

## **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.

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SEPTEMBER 4, 2019  
FEDERAL AID PROJECT NO. N/A  
STATE PROJECT NO. 0123-0066

REPLACEMENT OF BRIDGE NO. 00681  
HUNTINGTON ROAD (ROUTE 14) OVER MERRICK BROOK

Town of Scotland

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817, 2016, as revised by the Supplemental Specifications dated July 2019 (otherwise referred to collectively as "ConnDOT Form 817") is hereby made part of this contract, as modified by the Special Provisions contained herein. Form 817 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 Replacement of Bridge No. 00681 in the Town of Scotland.

## **CONTRACT TIME AND LIQUIDATED DAMAGES**

Two Hundred Fourteen (214) calendar days will be allowed for completion of the work on this Contract and the liquidated damages charge to apply will be One Thousand Five Hundred Dollars (\$1,500.00) per calendar day.

## **MILESTONE LIQUIDATED DAMAGES PROVISIONS**

In order to minimize the hazard, obstruction, inconvenience, and cost to the public, pollution of the environment, and detriment to area businesses, 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.

A maximum of 63 consecutive days will be allowed for the closure of Route 14 and Bridge No. 00681 beginning on Monday, June 22, 2020 at 12:00 a.m. and ending on or before the Milestone Completion Date of Sunday, August 23, 2020 at 11:59 p.m. A corresponding approximate 14.7 mile detour will service the traffic as detailed within the Contract. The reopening of the noted bridge and route is defined below.

The tasks are:

- The **closure time frame begins** with the uncovering of the detour signage required on the Detour Plan
- Remove and salvage existing metal beam rail posts on bridge and on approaches.
- Install debris shield.
- Remove concrete span arch deck with encased steel beams, including bituminous overlay, and concrete curb.
- Remove any appurtenances attached to the parapets.
- Install fully enclosed cofferdams and excavate inside cofferdams.
- Install precast abutments and wingwalls, construct shear keys and fill abutment voids.
- Dampproof and backfill precast abutment and wingwalls.
- Excavate behind existing abutments.
- Partially remove existing abutment and wingwalls.
- Construct revetments.
- Install riprap.
- Install elastomeric bearings and prestressed deck units.
- Form deck, install reinforcement, and place concrete deck.
- Construct cast-in-place wingwalls and concrete parapets.
- Dampproof cast-in-place concrete wingwalls and deck end.
- Construct approach slabs.
- Construct temporary approach roadway to bridge.
- Install waterproofing membrane and place HMA on bridge and approach slabs.
- Grade ground surface and install approach metal beam rail.
- Install temporary pavement markings.
- Removal of all signs pertaining to the closure of Route 14, as shown on the Detour Plan
- **MILESTONE: The closure timeframe ends** with the completion of all above tasks and ancillary work thereto and with the reopening of Route 14 to normal traffic operations, exclusive of temporary alternating one-way traffic operations, as specified within the

contract, that may be necessary to complete the project. "Normal traffic operations" are defined as one lane of traffic open in each direction with full shoulders.

**Prior to beginning work on the project, the Contractor shall furnish to the Engineer for approval a Critical Path Method (CPM) schedule that details all of the day-to-day operations necessary to complete the above tasks during the sixty-three day detour timeframe.** The schedule shall include:

- activity descriptions, activity durations and interdependence between activities, where applicable. The activities are to be described so that the work is readily identifiable and the progress on each activity can be readily measured and monitored during the noted timeframe.
- the anticipated number of shifts, the hours per shift, and the anticipated number of personnel staffed per shift
- anticipated submittal and approval dates
- anticipated material delivery dates

Accompanying the CPM schedule shall be the following, as applicable.

- description of any special resources, including back up equivalent resources
- Contingency plans for mechanical failure
- M&PT plans

The Contractor must notify the Engineer and the Town of Scotland of the proposed closure date of Route 14 at least four weeks prior to the closure.

### **Milestone Liquidated Damages Terms and Conditions**

If the Contractor fails to complete, as accepted by the Engineer, the above-listed tasks by the Milestone Completion Date, the Contractor will be assessed a liquidated damage charge of \$15,400 (Fifteen Thousand Four Hundred Dollars) on the first minute after the defined timeframe period has expired, and shall be assessed additional liquidated damage charges at the rate of \$15,400 (Fifteen Thousand Four Hundred Dollars) per day thereafter until the tasks and corresponding milestone are complete and accepted by the Engineer. The maximum assessment of Milestone Liquidated Damages shall be capped at \$300,000 (Three Hundred Thousand Dollars) and shall be considered separate from any Liquidated Damages assessed to the Contractor for failure to complete the project on time per Section 1.08.09 of the Standard Specifications.

**The Contractor is responsible for determining the full scope of labor and equipment resources and anticipated accelerated operations needed to complete the milestone tasks by the Milestone Completion Date, and shall bid the on-time completion of the work accordingly.**

Any and all costs or detrimental effects incurred by the Contractor in accelerating his work in an attempt to meet the Milestone Completion Date, regardless of the effects of any

delay, disruption, inefficiency or other detrimental effect including, but not limited to, the deletion of Contract work, the issuing of construction orders, the execution of supplemental agreements, the discovery of differing site conditions, the adding of extra work to the Contract, the emergence of right-of-way conflicts, problems with the obtaining or the terms of permits, action or inaction by persons or entities working on the project or by third parties, delays in the process of reviewing or approving shop drawings, expansion of the physical limits of the Project, the effects of weather conditions on Project activities, the occurrence of weekends or holidays, the suspension of any Project operation, or other events, forces or factors that affect highway construction work, shall be solely the Contractor's responsibility, and may not be used as the basis for any claim by the Contractor for additional compensation.

The Contractor is directed to follow the procedures of Section 1.08.08 of the Form 817 Standard Specifications for any request presented to the Engineer for an adjustment of the Milestone Completion Date for any unforeseeable causes noted in Section 1.08.08 that have resulted in the need for an adjusted date. There will be no adjustment to the Milestone Completion Date for events, forces or factors, as noted above, that the Contractor was to have foreseen and included in the cost and schedule of his work.

**NOTICE TO CONTRACTOR – POTENTIAL MODIFIED AWARD  
SCHEDULE**

The Contractor is hereby given notice that this contract will not be awarded until all State and Federal funding approvals have been received. If funding approvals are not received, this Contract award may be delayed or the Contract may be withdrawn and re-advertised at the discretion of the Department, per section XIII of the Construction Contract Bidding and Award Manual. Any delay to the Contract award or failure to award shall not be the basis for any claims by any bidder.

## **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](mailto: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 - 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 - CONSTRUCTION CONTRACTOR  
DIGITAL SUBMISSIONS**

Upon execution of the Contract, the Contractor acknowledges and agrees that contractual submittals for this Project shall be submitted and handled through a system of paperless electronic means as outlined in the special provision for Section 1.05 herein.

Shop drawings, working drawings, and product data shall be created, digitally signed and delivered by the Contractor in accordance with the Department's [Contractor Digital Submission Manual](#) (CDSM). Other deliverables that are required by other special provisions shall be similarly submitted.

Access credentials will be provided to the Contractor by the Department.

The Department will provide the Contractor with a list of email addresses that are to be used for each submittal type.

The Department shall not be held responsible for delays, lack of processing or response to submittals that do not follow the specified guidelines in the CDSM.

## **NOTICE TO CONTRACTOR - ALL-INCLUSIVE DRAINAGE**

ADDED SECTIONS:

- 2.86 – DRAINAGE TRENCH EXCAVATION  
ROCK IN DRAINAGE TRENCH EXCAVATION**
- 5.86 – CATCH BASINS, MANHOLES AND DROP INLETS**
- 6.86 – DRAINAGE PIPES  
DRAINAGE PIPE ENDS**

This Contract contains the above-noted Special Provisions for all-inclusive drainage, developed to replace the following Sections in their entireties:

- Section 5.07 – *Catch Basins, Manholes and Drop Inlets*
- Section 6.51 – *Culverts*
- Section 6.52 – *Culvert Ends*

The Section 5.86 and 6.86 items include excavation and bedding material in the drainage structure, pipe and pipe end unit prices.

Section 2.05 *Trench Excavation* may be included for miscellaneous trenching, where necessary, but will not be used with all-inclusive drainage items.

Other Standard Specifications, Supplemental Specifications or Special Provisions may contain references to Articles or Subarticles from previous versions of Sections 5.07, 6.51 and 6.52 which are no longer valid.

The following Standard Specifications Sections or Supplements contain references to Articles or Subarticles from Section 2.05 which shall remain in effect:

- Section 2.06 – *Ditch Excavation*
- Section 5.06 – *Retaining Walls, Endwalls and Steps*
- Section 7.51 – *Underdrains and Outlets*
- Section 10.01 – *Trenching and Backfilling*

‘Rock in Drainage Trench Excavation’ is now defined in Section 2.86. ‘Rock in Trench Excavation’ will remain in Section 2.05 and may be used with trenching not associated with all-inclusive drainage items.

**Any references to Articles beginning with “5.07,” “6.51,” or “6.52” shall refer to the pertinent topic or materials in the new Special Provisions contained herein.**

## 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* are herein revised to reflect changes to item names and nomenclature for standard Portland Cement Concrete (PCC) mix classifications. Other Special Provisions, standard specifications, 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 PCCXXYZ <sup>1</sup> )	Former Mix Classification
Class PCC03340	Class "A"
Class PCC03360	Class "C"
Class PCC04460 <sup>2</sup>	Class "F"
Class PCC04462 <sup>2</sup>	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 (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 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 – 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 - 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  $\geq 15$  on an 85-degree meter and  $\geq 5$  on a 60-degree meter) - Nonflat Coating,
- Registers gloss of  $\geq 70$  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.

<b>TABLE 1</b>		
<b>Coating Category</b>	<b>Phase I</b>	<b>Phase II</b>
	<b>manufactured prior to May 1, 2018 VOC content limit (g/L)</b>	<b>manufactured on or after May 1, 2018 VOC content limit (g/L)</b>
Aluminum roof coating	--- <sup>1</sup>	450
Antenna coating	530	--- <sup>1</sup>
Antifouling coating	400	--- <sup>1</sup>
Basement specialty coating	--- <sup>1</sup>	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 <sup>2</sup>	680	275
Clear wood coating - Lacquer <sup>2,3</sup>	550	275
Clear wood coating - Sanding sealer <sup>2,4</sup>	350	275
Clear wood coating - Varnish <sup>2</sup>	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	--- <sup>1</sup>	450
Conversion varnish	725	725
Driveway sealer	--- <sup>1</sup>	50
Dry fog coating	400	150
Faux finishing coating <sup>2</sup>	350	350
Fire resistive coating	350	350
Fire retardant coating - Clear	650	--- <sup>1</sup>
Fire retardant coating - Opaque	350	--- <sup>1</sup>
Flat coating	100	50
Floor coating	250	100
Flow coating	420	--- <sup>1</sup>
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 <sup>2</sup>	340	250
Industrial maintenance coating	340	250
Low solids coating	120	120
Magnesite cement coating	450	450

<b>TABLE 1</b>		
<b>Coating Category</b>	<b>Phase I</b>	<b>Phase II</b>
	<b>manufactured prior to May 1, 2018 VOC content limit (g/L)</b>	<b>manufactured on or after May 1, 2018 VOC content limit (g/L)</b>
Mastic texture coating	300	100
Metallic pigmented coating	500	500
Multi-color coating	250	250
Nonflat coating	150	100
Nonflat high gloss coating <sup>2</sup>	250	150
Nuclear coating	450	450
Pre-treatment wash primer	420	420
Primer, sealer and undercoater	200	100
Quick-dry enamel	250	--- <sup>1</sup>
Quick-dry primer, sealer and undercoater	200	--- <sup>1</sup>
Reactive penetrating carbonate stone sealer <sup>2</sup>	--- <sup>1</sup>	500
Reactive penetrating sealer <sup>2</sup>	--- <sup>1</sup>	350
Recycled coating	250	250
Roof coating	250	250
Rust preventive coating <sup>2</sup>	400	250
Shellac Clear	730	730
Shellac Opaque	550	550
Specialty primer, sealer and undercoater <sup>2</sup>	350	100
Stain	250	250
Stone consolidant <sup>2</sup>	--- <sup>1</sup>	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	--- <sup>1</sup>	420
Waterproofing membrane	--- <sup>1</sup>	250
Waterproofing sealer	250	--- <sup>1</sup>
Wood coating <sup>2</sup>	--- <sup>1</sup>	275
Wood preservative	350	350
Zinc-rich primer <sup>2</sup>	--- <sup>1</sup>	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

-END-

**NOTICE TO CONTRACTOR - PROCUREMENT OF MATERIALS**

Upon award, the Contractor shall proceed with shop drawings, working drawings, procurement of materials, and all other submittals required to complete the work in accordance with the contract documents.



## **NOTICE TO CONTRACTOR – DETOUR PREREQUISITES**

The Contractor shall complete the following tasks prior to the initiation of detour:

- 1- All prestressed deck units shall be cured minimum 28 days.
- 2- All shop and working drawings shall be submitted for review and shall be approved.
- 3- All precast elements must be cast and approved.
- 4- All materials needed for the project shall be onsite.

## **NOTICE TO CONTRACTOR - SALVAGE**

The following items have been determined to be salvageable:

Metal Beam Rail:

- 1) Metal Beam Rail Posts (MBR Posts). MBR Posts must be in good condition and have the brackets still attached. Existing MBR Posts consist of the following types: RI, RB and Bridge Attached.

The Contractor will deliver the material to CT DOT District 2 – Bridge Maintenance garage at 660 Middlesex Turnpike, Old Saybrook, CT 06475. The material shall be delivered on a flatbed to be off-loaded by Department forces. The Contractor shall provide a week notice prior to delivery of the material and coordinate the delivery of the material with Alan Ference (860) 388-3366.

To be considered salvageable, the above items must be in good condition as determined by the Engineer. Prior to removing and stockpiling the material, the Contractor shall obtain the Engineer's approval as to the item's salvable value.

The Contractor shall exercise reasonable care in the removal, dismantling, transportation and loading of the salvageable materials, and shall be responsible for any unnecessary damage caused by his actions.

Salvaged items shall be delivered to the location specified above and coordinate a specific delivery date and time with appropriate personnel.

The Contractor will not receive payment for this work. The cost for removal, dismantling, transporting and loading of salvageable materials shall be included in the overall cost of this project. If the Stores Facilities cannot accept all of the salvageable metal beam rail materials, the Contractor shall dispose of remaining materials at his own cost.

## **NOTICE TO CONTRACTOR – HAZARDOUS MATERIALS INVESTIGATIONS**

A limited hazardous materials site investigation has been conducted at Bridge No. 00681, Route 14 over Merrick Brook, in Scotland, Connecticut. The scope of inspection was limited to the representative components projected for impact.

There were no painted surfaces identified on the metal or concrete bridge components scheduled for impact at Bridge No. 00681 therefore no lead paint was identified at the site.

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.

No suspect asbestos containing materials, guano accumulations, blood-borne pathogen concerns or other hazardous/regulated items were identified in accessible areas of the bridge.

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 No. 00681, Route 14 over Merrick Brook, Scotland, CT, TRC Environmental Corporation, July 9, 2019.

## **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\_0123-0066.zip file (0123-0066 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**

**SECTION 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 conformance with Standard Specifications (Supplemented July 2017) Article 1.05.03 – “Conformity with Plans and Specifications (including Quality Control).”

**NOTICE TO CONTRACTOR – GLOBAL POSITIONING SYSTEM (GPS)  
COORDINATES FOR SIGNS**

The Contractor shall obtain and provide to the Engineer sign installation data, including Global Positioning System (GPS) latitude and longitude coordinates, for all new State owned and maintained signs. The Engineer shall forward the sign data to the Division of Traffic Engineering for upload into the Highway Sign Inventory and Maintenance Management Program (SIMS). Sign data submissions or questions relating to SIMS or GPS shall be sent to [DOT-SignInventory@ct.gov](mailto:DOT-SignInventory@ct.gov). Refer to the special provision for Section 12.00 General Clauses For Highway Signing.

## **NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE**

The attached project specific utility work schedule(s) was 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 – Schedules and Reports***) 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.

