAT 6 LAN cable a minimum length of 25 feet for each CTDOT networked device (including but not limited to: smartboards and Multi-Function Laser Printer/Copier/Scanner/Fax) to LAN switch area leaving an additional 10 feet of cable length on each side with terminated RJ45 connectors. For an Extra-Large field office the Contractor shall run CAT 6 LAN cables from workstations, install patch panel in data circuit demark area and terminate runs with RJ45 jacks at each device location. Terminate runs to patch panel in LAN switch area. Each run / jack shall be clearly labeled with an identifying Jack Number.

The Contractor shall supply cables to connect the Wi-Fi printer to the Contractor supplied internet router and to workstations/devices as needed. These cables shall be separate from the LAN cables and data Jacks detailed above for the CTDOT network.

The number of networked devices anticipated shall be at least equal to the number of personal computer tables, Multi-Function Laser Printer/Copier/Scanner/Fax, and smartboards listed below.

The installation of a data communication circuit between the field office and the CTDOT OIS in Newington will be coordinated between the CTDOT District staff, CTDOT OIS staff and the local utility company once the Contractor supplies the field office phone numbers and anticipated installation date. The Contractor shall provide the field office telephone number(s) to the CTDOT Project Engineer within 10 calendar days after the signing of the Contract as required by Article 1.08.02. This is required to facilitate data line and computer installations.

Additional Equipment, Facilities and Services: The Contractor shall provide at the field Office at least the following to the satisfaction of the Engineer:

Furnishing Description	Office Size			
	Small	Med.	Large	Extra Large
	Quantity			
Office desk (2.5 ft. x 5 ft.) with drawers, locks, and matching desk chair that have pneumatic seat height adjustment and dual wheel casters on the base.	1	3	5	8
Standard secretarial type desk and matching desk chair that has pneumatic seat height adjustment and dual wheel casters on the base.	-	-	-	1
Personal computer tables (4 ft. x 2.5 ft.).	2	3	5	8
Drafting type tables (3 ft. x 6 ft.) and supported by wall brackets and legs; and matching drafters stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base.	1	1	1	2
Conference table, 3 ft. x 12 ft.	-	-	-	1
Table – 3 ft. x 6 ft.	-	-	-	1
Office Chairs.	2	4	8	20
Mail slot bin – legal size.	-	-	1	1
Non-fire resistant cabinet.	-	-	2	4
Fire resistant cabinet (legal size/4 drawer), locking.	1	1	2	3
Storage racks to hold 3 ft. x 5 ft. display charts.	-	-	1	2
Vertical plan racks for 2 sets of 2 ft. x 3 ft. plans for each rack.	1	1	2	2
Double door supply cabinet with 4 shelves and a lock – 6 ft. x 4 ft.	-	-	1	2
Case of cardboard banker boxes (Min 10 boxes/case)	1	1	2	3
Open bookcase – 3 shelves – 3 ft. long.	-	-	2	2
White Dry-Erase Board, 36" x 48" min. with markers and eraser.	1	1	1	1
Interior partitions – 6 ft. x 6 ft., soundproof type, portable and freestanding.	-	-	6	6
Coat rack with 20 coat capacity.	-	-	-	1
Wastebaskets - 30 gal., including plastic waste bags.	1	1	1	2
Wastebaskets - 5 gal., including plastic waste bags.	1	3	6	10
Electric wall clock.	-	-	-	2
Telephone.	1	1	1	-
Full size stapler 20 (sheet capacity, with staples)	1	2	5	8
Desktop tape dispensers (with Tape)	1	2	5	8
8 Outlet Power Strip with Surge Protection	3	4	6	9
Rain Gauge	1	1	1	1
Business telephone system for three lines with ten handsets,	-	-	-	1

intercom capability, and one speaker phone for conference table.				
Mini refrigerator - 3.2 c.f. min.	1	1	1	1
Hot and cold water dispensing unit. Disposable cups and bottled water shall be supplied by the Contractor for the duration of the project.	1	1	1	1
Microwave, 1.2 c.f. , 1000W min.	1	1	1	1
Fire extinguishers - provide and install type and *number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.	*	*	*	*
Electric pencil sharpeners.	1	2	2	2
Electronic office type printing calculators capable of addition, subtraction, multiplication and division with memory and a supply of printing paper.	1	1	2	4
Small Multi-Function Laser Printer/Copier/Scanner/Fax combination unit, network capable, as specified below under <u>Computer Related Hardware and Software</u> .	1	1		
Large Multi-Function Laser Printer/Copier/Scanner/Fax combination unit, network capable, as specified below under <u>Computer Related Hardware and Software</u> .			1	1
Field Office Wi-Fi Connection as specified below under <u>Computer Related Hardware and Software</u>	1	1	1	1
Wi-Fi Printer as specified below under <u>Computer Related Hardware and Software</u> .	1	1	1	1
Digital Camera as specified below under <u>Computer Related Hardware and Software</u> .	1	1	3	3
Video Projector as specified below under <u>Computer Related Hardware and Software</u> .	-	-	-	1
Smart Board as specified below under <u>Computer Related Hardware and Software</u> .	-	-	-	1
Infrared Thermometer, including annual third party certified calibration, case, and cleaning wipes.	1	1	1	2
Concrete Curing Box as specified below under Concrete Testing Equipment.	1	1	1	1
Concrete Air Meter and accessories as specified below under Concrete Testing Equipment as specified below. Contractor shall provide third party calibration on a quarterly basis.	1	1	1	1
Concrete Slump Cone and accessories as specified below under Concrete Testing Equipment.	1	1	1	1
First Aid Kit	1	1	1	1
Flip Phones as specified under <u>Computer Related Hardware and</u>	-	-	-	-

<u>Software.</u>				
Smart Phones as specified under <u>Computer Related Hardware and Software.</u>	-	-	-	-

The furnishings and equipment required herein shall remain the property of the Contractor. Any supplies required to maintain or operate the above listed equipment or furnishings shall be provided by the Contractor for the duration of the project.

Computer Related Hardware and Software: The CTDOT will supply by its own means the actual Personal Computers for the CTDOT representatives. The Contractor shall supply the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projectors, and Smart Board(s) as well as associated hardware and software, must meet the requirements of this specification as well as the latest minimum specifications posted, as of the project advertising date, at CTDOTs web site <http://www.ct.gov/dot/cwp/view.asp?a=1410&q=563904>

Within 10 calendar days after the signing of the Contract but before ordering/purchasing the Wi-Fi Printer (separate from the Multifunction Laser Printer/Copier/Scanner/Fax), Field Office Wi-Fi, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projector(s) and Smart Board(s) as well as associated hardware, the Contractor must submit a copy of their proposed order(s) with catalog cuts and specifications to the Administering CTDOT District for review and approval. The Wi-Fi Printer, Wi-Fi Router, Flip Phones, Smart Phones, digital cameras, Projector(s) and Smart Board(s) will be reviewed by CTDOT District personnel. The Multifunction Laser Printer/Copier/Scanner/Fax will be reviewed by the CTDOT OIS. The Contractor shall not purchase the hardware, software, or services until the Administering CTDOT District informs them that the proposed equipment, software, and services are approved. The Contractor will be solely responsible for the costs of any hardware, software, or services purchased without approval.

The Contractor and/or their internet service provider shall be responsible for the installation and setup of the field office Wi-Fi, Wi-Fi printer, and the configuration of the wireless router as directed by the CTDOT. Installation will be coordinated with CTDOT District and Project personnel.

After the approval of the hardware and software, the Contractor shall contact the designated representatives of the CTDOT administering District, a minimum of 2 working days in advance of the proposed delivery or installation of the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projectors and Smart Board(s), as well as associated hardware, software, supplies, and support documentation.

The Contractor shall provide all supplies, paper, maintenance, service and repairs (including labor and parts) for the Wi-Fi printers, copiers, field office Wi-Fi, fax machines and other equipment and facilities required by this specification for the duration of the Contract. All repairs must be

performed with-in 48 hours. If the repairs require more than a 48 hours then an equal or better replacement must be provided.

Once the Contract has been completed, the hardware and software will remain the property of the Contractor.

First Aid Kit: The Contractor shall supply a first aid kit adequate for the number of personnel expected based on the size of the field office specified and shall keep the first aid kit stocked for the duration that the field office is in service.

Rain Gauge: The Contractor shall supply install and maintain a rain gauge for the duration of the project, meeting these minimum requirements. The rain gauge shall be installed on the top of a post such that the opening of the rain gauge is above the top of the post an adequate distance to avoid splashing of rain water from the top of the post into the rain gauge. The Location of the rain gauge and post shall be approved by the Engineer. The rain gauge shall be made of a durable material and have graduations of 0.1 inches or less with a minimum total column height of 5 inches. If the rain gauge is damaged the Contractor shall replace it prior to the next forecasted storm event at no additional cost.

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following equipment.

- A) Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.
- B) Air Meter – The air meter provided shall be in good working order and meet the requirements of AASHTO T 152.
- C) Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T119, Standard Test Method for Slump of Hydraulic-Cement Concrete.

All testing equipment will remain the property of the Contractor at the completion of the project.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of five thousand dollars (\$5,000) in order to insure all State-owned data equipment and supplies used in the office against all losses. The Contractor shall be named insured on that policy, and the CTDOT shall be an additional named insured on the policy. These losses shall include, but not be limited to: theft, fire, and physical damage. The CTDOT will be responsible for all maintenance costs of CTDOT owned computer hardware. In the event of loss, the Contractor shall provide replacement equipment in accordance with current CTDOT equipment specifications, within seven days of notice of the loss. If the Contractor is unable to provide the required replacement equipment within seven days, the CTDOT may provide replacement equipment and deduct the cost of the equipment from monies due or which may become due the

Contractor under the Contract or under any other contract. The Contractor's financial liability under this paragraph shall be limited to the amount of the insurance coverage required by this paragraph. If the cost of equipment replacement required by this paragraph should exceed the required amount of the insurance coverage, the CTDOT will reimburse the Contractor for replacement costs exceeding the amount of the required coverage.

Maintenance: During the occupancy by the CTDOT, the Contractor shall maintain all facilities and furnishings provided under the above requirements, and shall maintain and keep the office quarters clean through the use of weekly professional cleaning to include, but not limited to, washing & waxing floors, cleaning restrooms, removal of trash, etc. Exterior areas shall be mowed and clean of debris. A trash receptacle (dumpster) with weekly pickup (trash removal) shall be provided. Snow removal, sanding and salting of all parking, walkway, and entrance ways areas shall be accomplished during a storm if on a workday during work hours, immediately after a storm and prior to the start of a workday. If snow removal, salting and sanding are not completed by the specified time, the State will provide the service and all costs incurred will be deducted from the next payment estimate.

Method of Measurement: The furnishing and maintenance of the construction field office will be measured for payment by the number of calendar months that the office is in place and in operation, rounded up to the nearest month.

There will not be any price adjustment due to any change in the minimum computer related hardware and software requirements.

Basis of Payment: The furnishing and maintenance of the Construction Field Office will be paid for at the Contract unit price per month for "Construction Field Office, Medium," which price shall include all material, equipment, labor, service contracts, licenses, software, repair or replacement of hardware and software, related supplies, utility services, parking area, external illumination, trash removal, snow and ice removal, and work incidental thereto, as well as any other costs to provide requirements of this specified this specification.

<u>Pay Item</u>	<u>Pay Unit</u>
Construction Field Office, Medium	Month

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description *is supplemented by the following:*

The Contractor shall maintain and protect traffic as described by the following and as limited in the special provision for Section 1.08 - Prosecution and Progress:

Route 2

The Contractor shall maintain and protect the minimum number of through lanes and shoulders on a paved travel path not less than 12 feet in width per lane during the hours dictated in the special provision for Article 1.08.04 – Limitation of Operations.

Route 2 Ramps

The Contractor shall maintain and protect existing traffic operations, with the following exceptions:

During the allowable periods and when the Contractor is actively working, the Contractor will be permitted to maintain and protect a minimum of 1 lane of traffic on a paved travel path not less than 12 feet in width.

West Road

The Contractor shall maintain and protect a minimum of 1 lane of traffic in each direction with each lane on a paved travel path not less than 10 feet in width, with the following exceptions:

1. During the allowable periods and when the Contractor is actively working, the Contractor will be permitted to maintain and protect at least an alternating one-way traffic operation on a travel path not less than 10 feet in width and no more than 300 feet in length, unless specified elsewhere in the Contract. There shall be no more than one alternating one-way traffic operation within the Project limits without prior approval of the Engineer.
2. The Contractor will be permitted to close pedestrian sidewalks and detour pedestrian traffic as shown on the MPT Plans. The Contractor shall notify the Engineer at least 14 days in advance of implementing the pedestrian detour.

All Other Roadways

The Contractor shall maintain and protect a minimum of 1 lane of traffic in each direction with each lane on a paved travel path not less than 11 feet in width, with the following exceptions:

During the allowable periods and when the Contractor is actively working, the Contractor will be permitted to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width and no more than 300 feet in length, unless specified elsewhere in the Contract. There shall be no more than one alternating one-way traffic operation within the Project limits without prior approval of the Engineer.

Commercial and Residential Driveways

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the Project limits. The Contractor will be permitted to temporarily close

affected driveways while actively working with coordination and permission from the owner or proprietor.

Intermediate Term Sidewalk Closures

The Contractor shall maintain and protect existing pedestrian accommodations, or a minimum of 4 feet in width, on all existing sidewalks and sidewalk ramps, with the following exception:

- During the allowable periods and when the Contractor is actively constructing pedestrian amenities, the Contractor will be allowed to close pedestrian sidewalks and sidewalk ramps for no more than a continuous 48 hour period of time.

No more than two corners of an intersection may be closed for an intermediate term sidewalk closure at any time. Where all four corners of an intersection have sidewalks and sidewalk ramps, diagonal corners shall not be closed at the same time.

During the intermediate term sidewalk closure, all approaches to the sidewalk shall be blocked by Construction Barricade Detectable with Sidewalk Closed signs.

Intermediate term sidewalk closures may be extended to 72 hours with prior approval of the Engineer.

Article 9.71.03 - Construction Methods *is supplemented as follows:*

General

Unpaved travel paths will only be permitted for areas requiring full depth and full width reconstruction. The unpaved section shall be the full width of the road and shall be perpendicular to the travel lanes. The Contractor will be allowed to maintain traffic on processed aggregate for a duration not to exceed 10 calendar days and opposing traffic lane dividers shall be used as a centerline.

The Contractor is required to delineate any raised structures within the travel lanes, so that the structures are visible day and night, unless there are specific Contract plans and provisions to temporarily lower these structures prior to the completion of work.

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway or bridge section by the end of a work shift, or as directed by the Engineer.

When the installation of all intermediate courses of bituminous concrete pavement is completed for the entire roadway, the Contractor shall then install the final course of bituminous concrete pavement.

When the Contractor is excavating adjacent to the roadway, the Contractor shall provide a 3 foot shoulder between the work area and travel lanes, with traffic drums spaced every 50 feet. At the end of the work shift if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary bituminous concrete traversable slope of 4:1 or flatter that is acceptable to the Engineer.

The Contractor, during the course of any active overhead construction work, shall close the lanes directly below the work area for the entire length of time overhead work is being undertaken. When an existing sign is to be relocated or replaced, the work shall be completed during the same work shift.

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed, except during the allowable periods.

On limited-access highways, construction vehicles entering travel lanes shall not be allowed without a lane closure. The lane closure shall be of sufficient length to allow vehicles to enter or exit the work area at the posted speed limit, in order to merge with existing traffic.

Existing Signing

The Contractor shall maintain all existing overhead and side-mounted signs within the Project limits throughout the duration of the Project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary, and shall install temporary sign supports if necessary and as directed by the Engineer.

Requirements for Winter

The Contractor shall schedule a meeting with representatives of the Department, including the offices of Maintenance and Traffic, and the Town/City to determine any interim traffic control measures the Contractor shall accomplish prior to winter to provide safety to motorists and permit adequate snow removal procedures. This meeting shall be held prior to October 31 of each year and will include, but not be limited to, discussion of the status and schedule of the following items: lane and shoulder widths, pavement restoration, traffic signal work, pavement markings, and signing.

Signing Patterns

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory.

Pavement Markings - Limited Access Highways, Turning Roadways and Ramps

During construction, the Contractor shall maintain all pavement markings throughout the limits of the Project.

Temporary pavement markings shall be installed on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work shift.

Permanent Epoxy Resin Pavement Markings shall be installed on the final course of bituminous concrete pavement within 10 calendar days of the final pavement installation if no Pavement Marking Grooves are proposed.

Temporary Pavement Markings

Temporary pavement markings shall consist of temporary painted pavement markings and shall be installed in accordance with Section 12.09. The markings shall include 4 inch wide white lane lines (solid and broken), 4 inch wide edge lines, lane-use arrows at the stop bar. Temporary 12 inch wide white stop bars shall consist of temporary pavement marking tape, as described below.

Refer to Pavement Marking Groove special provisions for pavement marking requirements.

Temporary 12 inch wide white stop bars consisting of temporary plastic pavement marking tape shall be installed on exit ramps if permanent Epoxy Resin Pavement Markings are not installed by the end of the work shift on the final course of bituminous concrete pavement. Temporary stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side. The Contractor shall remove and dispose of these markings when the permanent Epoxy Resin Pavement Markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape is included under the applicable temporary pavement marking items.

All temporary pavement markings exposed throughout the winter shall be Epoxy Resin Pavement Markings, unless directed otherwise by the Engineer.

Temporary pavement markings, as described above, shall be maintained until the permanent pavement markings are installed.