<b>UTILITY WORK SCHEDULE</b> Rev 3/2015			
CTDOT Project Number:	123-066	Town:	SCOTLAND
Project Description:	REPLACEMENT OF BRIDGE No. 00681, ROUTE 14 OVER MERRICK BROOK		
CTDOT Utilities Engineer:	Craig K. Wallace		
Phone:	(860) 594-2696	Email:	Craig.Wallace@ct.gov
Utility Company:	FRONTIER COMMUNICATIONS		
Prepared By:	JOHN PLIKUS	Date Prepared:	6/19/2019
Phone:	860.450.2793	Email:	john.m.plikus@ftr.com
Scope of Work			
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.			
<b>TEMPORARY RELOCATION</b>			
Loc.1 P82, Sta.3+95,20'S(approx)Replace Pole as a 45ft Class 2,Place 1-10M DGuy & 1-1in TT Anc.			
Loc.2 Temp Pole, Sta.3+77,48'S(approx)Place a 45ft Class 2 Pole,1-10M DGuy & 1-1in TT Anc.      Loc.3			
P81 Temp Loc, Sta.2+62,50'S(approx)Place a 45ft Class 2 Pole.      Loc.4			
Temp Pole, Sta.0+95,38'S(approx)Place a 45ft Class 2 Pole,1-10M DGuy & 1-1in TT Anc.      Loc.5			
P80, Sta.0+75,25'S(approx)Replace Pole as a 45ft Class 2,Place 1-10M DGuy & 1-1in TT Anc.      Loc.7 P79,			
Sta.-1+95,20'S(approx)Replace Pole as a 45ft Class 2.      Loc.8 P81			
Prem Loc, Sta.2+62,15'S(approx), Replace Pole with a 45ft Class 2 Pole.			
Loc.9 P81S,Sta.2+62,18'N(approx)Place a 35ft Class 2 Pole, 1-10M DGuy & 1-1in TT Anc.			
Loc.7 P79, Sta.-1+95,20'S to Loc.1 P82, Sta.3+95,20'S, Place 475ft of 6M Strand & BKMA-50.      Loc.7			
P79, Sta.-1+95,20'S to Loc.1 P82, Sta.3+95,20'S, Place 475ft of 10M Strand.      Loc.5 Temp			
Pole, Sta.0+95,25'S(approx)Place a 45ft Class 2 Pole,1-10M DGuy & 1-1in TT Anc.      Loc.5 P80,			
Sta.0+95,25'S(approx)Remove 40ft Class 4 Pole,1-10M DGuy & 1-1in TT Anc.      Loc.7 P79, Sta.-			
1+95,20'S to Loc.1 P82, Sta.3+95,20'S, Remove 415ft of 6M Strand & BKMA-200.			
<b>PERMANENT RELOCATION</b>			
Loc.7 P79, Sta.-1+95,20'S to Loc.1 P82, Sta.3+95,20'S, Place 420ft of 6M & Strand & BKMA-200.			
Loc.7 P79, Sta.-1+95,20'S to Loc.1 P82, Sta.3+95,20'S, Place 420ft of 10M Strand.			
Loc.2 Temp Pole, Sta.3+77,48'S(approx)Remove a 45ft Class 2 Pole,1-10M DGuy & 1-1in TT Anc.			
Loc.4 Temp Pole, Sta.0+95,38'S(approx)Remove a 45ft Class 2 Pole,1-10M DGuy & 1-1in TT Anc.			
Loc.7 P79, Sta.-1+95,20'S to Loc.1 P82, Sta.3+95,20'S,RMV 475ft of 10M & 6M Strand & BKMA-50.			
Special Considerations and Constraints			
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..			
1.Prior to any temporary/permanent relocation work CT. Dept. of Transportation to secure Temporary ROW as submitted for guying of temporary relocated poles in order to proceed.			
2. Frontier Communications will schedule its construction as it's workload permits, the DOT will schedule other utilities attached to the pole line (Power Co., CATV, etc... and all State or Municipal owned cables and fixtures). This UWS has been completed using only Semi-Final Design Plans.			
3.Mark out of EOR, ROW and Construction Easements will be required for Pole Placement. No Poles or Cables will be placed/shifted without a written CT DOT email and/or letter stating that all Pole locations have approved and verified by the CT DOT.			



**UTILITY WORK SCHEDULE Rev 3/2015**

CTDOT Project Number: 123-066  
 Utility Company: FRONTIER COMMUNICATIONS  
 Prepared By: JOHN PLIKUS  
 Total Working Days: 12.25

**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)
	TEMPORARY RELOCATION		
Sta.3+95,20'S	Replace Pole as a 45ft Class 2, Place 1-10M DGuy & 1-1in TT Anc and Remove Existing Pole.	Edge of Road and Right of Way Marked Out, Pole Locations Verified, Trees Cleared	0.75
Sta.3+77,48'S	Place a 45ft Class 2 Pole, 1-10M DGuy & 1-1in TT Anc.	Edge of Road and Right of Way Marked Out, Pole Locations Verified, Trees Cleared	0.5
Sta.2+62,50'S	Place a 45ft Class 2 Pole.	Edge of Road and Right of Way Marked Out, Pole Locations Verified, Trees Cleared	0.5
Sta.0+95,38'S	Place a 45ft Class 2 Pole, 1-10M DGuy & 1-1in TT Anc.	Edge of Road and Right of Way Marked Out, Pole Locations Verified, Trees Cleared	0.75
Sta.0+75,25'S	Replace Pole as a 45ft Class 2, Place 1-10M DGuy & 1-1in TT Anc and Remove Existing Pole.	Edge of Road and Right of Way Marked Out, Pole Locations Verified, Trees Cleared	0.75
Sta.-1+95,20'S	Replace Pole as a 45ft Class 2 and Remove Existing Pole.	Edge of Road and Right of Way Marked Out, Pole Locations Verified, Trees Cleared	0.75
Sta.0+95,25'S	Replace Pole with a 45ft Class 2 Pole and Remove Existing Pole.	Edge of Road and Right of Way Marked Out, Pole Locations Verified, Trees Cleared	0.75
Sta.6+45' to 12+52'	Place a 35ft Class 2 Pole, 1-10M DGuy & 1-1in TT Anc.	Edge of Road and Right of Way Marked Out, Pole Locations Verified, Trees Cleared	0.5
Sta.6+45' to 12+52'	Place 475ft of 6M, 10M Strand & 475ft of BKMA-50, shift fiber & Remove 415ft of 6M Strand & BKMA-200.	Other Utilities work completion required.	6.5
Sta.0+95,25'S	Remove 40ft Class 4 Pole, 1-10M DGuy & 1-1in TT Anc.	Other Utilities work completion required.	0.5

**UTILITY WORK SCHEDULE Rev 3/2015**

CTDOT Project Number: 123-066  
 Utility Company: FRONTIER COMMUNICATIONS  
 Prepared By: JOHN PLIKUS  
 Total Working Days: 7.5

**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)
	PERMENANT RELOCATION		
Sta.6+45' to 12+52'	Place 420ft of 6M & Strand & BKMA-200.	Other Utilities work completion required.	2.5
Sta.6+45' to 12+52'	Place 420ft of 10M Strand and Shift Fiber Back to Original Location.	Other Utilities work completion required.	2
Sta.3+77,48'S	Remove a 45ft Class 2 Pole,1-10M DGuy & 1-1in TT Anc.	Other Utilities work completion required.	0.5
Sta.0+95,38'S	Remove a 45ft Class 2 Pole,1-10M DGuy & 1-1in TT Anc.	Other Utilities work completion required.	0.5
Sta.6+45' to 12+52'	RMV 475ft of 10M & 6M Strand & BKMA-50.	Other Utilities work completion required.	2

<b>UTILITY WORK SCHEDULE</b> Rev 08 02 2016			
CTDOT Project Number:	123-066	Town:	Scotland
Project Description: Replacement of Bridge No. 00681 RT 14 over Merrick Brook			
CTDOT Utilities Engineer:		Gregg Hendrickson	
Phone:	860-594-3539	Email:	Gregg.Hendrickson@ct.gov
Utility Company:		Eversource Energy	
Prepared By:	Rick Arremony	Date Prepared:	05/21/2019
Phone:	860-779-4628	Email:	richard.arremony@eversource.com
Scope of Work			
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>Relocate / remove electric OH lines to provide contractor with sufficient clearance to replace bridge No. 00681 over Merrick Brook, Scotland. <span style="float: right;">Stage</span></p> <p>1 / Eversource contractor will provide trimming at 100% reimbursement. Frontier will install poles between poles 82 and 80 to allow relocating overhead facilities that are on South side of RT 14 approximately 32' off (south) of existing edge of road. <span style="float: right;">Stage 2:</span></p> <p>bridge construction completed. Frontier to relocate mid-span pole 81 to a location between of new edge of road and highway taking line to allow overhead facilities to be relocated back within the highway taking line.</p>			
Special Considerations and Constraints			
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..			
<ol style="list-style-type: none"> <li>1. Prior to any temporary/permanent relocation work, the State and/or assigned contractor to secure all required ROW and Tree Trimming in order to proceed.</li> <li>2. Eversource will schedule its construction as it's workload permits, the State and/or assigned contractor will schedule other utilities attached to the pole line (Frontier, CATV, etc... and all State or Municipal owned cables and fixtures). This UWS has been completed using only Preliminary Design Plans. No mark out of edge of road, or construction limits provided and may be subject to change.</li> </ol>			



**UTILITY WORK SCHEDULE Rev 3/2015**

CTDOT Project Number: 123-066

Utility Company: Eversource Energy

Prepared By: Rick Arremony

Total Working Days: 15

**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)
	<b>Stage 1</b>		
00+00 - 04+00	Finalize detailed design of Stage 1/ - pole & anchor locations staked by Frontier & Eversource	State written permit to proceed	1
00+00 - 04+00	Eversource Contractor to trim trees for relocation	State/CME written approval of staked locations & CBUD markings completed	4
00+00 - 04+00	Frontier to Relocate/Install poles and anchors, poles 82, Temp1, 81, 81S, Temp2, 80, and 79	State/CME written approval of staked locations & CBUD markings completed	3
	Eversource to frame poles, install guying, install/shift/remove overhead conductors	Poles and anchor installed	3
	<b>Stage 2</b>		
01+00 - 04+00	Finalize detailed design of Stage 2 / - pole & anchor locations staked by Frontier & Eversource	State notification to proceed	1
01+00 - 04+00	Frontier to install pole 81 and anchor at pole 81-S	CBUD markings completed	1
01+00 - 04+00	Eversource to frame poles, install guying, install/shift/remove overhead conductors	Frontier set pole and anchor	2

<b>UTILITY WORK SCHEDULE</b> Rev 3/2015			
CTDOT Project Number:	123-066	Town:	SCOTLAND
Project Description:	REPLACE BRIDGE 00681- RT 14 OVER MERRICK BROOK		
CTDOT Utilities Engineer:	CRAIG WALLACE		
Phone:	(860)594-2696	Email:	Craig.Wallace@ct.gov
Utility Company:	CROWN CASTLE FIBER		
Prepared By:	TERENCE J SHEA	Date Prepared:	5/24/2019
Phone:	(203)649-3905	Email:	terence.shea@crowncastle.com
<b>Scope of Work</b>			
<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>Crown Castle Fiber's work will consist of placing new strand to relocated, temporary poles, relocate slack, shift cable and remove old strand in stage 1. In stage 2, place new strand to permanent poles, shift cable, create backlash and remove temporary strand.</p>			
<b>Special Considerations and Constraints</b>			
<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>PLEASE NOTE THAT ANY TIME FRAME GIVEN AS A START TIME OR DURATION OF WORK CAN BE AFFECTED BY MANY FACTORS INCLUDING, BUT NOT LIMITED TO, MAKE READY WORK, OTHER UTILITIES, PERMIT APPLICATIONS, CHANGES IN SCOPE, INCLEMENT WEATHER, HOLIDAYS AND EMERGENCY SITUATIONS.</p>			



<b>UTILITY WORK SCHEDULE</b> Rev 3/2015			
CTDOT Project Number:	123-66	Town:	Scotland
Project Description:	Rt.14 Scotland		
CTDOT Utilities Engineer:	Craig Wallace		
Phone:	860.594.2696	Email:	Craig.wallace@ct.gov
Utility Company:	Charter		
Prepared By:	Dan Brault	Date Prepared:	7/10/2019
Phone:	860-213-4373	Email:	daniel.brault@charter.com
<b>Scope of Work</b>			
<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>Install new strand and cable from pole #80 to pole #82</p> <p>Delash fiber from old Poles and swing to new poles</p> <p>Tie in new cable on new poles shift services</p> <p>Remove old conductors from pole 80-82</p> <p>Returning back to perminant location</p>			
<b>Special Considerations and Constraints</b>			
<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>			

**UTILITY WORK SCHEDULE Rev 3/2015**

CTDOT Project Number: 123-66  
 Utility Company: Charter  
 Prepared By: Dan Brault  
 Total Working Days: 10

**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)
Poles 80-82	Temp-Install new strand and coax cable	Require three weeks notice to proceed	2
Poles 80-82	Temp-Delash existing fiber from old strand and poles. Swing to new poles and lash		1
Poles 80-82	Temp-Activate new cable, and remove old strand and cable from old poles		2
Poles 80-82	Perm-Install new strand and coax cable	Require three weeks notice to proceed	2
	Perm-Delash existing fiber from old strand and poles. Swing to new poles and lash		1
	Perm-Activate new cable, and remove old strand and cable from old poles		2



## **NOTICE TO CONTRACTOR – NOTIFY OF ROAD CLOSURE**

The Contractor shall provide advanced notices of the closure of Route 14, Huntington Road, which include at least a 4-week notice and a 2-week notice, to the following parties:

1. Town of Scotland:  
9 Devotion Rd., PO Box 122  
Scotland, CT 06264  
Phone Number: 860-456-7797 ext 1
2. Salvino Transportation  
School Bus Transportation Company  
144 Palmer Rd.  
Scotland, CT 06264  
Phone Number: 860-450-9424
3. Fire Department  
Public Safety  
47 Brook Rd.  
Scotland, CT 06264  
Phone Number: 860-455-6718
4. Emergency Management Director  
Public Safety  
9 Devotion Rd., PO Box 122  
Scotland, CT 06264  
Phone Number: 860-450-9198
5. Scotland Public Works Department  
42 Pinch St.  
Scotland, CT 06264  
Phone Number: 860-208- 1337
6. Connecticut State Police  
Troop D  
55 Westcott Rd.  
Danielson, CT 06239  
Phone Number: 860-779-4900
7. Quinebaug Valley Emergency Communications  
Fire/EMS Dispatch  
1249 Hartford Pike  
Dayville, CT 06241  
Phone Number: 860-774-7555

## **SECTION 1.02 – PROPOSAL REQUIREMENTS AND CONDITIONS**

### **Article 1.02.04 – Examination of Plans, Specifications, Special Provisions and Site of Work:**

*Replace the third sentence of the last paragraph with:*

The Department cannot ensure a response to inquiries received later than ten (10) days prior to the original scheduled opening of the related bid.

## **SECTION 1.05 - CONTROL OF THE WORK**

*Replace Article 1.05.02 with the following:*

### **1.05.02—Contractor Submittals, Working Drawings, Shop Drawings, Product Data, Submittal Preparation and Processing - Review Timeframes, Department's Action:**

**1. Contractor Submittals:** The plans provided by the Department show the details necessary to give a comprehensive idea of the construction contemplated under the Contract. The plans will generally show the 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.

The Contractor shall prepare submittals as Portable Document Format (PDF) files. The Contractor is also required to acquire, maintain access and use the Department's document management system for delivery of submittals. The format, digital signing requirements, delivery processes and document tracking procedures shall be performed in accordance with this specification and the [Contractor's Digital Submission Manual](#) (CDSM).

The submittals shall be sent to the Department's reviewer(s), sufficiently in advance of the work detailed, to allow for their review in accordance with the review periods as specified herein (including any necessary revisions, resubmittal, and final review), and acquisition of materials, without causing a delay of the Project.

**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 drawings shall be delivered sufficiently in advance of the work detailed, to allow for their review in accordance with the review periods specified herein (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.

a. Working Drawings for Permanent Construction: The Contractor shall supply to the Assistant District Engineer 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 Assistant District Engineer.

**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 Designer for review. Review timeframes and submission locations are as specified herein.

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.

**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.

The Contractor shall submit the product data in a single submittal for each element or group of elements 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.

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.

**5. Submittal Preparation and Processing – Review Timeframes:** The Contractor shall allow 30 calendar days for submittal review by the Department, from the date receipt is acknowledged by the Department's reviewer. For any submittals marked 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 Designer or Engineer 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 Designer or Engineer. 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 Designer or Engineer 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 Designer or Engineer. 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 Designer's or Engineer's notations. The resubmissions require an additional review and determination by the Designer or Engineer. The Contractor shall allow an additional review period as specified in 1.05.02-5.

## **SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES**

### **Article 1.07.10 - Contractor's Duty to Indemnify the State against Claims for Injury or Damage:**

*Add the following after the only paragraph:*

“It is further understood and agreed by the parties hereto, that the Contractor shall not use the defense of Sovereign Immunity in the adjustment of claims or in the defense of any suit, including any suit between the State and the Contractor, unless requested to do so by the State.”

### **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

Mr. Thomas Woronik  
Supervisor-Construction Engineering  
The Connecticut Light and Power Company dba Eversource Energy – Electric Distribution  
22 East High Street  
East Hampton, CT 06424  
(860) 267-3891

[Thomas.woronik@eversource.com](mailto:Thomas.woronik@eversource.com)  
Record Drawings Request: [numaprequest@eversource.com](mailto:numaprequest@eversource.com)

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](mailto:lynne.m.delucia@ftr.com)  
Record Drawings Request: [FTR-CT-MAPREQUEST@ftr.com](mailto:FTR-CT-MAPREQUEST@ftr.com)

Mr. Keith Cournoyer  
Construction Supervisor  
Charter Communications Entertainment I, LLC dba Charter Communications of  
Northeastern Connecticut  
207 Tuckie Road  
North Windham, CT 06256  
(860) 456-8346, EXT. 53029  
[Keith.Cournoyer@charter.com](mailto:Keith.Cournoyer@charter.com)

Mr. Eric Clark  
Manager Fiber Construction  
Lighttower Fiber Networks I, LLC dba Crown Castle Fiber  
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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 14 (Huntington Road)**

Due to light traffic volumes there will be no hourly restrictions.

The Contractor will be allowed to close Route 14 (Huntington Road) at Bridge No. 00681 beginning on Monday, June 22, 2020 at 12:00 a.m. and ending on or before Sunday, August 23, 2020 at 11:59 p.m. and detour traffic for a duration that shall not exceed 63 consecutive days, while the school is not in session.

The Contractor shall notify the Engineer at least 4 weeks in advance of the start of the Route 14 (Huntington Road) closure.

#### **All Other Roadways**

The Contractor shall maintain and protect a minimum of one lane of traffic in each direction, each lane on a paved travel path not less than 11 feet in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least an alternating one-way traffic operation, on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet and there shall be no more than one alternating one-way traffic operation within the project limits without prior approval of the Engineer.

#### **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:**

#### **BEST MANAGEMENT PRACTICES**

*Add the following after Required Best Management Practices Number 13:*

14. The Contractor is hereby notified that the location of the Project occurs within a public watershed, well head protection area, aquifer protection area (APA), or sole source aquifer (SSA). The Contractor is hereby notified that the location of 123-66 occurs within one of these sensitive areas. The protected areas encompass the area of contribution and recharge for the protected resource, as depicted on the graphical map. Please note that the Office of Environmental Planning will provide the graphical map to the District after the Project has been awarded as this information is considered proprietary. As a result of this location, special requirements must be followed for cleaning machinery, storage of materials, and servicing/fueling equipment.
  - a. All Contractors and their employees must be informed of the sensitive area that they are working in. No pollutants may be discharged that could have adverse effects on the public drinking water supply. Any fuel or other hazardous chemical spills must be reported immediately to the DEEP Oil and Chemical Spills Unit at (860) 424-3338, the Department of Public Health's Drinking Water Division at (860) 509-7333, **no exceptions**.

*When working within the Pootatuck SSA in Newtown or within the Pawcatuck SSA in North Stonington which also encompasses areas in Sterling, Stonington and Voluntown, Mr. Jeff Butensky from the Environmental Protection Agency (EPA) must be contacted at (617) 918-1665. Mr. Robert Adler from the EPA must also be contacted at (617) 918-1396, if a Project is near the Rhode Island state border.*

- b. Contractors must adhere to specialized cleanup procedures while working within the watershed, well head protection area, APA or SSA. No cleaning of any machinery shall be performed within one hundred (100) feet of any water body within the sensitive area.
  - i. Specifically for cleanup associated with pavers, material transfer vehicles (MTV) and concrete mixers, the Contractor must move the equipment off line onto a tarp. The tarp must be in an acceptable condition so as to prevent liquids and solids from passing through to the ground beneath, when the area is used for paving operations. The cleanup area shall have oil absorbent pads placed on the tarp. The equipment shall be cleaned over the absorbent pads in a manner that will allow the pads to collect any liquids that are used for cleanup.

- ii. Specifically for cleanup associated with dump trucks, a liquid tight five gallon pail shall be placed at each corner of the dump body below the lower hinges to capture any materials generated during the cleanup.
- c. All materials generated during the cleanup procedures shall be removed off-site at the end of each day and disposed of in a manner consistent with all applicable laws and regulations. These materials shall not be buried outside of the roadway limits.
- d. Servicing and fueling of equipment shall be conducted outside of a public watershed area, APA, SSA, and/or well head protection area.
  - i. If equipment cannot be serviced and refueled outside of the watershed area, well head protection area, APA, or SSA then the Contractor shall utilize the proper spoils handling areas that are identified on the plans.
  - ii. Servicing and fueling of equipment is not permitted within a 500 foot radius of a non-community well and within a 1000 foot radius of a community well.
  - iii. Any fuel and/or hazardous materials that must be kept within these sensitive areas during working hours shall be stored in an enclosed spill proof container.
  - iv. Spill containment systems must be utilized during fueling operations, and shall be manufactured by Sentry Lite Berms, Collapse-a-tainer, or approved equal. It shall have a minimum capacity of 80-gallons and shall be made of plastic or vinyl which is inert to all fuel types.
  - v. Fuel spill remediation kits shall be stored on-site so that spills may be contained and cleaned quickly.
- e. Construction staging and laydown areas are prohibited within a watershed area, APA, SSA, and/or well head protection area. The Contractor shall submit to the Engineer the desired location of trailer(s), construction staging/laydown areas, containment systems, and sedimentation control systems for review and approval prior to the start of construction.
- f. Millings may be re-used as asphalt material. Disposal of excess millings must be performed off-site in a manner consistent with all applicable laws and regulations. At no time can millings be dumped or buried outside of the roadway limits.

## **SECTION 2.86 - DRAINAGE TRENCH EXCAVATION, ROCK IN DRAINAGE TRENCH EXCAVATION**

### **2.86.01—Description**

### **2.86.03—Construction Methods**

### **2.86.04—Method of Measurement**

### **2.86.05—Basis of Payment**

**2.86.01—Description:** Drainage trench excavation consists of the excavation necessary for the proper installation of drainage structures, pipes, pipe ends and any other incidental drainage items.

It shall include earth and rock excavation, removal of existing pipes, dewatering, backfill, and disposal of materials; to the trench limits described herein, to the dimensions shown on the plans, or as directed by the Engineer.

#### **Classifications:**

- (1) **Drainage Trench Excavation** will include only the excavation necessary for the construction of the drainage items and the removals specified above.
- (2) **Rock in Drainage Trench Excavation**, insofar as it applies to drainage trench excavation, shall be defined as **1/2 cubic yard or more** in volume of the following obstructions removed from the limits of the drainage trench:
  - (a) rock in definite ledge formation
  - (b) boulders, or portions of boulders
  - (c) cement masonry structures
  - (d) concrete or reinforced concrete structures
  - (e) reinforced concrete pipe
  - (f) subsurface concrete pavement or concrete base

The removal shall be as indicated or directed from within the limits defined in 2.86.03 for drainage trench excavation.

#### **2.86.03—Construction Methods:**

##### **(1) Drainage Trench Excavation Limits:**

*Horizontal Limits:* Trench widths for pipes, pipe ends, pipe-arches, and drainage structures shall be as follows:

- (a) 2 feet greater than the nominal inside diameter of circular pipe or nominal inside span of elliptical pipe or pipe-arch for such diameters or spans of less than 30 inches
- (b) 3 feet greater than the nominal inside diameter of circular pipe or the nominal inside span of elliptical pipe or pipe-arch for such diameters or spans that are 30 inches or greater
- (c) 4 feet greater than the nominal inside diameter or nominal horizontal inside span for pipe-arches fabricated from structural plates

- (d) 2 feet beyond the neat lines of all exterior or foundation walls of drainage structures

*Vertical Limits:* Trench depths shall extend vertically as follows:

- (a) From the bottom of the trench to the bottom of the roadway excavation, or in areas away from roadway excavation, to the top of existing ground surface.
- (b) Where drainage pipe is to be laid in a fill area, the embankment shall be placed and compacted to a minimum elevation 12 inches above the top of the proposed pipe, whereupon the drainage trench excavation shall be performed and the pipe installed.

- (2) Drainage Trench Excavation:** Drainage trench excavation shall be made in conformity with the requirements of the plans, or as directed by the Engineer. The Contractor shall furnish and employ such shores, braces, pumps, or ancillary equipment as needed for the proper protection of property, proper completion of the work, as well as safety of the public and employees of both the Contractor and the Department. All bracing and shoring shall be removed when no longer required for the construction or safety of the work. When required, the Contractor shall provide or have on the Site at all times any OSHA certification for equipment to be used, per 1.07.07. For support of trenches greater than 10 feet in depth, working drawings shall be submitted, in accordance with 1.05.02. The Contractor shall control erosion and sedimentation at trench locations and ensure that pumped water from the drainage excavation is discharged in accordance with the requirements of 1.10.

Where a firm foundation is not encountered at the grades established due to unsuitable material, such as soft, spongy, or unstable soil, the unsuitable material shall be removed and replaced with approved backfill, thoroughly compacted in lifts not to exceed 6 inches, for the full trench width. The Engineer shall be notified prior to removal of the unsuitable material in order to determine the depth of removal necessary.

After the excavation is complete, the Contractor shall notify the Engineer and no drainage structure or material shall be placed in the excavated area until the Engineer has approved the depth of excavation and the character of the foundation material.

**(3) Rock in Drainage Trench Excavation:**

- (a) Rock in Drainage Trench Excavation - Ledge: When rock in definite ledge form is encountered, the Contractor shall excavate a minimum of 12 inches below the bottom of the proposed pipe or drainage structure; and this depth shall be filled with bedding material (as specified in M.08.03-1) below the proposed pipe; or granular fill (as specified in M.02.01) below the proposed drainage structure, which shall be thoroughly compacted in lifts not to exceed 6 inches.
- (b) Rock in Drainage Trench Excavation - Boulders: When boulders are encountered, the Contractor shall remove them from the trench and if backfill is required, the void shall be filled with bedding material, surplus excavated material (as specified in 2.02.03-8) or granular fill which shall be thoroughly compacted in lifts not to exceed 6 inches.

(c) Rock in Drainage Trench Excavation –Structures: When cement masonry, concrete or reinforced concrete structures are encountered within the drainage trench limits, the Contractor shall remove the structure in its entirety or as directed by the Engineer, and if backfill is required, the void shall be filled with bedding material, surplus excavated material or granular fill which shall be thoroughly compacted in lifts not to exceed 6 inches.

(4) **Backfill**: Suitable material excavated from the drainage trench shall be used as backfill material prior to consideration of using any other source of backfill. Backfill material used shall be of a quality satisfactory to the Engineer and shall be free from large or frozen lumps, wood and other extraneous material. Rock fill or stones larger than 5 inches shall not be placed within 1 foot of the drainage structure or pipe. The grading shall be completed to the lines shown on the plans, or as ordered, by refilling to the required elevation with approved material, placed in layers not to exceed 6 inches in depth after compaction, which shall be thoroughly compacted with equipment approved by the Engineer.

All surplus or unsuitable material shall be removed and disposed of as directed. Should additional material be required for backfilling, it may be obtained from the Project surplus excavation in accordance with 2.02.03-8 or from borrow pits, gravel pits, or elsewhere as directed by the Engineer.

**2.86.04—Method of Measurement:**

**Drainage Trench Excavation:** Drainage trench excavation will not be measured for payment. If granular fill or borrow is required to replace unsuitable material it will be measured for payment as directed by the Engineer.

**Rock in Drainage Trench Excavation:** If any material meeting the definition of Rock in Drainage Trench Excavation is encountered, the Contractor shall strip it of sufficient overlying material to allow for proper measurement and shall then notify the Engineer that the rock surface is ready for measurement. If the Contractor fails to give such notice, the Engineer will presume that the measurements taken at the time the Engineer first saw the material in question will give the true quantity of excavation.

Rock in Drainage Trench Excavation will be measured according to the classification provided in 2.86.01 and within the drainage trench excavation limits provided in 2.86.03.

For the removal of underground obstructions, as classified in 2.86.01-2, the measurement shall be the actual volume of rock removed (1/2 cubic yard or more) as approved by the Engineer.

Rock in Drainage Trench Excavation will not be measured for payment in fills.

Bedding Material or other suitable fill, as specified in 2.86.03(3), used to fill voids after rock is excavated will not be measured for payment.

**2.86.05—Basis of Payment:**

**Drainage Trench Excavation:** There will be no direct payment for drainage trench excavation required for the installation of drainage pipes, pipe ends, catch basins, drop inlets, manholes, and other drainage structures, or any other incidental drainage work including materials, tools, equipment and labor necessary to complete the drainage trench excavation in conformity with the plans or as directed by the Engineer.

There will be no direct payment for backfill or disposal of surplus material necessary for the satisfactory completion of this work.

There will be no direct payment made for shoring, bracing, dewatering, or for material or equipment necessary for the satisfactory completion of the work.

Where called for on the plans to install temporary earth retaining systems for the support of existing facilities, pavement, utilities, or for other constraints, payment will be made in accordance with such items in the Contract.

If granular fill or borrow is used to replace unsuitable material, payment will be made at the respective Contract unit prices, or in the absence of such items in the Contract, as Extra Work in accordance with 1.04.05.

**Rock in Drainage Trench Excavation:** When rock, conforming to the description in 2.86.01 is encountered within the limits of drainage trench excavation, its removal will be classified and paid for at the Contract unit price per cubic yard for "Rock in Drainage Trench Excavation 0' – 10' Deep," or "Rock in Drainage Trench Excavation 0' – 20' Deep," as the case may be.

Those portions of drainage trench excavation classified and paid for as "Rock in Drainage Trench Excavation" of the various depths will be the actual volumes of rock excavated within the limits for drainage trench excavation, at the applicable bottom depth price.

Where no item or items for "Rock in Drainage Trench Excavation" at the applicable depth appear in the proposal and rock is encountered in drainage trench excavation, its removal will be paid for as Extra Work in accordance with 1.04.05.

When excavation is necessary in fill, no such excavation will be paid for as "Rock in Drainage Trench Excavation."

**When excavation is necessary for any purpose other than drainage-related items, no such excavation will be paid under this item.**

Bedding material or any other suitable material used to fill voids vacated by excavated rock will not be paid for but shall be included in the unit price per cubic yard for "Rock in Drainage Trench Excavation."

Pay Item	Pay Unit
Rock in Drainage Trench Excavation 0' - 10' Deep	c.y.
Rock in Drainage Trench Excavation 0' - 20' Deep	c.y.

## **SECTION 4.06 - BITUMINOUS CONCRETE**

Section 4.06 is being deleted in its entirety and replaced with the following:

### **4.06.01—Description**

### **4.06.02—Materials**

### **4.06.03—Construction Methods**

- 1. Material Documentation**
- 2. Transportation of Mixture**
- 3. Paving Equipment**
- 4. Test Section**
- 5. Transitions for Roadway Surface**
- 6. Spreading and Finishing of Mixture**
- 7. Longitudinal Joint Construction Methods**
- 8. Contractor Quality Control (QC) Requirements**
- 9. Temperature and Seasonal Requirements**
- 10. Field Density**
- 11. Acceptance Sampling and Testing**
- 12. Density Dispute Resolution Process**
- 13. Corrective Work Procedure**
- 14. Protection of the Work**
- 15. Cut Bituminous Concrete Pavement**

### **4.06.04—Method of Measurement**

### **4.06.05—Basis of Payment**

**4.06.01—Description:** Work under this Section shall include the production, delivery, placement and compaction of a uniform textured, non-segregated, smooth bituminous concrete pavement to the grade and cross section shown on the plans.

The following terms as used in this specification are defined as:

Bituminous Concrete: A composite material consisting of prescribed amounts of asphalt binder and aggregates. Asphalt binder may also contain additives engineered to modify specific properties and/or behavior of the composite material. References to bituminous concrete apply to all of its forms, such as those identified as hot-mix asphalt (HMA) or polymer-modified asphalt (PMA).

Bituminous Concrete Plant (Plant): A structure where aggregates and asphalt binder are combined in a controlled fashion into a bituminous concrete mixture suitable for forming pavements and other paved surfaces.

Course: A continuous layer (a lift or multiple lifts) of the same bituminous concrete mixture placed as part of the pavement structure.



Density Lot: The total tonnage of all bituminous concrete placed in a single lift which are:

PWL density lots = When the project total estimated quantity per mixture is larger than 3,500 tons

Simple Average density lots = When the project total estimated quantity per mixture is 3,500 tons or less

Disintegration: Erosion or fragmentation of the pavement surface which can be described as polishing, weathering-oxidizing, scaling, spalling, raveling, or formation of potholes.

Dispute Resolution: A procedure used to resolve conflicts between the Engineer and the Contractor's results that may affect payment.

Hot Mix Asphalt (HMA): A bituminous concrete mixture typically produced at 325°F.

Job Mix Formula (JMF): A recommended aggregate gradation and asphalt binder content to achieve the required mixture properties.

Lift: An application of a bituminous concrete mixture placed and compacted to a specified thickness in a single paver pass.

Percent Within Limits (PWL): The percentage of the lot falling between the Upper Specification Limit (USL) and the Lower Specification Limit (LSL).

Polymer Modified Asphalt (PMA): A bituminous concrete mixture containing a polymer-modified asphalt binder and using a qualified warm mix technology.

Production Lot: The total tonnage of a bituminous concrete mixture from a single source that may receive an adjustment.

Production Sub Lot: Portion of the production lot typically represented by a single sample.

Quality Assurance (QA): All those planned and systematic actions necessary to provide CTDOT the confidence that a Contractor will perform the work as specified in the Contract.