Final Pavement Markings

Refer to Pavement Marking Groove special provisions for pavement marking requirements. Permanent epoxy resin pavement markings shall be installed in accordance with Section 12.10 and the applicable Traffic Engineering Standard Drawings.

If Temporary Plastic Pavement Marking Tape is installed, then the Contractor shall remove and dispose of these markings during the same work shift that the permanent epoxy resin pavement markings are to be installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be paid for under the appropriate pay items.

Pavement Markings - Non-Limited Access Roadways

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the Project.

Temporary pavement markings shall be installed on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work shift.

Permanent Epoxy Resin Pavement Markings shall be installed on the final course of bituminous concrete pavement within 10 calendar days of the final pavement installation if no Pavement Marking Grooves are proposed.

Temporary Pavement Markings

Temporary pavement markings that will be in place for less than 72 continuous hours may consist of temporary plastic pavement marking tape at the Contractor's expense. Additionally;

1. These temporary pavement markings shall include centerlines, lane lines (solid and broken), and stop bars.
2. Centerlines shall consist of two 4 inch wide yellow markings, 2 feet in length, side by side, 4 inches apart, at 40 foot intervals.
3. Lane lines shall consist of 4 inch wide white markings, 2 feet in length, at 40 foot intervals.
4. No passing zones shall be posted with signs in those areas where the final centerlines have not been established on two-way roadways.
5. Stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side.
6. The temporary plastic pavement marking tape shall be installed in accordance with Section 12.12.
7. The Contractor shall remove and dispose of the temporary plastic pavement marking tape prior to another course of bituminous concrete pavement being installed.

Temporary pavement markings that will be in place for 72 continuous hours or more should consist of temporary painted pavement markings and shall be installed in accordance with Section 12.09. The markings shall include centerlines, edge lines, lane lines (solid and broken), lane-use arrows, and stop bars on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work shift. Edge lines and lane-use arrows are not required if the next course of bituminous concrete pavement will be placed within 10 calendar days.

All temporary pavement markings exposed throughout the winter shall be Epoxy Resin Pavement Markings, unless directed otherwise by the Engineer.

Temporary pavement markings, as described above, shall be maintained until the permanent pavement markings are installed.

Final Pavement Markings

Refer to Pavement Marking Groove special provisions for pavement marking requirements. Permanent epoxy resin pavement markings shall be installed in accordance with Section 12.10 and the applicable Traffic Engineering Standard Drawings.

If Temporary Plastic Pavement Marking Tape is installed, then the Contractor shall remove and dispose of these markings during the same work shift that the permanent epoxy resin pavement markings are to be installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

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 a safer and more 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 or is within the clear zone. 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 in order to command respect from the motorist.

Lane reduction tapers should be placed so that the entire length of the taper is installed on a tangent section of roadway and the entire taper area can be seen by the motorist.

All existing conflicting signs shall be removed, covered with an opaque material, or turned so that they are not legible to oncoming traffic prior to implementing a traffic control pattern. The existing signs shall be uncovered or reinstalled once the pattern is removed.

A buffer area should be provided during installation of a traffic control pattern and maintained for the duration of the work. The buffer area shall be free of any equipment, workers, materials, and parked vehicles.

Construction Traffic Control Plans 19 through 25 should be used for moving operations such as line striping, rumble strips, pothole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns are not required for vehicles on an emergency patrol type activity or for a short duration stop of up to one hour, as long as the equipment is contained within the shoulder. Flashing lights, arrow boards, truck-mounted or trailer-mounted impact attenuators, and appropriate Trafficperson(s) shall be used when required.

In a situation not adequately covered by the Construction Traffic Control Plans, the Contractor shall contact the Engineer for assistance prior to setting up a traffic control pattern.

Placement of Signs

Signs shall be placed in a position that allows 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 Construction Traffic Control Plans

The Construction 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.

The proper application of the Construction Traffic Control Plans and installation of traffic control devices is dependent upon actual field conditions.

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.

Adjustments to the Construction Traffic Control Plans shall only be made at the direction of the Engineer.

Table 1 indicates the minimum taper lengths required for a lane closure based on the posted speed limit and lane width of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the Construction Traffic Control Plans cannot be achieved.

Table 1 – Minimum Taper Length

POSTED SPEED LIMIT (MPH)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE (FEET)	
	FREEWAYS	SECONDARY ROADS
30 OR LESS	180	165
35	245	225
40	320	295
45	540	495
50	600	550
55	660	605
65	780	715

1. Work Zone Safety Meetings

- 1.a) Prior to the commencement of work, a Work Zone Safety Meeting shall be conducted with representatives from 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. DOT Traffic Engineering shall be invited to the Work Zone Safety Meeting. 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 shall include:
 - i. Review Project scope of work and time;
 - ii. Review Section 1.08, Prosecution and Progress;
 - iii. Review Section 9.70, Trafficpersons;
 - iv. Review Section 9.71, Maintenance and Protection of Traffic;
 - v. Review Contractor's schedule and method of operations;
 - vi. Review special concern areas: ramps, turning roadways, medians, lane drops, etc.;
 - vii. Open discussion of work zone questions and issues;
 - viii. Discussion of review and approval process for changes in Contract requirements as they relate to work zone areas.

2. General

- 2.a) Traffic control patterns shall only be installed if the required minimum number of signs, traffic cones, traffic drums, and other equipment (i.e. one Arrow Board for each lane closed, two Truck-Mounted or Trailer-Mounted Attenuators (TMAs), Changeable Message Sign, etc.) are on Site.
- 2.b) The Contractor shall have spare maintenance and protection of traffic equipment (TMAs, Arrow Board, Changeable Message Sign(s), construction signs, traffic cones, traffic drums, etc.) available at all times in case of mechanical failures, etc. Spare maintenance and protection of traffic equipment installed as a result of a sudden equipment breakdown shall be replaced by the Contractor 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 lost time.
- 2.d) In cases of differences of opinion between the Contractor and the Inspection staff, the Contractor shall follow the directions of the Engineer. 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.

3. Installing and Removing Traffic Control Patterns

- 3.a) Lane closures shall be installed beginning with the advance warning signs and proceeding forward toward the work area.
- 3.b) Lane closures shall be removed in the reverse order, beginning at the end of the work area, or traffic control pattern, and proceeding back toward the advance warning signs.
- 3.c) Stopping traffic may be allowed within the allowable hours stated in Section 1.08.04:
 - i. For those activities stated within the Contract.
 - ii. During paving, milling operations, or similar activities 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 so traffic does not travel across the longitudinal joint or difference in roadway elevation.
 - iii. To move slow moving equipment across live traffic lanes into the work area.
- 3.d) The Contractor shall adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
- 3.e) 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 with or exiting from the mainline traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.
- 3.f) Workers are prohibited from crossing the travel lanes on limited access roadways 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.

4. Implementation of Rolling Road Block (RRB)

- 4.a) Temporary road closures using a RRB may be allowed on limited access highways for operations associated with the installation and removal of temporary lane closures. RRB may be allowed for the installation and removal of lead signs and lane tapers only and shall meet the following requirements:
 - i. Refer to the Limitation of Operations Chart provided in Section 1.08.04 for the hours allowed for implementing a RRB operation. The Contractor shall only implement a RRB operation within the hours shown in the Chart.
 - ii. In areas with good sight lines and full shoulders, signs on the side of the road opposite the traffic pattern should be installed in a separate operation.
 - iii. TMAs equipped with Arrow Boards shall be used to slow traffic to implement the RRB. State Police Officers in marked vehicles may be used to support the implementation of the RRB. The RRB shall start by having all vehicles, including TMAs and police vehicles, leave the shoulder or on-ramp and accelerate to normal roadway speeds in each lane. The vehicles will then position themselves side by side and decelerate to the RRB speed on the highway.

- iv. A Pre-Warning Vehicle, as specified elsewhere in the Contract, shall be used to advise the motorists that sign pattern installation or removal is underway.
- v. The RRB duration shall not exceed 15 minutes from the start of the traffic block until all lanes are opened as designated in the Limitation of Operations chart. If the RRB duration exceeds 15 minutes on 2 successive shifts, no further RRB will be allowed until the Contractor obtains approval for a revised installation procedure from the District.
- vi. RRB shall not be used to expand a lane closure pattern to an additional lane during the shift. The workers and equipment required to implement the additional lane closure should be staged from within the closed lane. TMAs (and State Police if available) shall be used to protect the workers installing the taper in the additional lane.
- vii. Exceptions to these work procedures may be submitted to the District Office for consideration. A minimum of 2 business days shall be allowed for review and comment by the District.
- viii. The Engineer and the Contractor will review and discuss the RRB procedures (including any revisions) in advance of the work. The implementation of the agreed upon plan will be reviewed with the State Police during the Work Zone Safety Meeting held before each shift involving temporary lane closures. If the State Police determine that alternative procedures should be implemented for traffic control during the work shift, the Department and Contractor will attempt to resolve any discrepancies with the duty sergeant at the Troop. If the discrepancies are unable to be resolved prior to the start of the shift, then the work will proceed as recommended by the Department. Any unresolved issues shall be addressed the following day.

5. Use of Arrow Boards

- 5.a) On limited access roadways, one Arrow Board shall be used for each lane that is closed. The Arrow Board shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the Construction Traffic Control Plans. Additional Arrow Boards shall be deployed if sight distances are limited.
- 5.b) On non-limited access roadways, the use of an Arrow Board for lane closures is optional. The roadway geometry, sight distance, and traffic volume shall be considered in the decision to use the Arrow Board.
- 5.c) A vehicle displaying an arrow board shall be equipped with high-intensity rotating, flashing, oscillating, or strobe lights.
- 5.d) The flashing arrow mode shall be used for lane closure (merge) tapers.
- 5.e) The flashing arrow mode shall not be used for temporary alternating one-way traffic operations or to laterally shift lanes of traffic.

- 5.f) The flashing double arrow mode shall only be used for closing a center lane on a multilane roadway where adjacent left and right lanes remain open.
- 5.g) For shoulder work or roadside work near the shoulder, the Arrow Board shall be positioned in the shoulder and the flashing alternating diamond mode should be used.
- 5.h) The flashing alternating diamond caution mode should also be used when supplemental Arrow Boards are positioned in an already closed lane.

6. Use of Truck-Mounted or Trailer-Mounted Impact Attenuators (TMAs)

- 6.a) On limited access roadways, lane closures shall use a minimum of two TMAs to install and remove traffic control patterns. If two TMAs are not available, then the pattern shall not be installed.
- 6.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 shall be considered in the decision to utilize the TMAs.
- 6.c) On limited access roadways, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane to establish the advance and transition signing. The Arrow Board mounted on the TMA shall be in the arrow mode when taking the lane. The sign truck and workers shall be at sufficient distance 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 Portable Changeable Message Signs, signs, Arrow Boards, and cones/drums are installed. The Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when traveling in the closed lane.
- 6.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 Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when in the closed lane.
- 6.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 Section 18.06. 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) shall be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.
- 6.f) TMAs will be paid for in accordance with how the unit is used. If it is used as a TMA and is in the proper location as specified, then it will be paid for at the specified hourly rate for Truck-Mounted or Trailer-Mounted Impact Attenuator. When the TMA is used

as an Arrow Board, it will be paid for at the daily rate for Arrow Board. If a TMA is used to install and remove a pattern and is also used as an Arrow Board in the same day, then the unit will be paid for as a Truck-Mounted or Trailer-Mounted Impact Attenuator for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove). If the TMA is also used as an Arrow Board during the same day, then the unit will only be paid for at the daily rate as an Arrow Board.

7. Use of Traffic Drums and Traffic Cones

- 7.a) On limited-access highways, ramps, and turning roadways:
- i. Traffic drums shall be used for taper channelization.
 - ii. Traffic drums shall be used to delineate raised catch basins and other hazards.
 - iii. Traffic cones with a minimum height of 42 inches may be used in place of drums in the tangent section of a closed lane or shoulder.
 - iv. Traffic cones less than 42 inches in height shall not be used.
- 7.b) On all roadways:
- i. 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.
 - ii. Traffic cones shall not be left unattended.
 - iii. Traffic cones with a minimum height of 42 inches shall be used when the posted speed limit is 45 MPH or above.
- 7.c) Typical spacing of traffic drums and/or cones shown on the Construction Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

8. Use of Barricade Warning Lights

- 8.a) Barricade Warning Lights may be installed on channelizing devices when used in a merge taper. The Barricade Warning Lights shall flash in a sequential pattern when used in a merge taper. The successive flashing shall occur from the upstream end (beginning) of the merge taper to the downstream end (end) of the merge taper.
- 8.b) Type C Barricade Warning Lights may be used at night to delineate the edge of the travel way.
- 8.c) Type B Barricade Warning Lights shall be used on post-mounted advanced warning signs.

9. Use of Portable Changeable Message Signs (PCMS)

- 9.a) On limited access roadways, one PCMS shall be used in advance of the traffic control pattern for all lane closures. Prior to installing the pattern, the PCMS shall be installed and in operation, displaying the appropriate lane closure information. The PCMS shall

- be positioned ½ to 1 mile ahead of the start of the lane closure taper. If the distance to the nearest exit ramp is greater than the specified ½ to 1 mile distance, then an additional PCMS shall be positioned a sufficient distance ahead of the exit ramp (and before the previous on-ramp where practical) to alert motorists to the work and therefore offer them an opportunity to take the exit.
- 9.b) On non-limited access roadways, the use of PCMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume shall be considered in the decision to use the PCMS.
- 9.c) PCMS should be placed off the shoulder of the roadway and behind a traffic barrier, if practical. Where a traffic barrier is not available to shield the PCMS, it should be placed off the shoulder and outside of the clear zone. If a PCMS has to be placed on the shoulder of the roadway or within the clear zone, it should be placed on the paved shoulder with a minimum of five traffic drums placed in a taper in front of it to delineate its position. The taper shall meet minimum distance requirements for a shoulder closure. The PCMS shall be protected if it is used for a continuous duration of 36 hours or more.
- 9.d) The PCMS shall be removed from the clear zone and have the display screen cleared and turned 90 degrees away from the roadway when the PCMS is no longer required.
- 9.e) The PCMS should not be used within 1,000 feet of an existing PCMS or Variable Message Sign (VMS).
- 9.f) A PCMS message shall:
- i. consist of no more than two phases;
 - ii. contain no more than three lines of text per phase;
 - iii. have no more than eight characters per line, including spaces.
- 9.g) The PCMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs. The PCMS should not be used for generic messages (ex.: Road Work Ahead, Bump Ahead, Gravel Road, etc.) or for messages that need to be displayed for long periods of time, such as during stage construction. These types of messages should be displayed with construction signs. Special signs shall be coordinated with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.
- 9.h) Typical messages that are allowed on the PCMS are shown below. Approval must be received from the Office of Construction for any message(s) different than the typical messages shown in Figure 1.
- 9.i) All messages shall comply with the information provided in Tables 2 and 3.

	<u>Phase 1</u>	<u>Phase 2</u>	<u>Message No.</u>	<u>Phase 1</u>	<u>Phase 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	EXIT XX CLOSED	USE EXIT YY
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	EXIT XX CLOSED USE YY	FOLLOW DETOUR
5	RIGHT LANE CLOSED	MERGE LEFT	13	2 LANES SHIFT AHEAD	USE CAUTION
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	3 LANES SHIFT AHEAD	USE CAUTION
7	RIGHT LANE CLOSED	REDUCE SPEED			
8	2 RIGHT LANES CLOSED	REDUCE SPEED			

Figure 1: Typical PCMS Messages

Table 2: Acceptable Abbreviations

Word Message	Standard Abbreviation	Word Message	Standard Abbreviation
Access	ACCS	Minimum	MIN
Afternoon / Evening	PM	Minor	MNR
Ahead	AHD	Minute(s)	MIN
Alternate	ALT	Monday	MON
Avenue	AVE, AV	Morning / Late Night	AM
Bicycle	BIKE	Mount	MT
Blocked	BLKD	Mountain	MTN
Boulevard	BLVD	National	NATL
Bridge	BR	Normal	NORM
CB Radio	CB	North	N
Center	CTR	Northbound	NBND
Center	CNTR	Oversized	OVRSZ
Chemical	CHEM	Parking	PKING
Circle	CIR	Parkway	PKWY
Compressed Natural Gas	CNG	Pavement	PVMT
Condition	COND	Pedestrian	PED
Congested	CONG	Place	PL
Construction	CONST	Pounds	LBS
Court	CT	Prepare	PREP
Crossing	XING	Quality	QLTY
Crossing (other than highway-rail)	XING	Right	RT
Downtown	DWNTN	Road	RD
Drive	DR	Roadwork	RDWK
East	E	Route	RT, RTE
Eastbound	EBND	Saint	ST
Electric Vehicle	EV	Saturday	SAT
Emergency	EMER	Service	SERV
Entrance, Enter	ENT	Shoulder	SHLDR
Exit	EX	Slippery	SLIP
Express	EXP	South	S
Expressway	EXPWY	Southbound	SBND
Feet	FT	Speed	SPD
Freeway	FRWY, FWY	State, county, or other non-US or non-Interstate numbered route	[Route Abbreviation determined by highway agency]**
Friday	FRI	Street	ST
Frontage	FRNTG	Sunday	SUN
Hazardous	HAZ	Telephone	PHONE
Hazardous Material	HAZMAT	Temporary	TEMP
High Occupancy Vehicle	HOV	Terrace	TER
Highway	HWY	Thruway	THWY
Highway-Rail Grade Crossing	RR XING	Thursday	THURS

Hospital	HOSP	Tons of Weight	T
Hour(s)	HR, HRS	Traffic	TRAF
Information	INFO	Trail	TR
International	INTL	Travelers	TRVLRS
Interstate	I-	Tuesday	TUES
Junction / Intersection	JCT	Turnpike	TPK
Lane	LN	Two-Way Intersection	2-WAY
Left	LFT	Two-Wheeled Vehicles	CYCLES
Liquid Propane Gas	LP-GAS	Upper	UPR
Local	LOC	US Numbered Route	US
Lower	LWR	Vehicle(s)	VEH, VEHS
Maintenance	MAINT	Warning	WARN
Major	MAJ	Wednesday	WED
Maximum	MAX	West	W
Mile(s)	MI	Westbound	WBND
Miles Per Hour	MPH		

** A space and no dash shall be placed between the abbreviation and the number of the route.

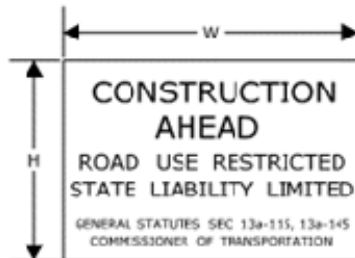
Table 3: Unacceptable Abbreviations

Unacceptable Abbreviation	Intended Word	Common Misinterpretation
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (Merge)
LT	Light (Traffic)	Left
PARK	Parking	Park
POLL	Pollution (Index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
WRNG	Warning	Wrong

10. Use of State Police Officers

- 10.a) State Police may be used only on limited access highways and secondary roadways that are under their primary jurisdiction. A minimum of one Officer may be used per critical sign pattern; however, a State Police presence is not required. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Left lane closures may also be implemented without State Police presence in areas with only moderate traffic and wide, unobstructed medians. It may be desirable to have a State Police presence, when available, under specific situations, such as nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur; however, they are not required.
- 10.b) If a State Police presence is provided, once the pattern is in place, the State Police Officer should be positioned in a non- hazardous location in advance of the pattern to provide advance warning to the motorist. If traffic backs up beyond the beginning of the pattern, then the State Police Officer shall reposition so that they are located prior to the backup. The State Police Officer should not be located immediately behind or within the roll ahead area of any TMA or within the work zone buffer area. The State Police Officer shall not be positioned in such a way that the State Police Officer obstructs any construction warning signs or PCMS from view of the motorist.
- 10.c) Other functions of the State Police Officer(s) may include:
 - i. Assisting construction vehicles entering and exiting the work area.
 - ii. Enforcement of motor vehicle laws within the work area, if specifically requested by the Engineer.
- 10.d) State Police Officers assigned to a work site shall take direction from the Engineer.