Quality Control (QC): The sum total of activities performed by the vendor (Producer, Manufacturer, and Contractor) to ensure that a product meets contract specification requirements.

Superpave: A bituminous concrete mix design used in mixtures designated as "S\*" Where "S" indicates Superpave and \* indicates the sieve related to the nominal maximum aggregate size of the mix.

Segregation: A non-uniform distribution of a bituminous concrete mixture in terms of gradation, temperature, or volumetric properties.

Warm Mix Asphalt (WMA) Technology: A qualified additive or technology that may be used to produce a bituminous concrete at reduced temperatures and/or increase workability of the mixture.

**4.06.02—Materials:** All materials shall meet the requirements of Section M.04.

1. **Materials Supply:** The bituminous concrete mixture must be from one source of supply and originate from one Plant unless authorized by the Engineer.
2. **Recycled Materials:** Reclaimed Asphalt Pavement (RAP), Crushed Recycled Container Glass (CRCG), Recycled Asphalt Shingles (RAS), or crumb rubber (CR) from recycled tires may be incorporated in bituminous concrete mixtures in accordance with Project Specifications.

**4.06.03—Construction Methods**

1. **Material Documentation:** All vendors producing bituminous concrete must have Plants with automated vehicle-weighing scales, storage scales, and material feeds capable of producing a delivery ticket containing the information below.
  - a. State of Connecticut printed on ticket.
  - b. Name of Producer, identification of Plant, and specific storage silo if used.
  - c. Date and time.
  - d. Mixture Designation, mix type and level. Curb mixtures for machine-placed curbing must state "curb mix only."
  - e. If WMA Technology is used, "-W" must be listed following the mixture designation.
  - f. Net weight of mixture loaded into the vehicle. (When RAP and/or RAS is used, the moisture content shall be excluded from mixture net weight.)
  - g. Gross weight (equal to the net weight plus the tare weight or the loaded scale weight).
  - h. Tare weight of vehicle (daily scale weight of the empty vehicle).
  - i. Project number, purchase order number, name of Contractor (if Contractor other than Producer).
  - j. Vehicle number - unique means of identification of vehicle.
  - k. For Batch Plants: individual aggregate, recycled materials, and virgin asphalt max/target/min weights when silos are not used.
  - l. For every mixture designation: the running daily and project total delivered and sequential load number.

The net weight of mixture loaded into the vehicle must be equal to the cumulative measured weights of its components.

The Contractor must notify the Engineer immediately if, during production, there is a malfunction of the weight recording system in the automated Plant. Manually written tickets containing all required information will be allowed for no more than 1 hour.

The State reserves the right to have an Inspector present to monitor batching and/or weighing

operations.

- 2. Transportation of Mixture:** The mixture shall be transported in vehicles that are clean of all foreign material, excessive coating or cleaning agents, and that have no gaps through which material might spill. Any material spilled during the loading or transportation process shall be quantified by re-weighing the vehicle. The Contractor shall load vehicles uniformly so that segregation is minimized. Loaded vehicles shall be tightly covered with waterproof covers acceptable to the Engineer. Mesh covers are prohibited. The cover must minimize air infiltration. Vehicles found not to be in conformance shall not be loaded.

Vehicles with loads of bituminous concrete being delivered to State projects must not exceed the statutory or permitted load limits referred to as gross vehicle weight (GVW). The Contractor shall furnish a list and allowable weights of all vehicles transporting mixture. The State reserves the right to check the gross and tare weight of any vehicle. If the gross or tare weight varies from that shown on the delivery ticket by more than 0.4%, the Engineer will recalculate the net weight. The Contractor shall correct the discrepancy to the satisfaction of the Engineer.

If a vehicle delivers mixture to the Project and the delivery ticket indicates that the vehicle is overweight, the load may not be rejected but a "Measured Weight Adjustment" will be taken in accordance with Article 4.06.04.

Vehicle body coating and cleaning agents must not have a deleterious effect on the mixture. The use of solvents or fuel oil, in any concentration, is prohibited for the coating of vehicle bodies.

For each delivery, the Engineer shall be provided a clear, legible copy of the delivery ticket.

- 3. Paving Equipment:** The Contractor shall have the necessary paving and compaction equipment at the Project Site to perform the work. All equipment shall be in good working order and any equipment that is worn, defective, or inadequate for performance of the work shall be repaired or replaced by the Contractor to the satisfaction of the Engineer. During the paving operation, the use of solvents or fuel oil, in any concentration, is strictly prohibited as a release agent or cleaner on any paving equipment (i.e., rollers, pavers, transfer devices, etc.).

Refueling or cleaning of equipment is prohibited in any location on the Project where fuel or solvents might come in contact with paved areas or areas to be paved. Solvents used in cleaning mechanical equipment or hand tools shall be stored clear of areas paved or to be paved. Before any such equipment and tools are cleaned, they shall be moved off of areas paved or to be paved.

Pavers: Each paver shall have a receiving hopper with sufficient capacity to provide for a uniform spreading operation and a distribution system that places the mix uniformly, without segregation. The paver shall be equipped with and use a vibratory screed system with heaters or burners. The screed system shall be capable of producing a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Pavers with extendible

screed units as part of the system shall have auger extensions and tunnel extenders as necessary. Automatic screed controls for grade and slope shall be used at all times unless otherwise authorized by the Engineer. The controls shall automatically adjust the screed to compensate for irregularities in the preceding course or existing base. The controls shall maintain the proper transverse slope and be readily adjustable, and shall operate from a fixed or moving reference such as a grade wire or floating beam (minimum length 20 feet).

Rollers: All rollers shall be self-propelled and designed for compaction of bituminous concrete. Roller types shall include steel wheeled, pneumatic, or a combination thereof. Rollers that operate in a dynamic mode shall have drums that use a vibratory or oscillatory system or combination. Vibratory rollers shall be equipped with indicators for amplitude, frequency, and speed settings/readouts to measure the impacts per foot during the compaction process. Oscillatory rollers shall be equipped with frequency indicators. Rollers can operate in the dynamic mode using the oscillatory system on concrete structures such as bridges and catch basins if at the lowest frequency setting.

Pneumatic tire rollers shall be equipped with wide-tread compaction tires capable of exerting an average contact pressure from 60 to 90 psi uniformly over the surface. The Contractor shall furnish documentation to the Engineer regarding tire size, pressure and loading to confirm that the proper contact pressure is being developed and that the loading and contact pressure are uniform for all wheels.

Lighting: For paving operations which will be performed during hours of darkness the paving equipment shall be equipped with lighting fixtures as described below or with an approved equal. Lighting shall minimize glare to passing traffic. The lighting options and minimum number of fixtures are listed in Tables 4.06-1 and 4.06-2.

**TABLE 4.06-1: Minimum Paver lighting**

Option	Fixture Configuration	Fixture Quantity	Requirement
1	Type A	3	Mount over screed area
	Type B (narrow) or Type C (spot)	2	Aim to auger and guideline
	Type B (wide) or Type C (flood)	2	Aim 25 feet behind paving machine
2	Type D Balloon	2	Mount over screed area

**TABLE 4.06-2: Minimum Roller Lighting**

Option	Fixture Configuration	Fixture Quantity	Requirement
1	Type B (wide)	2	Aim 50 feet in front of and behind roller
	Type B (narrow)	2	Aim 100 feet in front of and behind roller
2	Type C (flood)	2	Aim 50 feet in front of and behind roller
	Type C (spot)	2	Aim 100 feet in front of and behind roller
3	Type D Balloon	1	Mount above the roller

\*All fixtures shall be mounted above the roller.

Type A: Fluorescent fixture shall be heavy duty industrial type. Each fixture shall have a minimum output of 8,000 lumens. The fixtures shall be mounted horizontally and be designed for continuous row installation.

Type B: Each floodlight fixture shall have a minimum output of 18,000 lumens.

Type C: Each fixture shall have a minimum output of 19,000 lumens.

Type D: Balloon light – each balloon light fixture shall have minimum output of 50,000 lumens and emit light equally in all directions.

Material Transfer Vehicle (MTV): A MTV shall be used when placing bituminous concrete surface course (a lift or multiple lifts) as indicated in the Contract except as noted on the plans or as directed by the Engineer. In addition, continuous paving lengths of less than 500 feet may not require the use of a MTV as determined by the Engineer.

The MTV must be a vehicle specifically designed for the purpose of delivering the bituminous concrete mixture from the delivery vehicle to the paver. The MTV must continuously remix the bituminous concrete mixture throughout the placement process.

The use of a MTV will be subject to the requirements stated in Article 1.07.05 Load Restrictions. The Engineer may limit the use of the vehicle if it is determined that the use of the MTV may damage highway components, utilities, or bridges. The Contractor shall submit to the Engineer at time of pre-construction the following information:

1. The make and model of the MTV.
2. The individual axle weights and axle spacing for each piece of paving equipment (haul vehicle, MTV and paver).
3. A working drawing showing the axle spacing in combination with all pieces of equipment that will comprise the paving echelon.
4. **Test Section:** The Engineer may require the Contractor to place a test section whenever the requirements of this specification or Section M.04 are not met.

The Contractor shall submit the quantity of mixture to be placed and the location of the test section for review and approval by the Engineer. The same equipment used in the construction of a passing test section shall be used throughout production.

If a test section fails to meet specifications, the Contractor shall stop production, make necessary adjustments to the job mix formula, Plant operations, or procedures for placement and compaction. The Contractor shall construct test sections, as allowed by the Engineer, until all the required specifications are met. All test sections shall also be subject to removal as set forth in Article 1.06.04.

**5. Transitions for Roadway Surface:** Transitions shall be formed at any point on the roadway where the pavement surface deviates, vertically, from the uniform longitudinal profile as specified on the plans. Whether formed by milling or by bituminous concrete mixture, all transition lengths shall meet the criteria below unless otherwise specified.

Permanent Transitions: Defined as any gradual change in pavement elevation that remains as a permanent part of the work.

A transition shall be constructed no closer than 75 feet from either side of a bridge expansion joint or parapet. All permanent transitions, leading and trailing ends shall meet the following length requirements:

<b>Posted Speed Limit</b>	<b>Permanent Transition Length Required</b>
> 35 mph	30 feet per inch of elevation change
35 mph or less	15 feet per inch of elevation change

In areas where it is impractical to use the above-described permanent transition lengths, the use of a shorter permanent transition length may be permitted when approved by the Engineer.

Temporary Transitions: Defined as a transition that does not remain a permanent part of the work.

All temporary transitions shall meet the following length requirements:

<b>Posted Speed Limit</b>	<b>Temporary Transition Length Required</b>
> 50 mph	Leading Transition: 15 feet per inch of vertical change (thickness) Trailing Transition: 6 feet per inch of vertical change (thickness)
40, 45 or 50 mph	Leading and Trailing: 4 feet per inch of vertical change (thickness)
35 mph or less	Leading and Trailing: 3 feet per inch of vertical change (thickness)

**Note:** Any temporary transition to be in place over the winter shutdown period or during extended periods of inactivity (more than 14 calendar days) shall meet the greater than 50 mph requirements shown above.

**6. Spreading and Finishing of Mixture:** Prior to the placement of the mixture, the underlying base course shall be brought to the plan grade and cross section within the allowable tolerance.

Immediately before placing a bituminous concrete lift, a uniform coating of tack coat shall be applied to all existing underlying pavement surfaces and on the exposed surface of a wedge joint. Such surfaces shall be clean and dry. Sweeping or other means acceptable to the Engineer shall be used.

The mixture shall not be placed whenever the surface is wet or frozen.

Tack Coat Application: The tack coat shall be applied by a pressurized spray system that

results in uniform overlapping coverage at an application rate of 0.03 to 0.05 gal./s.y. for a non-milled surface and an application rate of 0.05 to 0.07 gal./s.y. for a milled surface. For areas where both milled and un-milled surfaces occur, the tack coat shall be an application rate of 0.03 to 0.05 gal /s.y. The Engineer must approve the equipment and the method of measurement prior to use. The material for tack coat shall be heated to  $160^{\circ}\text{F} \pm 10^{\circ}\text{F}$  and shall not be further diluted.

Tack coat shall be allowed sufficient time to break prior to any paving equipment or haul vehicles driving on it.

The Contractor may request to omit the tack coat application between bituminous concrete layers that have not been exposed to traffic and are placed during the same work shift. Requests to omit tack coat application on the upper and lower surfaces of a wedge joint will not be considered.

Placement: The mixture shall be placed and compacted to provide a smooth, dense surface with a uniform texture and no segregation at the specified thickness and dimensions indicated in the plans and specifications.

When unforeseen weather conditions prevent further placement of the mixture, the Engineer is not obligated to accept or place the bituminous concrete mixture that is in transit from the Plant.

In advance of paving, traffic control requirements shall be set up, maintained throughout placement, and shall not be removed until all associated work including density testing is completed.

The mixture temperature will be verified by means of a probe or infrared type of thermometer. The placement temperature range shall be listed in the quality control plan (QCP) for placement and meet the requirements of Table M.04.03-4. Any HMA material that falls outside the specified temperature range as measured by a probe thermometer may be rejected.

The Contractor shall inspect the newly placed pavement for defects in mixture or placement before rolling is started. Any deviation from standard crown or section shall be immediately remedied by placing additional mixture or removing surplus mixture. Such defects shall be corrected to the satisfaction of the Engineer.

Where it is impracticable due to physical limitations to operate the paving equipment, the Engineer may permit the use of other methods or equipment. Where hand spreading is permitted, the mixture shall be placed by means of suitable shovels and other tools, and in a uniformly loose layer at a thickness that will result in a completed pavement meeting the designed grade and elevation.

Placement Tolerances: Each lift of bituminous concrete placed at a specified thickness shall meet the following requirements for thickness and area. Any pavement exceeding these limits shall be subject to an adjustment or removal. Lift tolerances will not relieve the Contractor from

meeting the final designed grade. Lifts of specified non-uniform thickness, i.e. wedge or shim course, shall not be subject to thickness and area adjustments.

- a) Thickness: Where the average thickness of the lift exceeds that shown on the plans beyond the tolerances shown in Table 4.06-3, the Engineer will calculate the thickness adjustment in accordance with Article 4.06.04.

**TABLE 4.06-3: Thickness Tolerances**

Mixture Designation	Lift Tolerance
S1	+/- 3/8 inch
S0.25, S0.375, S0.5	+/- 1/4 inch

Where the thickness of the lift of mixture is less than that shown on the plans beyond the tolerances shown in Table 4.06-3, the Contractor, with the approval of the Engineer, shall take corrective action in accordance with this Section.

- b) Area: Where the width of the lift exceeds that shown on the plans by more than the specified thickness, the Engineer will calculate the area adjustment in Article 4.06.04.
- c) Delivered Weight of Mixture: When the delivery ticket shows that the truck exceeds the allowable gross weight for the vehicle type, the Engineer will calculate the weight adjustment in accordance with Article 4.06.04.

Transverse Joints: All transverse joints shall be formed by saw-cutting to expose the full thickness of the lift. Tack coat shall be applied to the sawn face immediately prior to additional mixture being placed.

Compaction: The Contractor shall compact the mixture to meet the density requirements as stated in Article 4.06.04 and eliminate all roller marks without displacement, shoving cracking, or aggregate breakage.

When placing a lift with a specified thickness less than 1 1/2 inches, or a wedge course, the Contractor shall provide a minimum rolling pattern as determined by the development of a compaction curve. The procedure to be used shall be documented in the Contractor’s QCP for placement and demonstrated on the first day of placement.

The use of the vibratory system on concrete structures is prohibited. When approved by the Engineer, the Contractor may operate a roller using an oscillatory system at the lowest frequency setting.

If the Engineer determines that the use of compaction equipment in the dynamic mode may damage highway components, utilities or adjacent property, the Contractor shall provide alternate compaction equipment.

Rollers operating in the dynamic mode shall be shut off when changing directions.



These allowances will not relieve the Contractor from meeting pavement compaction requirements.

Surface Requirements:

Each lift of the surface course shall not vary more than 1/4 inch from a Contractor-supplied 10 foot straightedge. For all other lifts of bituminous concrete, the tolerance shall be 3/8 inch. Such tolerance will apply to all paved areas.

Any surface that exceeds these tolerances shall be corrected by the Contractor at its own expense.

**7. Longitudinal Joint Construction Methods:** The Contractor shall use Method I - Notched Wedge Joint (see Figure 4.06-1) when constructing longitudinal joints where lift thicknesses are 1 ½ inches to 3 inches. S1.0 mixtures shall be excluded from using Method I. Method II - Butt Joint (see Figure 4.06-2) shall be used for lifts less than 1 1/2 inches or greater than 3 inches. Each longitudinal joint shall maintain a consistent offset from the centerline of the roadway along its entire length. The difference in elevation between the two faces of any completed longitudinal joint shall not exceed 1/4 inch at any location.