SERIES 16 SIGNS



		W	H
16-E	80-1605	84" x 60"	
16-H	80-1608	60" x 42"	
16-M	80-1613	30" x 24"	

		W	H
16-S	80-1619	48" x 30"	

SIGN 16-S 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. SERIES 16 SIGNS SHOULD BE LOCATED TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHOULD BE INSTALLED ON MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHOULD BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMP PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL FREEWAYS AND 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.

CONSTRUCTION TRAFFIC CONTROL PLAN
SERIES 16 SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
 BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

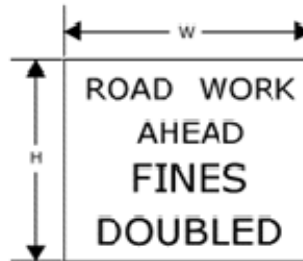
Tracy L. Fagarty
 Tracy L. Fagarty, P.E.
 2019-11-08 15:00:00
 PRINCIPAL ENGINEER

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 AND MUNICIPAL ROAD IN CONNECTICUT WHERE THERE ARE WORKERS PRESENT ON THE HIGHWAY.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

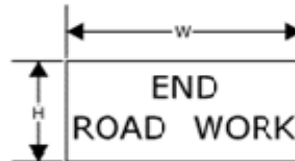
	W	H
31-1906	48"	42"
31-1907	60"	54"



"END ROAD WORK" SIGN

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

	W	H
80-9605	36"	18"
80-9612	48"	24"



CONSTRUCTION TRAFFIC CONTROL PLAN
ROAD WORK AHEAD
SIGNS

SCALE: NONE

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 IN ADVANCE 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. TRAFFIC CONES AND PORTABLE CONSTRUCTION SIGNS SHALL NOT BE LEFT UNATTENDED.
5. ALL CONFLICTING 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 48 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 FROM SUNSET TO SUNRISE, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.
9. A PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF MILE 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'
35	245'
40	320'
45	540'
50	600'
55	660'
65	780'

CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

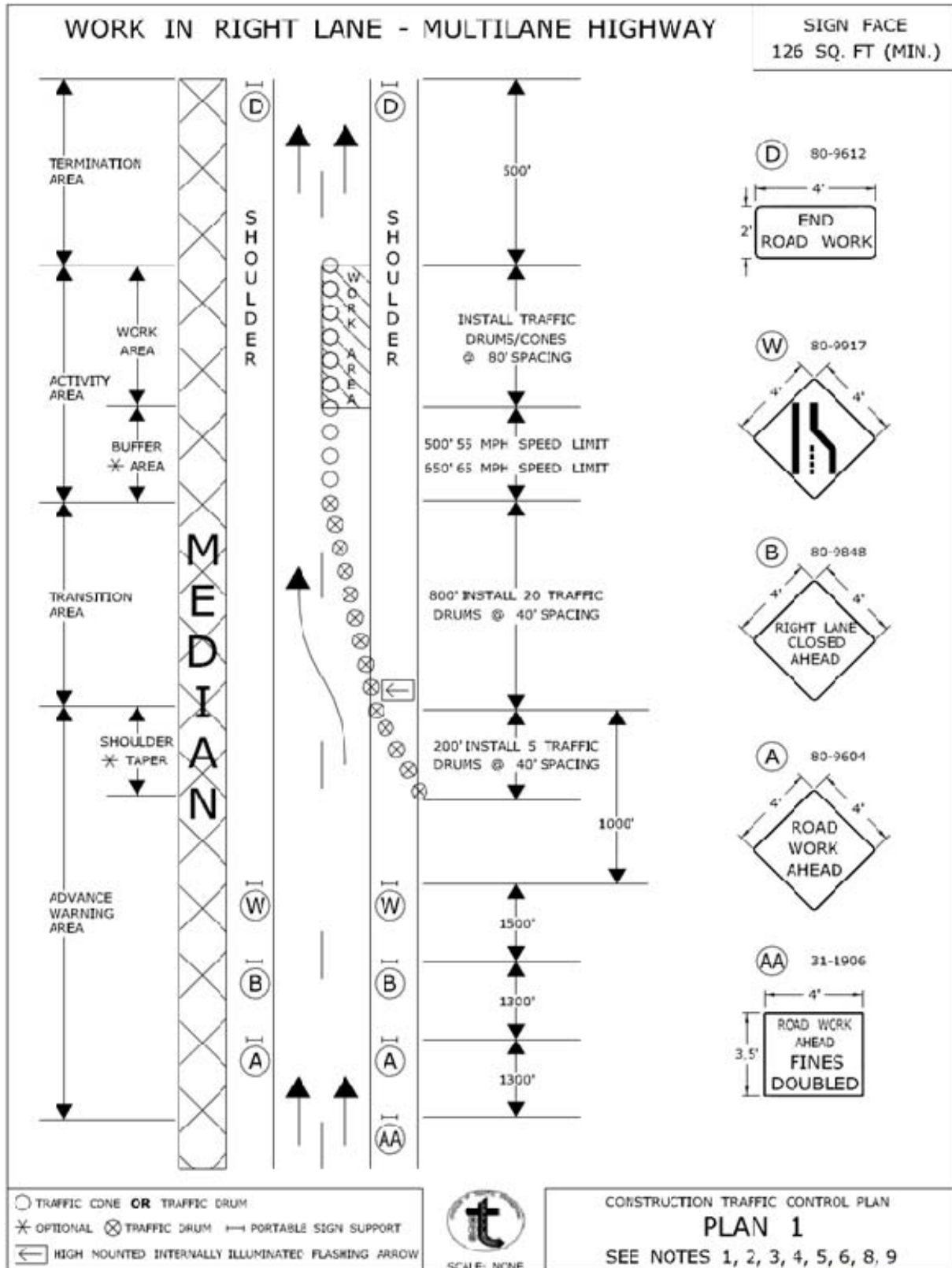
SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

Troy L. Fogarty
PRINCIPAL ENGINEER

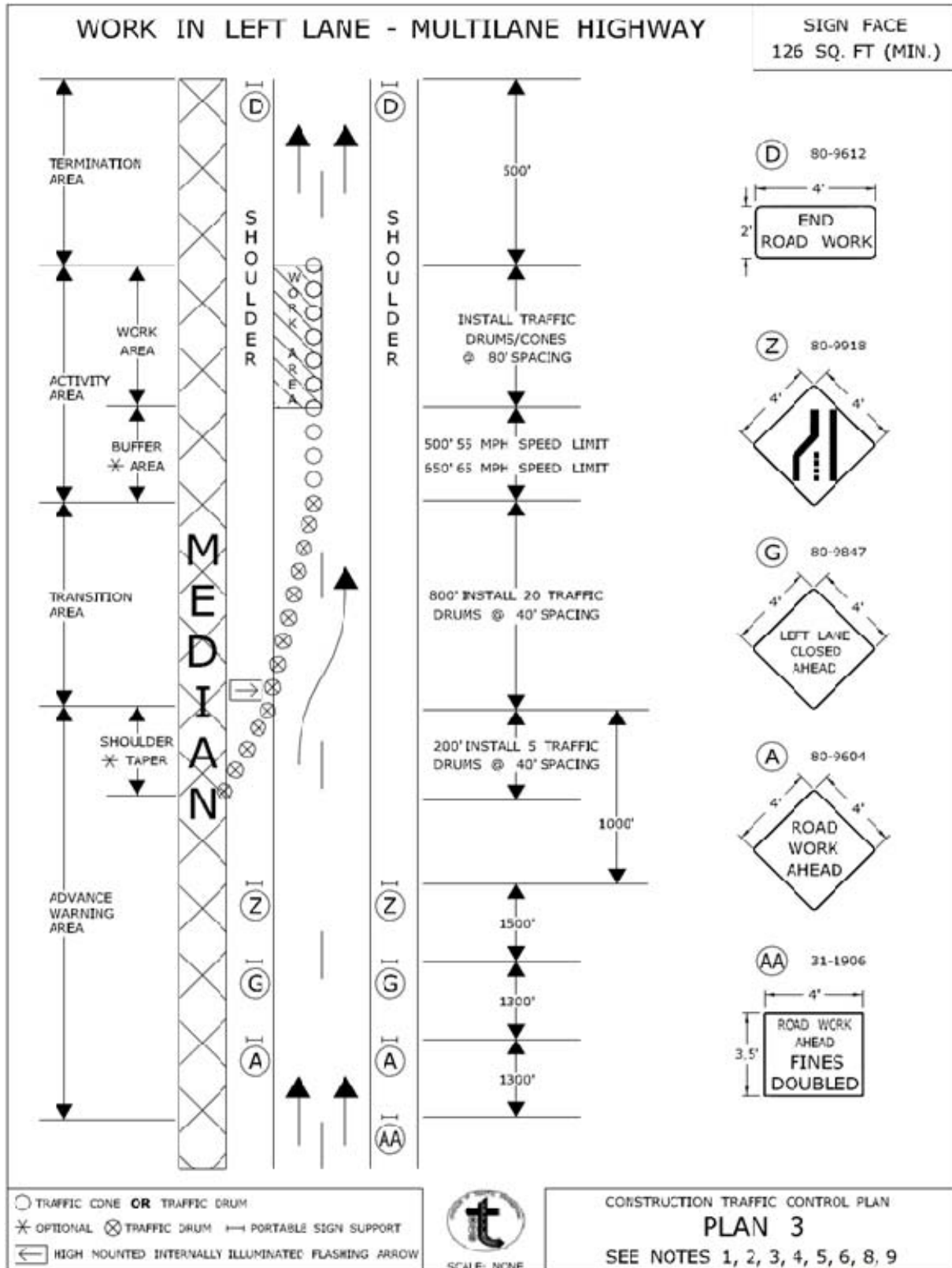
Troy L. Fogarty, P.E.
2019.08.13 08:17:47-0400



CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

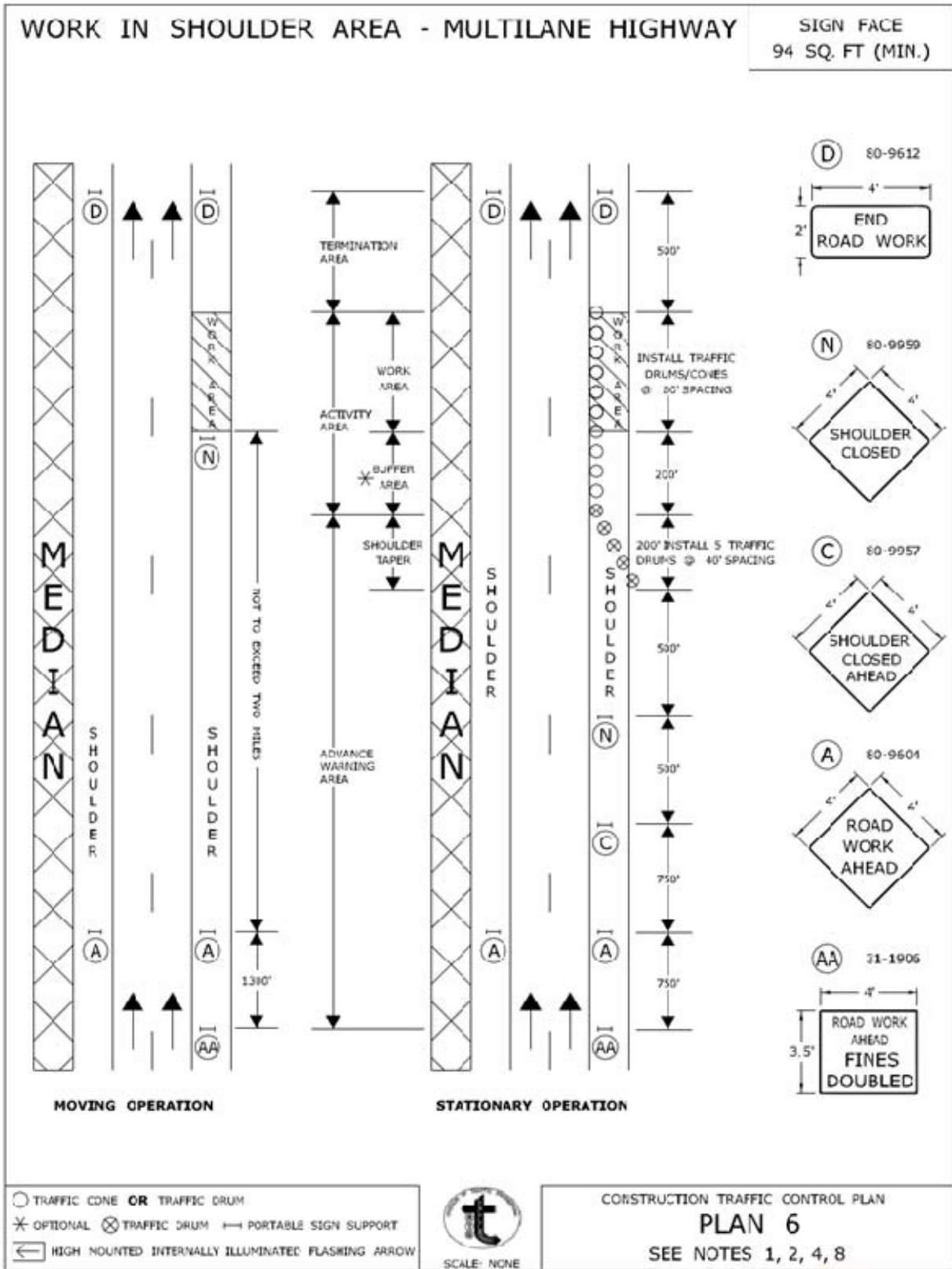
APPROVED *Charles S. Harlow*
PRINCIPAL ENGINEER