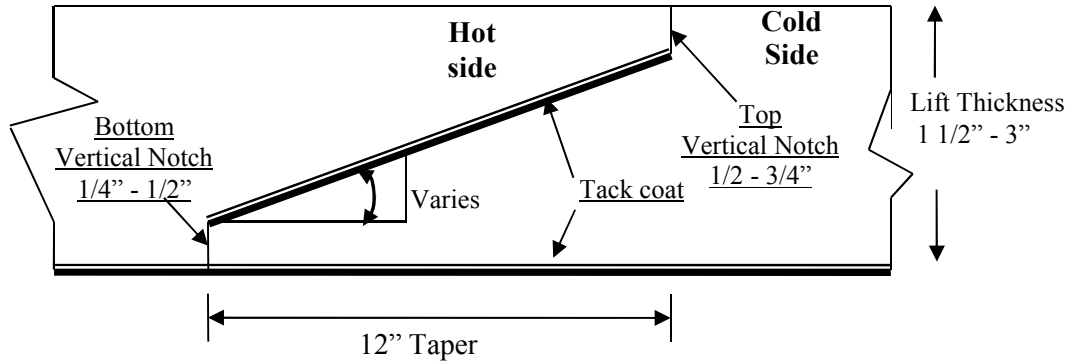
**Method I - Notched Wedge Joint:**

A notched wedge joint shall be constructed as shown in Figure 4.06-1 using a device that is attached to the paver screed and is capable of independently adjusting the top and bottom vertical notches. The device shall have an integrated vibratory system. The top vertical notch must be located at the centerline or lane line in the final lift. The requirement for paving full width “curb to curb” as described in Method II may be waived if addressed in the QC plan and approved by the Engineer.

The taper portion of the wedge joint shall be evenly compacted using equipment other than the paver or notch wedge joint device. The compaction device shall be the same width as the taper and not reduce the angle of the wedge or ravel the top notch of the joint during compaction.

When placed on paved surfaces, the area below the sloped section of the joint shall be treated with tack coat. The top surface of the sloped section of the joint shall be treated with tack coat prior to placing the completing pass.

The taper portion of the wedge joint shall not be exposed to traffic for more than 5 calendar days.

**Figure 4.06-1: Notched Wedge Joint (Not to Scale)**

Any exposed wedge joint must be located to allow for the free draining of water from the road surface.

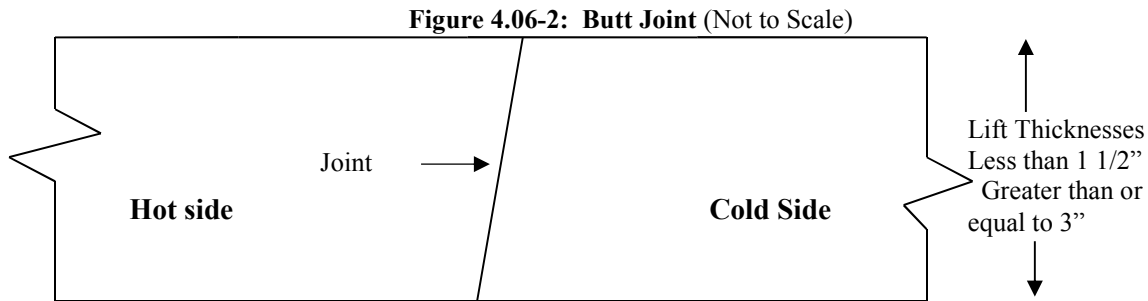
The Engineer reserves the right to define the paving limits when using a wedge joint that will be exposed to traffic.

If Method I cannot be used on those lifts which are  $1\ 1/2$  inches to 3 inches, Method III may be substituted according to the requirements below for “Method III - Butt Joint with Hot Poured Rubberized Asphalt Treatment.”

#### **Method II - Butt Joint:**

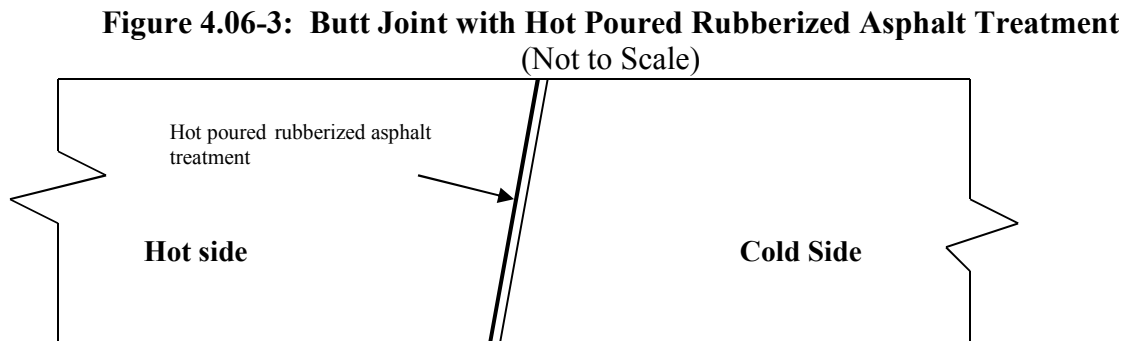
When adjoining passes are placed, the Contractor shall use the end gate to create a near vertical edge (refer to Figure 4.06-2). The completing pass (hot side) shall have sufficient mixture so that the compacted thickness is not less than the previous pass (cold side). During placement of multiple lifts, the longitudinal joint shall be constructed in such a manner that it is located at least 6 inch from the joint in the lift immediately below. The joint in the final lift shall be at the centerline or at lane lines. The end gate on the paver should be set so there is an overlap onto the cold side of the joint.

The Contractor shall not allow any butt joint to be incomplete at the end of a work shift unless otherwise allowed by the Engineer. When using this method, the Contractor is not allowed to leave a vertical edge exposed at the end of a work shift and must complete paving of the roadway full width “curb to curb.”



**Method III - Butt Joint with Hot Poured Rubberized Asphalt Treatment:**

If Method I cannot be used due to physical constraints in certain limited locations, the Contractor may submit a request in writing for approval by the Engineer to use Method III as a substitution in those locations. There shall be no additional measurement or payment made when Method III is substituted for Method I. When required by the Contract or approved by the Engineer, Method III (see Figure 4.06-3) shall be used.



All of the requirements of Method II must be met with Method III. In addition, the longitudinal vertical edge must be treated with a rubberized joint seal material meeting the requirements of ASTM D6690, Type 2. The joint sealant shall be placed on the face of the “cold side” of the butt joint as shown above prior to placing the “hot side” of the butt joint. The joint seal material shall be applied in accordance with the manufacturer’s recommendation so as to provide a uniform coverage and avoid excess bleeding onto the newly placed pavement.

**8. Contractor Quality Control (QC) Requirements:** The Contractor shall be responsible for maintaining adequate quality control procedures throughout the production and placement operations. Therefore, the Contractor must ensure that the materials, mixture, and work provided by Subcontractors, Suppliers, and Producers also meet Contract specification requirements.

This effort must be documented in Quality Control Plans (QCP) and must address the actions, inspection, or sampling and testing necessary to keep the production and placement operations in control, to determine when an operation has gone out of control and to respond to correct the situation in a timely fashion.

The Standard QCP for production shall consist of the quality control program specific to the production facility.

There are 3 components to the QCP for placement: a Standard QCP, a Project Summary Sheet that details Project-specific information, and, if applicable, a separate Extended Season Paving Plan as required in 4.06.03-9 “Temperature and Seasonal Requirements.”

The Standard QCP for both production and placement shall be submitted to the Department for approval each calendar year and at a minimum of 30 days prior to production or placement.

Production or placement shall not occur until all QCP components have been approved by the Engineer.

Each QCP shall include the name and qualifications of a Quality Control Manager (QCM). The QCM shall be responsible for the administration of the QCP, and any modifications that may become necessary.

The QCM shall have the ability to direct all Contractor personnel on the Project during paving operations.

The QCPs shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QC Technician performing in-place density testing shall be NETTCP certified as a paving inspector.

Approval of the QCP does not relieve the Contractor of its responsibility to comply with the Project specifications. The Contractor may modify the QCPs as work progresses and must document the changes in writing prior to resuming operations. These changes include but are not limited to changes in quality control procedures or personnel. The Department reserves the right to deny significant changes to the QCPs.

QCP for Production: Refer to M.04.03-1.

QCP for Placement: The Standard QCP, Project Summary Sheet, and Extended Season Paving Plan shall conform to the format provided by the Engineer. The format is available at [http://www.ct.gov/dot/lib/dot/documents/dconstruction/pat/qcp\\_outline\\_hma\\_placement.pdf](http://www.ct.gov/dot/lib/dot/documents/dconstruction/pat/qcp_outline_hma_placement.pdf)

The Contractor shall perform all quality control sampling and testing, provide inspection, and exercise management control to ensure that bituminous concrete placement conforms to the requirements as outlined in its QCP during all phases of the work. The Contractor shall document these activities for each day of placement.

The Contractor shall submit complete field density testing and inspection records to the Engineer within 48 hours in a manner acceptable to the Engineer.

The Contractor may obtain 1 mat core and 1 joint core per day for process control, provided this process is detailed in the QCP. The results of these process control cores shall not be used to

dispute the Department's determinations from the acceptance cores. The Contractor shall submit the location of each process control core to the Engineer for approval prior to taking the core. The core holes shall be filled to the same requirements described in Subarticle 4.06.03-10.

**9. Temperature and Seasonal Requirements:** Paving, including placement of temporary pavements, shall be divided into 2 seasons, "In-Season" and "Extended-Season." In-Season paving occurs from May 1 to October 14, and Extended Season paving occurs from October 15 to April 30. The following requirements shall apply unless otherwise authorized or directed by the Engineer:

- Mixtures shall not be placed when the air or subbase temperature is less than 40°F regardless of the season.
- Should paving operations be scheduled during the Extended Season, the Contractor must submit an Extended Season Paving Plan for the Project that addresses minimum delivered mix temperature considering WMA, PMA, or other additives; maximum paver speed; enhanced rolling patterns; and the method to balance mixture delivery and placement operations. Paving during Extended Season shall not commence until the Engineer has approved the plan.

**10. Field Density** The Contractor shall obtain cores for the determination of mat and longitudinal joint density of bituminous concrete pavements. Within five calendar days of placement, mat and joint cores shall be extracted on each lift with a specified thickness of 1 1/2 inches or more. Joint cores shall not be extracted on HMA S1.0 lifts.

The Contractor shall extract cores from random locations determined by the Engineer in accordance with ASTM D3665. Four (4) or six (6) inch diameter cores shall be extracted for S0.25, S0.375 and S0.5 mixtures; 6 inch diameter cores shall be required for S1.0 mixtures. The Contractor shall coordinate with the Engineer to witness the extraction, labeling of cores, and filling of the core holes.

Each lift will be separated into lots as follows:

- a. Simple Average Density Lots: For total estimated quantities below 2,000 tons, the lift will be evaluated in one lot which will include the total paved tonnage of the lift and all longitudinal joints between the curb lines.  
For total estimated quantities between 2,000 and 3,500 tons, the lift will be evaluated in two lots in which each lot will include approximately half of the total tonnage placed for the full paving width of a lift including all longitudinal joints between the curb lines.
- b. PWL Density Lots: Mat density lots will include each 3,500 tons of mixture placed within 30 calendar days. Joint density lots will include 14,000 linear feet of constructed joints. Bridge density lots will always be analyzed using simple average lot methodology.
- c. Partial Density Lot (For PWL only): A mat density lot with less than 3,500 tons or a joint density lot with less than 14,000 linear feet due to:
  - completion of the course; or
  - a lot spanning 30 calendar days.

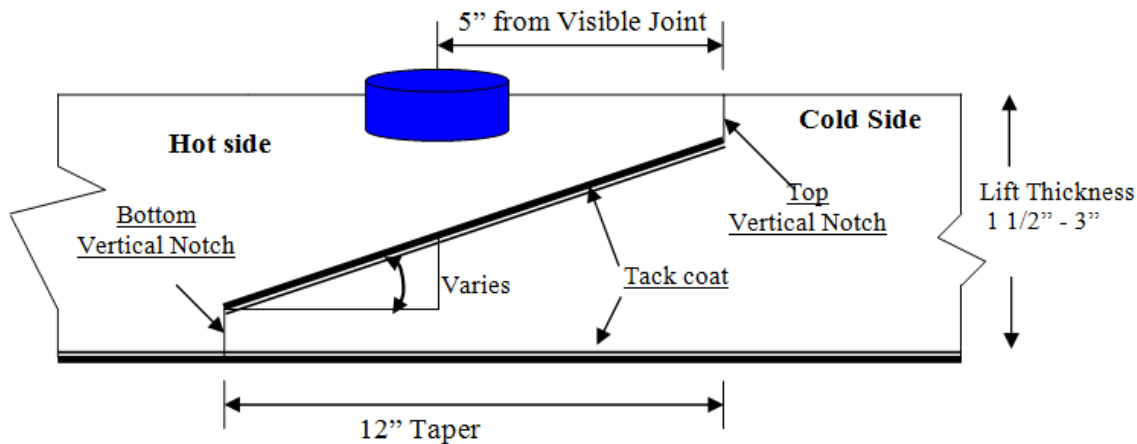
Prior to paving, the type and number of lot(s) will be determined by the Engineer. Noncontiguous areas such as highway ramps may be combined to create one lot.

After the lift has been compacted and cooled, the Contractor shall cut cores to a depth equal to or greater than the lift thickness and shall remove them without damaging the lift(s) to be tested. Any core that is damaged or obviously defective while being obtained will be replaced with a new core from a location within 2 feet measured in a longitudinal direction.

A mat core shall not be located any closer than 1 foot from the edge of a paver pass. If a random number locates a core less than 1 foot from any edge, the location will be adjusted by the Engineer so that the outer edge of the core is 1 foot from the edge of the paver pass.

Method I, Notched Wedge Joint cores shall be taken so that the center of the core is 5 inches from the visible joint on the hot mat side (Figure 4.06-4).

**Figure 4.06-4: Notched Wedge Joint Cores (Not to Scale)**

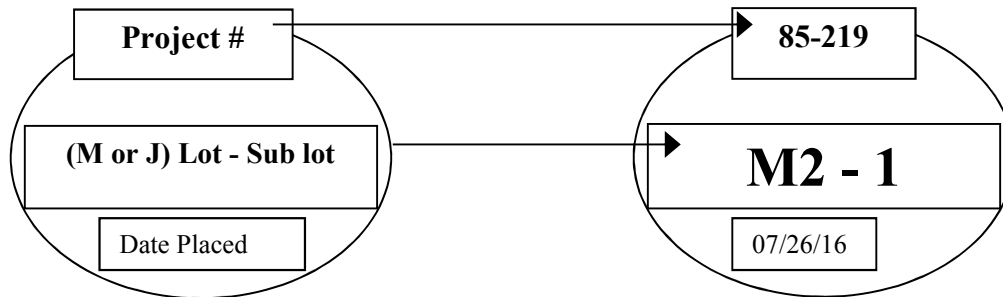


When Method II or Method III Butt Joint is used, cores shall be taken from the hot side so the edge of the core is within 1 inch of the longitudinal joint.

The cores shall be labeled by the Contractor with the Project number, date placed, lot number, and sub-lot number. The core's label shall include "M" for a mat core and "J" for a joint core. For example, a mat core from the first lot and the first sub-lot shall be labeled with "M1 - 1." A mat core from the second lot and first sub-lot shall be labeled "M2-1" (see Figure 4.06-5). The Engineer shall fill out a MAT-109 to accompany the cores. The Contractor shall deliver the cores and MAT-109 to the Department's Central Lab. The Contractor shall use a container approved by the Engineer. The container shall have a lid capable of being locked shut and tamper proof. The Contractor shall use foam, bubble wrap, or another suitable material to prevent the cores from being damaged during handling and transportation. Once the cores and MAT-109 are in the container the Engineer will secure the lid using security seals at the removable hinges(s) and at the lid opening(s). The security seals' identification number must be documented on the MAT-109. All sealed containers shall be delivered to the Department's

Central Lab within two working days from time of extraction. Central Lab personnel will break the security seal and take possession of the cores.

**Figure 4.06-5: Labeling of Cores**



Each core hole shall be filled within 4 hours upon core extraction. Prior to being filled, the hole shall be prepared by removing any free water and applying tack coat using a brush or other means to uniformly cover the cut surface. The core hole shall be filled using a bituminous concrete mixture at a minimum temperature of 240°F containing the same or smaller nominal maximum aggregate size and compacted with a hand compactor or other mechanical means to the maximum compaction possible. The bituminous concrete shall be compacted to 1/8 inch above the finished pavement.

**Simple Average Density Lots:**

A standard simple average density lot is the quantity of material placed within the defined area excluding any bridge decks.

A combo simple average density lot is the quantity of material placed within the defined area including bridge decks less than or equal to 500 feet long.

A bridge simple average density lot is the quantity of material placed on a bridge deck longer than 500 feet.

The number of cores per lot shall be determined in accordance with Table 4.06-4. If a randomly selected mat or joint core location is on a bridge deck, the core is to be obtained on the bridge deck in addition to the core(s) required on the bridge deck.

The number of cores per lot shall be determined in accordance with Table 4.06-5. Multiple bridge decks can be combined into one lot if the paving and underlying conditions are comparable. If multiple bridge decks are combined into a single bridge lot, at least one mat and joint core shall be obtained on each bridge.

The longitudinal locations of mat cores within a standard, combo, or bridge lot containing multiple paving passes will be determined using the combined length of the paving passes within the lot.

**TABLE 4.06-4: Number of Cores per Lot (Simple Average)**

Lot Type	No. of Mat Cores		No. of Joint Cores	
Standard Lot < 500 Tons	3		3	
Standard Lot ≥ 500 Tons	4		4	
Combo Lot < 500 Tons	2 plus	1 per bridge (≤ 300')	2 plus	1 per bridge (≤ 300)
Combo Lot ≥ 500 Tons <sup>(1)</sup>	4 plus	2 per bridge (301' – 500')	4 plus	2 per bridge (301' – 500')

**TABLE 4.06-5: Number of Core per Bridge Density Lot (Simple Average)**

Length of Bridge(s) (Feet)	Minimum No. of Mat Cores	Minimum No. of Joint Cores
< 500	2	2
501 – 1,500	3	3
1,501 – 2,500	4	4
2,501 and greater	5	5

**PWL Density Lots:**

A PWL mat density lot is 3,500 tons of material placed within the defined area excluding any bridges. One mat core will be obtained per every 500 tons placed.

A PWL joint density lot is 14,000 linear feet of longitudinal joint excluding any joints on bridge decks. One joint core will be obtained per every 2,000 linear feet of joint.

Bridge density lots will always be analyzed as using the simple average lot methodology. The number of cores per lot shall be determined in accordance with Table 4.06-5. Multiple bridge decks can be combined into one lot if the paving and underlying conditions are comparable. If multiple bridge decks are combined into a single bridge lot, at least one mat and joint core shall be obtained on each bridge.

**11. Acceptance Sampling and Testing:** Sampling shall be performed in accordance with ASTM D3665 or a statistically-based procedure of stratified random sampling approved by the Engineer.

**Plant Material Acceptance:** The Contractor shall provide the required sampling and testing during all phases of the work in accordance with M.04. The Department will verify the Contractor's acceptance test results. Should any test results exceed the specified tolerances in the Department's current QA Program for Materials, the Contractor's test results for a subject lot or sub lot may be replaced with the Department's results for the purpose of calculating adjustments. The verification procedure is included in the Department's current QA Program for Materials.

**Density Acceptance:** The Engineer will perform all acceptance testing in accordance with



AASHTO T 331. The density of each core will be determined using the daily production's average maximum theoretical specific gravity (Gmm) established during the testing of the parent material at the Plant. When there was no testing of the parent material or any Gmm exceeds the specified tolerances in the Department's current QA Program for Materials, the Engineer will determine the maximum theoretical density value to be used for density calculations.

**12. Density Dispute Resolution Process:** The Contractor and Engineer will work in partnership to avoid potential conflicts and to resolve any differences that may arise during quality control or acceptance testing for density. Both parties will review their sampling and testing procedures and results and share their findings. If the Contractor disputes the Engineer's test results, the Contractor must submit in writing a request to initiate the Dispute Resolution Process within five calendar days of the notification of the test results. No request for dispute resolution will be allowed unless the Contractor provides quality control results from samples taken prior to and after finish rolling, and within the timeframe described in 4.06.03-8 supporting its position. No request for dispute resolution will be allowed for a density lot in which any core was not taken within the required 5 calendar days of placement. Should the dispute not be resolved through evaluation of existing testing data or procedures, the Engineer may authorize the Contractor to obtain a new core or set of core samples per disputed lot. The core samples must be extracted no later than seven calendar days from the date of the Engineer's authorization. All such core samples shall be extracted and the core hole filled using the procedure outlined in 4.06.03-10.

a) Simple Average Lots: The Contractor may only dispute any simple average lot that is adjusted at or below 95 percent payment. The number and location (mat, joint, or structure) of the cores taken for dispute resolution must reflect the number and location of the original cores. The location of each core shall be randomly located within the respective original sub lot. The dispute resolution results shall be combined with the original results and averaged for determining the final in-place density value.

b) PWL Lots: The Contractor may dispute any PWL subplot when the PWL falls below 50% calculated in accordance with section 4.06.04.2.b. An additional random core in the subplot may be taken to validate the accuracy of the core in question. The Department will verify the additional core test result and may average the original test result with the additional core result for purpose of calculating adjustments.

### **13. Corrective Work Procedure:**

If pavement placed by the Contractor does not meet the specifications, and the Engineer requires its replacement or correction, the Contractor shall:

- a) Propose a corrective procedure to the Engineer for review and approval prior to any corrective work commencing. The proposal shall include:
  - Limits of pavement to be replaced or corrected, indicating stationing or other landmarks that are readily distinguishable.

- Proposed work schedule.
  - Construction method and sequence of operations.
  - Methods of maintenance and protection of traffic.
  - Material sources.
  - Names and telephone numbers of supervising personnel.
- b) Any corrective courses placed as the final wearing surface shall match the specified lift thickness after completion.

**14. Protection of the Work:** The Contractor shall protect all sections of the newly finished pavement from damage that may occur as a result of the Contractor’s operations for the duration of the Project.

**15. Cut Bituminous Concrete Pavement:** Work under this item shall consist of making a straight-line cut in the bituminous concrete pavement to the lines delineated on the plans or as directed by the Engineer. The cut shall provide a straight, clean, vertical face with no cracking, tearing or breakage along the cut edge.

**4.06.04—Method of Measurement:**

- 1. HMA S\* or PMA S\*:** Bituminous concrete will be measured for payment as the amount of material in tons placed as determined by the net weight on the delivered tickets and adjusted by area, thickness and weight as follows:

Quantity Adjustments: Adjustments may be applied to the placed bituminous concrete quantities that will be measured for payment using the following formulas:

**Yield Factor** for Adjustment Calculation = 0.0575 tons/SY/inch

**Actual Area (SY)** = [(Measured Length (ft)) x (Avg. of width measurements (ft))] $\div$ 9 s.f./SY

**Actual Thickness (t)** = Total tons delivered / [Actual Area (SY) x 0.0575 tons/SY/inch]

- a) Area: If the average width exceeds the allowable tolerance, an adjustment will be made using the following formula. The tolerance for width is equal to the specified thickness (inch) of the lift being placed.

**Quantity Adjusted for Area (T<sub>A</sub>)** = [(L x W<sub>adj</sub>)/9] x (t) x 0.0575 Tons/SY/inch = (-) tons

Where: L = Length (ft)

(t) = Actual thickness (inches)

W<sub>adj</sub> = (Designed width (ft) + tolerance /12) - Measured Width)

- b) Thickness: If the actual average thickness is less than the allowable tolerance, the Contractor shall submit a repair procedure to the Engineer for approval. If the actual thickness exceeds the allowable tolerance, an adjustment will be made using the following

formula:

**Quantity Adjusted for Thickness (T<sub>T</sub>) = A x t<sub>adj</sub> x 0.0575 = (-) tons**

Where: A = Area = {[L x (Design width + tolerance (lift thickness)/12)] / 9}

t<sub>adj</sub> = Adjusted thickness = [(Dt + tolerance) - Actual thickness]

Dt = Designed thickness (inches)

- c) Weight: If the quantity of bituminous concrete representing the mixture delivered to the Project is in excess of the allowable gross vehicle weight (GVW) for each vehicle, an adjustment will be made using the following formula:

**Quantity Adjusted for Weight (T<sub>w</sub>) = GVW – DGW = (-) tons**

Where: DGW = Delivered gross weight as shown on the delivery ticket or measured on a certified scale

**2. Bituminous Concrete Adjustment Cost:**

- a) Production Lot Adjustment: An adjustment may be applied to each production lot as follows:

- i. Non-PWL Production Lot (less than 3,500 tons):

The adjustment values in Tables 4.06-6 and 4.06-7 will be calculated for each sub lot based on the Air Void (AV) and Asphalt Binder Content (PB) test results for that sub lot.

The total adjustment for each day’s production (lot) will be computed as follows:

**Tons Adjusted for Superpave Design (T<sub>SD</sub>) = [(AdjAV<sub>t</sub> + AdjPB<sub>t</sub>) / 100] x Tons**

Where: AdjAV<sub>t</sub>: Percent adjustment for air voids

AdjPB<sub>t</sub>: Percent adjustment for asphalt binder

Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

Percent Adjustment for Air Voids = AdjAV<sub>t</sub> = [AdjAV<sub>1</sub> + AdjAV<sub>2</sub> + AdjAV<sub>i</sub> + ... + AdjAV<sub>n</sub>)] /n

Where: AdjAV<sub>t</sub> = Total percent air void adjustment value for the lot

AdjAV<sub>i</sub> = Adjustment value from Table 4.06-6 resulting from each sub lot or the average of the adjustment values resulting from multiple tests within a sub lot, as approved by the Engineer.

n = number of sub lots based on Table M.04.03-2

**TABLE 4.06-6: Adjustment Values for Air Voids**

Adjustment Value (AdjAV <sub>i</sub> ) (%)	S0.25, S0.375, S0.5, S1 Air Voids (AV)
+2.5	3.8 - 4.2
+3.125*(AV-3)	3.0 - 3.7
-3.125*(AV-5)	4.3 - 5.0
20*(AV-3)	2.3 - 2.9
-20*(AV-5)	5.1 - 5.7
-20.0	≤ 2.2 or ≥ 5.8

Percent Adjustment for Asphalt Binder =  $AdjPB_t = [(AdjPB_1 + AdjPB_2 + AdjPB_i + \dots + AdjPB_n)] / n$

Where:  $AdjPB_t$  = Total percent liquid binder adjustment value for the lot

$AdjPB_i$  = Adjustment value from Table 4.06-7 resulting from each sub lot

n = number of binder tests in a production lot

**TABLE 4.06-7: Adjustment Values for Binder Content**

Adjustment Value (AdjAV <sub>i</sub> ) (%)	<u>S0.25, S0.375, S0.5, S1</u> Pb
0.0	JMF Pb ± 0.3
- 10.0	≤ JMF Pb - 0.4 or ≥ JMF Pb + 0.4

ii. PWL Production Lot (3500 tons or more):

For each lot, the adjustment values will be calculated using PWL methodology based on AV, VMA, and PB test results. The results will be considered as being normally distributed and all applicable equations in AASHTO R 9 and AASHTO R 42 Appendix X4 will apply.

Only one test result will be considered for each sub lot. The specification limits are listed in M.04.

For AV, PB, and voids in mineral aggregate (VMA), the individual material quantity characteristic adjustment (Adj) will be calculated as follows:

For PWL between 50 and 90%:  $Adj(AV_t \text{ or } PB_t \text{ or } VMA_t) = (55 + 0.5 \text{ PWL}) - 100$

For PWL at and above 90%:  $Adj(AV_t \text{ or } PB_t \text{ or } VMA_t) = (77.5 + 0.25 \text{ PWL}) - 100$

Where:  $AdjAV_t$  = Total percent AV adjustment value for the lot

$AdjPB_t$  = Total percent PB adjustment value for the lot

$AdjVMA_t$  = Total percent VMA adjustment value for the lot

A lot with PWL less than 50% in any of the 3 individual material quality characteristics will be evaluated under 1.06.04.

The total adjustment for each production lot will be computed using the following formula:

**Tons Adjusted for Superpave Design ( $T_{SD}$ )** =  $[(0.5AdjAV_t + 0.25AdjPB_t + 0.25 AdjVMA_t) / 100] \times \text{Tons}$

- Where Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1
- iii. Partial Lots:
  - Lots with less than 4 sub lots will be combined with the prior lot. If there is no prior lot with equivalent material or if the last test result of the prior lot is over 30 calendar days old, the adjustment will be calculated as indicated in 4.06.04-2.a)i.
  - Lots with 4 or more sub lots will be calculated as indicated in 4.06.04-2.a)ii.

**Production Lot Adjustment:  $T_{SD} \times \text{Unit Price} = \text{Est. (Pi)}$**

Where: Unit Price = Contract unit price per ton per type of mixture  
 Est. ( Pi)= Pay Unit in dollars representing incentive or disincentive per lot

- b) Density Lot Adjustment: An adjustment may be applied to each density lot as follows:
  - i. Simple Average Density Lot (less than 3500 tons) and Bridge Lots:
    - The final lot quantity shall be the difference between the total payable tons for the Project and the sum of the previous lots. If either the Mat or Joint adjustment value is “remove and replace,” the density lot shall be removed and replaced (curb to curb).
    - No positive adjustment will be applied to a density lot in which any core was not taken within the required 5 calendar days of placement.

**Tons Adjusted for Density ( $T_D$ ) =  $[\{(PA_M \times 0.50) + (PA_J \times 0.50)\} / 100] \times \text{Tons}$**

Where:  $T_D$  = Total tons adjusted for density for each lot  
 $PA_M$  = Mat density percent adjustment from Table 4.06-8  
 $PA_J$  = Joint density percent adjustment from Table 4.06-9  
 Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

**TABLE 4.06-8: Adjustment Values for Pavement Mat density**

Average Core Result Percent Mat Density	Percent Adjustment (Bridge and Non-Bridge) <sup>(1)(2)</sup>
97.1 - 100	-1.667*(ACRPD-98.5)
94.5 – 97.0	+2.5
93.5 – 94.4	+2.5*(ACRPD-93.5)
92.0 – 93.4	0
90.0 – 91.9	-5*(92-ACRPD)
88.0 – 89.9	-10*(91-ACRPD)
87.0 – 87.9	-30
86.9 or less	Remove and Replace (curb to curb)

**Notes:**  
<sup>(1)</sup> ACRPD = Average Core Result Percent Density  
<sup>(2)</sup> All Percent Adjustments to be rounded to the second decimal place; for example round 1.667 to 1.67.

**TABLE 4.06-9: Adjustment Values for Pavement Joint Density**

Average Core Result	Percent Adjustment (Bridge and Non-Bridge) <sup>(1)(2)</sup>
Percent Joint Density	
97.1 – 100	-1.667*(ACRPD-98.5)
93.5 – 97.0	+2.5
92.0 – 93.4	+1.667*(ACRPD-92)
91.0 – 91.9	0
89.0 – 90.9	-7.5*(91-ACRPD)
88.0 – 88.9	-15*(90-ACRPD)
87.0 – 87.9	-30
86.9 or less	Remove and Replace (curb to curb)

**Notes:**

<sup>(1)</sup> ACRPD = Average Core Result Percent Density

<sup>(2)</sup> All Percent Adjustments to be rounded to the second decimal place; for example round 1.667 to 1.67

Additionally, any subplot with a density result below 87% will be evaluated under 1.06.04.

ii. PWL Density Lot (3,500 tons or more):

For each lot, the adjustment values will be calculated using PWL methodology based on mat and joint density test results. Only one result will be included for each subplot. The results will be considered as being normally distributed and all applicable equations in AASHTO R 9 and AASHTO R 42 Appendix X4 will apply.

The specification limits for the PWL determination are as follows:

Mat Density: 91.5-98%

Joint Density: 90-98%

For mat and joint density, the individual percent adjustment (PA) will be calculated as follows:

For PWL between 50 and 90%:  $PA_{(M \text{ or } J)} = 0.25 * PWL - 22.50$

For PWL at and above 90%:  $PA_{(M \text{ or } J)} = 0.125 * PWL - 11.25$

Where:  $PA_M$  = Total percent mat density adjustment value for the PWL mat density lot

$PA_J$  = Total percent joint density adjustment value for the PWL joint density lot

No positive adjustment will be applied to a density lot in which any core was not taken within the required 5 calendar days of placement.

A lot with PWL less than 50% will be evaluated under 1.06.04.

The total adjustment for each PWL mat density lot will be computed as follows:

**Tons Adjusted for Mat Density ( $T_{MD}$ ) =  $(PA_M / 100) \times \text{Tons}$**

Where: Tons= Weight of material (tons) in the lot adjusted by 4.06.4-1.

The total adjustment for each PWL joint density lot will be computed as follows:

**Tons Adjusted for Joint Density ( $T_{JD}$ ) =  $(PA_J / 100) \times J\_Tons$**

Tons Adjusted for Joint Density will be calculated at the end of each project or project phase.

Where:  $J\_Tons = Tons \text{ in project or phase adjusted by } 4.06.4 - 1 \times \frac{\text{Lot joint length}}{\text{Joint length in project or phase}}$

All bridge density lot adjustments will be evaluated in accordance with 4.06.04-2.b)i.

Additionally, any subplot with a density result below 87% will be evaluated under 1.06.04.

iii. Partial Lots:

Lots with less than 4 sub lots will be combined with the prior lot. If there is no prior lot with equivalent material and placement conditions or if the last test result of the prior lot is over 30 calendar days old, the mat and joint individual adjustments will be calculated in accordance to Tables 4.06-8 and 4.06-9.  $T_{MD}$  and  $T_{JD}$  will be calculated as indicated in 4.06.04-2.b)i.

Lots with 4 or more sub lots will be calculated as indicated in 4.06.04-2.b)ii.