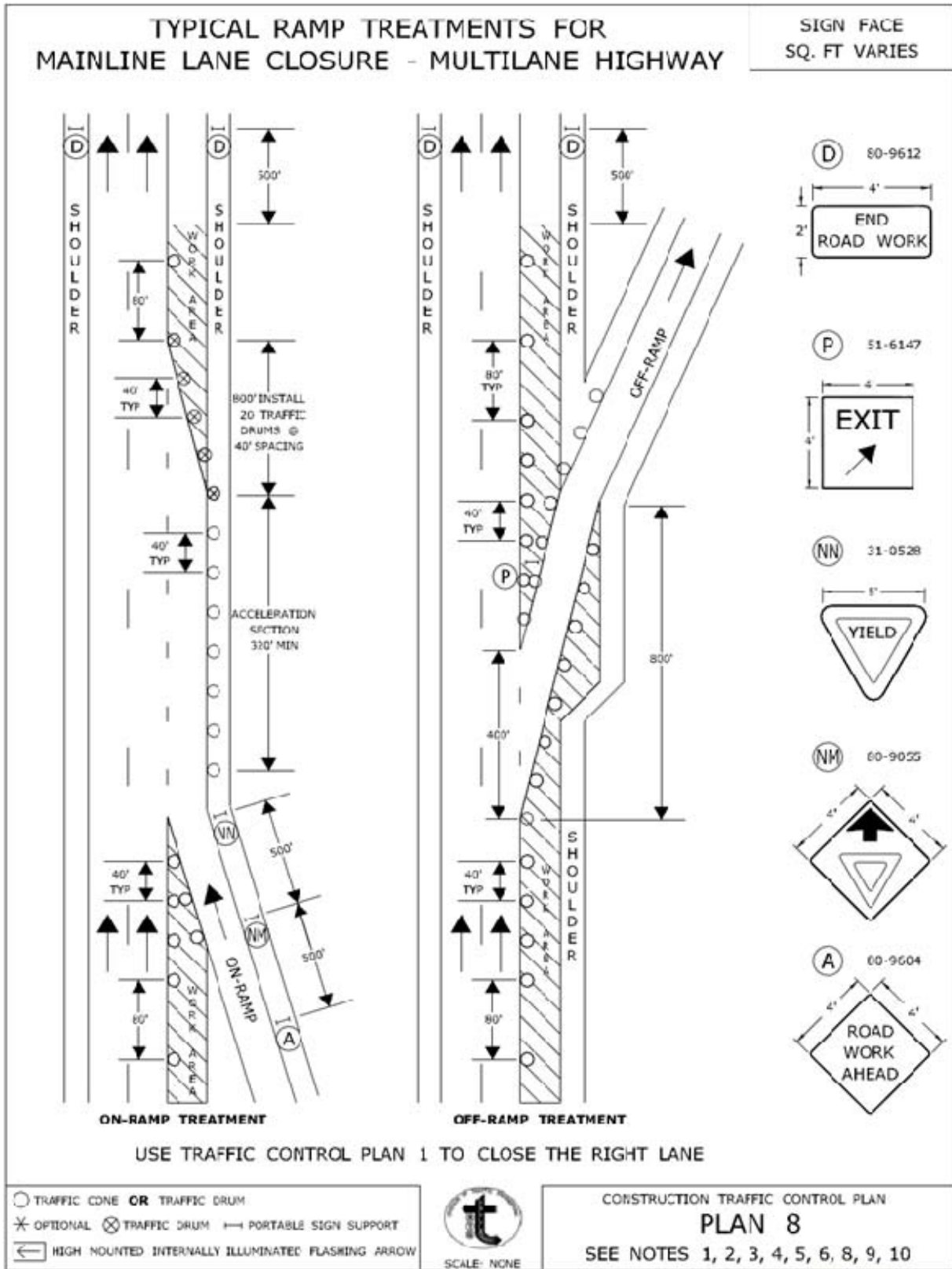
Charles S. Harlow
2012.06.05 11:51:00-0400

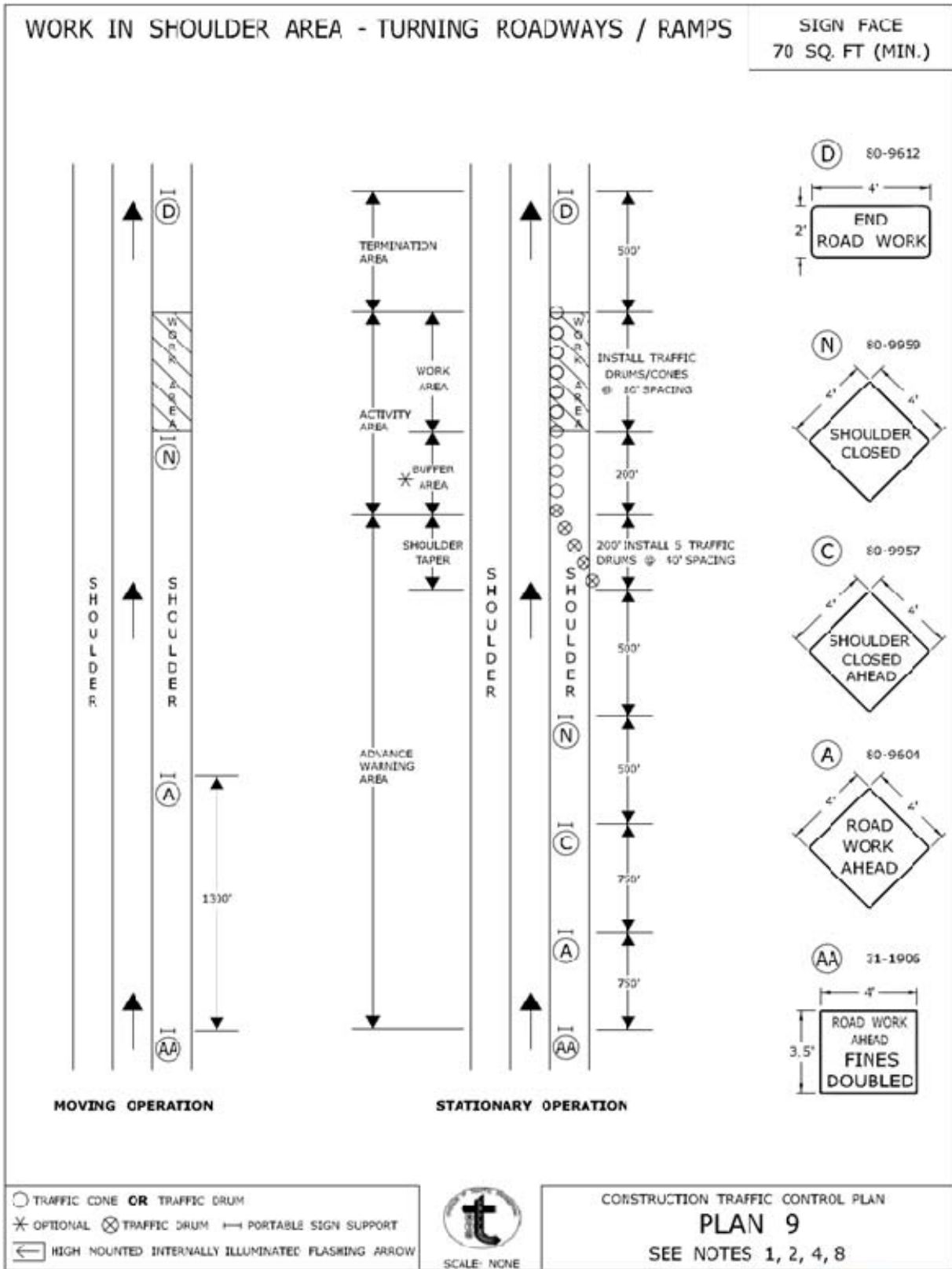


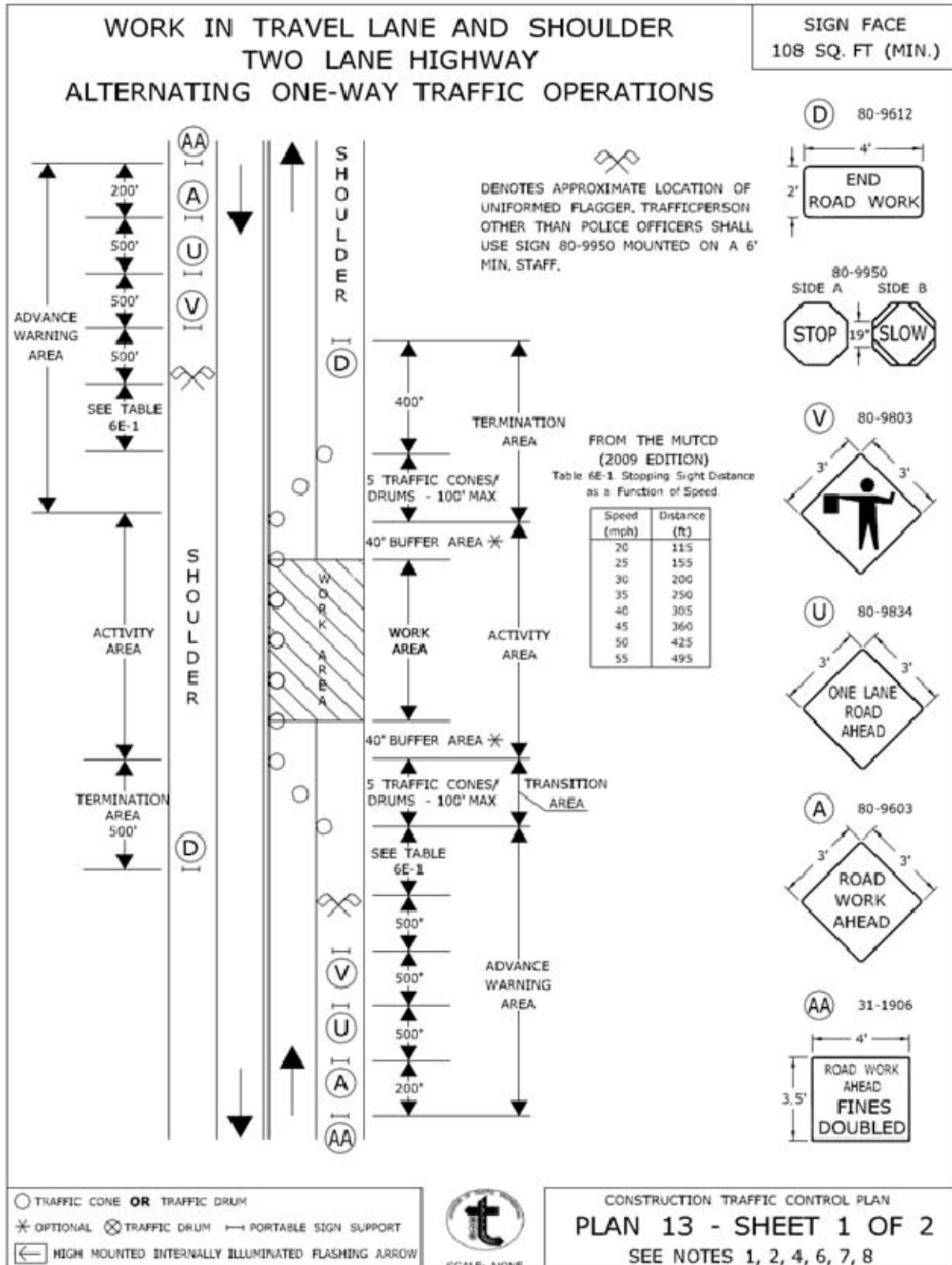
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles R. Hartwig*
PRINCIPAL ENGINEER 2012.06.05 11:51:46-0400









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

SIGN FACE
108 SQ. FT (MIN.)

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.



B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.



C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.



- TRAFFIC CONE **OR** TRAFFIC DRUM
- * OPTIONAL ⊗ TRAFFIC DRUM ⇄ PORTABLE SIGN SUPPORT
- ⇐ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

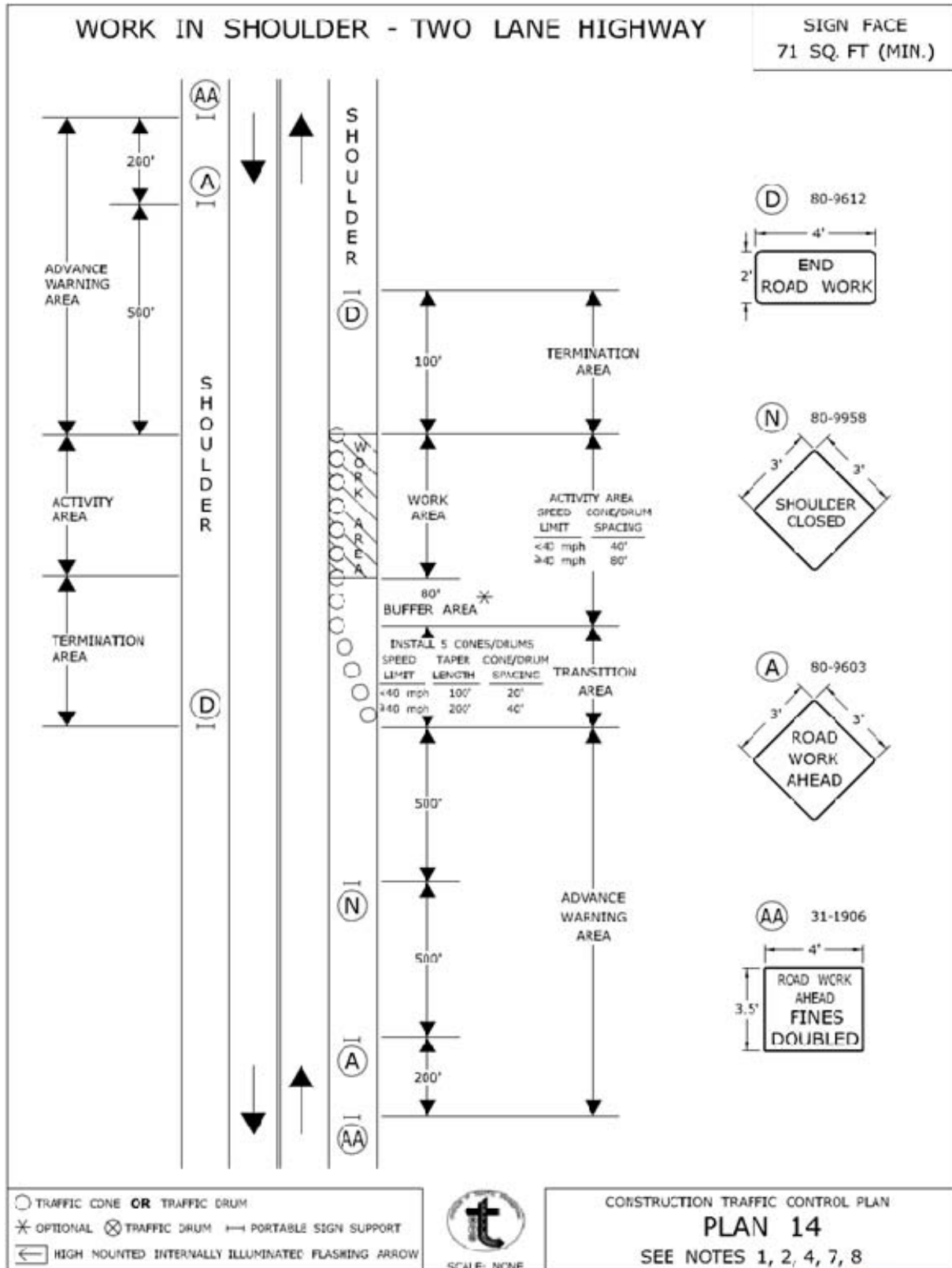


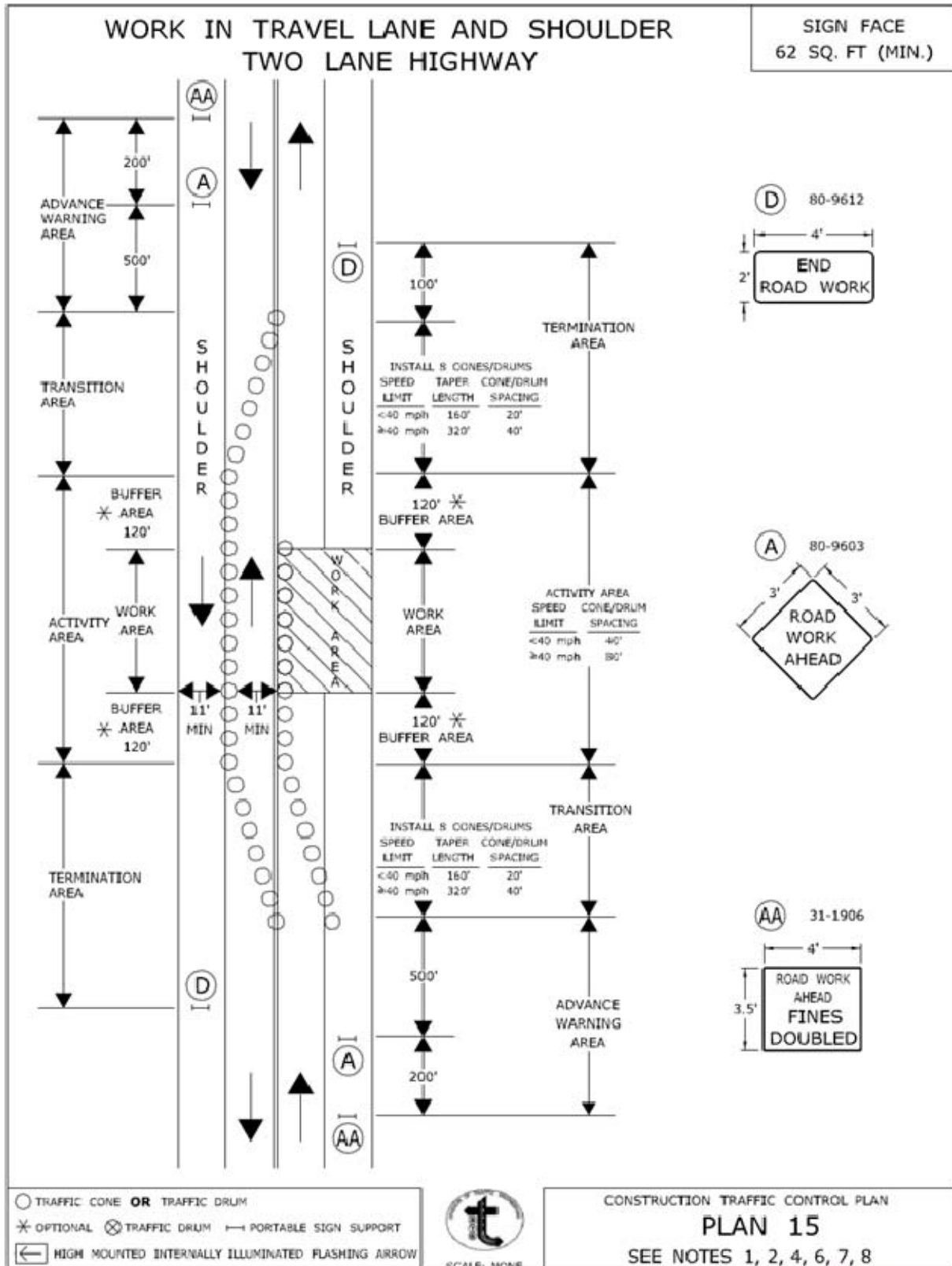
SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