**Density Lot Adjustment (Simple Average Lots):  $T_D \times \text{Unit Price} = \text{Est. (Di)}$**

**Density Lot Adjustment (PWL Lots):  $(T_{MD} \text{ or } T_{JD}) \times \text{Unit Price} = \text{Est. (DMi or DJi)}$**

Where: Unit Price = Contract unit price per ton per type of mixture

Est. (Di)= Pay Unit in dollars representing incentive or disincentive per simple average density lot

Est. (DMi)= Pay Unit in dollars representing incentive or disincentive per PWL mat lot

Est. (DJi)= Pay Unit in dollars representing incentive or disincentive per PWL joint lot

Additionally, any subplot with a density result below 87% will be evaluated under 1.06.04.

**3. Transitions for Roadway Surface:** The installation of permanent transitions will be measured under the appropriate item used in the formation of the transition.

The quantity of material used for the installation of temporary transitions will be measured for payment under the appropriate item used in the formation of the transition. The installation and removal of a bond breaker and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is not measured for payment.

**4. Cut Bituminous Concrete Pavement:** The quantity of bituminous concrete pavement cut will be measured in accordance with 2.02.04.

**5. Material for Tack Coat:** The quantity of tack coat will be measured for payment by the number of gallons furnished and applied on the Project and approved by the Engineer. No tack coat material shall be included that is placed in excess of the tolerance described in 4.06.03.

a. Container Method – Material furnished in a container will be measured to the nearest 1/2

gallon. The volume will be determined by either measuring the volume in the original container by a method approved by the Engineer or using a separate graduated container capable of measuring the volume to the nearest 1/2 gallon. The container in which the material is furnished must include the description of material, including lot number or batch number and manufacturer or product source.

b. Vehicle Method

- i. Measured by Weight: The number of gallons furnished will be determined by weighing the material on calibrated scales furnished by the Contractor. To convert weight to gallons, one of the following formulas will be used:  

$$\text{Tack Coat (gallons at } 60^{\circ}\text{F)} = \text{Measured Weight (pounds)} / \text{Weight per gallon at } 60^{\circ}\text{F}$$

$$\text{Tack Coat (gallons at } 60^{\circ}\text{F)} = 0.996 \times \text{Measured Weight (pounds)} / \text{Weight per gallon at } 77^{\circ}\text{F}$$
- ii. Measured by automated metering system on the delivery vehicle:  

$$\text{Tack Coat (gallons at } 60^{\circ}\text{F)} = 0.976 \times \text{Measured Volume (gallons)}.$$

**6. Material Transfer Vehicle (MTV):** The furnishing and use of a MTV will be measured separately for payment based on the actual number of surface course tons delivered to a paver using the MTV.

**4.06.05—Basis of Payment:**

**1. HMA S\* or PMA S\*:** The furnishing and placing of bituminous concrete will be paid for at the Contract unit price per ton for " HMA S\*" or " PMA S\*."

All costs associated with providing illumination of the work area are included in the general cost of the work.

All costs associated with cleaning the surface to be paved, including mechanical sweeping, are included in the general cost of the work. All costs associated with constructing longitudinal joints are included in the general cost of the work.

All costs associated with obtaining cores for acceptance testing and dispute resolution are included in the general cost of the work.

**2. Bituminous Concrete Adjustment Costs:** This adjustment will be calculated using the formulas shown below if all of the measured adjustments in 4.06.04-2 are not equal to zero. A positive or negative adjustment will be applied to monies due the Contractor.

- Production Lot:  $\Sigma \text{ Est (Pi)} = \text{Est. (P)}$**
- Density Lot (Simple Average Lots):  $\Sigma \text{ Est (Di)} = \text{Est. (D)}$**
- Density Lot (PWL):  $\Sigma \text{ Est (DMi)} + \Sigma \text{ (D)Ji} = \text{Est. (D)}$**
- Bituminous Concrete Adjustment Cost= Est. (P) + Est. (D)**

Where: Est. ( )= Pay Unit in dollars representing incentive or disincentive in each production or density lot calculated in 4.06.04-2



The Bituminous Concrete Adjustment Cost item, if included in the bid proposal or estimate, is not to be altered in any manner by the Bidder. If the Bidder should alter the amount shown, the altered figure will be disregarded and the original estimated cost will be used for the Contract.

3. **Transitions for Roadway Surface:** The installation of permanent transitions will be paid under the appropriate item used in the formation of the transition. The quantity of material used for the installation of temporary transitions will be paid under the appropriate pay item used in the formation of the transition. The installation and removal of a bond breaker, and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement is included in the general cost of the work.
4. The cutting of bituminous concrete pavement will be paid in accordance with 2.02.05.
5. Material for tack coat will be paid for at the Contract unit price per gallon at 60°F for "Material for Tack Coat."
6. The Material Transfer Vehicle (MTV) will be paid at the Contract unit price per ton for "Material Transfer Vehicle."

Pay Item	Pay Unit
HMA S*	ton
PMA S*	ton
Bituminous Concrete Adjustment Cost	est.
Material for Tack Coat	gal.
Material Transfer Vehicle	ton

## **SECTION 5.86 - CATCH BASINS, MANHOLES AND DROP INLETS**

### **5.86.01—Description**

### **5.86.02—Materials**

### **5.86.03—Construction Methods**

### **5.86.04—Method of Measurement**

### **5.86.05—Basis of Payment**

**5.86.01—Description:** The work under this Section shall consist of furnishing, preparing, and installing catch basins, manholes and drop inlets (and also the removal, abandonment, alteration, reconstruction, or conversion of such existing structures) in conformity with the lines, grades, dimensions and details shown on the plans.

This Section shall also include resetting or replacing catch basin tops as well as manhole frames and covers.

**5.86.02—Materials:** The materials for this work shall meet the following requirements:

Drainage structures shall meet the requirements of M.08.02 and shall utilize concrete with a 28-day minimum compressive strength of 4000 psi.

Galvanizing shall meet the requirements of M.06.03.

Mortar shall meet the requirements of M.11.04.

Butyl rubber joint seal shall meet the requirements of ASTM C990.

Granular fill, if necessary, shall meet the requirements of M.02.01.

Protective compound material shall be a type appearing on the Department's Qualified Products List and be acceptable to the Engineer, as specified in M.03.09.

**5.86.03—Construction Methods:** Drainage trench excavation, including rock in drainage trench excavation and backfilling, shall be performed in accordance with 2.86.03 and the requirements of the plans.

Where a drainage structure is to be installed below the surface, a drainage trench shall be excavated to the required depth, the bottom of which shall be graded to the elevation of the bottom of the proposed drainage structure or to ensure a uniform foundation for the structure.

Where a firm foundation is not encountered at the grades established due to unsuitable material, such as soft, spongy, or unstable soil, the unsuitable material shall be removed and replaced with

approved granular fill, thoroughly compacted in lifts not to exceed 6 inches. The Engineer shall be notified prior to removal of the unsuitable material in order to determine the depth of removal necessary.

When rock, as defined in 2.86.01-2, is encountered, work shall be performed in accordance with 2.86.03 and the requirements of the plans.

When a drainage structure outside of proposed drainage trench limits is to be removed, it shall be completely removed and all pipes shall be removed or plugged with cement masonry.

When a drainage structure is to be abandoned, the structure shall be removed to a depth 2 feet below the subgrade or as directed by the Engineer. The floor of the structure shall be broken and all pipes shall be plugged with cement masonry.

Drainage structures shall be constructed in accordance with the plans and the requirements contained herein for the character of the work involved. The provisions of 6.02.03 pertaining to bar reinforcement shall apply except that shop drawings need not be submitted for approval unless called for in the plans, Contract or directed by the Engineer. Welding shall be performed in accordance with the applicable sections of the AWS Structural Welding Code, D1.1.

When it becomes necessary to increase the horizontal dimensions of manholes, catch basins and drop inlets to sizes greater than those shown on the plans in order to provide for multiple pipe installations, large pipes or for other reasons, the Contractor shall construct such manholes, catch basins and drop inlets to modified dimensions as directed by the Engineer.

The surfaces of the tops of all catch basins, and drop inlets shall be given a coat of protective compound material, at the manufacturer's recommended application rate, immediately upon completion of the concrete curing period.

All masonry units shall be laid in full mortar beds.

Metal fittings for catch basins, manholes or drop inlets shall be set in full mortar beds or otherwise secured as shown on the plans.

All inlet and outlet pipes shall be set flush with the inside face of the wall of the drainage structure as shown on the plans. The pipes shall extend through the walls for a sufficient distance beyond the outside surface to allow for satisfactory connections, and the concrete or masonry shall be constructed around them neatly to prevent leakage along their outer surfaces.

When constructing a new drainage structure within a run of existing pipe, the section of existing pipe disturbed by the construction shall be replaced with new pipe of identical type and size extending from the drainage structure to the nearest joint of the existing pipe in accordance with 6.86.03 or as directed by the Engineer.

Backfilling shall be performed in accordance with 2.86.03.

Frames, covers and tops which are to be reset shall be removed from their present beds, the walls or sides shall be rebuilt to conform to the requirements of the new construction and the frames, covers and tops shall be reset as shown on the plans or as directed by the Engineer.

**5.86.04—Method of Measurement:**

**Drainage Trench Excavation:** In accordance with 2.86.04, excavation for drainage trench will not be measured for payment but shall be included in the Contract unit price for the type of structure being installed.

**Rock in Drainage Trench Excavation:** Rock in Drainage Trench Excavation will be measured in accordance with the drainage trench excavation limits described in 2.86.03.

**Manholes, Catch Basins and Drop Inlets** will be measured as separate units.

**Resetting of Manholes, Catch Basins and Drop Inlets** will be measured as separate units.

**Replacement of frames, covers, and tops** will be measured as a unit for catch basin top or manhole frame and cover.

**Conversion of drainage structures** as specified on the plans, or as directed by the Engineer, including structure reconstruction will be measured for payment as a unit.

**Removal or abandonment of drainage structures** outside of drainage trench excavation limits, as defined in 2.86.03, will be measured as separate units.

There will be no measurement or direct payment for the application of the protective compound material, the cost of this work shall be considered as included in the general cost of the work.

Measurement for payment for work and materials involved with installing pipes to connect new drainage structures into a run of existing pipe will be as provided for under the applicable Contract items in accordance with 6.86.04.

There will be no measurement or direct payment for plugging existing pipes with cement masonry, the cost of this work will be considered as included in the general cost of the work.

**5.86.05—Basis of Payment:**

**Drainage Trench Excavation** for the installation of proposed structures described herein will be paid for under the respective drainage Contract item(s) for which the excavation is being performed, in accordance with the provisions of 2.86.05.

**Rock in Drainage Trench Excavation** will be paid for in accordance with the provisions of 2.86.05.

**Manholes and Catch Basins** will be paid for at the Contract unit price for each "Manhole," or "Catch Basin," of the type specified, at "0' to 10' Deep" or "0' to 20' Deep," complete in place, which price shall include all excavation, backfill, materials, equipment, tools and labor incidental thereto.

**Drop Inlets** will be paid for at the Contract unit price for each "Drop Inlet," of the type specified, complete in place, which price shall include all excavation, backfill, materials, equipment, tools and labor incidental thereto.

**Manholes, Catch Basins and Drop Inlets** constructed to modified dimensions as directed by the Engineer, will be paid for as follows:

Where the interior floor area has to be increased to accommodate existing field conditions, as measured horizontally at the top of the base of the completed structure, and does not exceed 125% of the interior floor area as shown on the plans for that structure, then the structure shall be paid for at the Contract unit price for each "Manhole," "Catch Basin," or "Drop Inlet" of the type specified. Where the floor area is greater than 125%, the increase in the unit price for the individual structure shall be in direct proportion to the increase of the completed structure interior floor area as compared to the interior floor area as shown on the plans for that structure. Such increased unit price shall include all excavation, materials, equipment, tools, and labor incidental to the completion of the structure.

**Reset Units** will be paid for at the Contract unit price each for "Reset Manhole," "Reset Catch Basin," or "Reset Drop Inlet," of the type specified, respectively, complete in place, which price shall include excavation, cutting of pavement, removal and replacement of pavement structure, and all materials, equipment, tools and labor incidental thereto, except when the work requires reconstruction greater than 3 feet, measured vertically, then the entire cost of resetting the unit will be paid for as Extra Work in accordance with the provisions of 1.04.05.

**Frames, Covers, and Tops** when required in connection with reset units, will be paid for at the Contract unit price each for such "Manhole Frame and Cover" or "(Type) Catch Basin Top," complete in place, including all incidental expense; or when no price exists, the furnishing and placing of such material will be paid for as Extra Work in accordance with the provisions of 1.04.05.

When the catch basin top has a stone or granite curb in its design, the curb or inlet shall be included in the cost of the "(Type) Catch Basin Top."

**Conversion of drainage structures** will be paid for at the Contract unit price each for "Convert Catch Basin to (Type) Catch Basin," "Convert Catch Basin to (Type) Manhole," or "Convert Manhole to (Type) Catch Basin," complete in place, which price shall include excavation, cutting of pavement, removal and replacement of pavement, backfill, all alterations to existing structure, all materials including catch basin frame and grate of the type specified, or manhole frame and cover, all equipment, tools and labor incidental thereto.

The maximum change in elevation of frame under these items shall not exceed 3 feet. Greater depth changes, if required, shall be paid for as Extra Work, in accordance with 1.04.05.

**Removal or abandonment of drainage structures** outside of drainage trench excavation limits as defined in 2.86.03 will be paid for at the Contract unit price each for "Remove Drainage Structure – 0' to 10' Deep," "Remove Drainage Structure – 0' to 20' Deep," or "Abandon Drainage Structure," which price shall include excavation, cutting of pavement, removal and replacement of pavement, backfill, and all equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
(Type) Catch Basin – 0' to 10' Deep	ea.
(Type) Catch Basin – 0' to 20' Deep	ea.
Manhole (Size) – 0' to 10' Deep	ea.
Manhole (Size) – 0' to 20' Deep	ea.
(Type) Drop Inlet	ea.
Reset Catch Basin	ea.
Reset Manhole	ea.
Reset Drop Inlet	ea.
Convert Catch Basin to (Type) Catch Basin	ea.
Convert Catch Basin to (Type) Manhole	ea.
Convert Manhole to (Type) Catch Basin	ea.
Manhole Frame and Cover	ea.
(Type) Catch Basin Top	ea.
Remove Drainage Structure – 0' to 10' Deep	ea.
Remove Drainage Structure – 0' to 20' Deep	ea.
Abandon Drainage Structure	ea.

## **SECTION 6.01 - CONCRETE FOR STRUCTURES**

*Replace Section 6.01 in its entirety with the following:*

### **6.01.01—Description**

### **6.01.02—Materials**

### **6.01.03—Construction Methods**

### **6.01.04—Method of Measurement**

### **6.01.05—Basis of Payment**

**6.01.01—Description:** This item shall include concrete for use in new construction, surface repair or structural repair of bridges and culverts, walls, catch basins, drop inlets and other incidental construction. The concrete shall be composed of Portland cement, pozzolans, fine and coarse aggregate, admixtures and water, prepared and constructed in accordance with these specifications, at the locations and of the form dimensions and class shown on the plans, or as directed by the Engineer.

The use of concrete from dry batch or central mixed plants is permitted for all concrete mixtures.

**6.01.02—Materials:** The materials for this work shall meet the requirements of M.03. Surface or structural repair concrete shall be documented on the delivery ticket, as required in 6.01.03-II-3(a), as having the plastic properties necessary for confined placement to ensure appropriate workability for consolidation within the forms.

### **6.01.03—Construction Methods:**

**I. Concrete Quality Control (QC) Requirements:** For all bridge deck and bridge parapet construction, the Contractor must demonstrate to the Engineer that the materials and work that will be provided by their field staff, subcontractors, and suppliers meets Contract specification requirements.

This effort shall be documented with a **Concrete Quality Control Plan (CQCP)** and shall address the communication with all parties, on-site inspection, sampling and testing frequency necessary to keep the production, placement and finishing operations in control, to determine when an operation has gone out of control and anticipated procedure to correct the situation in a timely manner.