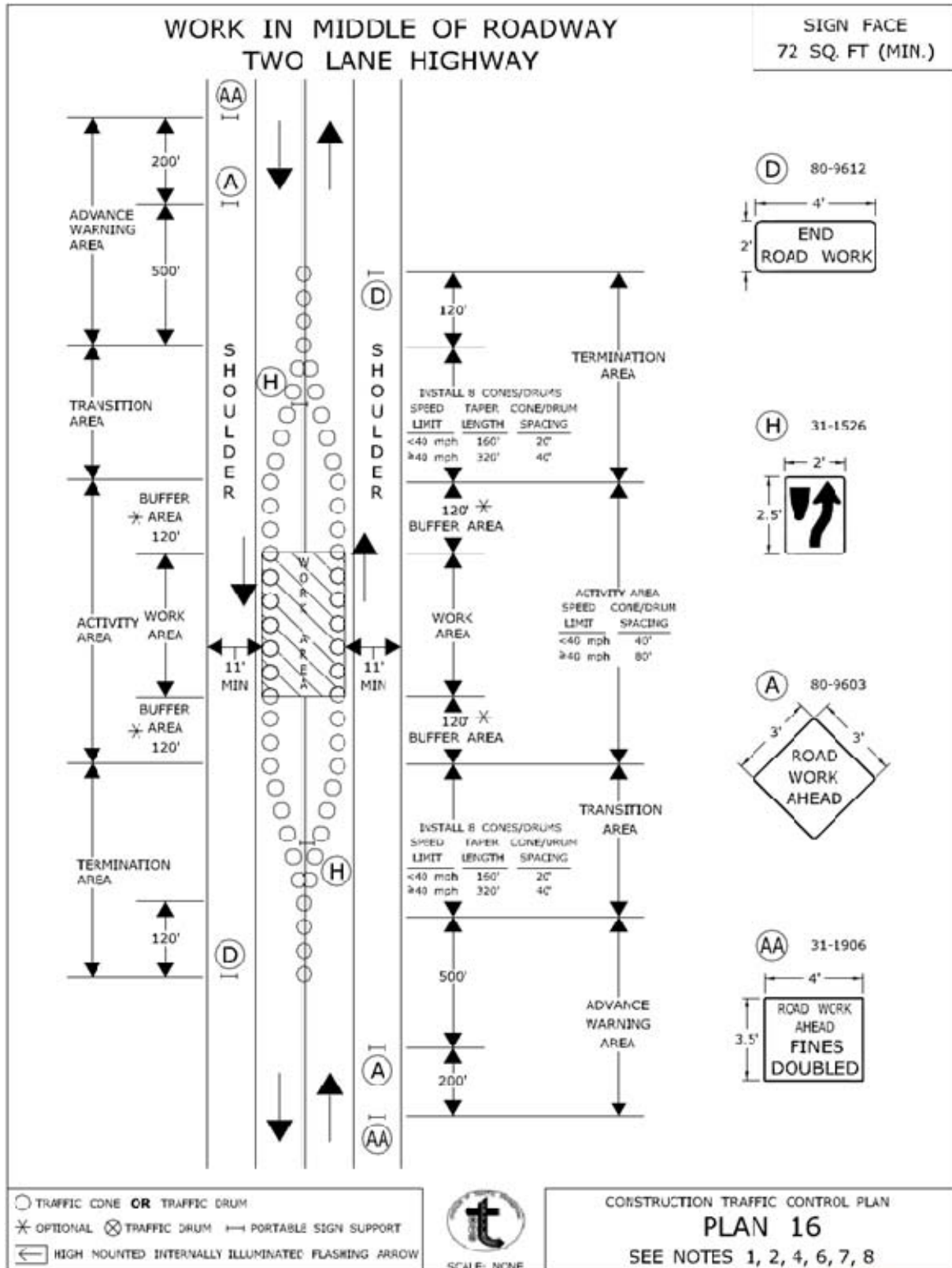
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Hoffman*
PRINCIPAL ENGINEER 2012.06.05 15:55:45-04'00"





APPROVED: *Charles S. Harlow*
 Charles S. Harlow
 2012.06.05 15:56:29-04:00
 PRINCIPAL ENGINEER



Article 9.71.05 – Basis of Payment *is supplemented by the following:*

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item “Maintenance and Protection of Traffic”. Temporary overhead sign supports and foundations shall be paid for under the appropriate item(s).

The cost of furnishing, installing, and removing the material for the 4H:1V traversable slope shall be paid for under the item “Maintenance and Protection of Traffic”.

The cost of furnishing, installing, and removing the detectable construction barricades used for intermediate term sidewalk closures shall be paid for under the item “Maintenance and Protection of Traffic”.

ITEM #0974105A – CONCRETE HAUNCH REMOVAL

Description:

Work under this item shall consist of removing a portion of the existing concrete haunch from the underside of the bridge deck slab along the edge of a beam in locations directly over underpass roadways, shoulders and walks, as shown on the Plans, and as directed by the Engineer, in accordance with these specifications.

Materials:

The material to clean and coat the reinforcing bars shall meet the requirements included in special provision “Clean and Coat Exposed Reinforcing Steel”.

Construction Methods:

The Contractor shall remove a portion of the concrete beam haunch located directly over underpass roadways and sidewalks in accordance with details and limits shown on the plans and as directed by the Engineer.

Concrete shall be removed by saw-cut and pneumatic hammer methods specified herein which do not damage the sound concrete in the bottom of the bridge deck, the adjacent steel beam, and portion of the beam haunch to remain.

A 3-inch deep saw-cut shall be made into the haunch, as shown on the plans, using a concrete saw guided on a fixed track system for exact control of saw cut alignment and depth of cut, except at locations above bridge beam diaphragms or other obstructions having insufficient vertical clearance for saw-cutting equipment. Following the completion of the saw-cut, the portion of the haunch to be removed shall be broken away by percussive methods.

At haunch removal locations over bridge beam diaphragms or other obstructions having insufficient clearance for track guided concrete saw equipment, pneumatic hammers may be used to remove a portion of the beam haunch as shown on the plans. The maximum weight of pneumatic hammers used in the removal shall be 15 pounds.

The Engineer shall examine the underside of the bridge deck for popouts caused by the removal of haunches.

If the popouts extend beyond the bottom layer of reinforcing steel, the popouts shall be repaired as ordered by the Engineer. The exposed reinforcing shall be cleaned and coated, paid for and as described in “Clean and Coat Exposed Reinforcing Steel”.

Contractor shall take adequate measures to prevent concrete chips, concrete sawing slurry, tools and materials from accumulating on the bridge structure and dropping onto the pedestrian walkway or travel lanes below.

Method of Measurement:

This work will be measured for payment by the number of linear feet of concrete beam haunch removed in accordance with the plans and accepted by the Engineer.

Basis of Payment:

This work will be paid for at the contract unit price per linear foot for "Concrete Haunch Removal", which price shall include the removal of a portion of the concrete haunch along each edge of a beam, disposal of removed concrete, and all materials, equipment, tools and labor incidental thereto. The cost of cleaning and coating any exposed reinforcing steel caused by pop-outs shall be covered under the item "Clean and Coat Exposed Reinforcing Steel".

Pay Item	Pay Unit
Concrete Haunch Removal	LF

ITEM #0979004A – CONSTRUCTION BARRICADE DETECTABLE

Section 9.79 is supplemented and amended as follows:

09.79.01—Description:

Replace the entire Article with the following:

Under this item the Contractor shall furnish all Construction Barricade Detectable required on the Project as stated in the item “Maintenance and Protection of Traffic,” as shown on the plans, and as directed by the Engineer.

The Construction Barricade Detectable shall conform to the following:

1. have continuous detectable bottom and top surfaces able to be detected by a person with a visual disability traveling with the aid of a long cane;
2. the bottom of the bottom surface shall be no higher than 2 inches above the ground;
3. the top of the top surface shall be no lower than 32 inches above the ground;
4. the requirements of the 2016 AASHTO MASH.

09.79.02—Materials:

Delete the last sentence and add the following:

Prior to using Construction Barricade Detectable on the Project, the Contractor shall submit to the Engineer a copy of the Eligibility Letter issued by the FHWA to the manufacturer documenting that the barricades comply with the requirements of the 2016 AASHTO MASH and are eligible for reimbursement under the Federal-aid highway program.

Pay Item
Construction Barricade Detectable

Pay Unit
ea.

ITEM #0981101A - OPPOSING TRAFFIC LANE DIVIDER

Article 9.81.01 - Description:

This item shall include furnishing, installing, resetting, and removing Opposing Traffic Lane Dividers. Opposing Traffic Lane Dividers will be used to separate opposing traffic on a two-lane two-way roadway. The legend on the divider shall be two opposing arrows.

The Opposing Traffic Lane Divider shall meet the requirements of Federal Highway Administration's Strategic Highway Research Program (SHRP). The Opposing Traffic Lane Divider shall be 12 inch wide by 18 inch high sign panels mounted back to back on a flexible support post. The post shall be mounted to a base.

A series of these devices shall be placed on the center line of a temporary two-way operation. The support shall be designed to recover automatically to a vertical position if struck by a vehicle.

The opposing Traffic Lane Divider is covered in Section 6F.76 of the Manual on Uniform Traffic Control Devices (2009 Edition).

Article 9.81.02 - Materials:

- 1) Panel - The vertical panel shall be constructed of a flexible material resistant to ultraviolet light, ozone and hydrocarbons. The surface shall be smooth and suitable for adherence of appropriate retroreflective sheeting. The retroreflective sheeting shall be Type IV retroreflective sheeting in accordance with Section M.18.09.
- 2) Support Post - The support post shall be made of a material resistant to ultraviolet light, ozone, and hydrocarbons. The post shall have sufficient stiffness to remain rigid in windy conditions. The support shall be designed to recover automatically to a vertical position or manually restored (when fastened to the roadbed), if struck by a vehicle.
- 3) Base - The base shall consist of a metal ballast plate fastened to a rubber base. For long-term use, the metal ballast plate can be fastened directly to the roadbed. When fastened to the roadbed, the post will need to be manually reset when hit. The base shall meet the requirements of the Federal Highway Administration's Strategic Highway Research Program (SHRP).

Article 9.81.03 - Construction Methods:

The Opposing Traffic Lane Dividers shall be spaced every 30 feet apart or as directed by the Engineer. The Contractor shall insure that the devices are kept clean and bright. Any devices that are missing, damaged, or defaced so that they are not effective, as determined by the Engineer and in accordance with the American Traffic Safety Services Association (ATSSA) guidelines contained in "Quality Standards for Work Zone Traffic Control Devices", shall be replaced by the Contractor at no cost to the State. When no longer required, they shall remain the property of the Contractor.

Article 9.81.04 - Method of Measurement:

This work will be measured for payment by the number of opposing traffic lane dividers furnished, installed and accepted on the project. Replacement devices shall not be measured for payment. Devices relocated to a different location in accordance with the Engineer shall not be measured.

Article 9.81.05 - Basis of Payment:

This work will be paid for at the contract unit price each for "Opposing Traffic Lane Divider" which price shall include all materials, equipment, tools, labor and work incidental to furnishing, installing, maintaining and removing the units.

ITEM #1206023A - REMOVAL AND RELOCATION OF EXISTING SIGNS

Section 12.06 is supplemented as follows:

Article 12.06.01 – Description is supplemented with the following:

Work under this item shall consist of the removal and/or relocation of designated side-mounted extruded aluminum and sheet aluminum signs, sign posts, sign supports, and foundations where indicated on the plans or as directed by the Engineer. Work under this item shall also include furnishing and installing new sign posts and associated hardware for signs designated for relocation.

Article 12.06.03 – Construction Methods is supplemented with the following:

The Contractor shall take care during the removal and relocation of existing signs, sign posts, and sign supports that are to be relocated so that they are not damaged. Any material that is damaged shall be replaced by the Contractor at no cost to the State.

Foundations and other materials designated for removal shall be removed and disposed of by the Contractor as directed by the Engineer and in accordance with existing standards for Removal of Existing Signing.

Sheet aluminum signs designated for relocation are to be re-installed on new sign posts.

Article 12.06.04 – Method of Measurement is supplemented with the following:

Payment under Removal and Relocation of Existing Signs shall be at the contract lump sum price which shall include all extruded aluminum and sheet aluminum signs, sign posts, and sign supports designated for relocation, all new sign posts and associated hardware for signs designated for relocation, all extruded aluminum signs, sheet aluminum signs, sign posts and sign supports designated for scrap, and foundations and other materials designated for removal and disposal, and all work and equipment required.

Article 12.06.05 – Basis of Payment is supplemented with the following:

This work will be paid for at the contract lump sum price for “Removal and Relocation of Existing Signs” which price shall include relocating designated extruded aluminum and sheet aluminum signs, sign posts, and sign supports, providing new posts and associated hardware for relocated signs, removing and disposing of foundations and other materials, and all equipment, material, tools and labor incidental thereto. This price shall also include removing, loading, transporting, and unloading of extruded aluminum signs, sheet aluminum signs, sign posts, and sign supports designated for scrap and all equipment, material, tools and labor incidental thereto.

Pay Item
Removal and Relocation of Existing Signs

Pay Unit
L.S.

ITEM #1208931A — SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)

Section 12.08 is supplemented and amended as follows:

12.08.01—Description:

Add the following:

This item shall also include field testing of metal sign base posts as directed by the Engineer.

12.08.03—Construction Methods:

Delete the last sentence and add the following:

Metal sign base posts shall be whole and uncut. Sign base post embedment and reveal lengths shall be as shown on the plans. The Contractor shall drive the metal sign base posts by hand tools, by mechanical means or by auguring holes. If an obstruction is encountered while driving or placing the metal sign base post, the Contractor shall notify the Engineer who will determine whether the obstruction shall be removed, the sign base post or posts relocated, or the base post installation in ledge detail shall apply. Backfill shall be thoroughly tamped after the posts have been set level and plumb.

Field Testing of Metal Sign Posts: When the sign installations are complete, the Contractor shall notify the Engineer the Project is ready for field testing. Based on the number of posts in the Project, the Engineer will select random sign base posts which shall be removed by the Contractor for inspection and measurement by the Engineer. After such inspection is completed at each base post location, the Contractor shall restore or replace such portions of the work to the condition required by the Contract. Refer to the table in 12.08.05 for the number of posts to be field tested.

12.08.04—Method of Measurement:

Add the following:

The work required to expose and measure sign base post length and embedment depth using field testing methods, and restoration of such work, will not be measured for payment and shall be included in the general cost of the work.

12.08.05—Basis of Payment:

Replace the entire Article with the following:

This work will be paid for at the Contract unit price per square foot for “Sign Face - Sheet Aluminum” of the type specified complete in place, adjusted by multiplying by the applicable Pay Factor listed in the table below. The price for this work shall include the completed sign, metal sign post(s), span-mounted sign brackets and mast arm-mounted brackets, mounting hardware, including reinforcing plates, field testing, restoration and replacement of defective base post(s), and all materials, equipment, and work incidental thereto.

Pay Factor Scale: Work shall be considered defective whenever the base post length or base post embedment depth is less than the specified length by more than 2 inches. If the number of defects results in rejection, the Contractor shall remove and replace all metal sign base posts on the Project, at no cost to the Department.

Number of Posts to be Tested and Pay Factors (Based on Number of Defects)

Number of Posts in Project =>	51-100	101-250	251-1000	>1000
Sample Size=>	5 Posts	10 Posts	40 Posts	60 Posts
0 Defects	1.0	1.0	1.025	1.025
1 Defect	0.9	0.95	0.975	0.983
2 Defects	Rejection	0.9	0.95	0.967
3 Defects	Rejection	Rejection	0.925	0.95
4 Defects	Rejection	Rejection	0.9	0.933
5 Defects	Rejection	Rejection	Rejection	0.917
6 Defects	Rejection	Rejection	Rejection	0.9
7 or more Defects	Rejection	Rejection	Rejection	Rejection

Note: Projects with 50 or fewer posts will not include field testing.

PERMITS AND/OR REQUIRED PROVISIONS:

The following Permits and/or Required Provisions follow this page and are hereby made part of this Contract.

- **PERMITS AND/OR PERMIT APPLICATIONS**

Permit Name	Issue Date/Status
Flood Management General Certification	April 27, 2020

- **Construction Contracts - Required Contract Provisions (FHWA Funded Contracts)**

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

FLOOD MANAGEMENT GENERAL CERTIFICATION

Project No.: 078-092
Description: Rehabilitation of Bridge Nos. 01708 and 03374
Route 2 Westbound & Eastbound over West
Road

Town: Marlborough, Connecticut

Date: February 20, 2020


m e m o r a n d u m


to: Mr. Michael E. Masayda
Trans. Principal Engineer
Hydraulics and Drainage
Bureau of Engineering and Highway Operations

from: Andrew J. Cardinali
Transportation Supervising Engineer
Bridge CLE Design
Bureau of Engineering and Construction

Digitally signed by Andrew Cardinali
DN: cn=US, e=andrew.cardinali@dot.gov, o=Connecticut Department of
Transportation, ou=Construction Bridge Design, cn=Andrew Cardinali
Date: 2020.02.21 10:38:15-0500

Please review this request for Flood Management General Certification and indicate your concurrence below.

Certification (to be completed by designer)	
<i>I have read the Flood Management General Certification and the descriptions for the approved DOT minor activities. This project qualifies for the Flood Management General Certification under:</i>	
<input type="checkbox"/> Minor Safety Improvements and Streetscape Projects <input checked="" type="checkbox"/> Roadway Repaving, Maintenance & Underground Utilities <input type="checkbox"/> Minor Stormwater Drainage Improvements <input type="checkbox"/> Removal of Sediment or Debris from a Floodplain <input type="checkbox"/> Wetland Restoration Creation or Enhancement <input type="checkbox"/> Scour Repairs at Structures; (<i>Must acquire DEEP Fisheries Concurrence to be eligible</i>) <input type="checkbox"/> Guide Rail Installation <input type="checkbox"/> Deck and Superstructure Replacements <input checked="" type="checkbox"/> Minor Bridge Repairs and Access <input type="checkbox"/> Fisheries Enhancements <input type="checkbox"/> Surveying and Testing <input type="checkbox"/> Bicycle / Pedestrian, Multi Use Trails and Enhancement Projects	
<i>The following required documentation is attached in support of this certification:</i>	
<ul style="list-style-type: none"> ● Project description ● Location plan ● Description of Floodplain involvement and how project qualifies for general certification ● 8-1/2" by 11" excerpt copy of the FEMA Flood Insurance Rate Map (FIRM) and Floodway Boundary Map (if applicable) ● Design plans, (dated 11/22, 11/251 and 12/3/2019) with FEMA floodplain and floodway boundaries plotted, cross sections and profiles, as necessary, that clearly depict the floodplain involvement ● FEMA 100-year flood elevation plotted on elevation view (for structures) 	
Print Name: Dionys Quezada	Title: Project Engineer
Signature:  Digitally signed by Dionys Quezada Date: 2020.02.19 09:14:13-0500	Date: 02/19/2020

Concurrence (to be completed by Hydraulics and Drainage)	
Based on the documentation submitted, I hereby concur that the project qualifies for Flood Management General Certification.	
<i>If there are any changes to the proposed activities within the floodplain or floodway, the project must be re-submitted for review and approval.</i>	
Signature: Chow, Chong 	Date:

Construction Contracts - Required Contract Provisions (FHWA Funded Contracts)

Index

1. Federal Highway Administration (FHWA) Form 1273 (Revised May 1, 2012)
2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements
3. Contractor Work Force Utilization (Federal Executive Order 11246) / Specific Equal Employment Opportunity
4. Requirements of Title 49, CFR, Part 26, Participation by DBEs
5. Contract Wage Rates
6. Americans with Disabilities Act of 1990, as Amended
7. Connecticut Statutory Labor Requirements
 - a. Construction, Alteration or Repair of Public Works Projects; Wage Rates
 - b. Debarment List - Limitation on Awarding Contracts
 - c. Construction Safety and Health Course
 - d. Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited
 - e. Residents Preference in Work on Other Public Facilities (Not Applicable to Federal Aid Contracts)
8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)
9. Executive Orders (State of CT)
10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised)
11. Whistleblower Provision
12. Connecticut Freedom of Information Act
 - a. Disclosure of Records
 - b. Confidential Information
13. Service of Process
14. Substitution of Securities for Retainages on State Contracts and Subcontracts
15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)
16. Forum and Choice of Law

17. Summary of State Ethics Laws
18. Audit and Inspection of Plants, Places of Business and Records
19. Campaign Contribution Restriction
20. Tangible Personal Property
21. Bid Rigging and/or Fraud – Notice to Contractor
22. Consulting Agreement Affidavit
23. Federal Cargo Preference Act Requirements (46 CFR 381.7(a)-(b))

Index of Exhibits

- EXHIBIT A – FHWA Form 1273 (Begins on page 14)
- EXHIBIT B – Title VI Contractor Assurances (page 34)
- EXHIBIT C – Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity (page 36)
- EXHIBIT D – Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 43)
- EXHIBIT E – Campaign Contribution Restriction (page 51)
- EXHIBIT F – Federal Wage Rates (Attached at the end)
- EXHIBIT G – State Wage Rates and Other Related Information (Attached at the end)

1. Federal Highway Administration (FHWA) Form 1273

The Contractor shall comply with the Federal Highway Administration (FHWA), Form 1273 attached at Exhibit A, as revised, which is hereby made part of this contract. The Contractor shall also require its subcontractors to comply with the FHWA – Form 1273 and include the FHWA – Form 1273 as an attachment to all subcontracts and purchase orders.

2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements

The Contractor shall comply with Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000 et seq.), all requirements imposed by the regulations of the United States Department of Transportation (49 CFR Part 21) issued in implementation thereof, and the Title VI Contractor Assurances attached hereto at Exhibit B, all of which are hereby made a part of this Contract.

3. Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity

- (a) The Contractor shall comply with the Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity requirements attached at Exhibit C and hereby made part of this Contract, whenever a contractor or subcontractor at any tier performs construction work in excess of \$10,000. These goals shall be included in each contract and subcontract. Goal achievement is calculated for each trade using the hours worked under each trade.
- (b) Companies with contracts, agreements or purchase orders valued at \$10,000 or more will develop and implement an Affirmative Action Plan utilizing the ConnDOT Affirmative Action Plan Guideline. This Plan shall be designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex or national origin, and to promote the full realization of equal employment opportunity through a positive continuation program. Plans shall be updated as required by ConnDOT.

4. Requirements of Title 49, Code of Federal Regulations (CFR), Part 26, Participation by DBEs, as may be revised.

Pursuant to 49 CFR 26.13, the following paragraph is part of this Contract and shall be included in each subcontract the Contractor enters into with a subcontractor:

“The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26, Participation by DBEs, in the award and administration of U.S. DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this contract or such other remedy as ConnDOT (recipient) deems appropriate, which may include, but is not limited to: (1) Withholding monthly progress payments, (2) Assessing sanctions, (3) Liquidated damages; and/or, (4) Disqualifying the contractor from future bidding as non-responsible.”

5. Contract Wage Rates

The Contractor shall comply with:

The Federal and State wage rate requirements indicated in Exhibits F and G hereof, as revised, are hereby made part of this Contract. The Federal wage rates (Davis-Bacon Act) applicable to this Contract shall be the Federal wage rates that are current on the US Department of Labor website (<http://www.wdol.gov/dba.aspx>) as may be revised 10 days prior to bid opening. These applicable Federal wage rates will be physically incorporated in the final contract document executed by both parties. The Department will no longer physically include revised Federal wage rates in the bid documents or as part of addenda documents, prior to the bid opening date. During the bid advertisement period, bidders are responsible for obtaining the appropriate Federal wage rates from the US Department of Labor website.

To obtain the latest Federal wage rates go to the US Department of Labor website (link above). Under Davis-Bacon Act, choose “Selecting DBA WDs” and follow the instruction to search the latest wage rates for the State, County and Construction Type. Refer to the Notice to Contractor (NTC) - Federal Wage Determinations (Davis Bacon Act).

If a conflict exists between the Federal and State wage rates, the higher rate shall govern.

Prevailing Wages for Work on State Highways; Annual Adjustments. With respect to contracts for work on state highways and bridges on state highways, the Contractor shall comply with the provisions of Section 31-54 and 31-55a of the Connecticut General Statutes, as revised.

As required by Section 1.05.12 (Payrolls) of the State of Connecticut, Department of Transportation’s Standard Specification for Roads, Bridges and Incidental Construction (FORM 817), as may be revised, every Contractor or subcontractor performing project work on a Federal aid project is required to post the relevant prevailing wage rates as determined by the United States Secretary of Labor. The wage rate determinations shall be posted in prominent and easily accessible places at the work site.

6. Americans with Disabilities Act of 1990, as Amended

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

7. Connecticut Statutory Labor Requirements

(a) Construction, Alteration or Repair of Public Works Projects; Wage Rates. The Contractor shall comply with Section 31-53 of the Connecticut General Statutes, as revised. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or

worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i) of section 31-53 of the Connecticut General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

(b) Debarment List. Limitation on Awarding Contracts. The Contractor shall comply with Section 31-53a of the Connecticut General Statutes, as revised.

(c) Construction Safety and Health Course. The Contractor shall comply with section 31-53b of the Connecticut General Statutes, as revised. The contractor shall furnish proof to the Labor Commissioner with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 of the Connecticut General Statutes, as revised, on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

Any employee required to complete a construction safety and health course as required that has not completed the course, shall have a maximum of fourteen (14) days to complete the course. If the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

(d) Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited. The Contract is subject to Section 31-57b of the Connecticut General Statutes, as revised.

(e) Residents Preference in Work on Other Public Facilities. NOT APPLICABLE TO FEDERAL AID CONTRACTS. Pursuant to Section 31-52a of the Connecticut General Statutes, as revised, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the state who are, and continuously for at least six months prior to the date hereof have been, residents of this state, and if no such person is available, then to residents of other states

8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)

The Contractor shall comply with Chapter 219 of the Connecticut General Statutes pertaining to tangible personal property or services rendered that is/are subject to sales tax. The Contractor is

responsible for determining its tax liability. If the Contractor purchases materials or supplies pursuant to the Connecticut Department of Revenue Services' "Contractor's Exempt Purchase Certificate (CERT-141)," as may be revised, the Contractor acknowledges and agrees that title to such materials and supplies installed or placed in the project will vest in the State simultaneously with passage of title from the retailers or vendors thereof, and the Contractor will have no property rights in the materials and supplies purchased.

Forms and instructions are available anytime by:

Internet: Visit the DRS website at www.ct.gov/DRS to download and print Connecticut tax forms; or
Telephone: Call 1-800-382-9463 (Connecticut calls outside the Greater Hartford calling area only) and select Option 2 or call 860-297-4753 (from anywhere).

9. Executive Orders

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of the contract as if they had been fully set forth in it. The contract may also be subject to Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services and to Executive Order No. 49 of Governor Dannel P. Malloy, promulgated May 22, 2015, mandating disclosure of certain gifts to public employees and contributions to certain candidates for office. If Executive Order No. 14 and/or Executive Order No. 49 are applicable, they are deemed to be incorporated into and are made a part of the contract as if they had been fully set forth in it. At the Contractor's request, the Department shall provide a copy of these orders to the Contractor.

10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised): References to "minority business enterprises" in this Section are not applicable to Federal-aid projects/contracts. Federal-aid projects/contracts are instead subject to the Federal Disadvantaged Business Enterprise Program.

(a) For purposes of this Section, the following terms are defined as follows:

- (1) "Commission" means the Commission on Human Rights and Opportunities;
- (2) "Contract" and "contract" include any extension or modification of the Contract or contract;
- (3) "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;
- (4) "Gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose.
- (5) "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;
- (6) "good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted

efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements;

- (7) "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced;
- (8) "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders;
- (9) "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Connecticut General Statutes § 32-9n; and
- (10) "public works contract" means any agreement between any individual, firm or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

For purposes of this Section, the terms "Contract" and "contract" do not include a contract where each contractor is (1) a political subdivision of the State of Connecticut, including, but not limited to municipalities, unless the contract is a municipal public works contract or quasi-public agency project contract, (2) any other state of the United States, including but not limited to, the District of Columbia, Puerto Rico, U.S. territories and possessions, and federally recognized Indian tribal governments, as defined in Connecticut General Statutes § 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in subdivision (1), (2), (3), or (4) of this subsection.

- (b) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut; and the Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by the Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which the Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor

agrees to comply with each provision of this Section and Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e and 46a-68f; and (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this Section and Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.

- (c) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.
- (d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.
- (e) The Contractor shall include the provisions of subsection (b) of this Section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes §46a-56; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.
- (f) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.
- (g) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes § 46a-56; and (4) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this Section and Connecticut General Statutes § 46a-56.
- (h) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by

regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes § 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

Please be aware the Nondiscrimination Certifications can be found at the Office of Policy and Management website:

<https://portal.ct.gov/OPM/Fin-PSA/Forms/Nondiscrimination-Certification>

11. Whistleblower Provision

The following clause is applicable if the Contract has a value of Five Million Dollars (\$5,000,000) or more.

Whistleblowing. This Contract may be subject to the provisions of Section 4-61dd of the Connecticut General Statutes. In accordance with this statute, if an officer, employee or appointing authority of the Contractor takes or threatens to take any personnel action against any employee of the Contractor in retaliation for such employee's disclosure of information to any employee of the contracting state or quasi-public agency or the Auditors of Public Accounts or the Attorney General under the provisions of subsection (a) of such statute, the Contractor shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of this Contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation, each calendar day's continuance of the violation shall be deemed to be a separate and distinct offense. The State may request that the Attorney General bring a civil action in the Superior Court for the Judicial District of Hartford to seek imposition and recovery of such civil penalty. In accordance with subsection (f) of such statute, each large state contractor, as defined in the statute, shall post a notice of the provisions of the statute relating to large state contractors in a conspicuous place which is readily available for viewing by the employees of the Contractor.

12. Connecticut Freedom of Information Act

- (a) **Disclosure of Records.** This Contract may be subject to the provisions of section 1-218 of the Connecticut General Statutes. In accordance with this statute, each contract in excess of two million five hundred thousand dollars between a public agency and a person for the performance of a governmental function shall (a) provide that the public agency is entitled to receive a copy of records and files related to the performance of the governmental function, and (b) indicate that such records and files are subject to FOIA and may be disclosed by the public agency pursuant to FOIA. No request to inspect or copy such records or files shall be valid unless the request is made to the public agency in accordance with FOIA. Any complaint by a person who is denied the right to inspect or copy such records or files shall be brought to the Freedom of Information Commission in accordance with the provisions of sections 1-205 and 1-206 of the Connecticut General Statutes.
- (b) **Confidential Information.** The State will afford due regard to the Contractor's request for the protection of proprietary or confidential information which the State receives from the Contractor. However, all materials associated with the Contract are subject to the terms of the FOIA and all corresponding rules, regulations and interpretations. In making such a request, the Contractor may not merely state generally that the materials are proprietary or confidential in nature and not, therefore, subject to release to third parties. Those particular

sentences, paragraphs, pages or sections that the Contractor believes are exempt from disclosure under the FOIA must be specifically identified as such. Convincing explanation and rationale sufficient to justify each exemption consistent with the FOIA must accompany the request. The rationale and explanation must be stated in terms of the prospective harm to the competitive position of the Contractor that would result if the identified material were to be released and the reasons why the materials are legally exempt from release pursuant to the FOIA. To the extent that any other provision or part of the Contract conflicts or is in any way inconsistent with this section, this section controls and shall apply and the conflicting provision or part shall not be given effect. If the Contractor indicates that certain documentation is submitted in confidence, by specifically and clearly marking the documentation as “CONFIDENTIAL,” DOT will first review the Contractor’s claim for consistency with the FOIA (that is, review that the documentation is actually a trade secret or commercial or financial information and not required by statute), and if determined to be consistent, will endeavor to keep such information confidential to the extent permitted by law. See, *e.g.*, Conn. Gen. Stat. §1-210(b)(5)(A-B). The State, however, has no obligation to initiate, prosecute or defend any legal proceeding or to seek a protective order or other similar relief to prevent disclosure of any information that is sought pursuant to a FOIA request. Should the State withhold such documentation from a Freedom of Information requester and a complaint be brought to the Freedom of Information Commission, the Contractor shall have the burden of cooperating with DOT in defense of that action and in terms of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall the State have any liability for the disclosure of any documents or information in its possession which the State believes are required to be disclosed pursuant to the FOIA or other law.

13. Service of Process

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

14. Substitution of Securities for Retainages on State Contracts and Subcontracts

This Contract is subject to the provisions of Section 3-112a of the General Statutes of the State of Connecticut, as revised.

15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)

The Contractor shall comply, if applicable, with the Health Insurance Portability and Accountability Act of 1996 and, pursuant thereto, the provisions attached at Exhibit D, and hereby made part of this Contract.

16. Forum and Choice of Law

Forum and Choice of Law. The parties deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of

Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Contractor waives any objection which it may now have or will have to the laying of venue of any Claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

17. Summary of State Ethics Laws

Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes, the summary of State ethics laws developed by the State Ethics Commission pursuant to section 1-81b of the Connecticut General Statutes is incorporated by reference into and made a part of the Contract as if the summary had been fully set forth in the Contract.

18. Audit and Inspection of Plants, Places of Business and Records

- (a) The State and its agents, including, but not limited to, the Connecticut Auditors of Public Accounts, Attorney General and State's Attorney and their respective agents, may, at reasonable hours, inspect and examine all of the parts of the Contractor's and Contractor Parties' plants and places of business which, in any way, are related to, or involved in, the performance of this Contract. For the purposes of this Section, "Contractor Parties" means the Contractor's members, directors, officers, shareholders, partners, managers, principal officers, representatives, agents, servants, consultants, employees or any one of them or any other person or entity with whom the Contractor is in privity of oral or written contract and the Contractor intends for such other person or entity to Perform under the Contract in any capacity.
- (b) The Contractor shall maintain, and shall require each of the Contractor Parties to maintain, accurate and complete Records. The Contractor shall make all of its and the Contractor Parties' Records available at all reasonable hours for audit and inspection by the State and its agents.
- (c) The State shall make all requests for any audit or inspection in writing and shall provide the Contractor with at least twenty-four (24) hours' notice prior to the requested audit and inspection date. If the State suspects fraud or other abuse, or in the event of an emergency, the State is not obligated to provide any prior notice.
- (d) The Contractor shall keep and preserve or cause to be kept and preserved all of its and Contractor Parties' Records until three (3) years after the latter of (i) final payment under this Agreement, or (ii) the expiration or earlier termination of this Agreement, as the same may be modified for any reason. The State may request an audit or inspection at any time during this period. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all Records until all Claims or audit findings have been resolved.
- (e) The Contractor shall cooperate fully with the State and its agents in connection with an audit or inspection. Following any audit or inspection, the State may conduct and the Contractor shall cooperate with an exit conference.
- (f) The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

19. Campaign Contribution Restriction

For all State contracts, defined in Conn. Gen. Stat. §9-612(f)(1) as having a value in a calendar year of \$50,000 or more, or a combination or series of such agreements or contracts having a value of \$100,000 or more, the authorized signatory to this contract expressly acknowledges receipt of the State

Elections Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice, as set forth in "Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations," a copy of which is attached hereto and hereby made a part of this contract, attached as Exhibit E.

20. Tangible Personal Property

- (a) The Contractor on its behalf and on behalf of its Affiliates, as defined below, shall comply with the provisions of Conn. Gen. Stat. §12-411b, as follows:
- (1) For the term of the Contract, the Contractor and its Affiliates shall collect and remit to the State of Connecticut, Department of Revenue Services, any Connecticut use tax due under the provisions of Chapter 219 of the Connecticut General Statutes for items of tangible personal property sold by the Contractor or by any of its Affiliates in the same manner as if the Contractor and such Affiliates were engaged in the business of selling tangible personal property for use in Connecticut and had sufficient nexus under the provisions of Chapter 219 to be required to collect Connecticut use tax;
 - (2) A customer's payment of a use tax to the Contractor or its Affiliates relieves the customer of liability for the use tax;
 - (3) The Contractor and its Affiliates shall remit all use taxes they collect from customers on or before the due date specified in the Contract, which may not be later than the last day of the month next succeeding the end of a calendar quarter or other tax collection period during which the tax was collected;
 - (4) The Contractor and its Affiliates are not liable for use tax billed by them but not paid to them by a customer; and
 - (5) Any Contractor or Affiliate who fails to remit use taxes collected on behalf of its customers by the due date specified in the Contract shall be subject to the interest and penalties provided for persons required to collect sales tax under chapter 219 of the general statutes.
- (b) For purposes of this section of the Contract, the word "Affiliate" means any person, as defined in section 12-1 of the general statutes, that controls, is controlled by, or is under common control with another person. A person controls another person if the person owns, directly or indirectly, more than ten per cent of the voting securities of the other person. The word "voting security" means a security that confers upon the holder the right to vote for the election of members of the board of directors or similar governing body of the business, or that is convertible into, or entitles the holder to receive, upon its exercise, a security that confers such a right to vote. "Voting security" includes a general partnership interest.
- (c) The Contractor represents and warrants that each of its Affiliates has vested in the Contractor plenary authority to so bind the Affiliates in any agreement with the State of Connecticut. The Contractor on its own behalf and on behalf of its Affiliates shall also provide, no later than 30 days after receiving a request by the State's contracting authority, such information as the State may require to ensure, in the State's sole determination, compliance with the provisions of Chapter 219 of the Connecticut General Statutes, including, but not limited to, §12-411b.

21. Bid Rigging and/or Fraud – Notice to Contractor

The Connecticut Department of Transportation is cooperating with the U.S. Department of Transportation and the Justice Department in their investigation into highway construction contract bid rigging and/or fraud.

A toll-free "HOT LINE" telephone number 800-424-9071 has been established to receive information from contractors, subcontractors, manufacturers, suppliers or anyone with knowledge of bid rigging and/or fraud, either past or current. The "HOT LINE" telephone number will be available during

normal working hours (8:00 am – 5:00 pm EST). Information will be treated confidentially and anonymity respected.

22. Consulting Agreement Affidavit

The Contractor shall comply with Connecticut General Statutes Section 4a-81(a) and 4a-81(b), as revised. Pursuant to Public Act 11-229, after the initial submission of the form, if there is a change in the information contained in the form, a contractor shall submit the updated form, as applicable, either (i) not later than thirty (30) days after the effective date of such change or (ii) prior to execution of any new contract, whichever is earlier.

The Affidavit/Form may be submitted in written format or electronic format through the Department of Administrative Services (DAS) website.

23. Cargo Preference Act Requirements (46 CFR 381.7(a)-(b)) – Use of United States Flag Vessels

The Contractor agrees to comply with the following:

(a) *Agreement Clauses.*

- (1) Pursuant to Pub. L. 664 ([43 U.S.C. 1241\(b\)](#)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.
- (2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(b) *Contractor and Subcontractor Clauses.* The contractor agrees—

- (1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
- (2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
- (3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

EXHIBIT A

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

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

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

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

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

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

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

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

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

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

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

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

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

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

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

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

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

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

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

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

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

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

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

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

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

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26, and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26, in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

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

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

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

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for

employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

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

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

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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

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

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same

prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

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

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

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

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

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

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

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise

employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

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

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

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

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

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

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

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

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be

performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

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

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

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

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

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

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

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

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

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

Shall be fined under this title or imprisoned not more than 5 years or both."

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

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

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

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

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

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

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

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

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

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

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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

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

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

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

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

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

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

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

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

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

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

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and

1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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

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

* * * * *

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

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

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

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

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

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

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

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

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

EXHIBIT B**TITLE VI CONTRACTOR ASSURANCES
APPENDIX A**

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Regulations relative to Nondiscrimination in Federally-assisted programs of the United States Department of Transportation Federal Highway Administration and Federal Transit Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, disability, income or Limited English Proficiency in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration or Federal Transit Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor will so certify to the Recipient or the Federal Highway Administration or the Federal Transit Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Non-compliance:** In the event of the contractor's non-compliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration or the Federal Transit Administration may determine to be appropriate, including, but not limited to:

- a. withholding contract payments to the contractor under the contract until the contractor complies; and/or
- b. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration or the Federal Transit Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with, litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

TITLE VI CONTRACTOR ASSURANCES APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. § 2000d et seq.), (prohibits discrimination on the basis of race, color, national origin), as implemented by 49 C.F.R. § 21.1 et seq. and 49 C.F.R. part 303;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973 (23 U.S.C. § 324 et seq.) (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794 et seq.) (prohibits discrimination on the basis of disability); and 49 C.F.R. part 27;
- The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 et seq.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (Pub. L. 97-248 (1982)), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (102 Stat. 28) ("*... which restore[d] the broad scope of coverage and to clarify the application of Title IX of the Education Amendments of 1972, section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and Title VI of the Civil Rights Act of 1964.*");
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 --12189), as implemented by Department of Justice regulations at 28 C.F.R. parts 35 and 36, and Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. § 1681 et seq).

EXHIBIT C

CONTRACTOR WORKFORCE UTILIZATION (FEDERAL EXECUTIVE ORDER 11246) / EQUAL EMPLOYMENT OPPORTUNITY (Federal - FHWA)

1. Project Workforce Utilization Goals:

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted or funded) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where the work is actually performed.

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

The goals for minority and female utilization are expressed in percentage terms for the contractor's aggregate work-force in each trade on all construction work in the covered area, are referenced in the attached Appendix A.

2. Executive Order 11246

The Contractor's compliance with Executive Order 11246 and 41-CFR Part 60-4 shall be based on its implementation of the specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(A) and its efforts to meet the goals established for the geographical area where the contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hour performed.

If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan.

Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Pan does not excuse any covered Contractor's of subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

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

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

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

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

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites; and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community

organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason thereafter; along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the Union or Unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the Union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO Policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company EEO Policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment, decisions including specific Foreman, etc. prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO Policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor

shall send written notification to organizations such as the above, describing the openings, screening procedures and tests to be used in the selection process.

- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work-force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review at least annually of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

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

A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of Executive Order 11246 if a particular group is employed in a substantially disparate manner, (for example, even though the

Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under utilized).

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

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

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

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

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

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

The Director of the Office of Federal Contract Compliance Programs, from time to time, shall issue goals and timetables for minority and female utilization which shall be based on appropriate work-force, demographic or other relevant data and which shall cover construction projects or construction contracts performed in specific geographical areas. The goals, which shall be applicable to each construction trade in a covered contractor's or timetables, shall be published as notices in the Federal Register, and shall be inserted by the Contracting officers and applicants, as applicable, in the Notice required by 41 CFR 60-4.2.

FEDERALLY FUNDED OR ASSISTED PROJECTS
APPENDIX A
(Labor Market Goals)

Standard Metropolitan Statistical Area (SMSA)

Female

Minority

Bridgeport – Stamford – Norwalk – Danbury	10.2%
6.9%	

Bethel	Bridgeport	Brookfield	Danbury
Darien	Derby	Easton	Fairfield
Greenwich	Milford	Monroe	New Canaan
New Fairfield	Newton	Norwalk	Redding
Shelton	Stamford	Stratford	Trumbull
Weston	Westport	Wilton	

Hartford – Bristol – New Britain	6.9%
6.9%	

Andover	Avon	Berlin	Bloomfield
Bolton	Bristol	Burlington	Canton
Colchester	Columbia	Coventry	Cromwell
East Granby	East Hampton	East Hartford	East Windsor
Ellington	Enfield	Farmington	Glastonbury
Granby	Hartford	Hebron	Manchester
Marlborough	New Britain	New Hartford	Newington
Plainville	Plymouth	Portland	Rocky Hill
Simsbury	South Windsor	Southington	Stafford
Suffield	Tolland	Vernon	West Hartford
Wethersfield	Willington	Windsor	Windsor Locks

New Haven – Waterbury – Meriden	9.0%
6.9%	

Beacon Falls	Bethany	Branford	Cheshire
Clinton	East Haven	Guilford	Hamden
Madison	Meriden	Middlebury	Naugatuck
New Haven	North Branford	North Haven	Orange
Prospect	Southbury	Thomaston	Wallingford
Waterbury	Watertown	West Haven	Wolcott
Woodbridge	Woodbury		

New London – Norwich	4.5%
6.9%	

Bozrah	East Lyme	Griswold	Groton
Ledyard	Lisbon	Montville	New London

Norwich
SpragueOld Lyme
StoningtonOld Saybrook
Waterford

Preston

Non SMSA**Female****Minority****Litchfield – Windham****5.9%****6.9%**

Abington	Ashford	Ballouville	Bantam
Barkhamsted	Bethlehem	Bridgewater	Brooklyn
Canaan	Canterbury	Central Village	Cahplin
Colebrook	Cornwall	Cornwall Bridge	Danielson
Dayville	East Canaan	East Killingly	East Woodstock
Eastford	Falls Village	Gaylordsville	Goshen
Grosvenor Dale	Hampton	Harwinton	Kent
Killigly	Lakeside	Litchfield	Moosup
Morris	New Milford	New Preston	New Preston Marble Dale
Norfolk	North Canaan	No. Grosvenordale	North Windham
Oneco	Pequabuck	Pine Meadow	Plainfield
Pleasant Valley	Pomfret	Pomfret Center	Putnam
Quinebaug	Riverton	Rogers	Roxbury
Salisbury	Scotland	Sharon	South Kent
South Woodstock	Sterling	Taconic	Terryville
Thompson	Torrington	Warren	Warrenville
Washington	Washington Depot	Wauregan	West Cornwall
Willimantic	Winchester	Winchester Center	Windham
Winsted	Woodstock	Woodstock Valley	

EXHIBIT D

Health Insurance Portability and Accountability Act of 1996 (“HIPAA”).

- (a) If the Contactor is a Business Associate under the requirements of the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), the Contractor must comply with all terms and conditions of this Section of the Contract. If the Contractor is not a Business Associate under HIPAA, this Section of the Contract does not apply to the Contractor for this Contract.
- (b) The Contractor is required to safeguard the use, publication and disclosure of information on all applicants for, and all clients who receive, services under the Contract in accordance with all applicable federal and state law regarding confidentiality, which includes but is not limited to HIPAA, more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E; and
- (c) The State of Connecticut Agency named on page 1 of this Contract (hereinafter the “Department”) is a “covered entity” as that term is defined in 45 C.F.R. § 160.103; and
- (d) The Contractor, on behalf of the Department, performs functions that involve the use or disclosure of “individually identifiable health information,” as that term is defined in 45 C.F.R. § 160.103; and
- (e) The Contractor is a “business associate” of the Department, as that term is defined in 45 C.F.R. § 160.103; and
- (f) The Contractor and the Department agree to the following in order to secure compliance with the HIPAA, the requirements of Subtitle D of the Health Information Technology for Economic and Clinical Health Act (hereinafter the HITECH Act), (Pub. L. 111-5, sections 13400 to 13423), and more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E.
- (g) Definitions
 - (1) “Breach shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(1))
 - (2) “Business Associate” shall mean the Contractor.
 - (3) “Covered Entity” shall mean the Department of the State of Connecticut named on page 1 of this Contract.
 - (4) “Designated Record Set” shall have the same meaning as the term “designated record set” in 45 C.F.R. § 164.501.
 - (5) “Electronic Health Record” shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(5))

- (6) "Individual" shall have the same meaning as the term "individual" in 45 C.F.R. § 160.103 and shall include a person who qualifies as a personal representative as defined in 45 C.F.R. § 164.502(g).
 - (7) "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 C.F.R. part 160 and parts 164, subparts A and E.
 - (8) "Protected Health Information" or "PHI" shall have the same meaning as the term "protected health information" in 45 C.F.R. § 160.103, limited to information created or received by the Business Associate from or on behalf of the Covered Entity.
 - (9) "Required by Law" shall have the same meaning as the term "required by law" in 45 C.F.R. § 164.103.
 - (10) "Secretary" shall mean the Secretary of the Department of Health and Human Services or his designee.
 - (11) "More stringent" shall have the same meaning as the term "more stringent" in 45 C.F.R. § 160.202.
 - (12) "This Section of the Contract" refers to the HIPAA Provisions stated herein, in their entirety.
 - (13) "Security Incident" shall have the same meaning as the term "security incident" in 45 C.F.R. § 164.304.
 - (14) "Security Rule" shall mean the Security Standards for the Protection of Electronic Protected Health Information at 45 C.F.R. part 160 and parts 164, subpart A and C.
 - (15) "Unsecured protected health information" shall have the same meaning as the term as defined in section 13402(h)(1)(A) of HITECH. Act. (42 U.S.C. §17932(h)(1)(A)).
- (h) Obligations and Activities of Business Associates.
- (1) Business Associate agrees not to use or disclose PHI other than as permitted or required by this Section of the Contract or as Required by Law.
 - (2) Business Associate agrees to use appropriate safeguards to prevent use or disclosure of PHI other than as provided for in this Section of the Contract.
 - (3) Business Associate agrees to use administrative, physical and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic protected health information that it creates, receives, maintains, or transmits on behalf of the Covered Entity.

- (4) Business Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of PHI by Business Associate in violation of this Section of the Contract.
- (5) Business Associate agrees to report to Covered Entity any use or disclosure of PHI not provided for by this Section of the Contract or any security incident of which it becomes aware.
- (6) Business Associate agrees to insure that any agent, including a subcontractor, to whom it provides PHI received from, or created or received by Business Associate, on behalf of the Covered Entity, agrees to the same restrictions and conditions that apply through this Section of the Contract to Business Associate with respect to such information.
- (7) Business Associate agrees to provide access, at the request of the Covered Entity, and in the time and manner agreed to by the parties, to PHI in a Designated Record Set, to Covered Entity or, as directed by Covered Entity, to an Individual in order to meet the requirements under 45 C.F.R. § 164.524.
- (8) Business Associate agrees to make any amendments to PHI in a Designated Record Set that the Covered Entity directs or agrees to pursuant to 45 C.F.R. § 164.526 at the request of the Covered Entity, and in the time and manner agreed to by the parties.
- (9) Business Associate agrees to make internal practices, books, and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by, Business Associate on behalf of Covered Entity, available to Covered Entity or to the Secretary in a time and manner agreed to by the parties or designated by the Secretary, for purposes of the Secretary determining Covered Entity's compliance with the Privacy Rule.
- (10) Business Associate agrees to document such disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (11) Business Associate agrees to provide to Covered Entity, in a time and manner agreed to by the parties, information collected in accordance with clause h. (10) of this Section of the Contract, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder. Business Associate agrees at the Covered Entity's direction to provide an accounting of disclosures of PHI directly to an individual in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (12) Business Associate agrees to comply with any state or federal law that is more stringent than the Privacy Rule.

- (13) Business Associate agrees to comply with the requirements of the HITECH Act relating to privacy and security that are applicable to the Covered Entity and with the requirements of 45 C.F.R. sections 164.504(e), 164.308, 164.310, 164.312, and 164.316.
- (14) In the event that an individual requests that the Business Associate (a) restrict disclosures of PHI; (b) provide an accounting of disclosures of the individual's PHI; or (c) provide a copy of the individual's PHI in an electronic health record, the Business Associate agrees to notify the covered entity, in writing, within two business days of the request.
- (15) Business Associate agrees that it shall not, directly or indirectly, receive any remuneration in exchange for PHI of an individual without (1) the written approval of the covered entity, unless receipt of remuneration in exchange for PHI is expressly authorized by this Contract and (2) the valid authorization of the individual, except for the purposes provided under section 13405(d)(2) of the HITECH Act,(42 U.S.C. § 17935(d)(2)) and in any accompanying regulations
- (16) Obligations in the Event of a Breach
- A. The Business Associate agrees that, following the discovery of a breach of unsecured protected health information, it shall notify the Covered Entity of such breach in accordance with the requirements of section 13402 of HITECH (42 U.S.C. 17932(b) and the provisions of this Section of the Contract.
- B. Such notification shall be provided by the Business Associate to the Covered Entity without unreasonable delay, and in no case later than 30 days after the breach is discovered by the Business Associate, except as otherwise instructed in writing by a law enforcement official pursuant to section 13402 (g) of HITECH (42 U.S.C. 17932(g)) . A breach is considered discovered as of the first day on which it is, or reasonably should have been, known to the Business Associate. The notification shall include the identification and last known address, phone number and email address of each individual (or the next of kin of the individual if the individual is deceased) whose unsecured protected health information has been, or is reasonably believed by the Business Associate to have been, accessed, acquired, or disclosed during such breach.
- C. The Business Associate agrees to include in the notification to the Covered Entity at least the following information:
1. A brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known.
 2. A description of the types of unsecured protected health information that were involved in the breach (such as full name, Social Security number, date of birth, home address, account number, or disability code).
 3. The steps the Business Associate recommends that individuals take to protect themselves from potential harm resulting from the breach.

4. A detailed description of what the Business Associate is doing to investigate the breach, to mitigate losses, and to protect against any further breaches.
 5. Whether a law enforcement official has advised either verbally or in writing the Business Associate that he or she has determined that notification or notice to individuals or the posting required under section 13402 of the HITECH Act would impede a criminal investigation or cause damage to national security and; if so, include contact information for said official.
- D. Business Associate agrees to provide appropriate staffing and have established procedures to ensure that individuals informed by the Covered Entity of a breach by the Business Associate have the opportunity to ask questions and contact the Business Associate for additional information regarding the breach. Such procedures shall include a toll-free telephone number, an e-mail address, a posting on its Web site and a postal address. Business Associate agrees to include in the notification of a breach by the Business Associate to the Covered Entity, a written description of the procedures that have been established to meet these requirements. Costs of such contact procedures will be borne by the Contractor.
- E. Business Associate agrees that, in the event of a breach, it has the burden to demonstrate that it has complied with all notifications requirements set forth above, including evidence demonstrating the necessity of a delay in notification to the Covered Entity.
- (i) Permitted Uses and Disclosure by Business Associate.
- (1) General Use and Disclosure Provisions Except as otherwise limited in this Section of the Contract, Business Associate may use or disclose PHI to perform functions, activities, or services for, or on behalf of, Covered Entity as specified in this Contract, provided that such use or disclosure would not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity.
 - (2) Specific Use and Disclosure Provisions
 - (A) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate.
 - (B) Except as otherwise limited in this Section of the Contract, Business Associate may disclose PHI for the proper management and administration of Business Associate, provided that disclosures are Required by Law, or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as Required by Law or

for the purpose for which it was disclosed to the person, and the person notifies Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.

(C) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI to provide Data Aggregation services to Covered Entity as permitted by 45 C.F.R. § 164.504(e)(2)(i)(B).

(j) Obligations of Covered Entity.

(1) Covered Entity shall notify Business Associate of any limitations in its notice of privacy practices of Covered Entity, in accordance with 45 C.F.R. § 164.520, or to the extent that such limitation may affect Business Associate's use or disclosure of PHI.

(2) Covered Entity shall notify Business Associate of any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.

(3) Covered Entity shall notify Business Associate of any restriction to the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 C.F.R. § 164.522, to the extent that such restriction may affect Business Associate's use or disclosure of PHI.

(k) Permissible Requests by Covered Entity. Covered Entity shall not request Business Associate to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if done by the Covered Entity, except that Business Associate may use and disclose PHI for data aggregation, and management and administrative activities of Business Associate, as permitted under this Section of the Contract.

(l) Term and Termination.

(1) Term. The Term of this Section of the Contract shall be effective as of the date the Contract is effective and shall terminate when the information collected in accordance with clause h. (10) of this Section of the Contract is provided to the Covered Entity and all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such information, in accordance with the termination provisions in this Section.

(2) Termination for Cause Upon Covered Entity's knowledge of a material breach by Business Associate, Covered Entity shall either:

(A) Provide an opportunity for Business Associate to cure the breach or end the violation and terminate the Contract if Business Associate does not cure the breach or end the violation within the time specified by the Covered Entity; or

(B) Immediately terminate the Contract if Business Associate has breached a material term of this Section of the Contract and cure is not possible; or

(C) If neither termination nor cure is feasible, Covered Entity shall report the violation to the Secretary.

(3) Effect of Termination

(A) Except as provided in (1)(2) of this Section of the Contract, upon termination of this Contract, for any reason, Business Associate shall return or destroy all PHI received from Covered Entity, or created or received by Business Associate on behalf of Covered Entity. Business Associate shall also provide the information collected in accordance with clause h. (10) of this Section of the Contract to the Covered Entity within ten business days of the notice of termination. This provision shall apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of the PHI.

(B) In the event that Business Associate determines that returning or destroying the PHI is infeasible, Business Associate shall provide to Covered Entity notification of the conditions that make return or destruction infeasible. Upon documentation by Business Associate that return or destruction of PHI is infeasible, Business Associate shall extend the protections of this Section of the Contract to such PHI and limit further uses and disclosures of PHI to those purposes that make return or destruction infeasible, for as long as Business Associate maintains such PHI. Infeasibility of the return or destruction of PHI includes, but is not limited to, requirements under state or federal law that the Business Associate maintains or preserves the PHI or copies thereof.

(m) Miscellaneous Provisions.

(1) Regulatory References. A reference in this Section of the Contract to a section in the Privacy Rule means the section as in effect or as amended.

(2) Amendment. The Parties agree to take such action as is necessary to amend this Section of the Contract from time to time as is necessary for Covered Entity to comply with requirements of the Privacy Rule and the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191.

(3) Survival. The respective rights and obligations of Business Associate shall survive the termination of this Contract.

(4) Effect on Contract. Except as specifically required to implement the purposes of this Section of the Contract, all other terms of the Contract shall remain in force and effect.

(5) Construction. This Section of the Contract shall be construed as broadly as necessary to implement and comply with the Privacy Standard. Any ambiguity in this Section of the Contract shall be resolved in favor of a meaning that complies, and is consistent with, the Privacy Standard.

(6) Disclaimer. Covered Entity makes no warranty or representation that compliance with this Section of the Contract will be adequate or satisfactory for Business Associate's own purposes. Covered Entity shall not be liable to Business Associate for any claim, civil or criminal penalty, loss or damage related to or arising from the unauthorized use or disclosure of PHI by Business Associate or any of its officers, directors, employees, contractors or agents, or any third party to whom Business Associate has disclosed PHI contrary to the provisions of this Contract or applicable law. Business Associate is solely responsible for all decisions made, and actions taken, by Business Associate regarding the safeguarding, use and disclosure of PHI within its possession, custody or control.

(7) Indemnification. The Business Associate shall indemnify and hold the Covered Entity harmless from and against any and all claims, liabilities, judgments, fines, assessments, penalties, awards and any statutory damages that may be imposed or assessed pursuant to HIPAA, as amended or the HITECH Act, including, without limitation, attorney's fees, expert witness fees, costs of investigation, litigation or dispute resolution, and costs awarded thereunder, relating to or arising out of any violation by the Business Associate and its agents, including subcontractors, of any obligation of Business Associate and its agents, including subcontractors, under this section of the contract, under HIPAA, the HITECH Act, the Privacy Rule and the Security Rule.

**Notice to Executive Branch State Contractors and Prospective State
Contractors of Campaign Contribution and Solicitation Limitations**

This notice is provided under the authority of Connecticut General Statutes §9-612 (f) (2) and is for the purpose of informing state contractors and prospective state contractors of the following law (italicized words are defined on the reverse side of this page).

CAMPAIGN CONTRIBUTION AND SOLICITATION LIMITATIONS

No state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor, with regard to a *state contract* or *state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder, of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee (which includes town committees).

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

On and after January 1, 2011, no state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor, with regard to a state contract or state contract solicitation with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall **knowingly solicit** contributions from the state contractor's or prospective state contractor's employees or from a *subcontractor* or *principals of the subcontractor* on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

DUTY TO INFORM

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

PENALTIES FOR VIOLATIONS

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

Civil penalties—Up to \$2,000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of up to \$2,000 or twice the amount of the prohibited contributions made by their principals.

Criminal penalties—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or not more than \$5,000 in fines, or both.

CONTRACT CONSEQUENCES

In the case of a state contractor, contributions made or solicited in violation of the above prohibitions may result in the contract being voided.

In the case of a prospective state contractor, contributions made or solicited in violation of the above prohibitions shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State shall not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information may be found on the website of the State Elections Enforcement Commission, www.ct.gov/sec. Click on the link to "Lobbyist/Contractor Limitations."

DEFINITIONS

“State contractor” means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. “State contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Prospective state contractor” means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. “Prospective state contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a state contractor or prospective state contractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract*, (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

“State contract” means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. “State contract” does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan, a loan to an individual for other than commercial purposes or any agreement or contract between the state or any state agency and the United States Department of the Navy or the United States Department of Defense.

“State contract solicitation” means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual’s household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fundraising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee, serving on the committee that is hosting a fundraising event, introducing the candidate or making other public remarks at a fundraising event, being honored or otherwise recognized at a fundraising event, or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

“Subcontractor” means any person, business entity or nonprofit organization that contracts to perform part or all of the obligations of a state contractor’s state contract. Such person, business entity or nonprofit organization shall be deemed to be a subcontractor until December thirty first of the year in which the subcontract terminates. “Subcontractor” does not include (i) a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or (ii) an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person’s capacity as a state or quasi-public agency employee.

“Principal of a subcontractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a subcontractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a subcontractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a subcontractor, which is not a business entity, or if a subcontractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any subcontractor who has managerial or discretionary responsibilities with respect to a subcontract with a state contractor, (v) the spouse or a dependent child who is eighteen years of age

or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the subcontractor.

EXHIBIT F

(Federal wage rate package will be inserted at the end after State wages for the final executed contract only. Refer to NTC – Federal Wage Determinations)

EXHIBIT G

State Wages and Other Related Information

Please refer to the Department of Labor website for the latest updates, annual adjusted wage rate increases, certified payroll forms and applicable statutes.

<http://www.ctdol.state.ct.us/wgwkstnd/prevailwage.htm>

Prevailing Wage Law Poster Language

**THIS IS A PUBLIC WORKS PROJECT Covered by the
PREVAILING WAGE LAW CT General Statutes Section 31-53**

If you have QUESTIONS regarding your wages CALL (860) 263-6790

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE (applicable to public building contracts entered into on or after July 1, 2007, where the total cost of all work to be performed is at least \$100,000)

- (1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);
- (2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;
- (3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least \$100,000;
- (4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;
- (5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;
- (6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a bona fide student course completion card issued by the federal OSHA Training Institute; or (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of <http://www.ctdol.state.ct.us/wgwkstnd/wgmenu.htm>; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTIMATELY ARISE CONCERNING THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute. Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute. The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.
- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

**CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION**

**CONTRACTORS WAGE CERTIFICATION FORM
Construction Manager at Risk/General Contractor/Prime Contractor**

I, _____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

Street

City

and all of its subcontractors will pay all workers on the

Project Name and Number

Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

Signed

Subscribed and sworn to before me this _____ day of _____, _____.

Notary Public

Return to: Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

Information Bulletin ***Occupational Classifications***

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

□ **ASBESTOS WORKERS**

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

□ **ASBESTOS INSULATOR**

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

□ **BOILERMAKERS**

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

□ **BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS**

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

□ **CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS**

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular

furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

□ **LABORER, CLEANING**

- The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

□ **DELIVERY PERSONNEL**

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

□ **ELECTRICIANS**

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. *License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.

□ **ELEVATOR CONSTRUCTORS**

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. *License required by Connecticut General Statutes: R-1, 2, 5, 6.

□ **FORK LIFT OPERATOR**

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

□ **GLAZIERS**

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and

curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

□ **IRONWORKERS**

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

□ **INSULATOR**

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

□ **LABORERS**

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

□ **PAINTERS**

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

□ **LEAD PAINT REMOVAL**

- Painter's Rate 1. Removal of lead paint from bridges. 2. Removal of lead paint as preparation of any surface to be repainted. 3. Where removal is on a Demolition project prior to reconstruction. • Laborer's Rate 1. Removal of lead paint from any surface NOT to be repainted. 2. Where removal is on a TOTAL Demolition project only.

□ **PLUMBERS AND PIPEFITTERS**

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. *License required per Connecticut General Statutes: P-1,2,6,7,8,9 J1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.

□ **POWER EQUIPMENT OPERATORS**

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ***License required, crane operators only, per Connecticut General Statutes.**

□ **ROOFERS**

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

□ **SHEETMETAL WORKERS**

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, fascia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

□ **SPRINKLER FITTERS**

Installation, alteration, maintenance and repair of fire protection sprinkler systems. ***License required per Connecticut General Statutes: F-1, 2, 3, 4.**

□ **TILE MARBLE AND TERRAZZO FINISHERS**

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

□ **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance

of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ***License required, drivers only, per Connecticut General Statutes.**

For example:

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

Any questions regarding the proper classification should be directed to:

**Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543.**

**Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES**

□ Please Note: If the “Benefits” listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the “Benefits” section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and (Residential- Hartford, Middlesex, New Haven, New London and
Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Veterans’ Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year’s Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he

fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Rev. 7/1/19

SEE BELOW FOR STATE WAGE RATES

INSERT STATE WAGES HERE

**Minimum Rates and Classifications for
Heavy/Highway Construction**

ID#: 20-14836

**Connecticut Department of Labor
Wage and Workplace Standards Division**

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: #0078-0092

Project Town: Marlborough

State#: #0078-0092

FAP#: Marlborough

Project: Rehabilitation of Bridge #01798 & #03374 (Marlborough)

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	35.72	33.16
2) Carpenters, Piledrivermen	34.53	25.64
2a) Diver Tenders	34.53	25.64
3) Divers	42.99	25.64
03a) Millwrights	34.94	26.19
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	52.25	22.55
4a) Painters: Brush and Roller	35.62	22.55
4b) Painters: Spray Only	38.62	22.55
4c) Painters: Steel Only	37.62	22.55
4d) Painters: Blast and Spray	38.62	22.55
4e) Painters: Tanks, Tower and Swing	37.62	22.55

Project: Rehabilitation of Bridge #01798 & #03374 (Marlborough)

5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	40.25	29.17+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	36.67	37.62 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	44.63	32.95
----LABORERS-----		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	31.0	22.15
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	31.25	22.15
10) Group 3: Pipelayers	31.5	22.15
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	31.5	22.15
12) Group 5: Toxic waste removal (non-mechanical systems)	33.0	22.15
13) Group 6: Blasters	32.75	22.15
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	32.0	22.15
Group 8: Traffic control signalmen	18.0	22.15
Group 9: Hydraulic Drills	29.3	18.90
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	33.23	22.15 + a
13b) Brakemen, Trackmen	32.26	22.15 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		

14) Concrete Workers, Form Movers, and Strippers	32.26	22.15 + a
15) Form Erectors	32.59	22.15 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	32.26	22.15 + a
17) Laborers Topside, Cage Tenders, Bellman	32.15	22.15 + a
18) Miners	33.23	22.15 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	39.72	22.15 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	39.52	22.15 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	37.54	22.15 + a
21) Mucking Machine Operator	40.31	22.15 + a
----TRUCK DRIVERS----(*see note below)		
Two axle trucks	29.86	25.79 + a
Three axle trucks; two axle ready mix	29.97	25.79 + a
Three axle ready mix	30.03	25.79 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	30.08	25.79 + a
Four axle ready-mix	30.13	25.79 + a
Heavy duty trailer (40 tons and over)	30.35	25.79 + a

Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	30.13	25.79 + a
----POWER EQUIPMENT OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	42.45	25.30 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	42.11	25.30 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	41.32	25.30 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	40.91	25.30 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24	40.28	25.30 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	40.28	25.30 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	39.95	25.30 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24	39.59	25.30 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	39.17	25.30 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	38.71	25.30 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	36.54	25.30 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	36.54	25.30 + a
Group 12: Wellpoint Operator.	36.48	25.30 + a

Project: Rehabilitation of Bridge #01798 & #03374 (Marlborough)

Group 13: Compressor Battery Operator.	35.86	25.30 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	34.66	25.30 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	34.23	25.30 + a
Group 16: Maintenance Engineer/Oiler	33.54	25.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	38.11	25.30 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	35.53	25.30 + a
**NOTE: SEE BELOW		
----LINE CONSTRUCTION----(Railroad Construction and Maintenance)---		
-		
20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
21) Heavy Equipment Operator	42.26	6.5% + 19.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
23) Driver Groundmen	26.5	6.5% + 9.00
23a) Truck Driver	40.96	6.5% + 17.76
----LINE CONSTRUCTION----		
24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.1	6.5% + 10.70
27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20

As of: August 18, 2020

Project: Rehabilitation of Bridge #01798 & #03374 (Marlborough)

28) Material Men, Tractor Trailer Drivers, Equipment Operators

35.04

6.5% + 10.45

As of: August 18, 2020

Project: Rehabilitation of Bridge #01798 & #03374 (Marlborough)

Welders: Rate for craft to which welding is incidental.

*Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.

**Note: Hazardous waste premium \$3.00 per hour over classified rate

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)**
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson**

Crane with 150 ft. boom (including jib) - \$1.50 extra

Crane with 200 ft. boom (including jib) - \$2.50 extra

Crane with 250 ft. boom (including jib) - \$5.00 extra

Crane with 300 ft. boom (including jib) - \$7.00 extra

Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of each apprentice in a specific trade.

--Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

As of: August 18, 2020

Project: Rehabilitation of Bridge #01798 & #03374 (Marlborough)

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: August 18, 2020