1. General – provide an overview of the means and methods anticipated to perform the work including any anticipated conditions that may need additional attention (such as seasonal conditions requiring heating or cooling of concrete)
2. Contractor Organization – address authority levels/duties by position and name of persons holding those positions; include those who have decision making authority with regard to quality control, materials, sampling and testing who can be contacted by the Engineer
3. Concrete Mix Design – identify concrete supplier(s); provide copies of all applicable mix designs to field staff; and address submittal timeframe
4. Transportation and Delivery of Concrete – identify the supplier’s plant capacity and ability to ensure continuous delivery to the Project to meet the requirements of the mix design and a corrective procedure if it does not meet Project requirements; include a provision for the addition of admixtures and follow up testing

5. Placement and Finishing of Concrete – identify and describe:
  - (a) placement equipment
  - (b) placement method(s) to be used (chute, pump, hopper or other)
  - (c) starting point and direction of placement (logistical sequencing)
  - (d) slip forming, formwork, stay-in-place forms or other forming method(s)
  - (e) joint construction method(s)
  - (f) process and documentation that the elevations, base, forms, reinforcement (including support chairs and ties), utility inserts or any other appurtenance installations have been inspected by the Contractor prior to concrete placement
  - (g) equipment and method(s) to be used for vibrating and consolidating concrete
  - (h) procedure for verifying adequate consolidation and how segregation will be addressed
  - (i) schedule and method(s) to be used for finishing all exposed surfaces
6. Curing of Concrete – describe schedule and method(s) for curing of concrete and how the method(s) will be monitored and maintained
7. Contractor QC testing – identify person(s) or firms responsible for Contractor QC testing and provide copies of their certification(s) (see 6.01.03-5), and testing facility location(s). In addition, describe the process used for communication between the QC testing personnel and the Contractor project staff; describe what measures will be taken when test results are out of compliance; this shall include what increased frequency of testing is to be performed to verify that concrete properties are in compliance; the threshold at which time placement ceases; describe what protective measures will be used in case of unforeseen weather
8. The CQCP shall include the name and qualifications of a Quality Control Manager (QCM) provided by the Contractor. The QCM shall be responsible for the administration of the CQCP, and any modifications that may become necessary. The QCM shall have the ability to direct all Contractor personnel on the Project during concreting operations and must communicate directly with the concrete supplier. At a minimum the QCM shall be certified as a **Concrete Transportation Construction Inspector by the American Concrete Institute (ACI)**.
9. The CQCP must include a provision for pre-placement meeting(s) to be held with representatives of the Engineer, the concrete supplier, the QCM and the Contractor’s field staff supervising the work.
  - (a) Timing and number of the meeting(s) will be determined by the complexity of the mix design or placement.
  - (b) Non-Standard mix designs that require trial placements will be discussed at the Preconstruction Meeting to remind the Contractor of the time needed for testing. Additional meeting(s) should be scheduled at least 90 days prior to first use of non-standard mix designs, to allow suppliers to perform trial batches and testing.
  - (c) Discussions shall include the configuration and specific application that the concrete will be used for, plastic properties and workability, any mix design challenges, trial placement procedures and subsequent trial results, timing and quantities. Refer to 6.01.03-II-6(e) for additional requirements.
10. The CQCP shall be submitted to the Engineer and concrete supplier for review and comment a minimum of 30 days prior to production or placement. Production and placement shall not occur until all comments of the Engineer and supplier have been addressed by the Contractor. Changes to the CQCP based on data not available at time of submittal may be added via addendum.



**11.** The Contractor shall provide the Engineer QC test results within 48 hours after testing or inspection in a format acceptable to the Engineer. The Contractor shall also maintain complete records of all QC tests.

Review of the CQCP does not relieve the Contractor of its responsibility to comply with the Project specifications. The Contractor may modify the CQCP as work progresses and must document the changes in writing prior to resuming operations. These changes include but are not limited to changes in quality control procedures or personnel.

## **II. New Construction:**

**1. Falsework and Forms:** Falsework is considered to be any temporary structure which supports structural elements of concrete, steel, masonry or other material during the construction or erection. Forms are to be considered to be the enclosures or panels which contain the fluid concrete and withstand the forces due to its placement and consolidation. Forms may in turn be supported on falsework.

This work shall consist of the construction and removal of falsework and forms that are designed by the Contractor in the execution of the work, and whose failure to perform properly could adversely affect the character of the Contract work or endanger the safety of adjacent facilities, property, or the public. Forms shall be mortar tight. Forms and falsework shall be of sufficient rigidity and strength to safely support all loads imposed and to produce in the finished structure the lines and grades indicated in the Contract documents. Forms shall also impart the required surface texture and rustication and shall not detract from the uniformity of color of the formed surfaces. Forms shall be made of wood, steel or other material approved by the Engineer.

**(a) Design:** The design of falsework and formwork shall conform to the *AASHTO Guide Design Specifications for Bridge Temporary Works*, or to other established and generally accepted design codes such as ACI Standard *ACI 347-Recommended Practice for Concrete Formwork* or specific form or falsework manufacturer specifications. When other than new or undamaged materials are used, appropriate reductions in allowable stresses, and decreases in resistance factors or imposed loads shall be used for design.

**(b) Loads:** The design of the falsework and forms shall be based on load factors specified in the *AASHTO LRFD Bridge Design Specifications* and all applicable load combinations shall be investigated. The design load for falsework shall consist of the sum of appropriate dead and live vertical loads and any horizontal loads.

As a minimum, dead loads shall include the weight of the falsework and all construction material to be supported. The combined unit weight of concrete, reinforcing and prestressing steel, and forms that is supported shall be assumed to be not less than:

1. Normal-weight concrete: 0.16 kip/ft<sup>3</sup>
2. Lightweight concrete: 0.13 kip/ft<sup>3</sup>

Live loads shall consist of the actual weight of any equipment to be supported, applied as concentrated loads at the points of contact and a uniform load of not less than 0.02 kip/ft<sup>2</sup> applied over the area supported, plus 0.075 kip/ft applied at the outside edge of deck overhangs.

The horizontal load used for the design of the falsework bracing system shall be the sum of the horizontal loads due to equipment; construction sequence including unbalanced hydrostatic forces from fluid concrete and traffic control devices; stream flow, when

applicable; and an allowance for wind. However, in no case shall the horizontal load to be resisted in any direction be less than 2% of the total dead load.

For post-tensioned structures, the falsework shall also be designed to support any increase in or redistribution of loads caused by tensioning of the structure. Loads imposed by falsework onto existing, new, or partially completed structures shall not exceed those permitted in 6.01.03-II-12, Application of Loads.

- (c) **Working Drawings:** The working drawings for falsework and formwork shall be prepared in accordance with 1.05.02 whenever the falsework or formwork exceeds 14.0 feet high or whenever vehicular, marine, or pedestrian traffic may travel under or adjacent to the falsework or formwork. Working drawings shall include the sequence, method and rate of placement of the concrete.

Manufacturer catalog cuts or written installation procedures shall be provided for any clips, braces, hangers or other manufactured parts used with the formwork or falsework.

- (d) **Construction:** Forms and falsework shall be built true to lines and grades shall be strong, stable, firm, mortar-tight and adequately braced or tied, or both. They shall be designed and constructed to withstand all loads and pressures including those imposed by plastic concrete, taking full account of the stresses due to the rate of placement, effect of vibration and conditions brought about by construction methods. Forms and falsework shall be constructed to compensate for variations in camber of supporting members and allow for deflections.

Falsework and formwork shall be chamfered at all sharp corners, unless otherwise ordered or permitted, and shall be given a slight bevel or draft in the case of projections to ensure satisfactory removal. Materials for falsework and formwork and their supports, ties and bracing, shall be of the type, quality and strength to achieve the structural requirements. Form material in contact with concrete shall provide the finished concrete surface smoothness as specified in 6.01.03-II-10, Finishing Concrete Surfaces, and shall have a uniform appearance.

Falsework and formwork shall be treated with form oil or other release agent approved by the Engineer before the reinforcing steel is placed or self-releasing forms approved by the Engineer may be used. Release agents which will adhere to or discolor the concrete shall not be used.

Falsework and formwork for concrete surfaces exposed to view shall produce a smooth surface of uniform texture, free of voids, indentations, protrusions and bulges. Panels lining falsework and formwork shall be arranged so that the joint lines form a symmetrical pattern conforming to the general lines of the structure. The same type of form-lining material shall be used throughout each element of a structure. Falsework and formwork shall be sufficiently rigid so that the undulation of the concrete surface shall not exceed 1/4 inch when checked with a 4 foot straightedge or template.

For non-exposed surfaces the falsework and formwork shall be sufficiently rigid so that the undulation of the concrete surface shall not exceed 1/2 inch when checked with a 4 foot straightedge or template.

Metal ties and anchors to hold the falsework and formwork in alignment and location shall be so constructed that the metal work can be removed to a depth of at least 2 inches from the concrete surface without damage to the concrete. All cavities resulting from the removal of metal ties shall be filled after removal of forms with cement mortar of the same

proportions used in the body of the work or other materials approved by the Engineer, and the surface finished smooth and even, and if exposed in the finished work, shall be similar in texture and color of adjacent surfaces. With permission of the Engineer, the Contractor need not remove from the underneath side of bridge decks portions of metal devices used to support reinforcing steel providing such devices are of material, or are adequately coated with material, that will not rust or corrode. When coated reinforcing steel is required, all metal ties, anchorages, or spreaders that remain in the concrete shall be of corrosion-resistant material or coated with a dielectric material.

Forms shall be clean and clear of all debris. For narrow walls and columns where the bottom of the form is inaccessible, an access opening will be allowed in the form and falsework for cleaning out extraneous material.

**(e) Vacant**

- (f) Bridge Decks:** After erection of beams and prior to placing falsework and forms, the Contractor shall take elevations along the top of the beam at the points shown on the plans or as directed by the Engineer. The Contractor shall calculate the haunch depths and provide them to the Engineer a minimum of 7 days prior to installing the falsework and forms. The Contractor shall also provide calculations for the setting of the overhang brackets based on the final beam deflection. These calculations shall be based on the final proposed deck grade and parapet elevations.

Falsework or formwork for deck forms on girder bridges shall be supported directly on the girders so that there will be no appreciable differential settlement during placing of the concrete. Girders shall be either braced and tied to resist any forces that would cause rotation or torsion in the girders caused by the placing of concrete for diaphragms or decks, or shown to be adequate for those effects. Unless specifically permitted, welding of falsework support brackets or braces to structural steel members or reinforcing steel shall not be allowed.

- (g) Stay-In-Place Metal Forms for Bridge Decks:** These forms may be used if shown in the Contract documents or approved by the Engineer. Prior to the use of such forms and before fabricating any material, the Contractor shall submit working drawings to the Engineer for review in accordance with 1.05.02. These drawings shall include the proposed method of form construction, erection plans including placement plans, attachment details, weld procedure(s), material lists, material designation, gage of all materials, and the details of corrugation. Also, copies of the form design computations shall be submitted with the working drawings. Any changes necessary to accommodate stay-in-place forms, if approved, shall be at no cost to the Department.

The metal forms shall be designed on the basis of the dead load of the form, reinforcement and the plastic concrete, including the additional weight of concrete [considered to be equivalent to the weight imposed by an additional concrete thickness equal to 3% of the proposed deck thickness, but not to exceed 0.3 inch] due to the deflection of the metal forms, plus 50 psf for construction loads. The allowable stress in the corrugated form and the accessories shall not be greater than 0.725 times the yield strength of the furnished material and the allowable stress shall not exceed 36,000 psi. The span for design and deflection shall be the clear distance between edges of the beams or girders less 2 inches and shall be measured parallel to the form flutes. The maximum deflection under the weight of plastic concrete, reinforcement, and forms shall not exceed 1/180 of the form

span or 0.5 inches, whichever is less. In no case shall the loading used to estimate this deflection be less than 120 psf. The permissible form camber shall be based on the actual dead load condition. Camber shall not be used to compensate for deflection in excess of the foregoing limits. The form support angles shall be designed as a cantilever and the horizontal leg of the form support angle shall not be greater than 3 inches.

No stay-in-place metal forms shall be placed over or be directly supported by the top flanges of beams or girders. The form supporting steel angles may be supported by or attached to the top flanges.

Stay-in-place metal forms shall not be used in bays where longitudinal slab construction joints are located, under cantilevered slabs such as the overhang outside of fascia members, and bridges where the clearance over a salt-laden body of water is less than 15 feet above mean high water level.

Welding to the top flanges of steel beams and girders is not permitted in the areas where the top flanges are in tension, or as indicated on the plans. Alternate installation procedures shall be submitted addressing this condition.

Drilling of holes in pre-stressed concrete beams or the use of power-actuated tools on the prestressed concrete beams for fastening of the form supports to the pre-stressed concrete beams will not be permitted. Welding of the reinforcing steel to the pre-stressed units is not permitted.

All edges of openings cut for drains, pipes, and similar appurtenances shall be independently supported around the entire periphery of the opening. All fabricated stay-in-place metal forms shall be unloaded, stored at the Project Site at least 4 inches above the ground on platforms, skids or other suitable supports and shall be protected against corrosion and damage and handled in such a manner as to preclude damage to the forms. Damaged material shall be replaced at no additional cost to the State.

Any exposed form or form support metal where the galvanized coating has been damaged, shall be thoroughly cleaned, wire brushed, then coated with 2 coats of Zinc Dust – Zinc Oxide primer, FS No. TT-P-641d, Type II or another product acceptable to the Engineer.

The forms shall be installed from the topside in accordance with the manufacturer's recommended installation procedures. The form supports shall ensure that the forms retain their correct dimensions and positions during use at all times. Form supports shall provide vertical adjustment to maintain design slab thickness at the crest of corrugation, to compensate for variations in camber of beams and girders and to allow for deflections. Stay-in-place metal forms shall have a minimum depth of the form valley equal to 2 inches. The forms shall have closed tapered ends. Lightweight filler material shall be used in the form valleys.

All field cutting shall be done with a steel cutting saw or shears including the cutting of supports, closures and cutouts. Flame cutting of forms is not permitted.

All welding shall be performed by Department-certified welders in accordance with the Welding subarticle in 6.03. Welding of forms to supports is not permitted.

The steel form supports shall be placed in direct contact with the flange of stringer or floor beam flanges and attached by bolts, clips, welding where permitted, or other approved means. Form sheets shall not be permitted to rest directly on the top of the stringer or floor beam flanges. The forms shall be securely fastened to form supports with self-drilling fasteners and shall have a minimum bearing length of 1 inch at each end. In the areas

where the form sheets lap, the form sheets shall be securely fastened to one another by fasteners at a maximum spacing of 18 inches. The ends of the form sheets shall be securely attached to the support angles with fasteners at a maximum spacing of 18 inches or 2 corrugation widths, whichever is less.

The depth of the concrete slab shall be as shown on the plans and the corrugated forms shall be placed so that the top of the corrugation will coincide with the bottom of the deck slab. No part of the forms or their supports shall protrude into the slab. All reinforcement in the bottom reinforcement mat shall have a minimum concrete cover of 1 inch unless noted otherwise on the plans.

The completed stay-in-place metal form system shall be sufficiently tight to prevent leakage of mortar. Where forms or their installation are unsatisfactory in the opinion of the Engineer, either before or during placement of the concrete, the Contractor shall correct the defects before proceeding with the work.

- (h) **Construction Joints:** Construction joints other than those shown on the plans will not be permitted without prior approval of the Engineer. In joining fresh concrete to concrete that has already set, the work already in place shall have all loose and foreign material removed, and the surface roughened and thoroughly drenched with water.

All reinforcing steel shall extend continuously through joints. Where unplanned construction joints may be needed, they shall be constructed as directed by the Engineer.

- (i) **Expansion and Contraction Joints:** Expansion and contraction joints shall be constructed at the locations and in accordance with the details specified in the Contract. The forming of joint openings shall be dimensioned in accordance with the joint manufacturer's design requirements. Joints include open joints, filled joints, joints sealed with sealants, joints reinforced with steel armor plates or shapes, paraffin coated joints, and joints with combinations of these features.

Open joints shall be placed at locations designated on the plans and shall be formed by the insertion and subsequent removal of templates of wood, metal or other suitable material. The templates shall be so constructed that their removal may be readily accomplished without damage to the work.

Filled joints shall be made with joint filler, the materials for which shall meet the requirements of the plans and of these specifications.

For mechanical joint systems, the concrete shall be placed in such a manner that does not interfere with the movement of the joint.

- (j) **Pipes, Conduits and Utility Installations:** The Contractor shall coordinate the installation of pipes, conduits and utilities as shown on the plans and in accordance with the Contract or as directed by the Engineer. The openings accommodating such pipe, conduit and utility installations shall be incorporated into the formwork by the Contractor.

- (k) **Anchorage:** Anchor bolts and systems shall be set to the requirements of the plans and Contract. Anchor bolts and systems shall be clean and free of dirt, moisture or other foreign materials at the time of installation. The anchor bolts and systems shall be installed prior to placing concrete.

With the Engineer's approval, the Contractor may install anchorages after placement and setting of the concrete or in formed holes. The anchorages shall be installed into drilled or formed holes having a diameter and a depth suitable to receive the bolts in accordance with the grout manufacturer's requirements. Such holes shall be located to avoid damage to the

existing reinforcement. All holes shall be perpendicular to the plane surface. The Contractor shall take every precaution necessary to prevent damage to the concrete due to freezing of water or grout in anchor bolt holes.

- (l) **Ornament or Reverse Moulds:** Ornamental work, when so noted on the plans, shall be formed by the use of reverse moulds. These moulds shall be produced by a qualified manufacturer approved by the Engineer. They shall be built in accordance with the general dimensions and appearance shown on the plans. The Contractor shall submit all detailed drawings, models, or carvings for review by the Engineer before the moulds are made.

The Contractor shall be responsible for their condition at all times, and shall be required to remove and replace any damaged or defective moulds at no additional cost to the State.

The surfaces of the moulds shall be given a coating of form release agent to prevent the adherence of concrete. Any material which will adhere to or discolor the concrete shall not be used.

Form Liners, if required, shall be installed as specified elsewhere.

- (m) **Removal of Falsework and Forms:** The Contractor shall consider the location and character of the structure, the weather, the materials used in the mix, and other conditions influencing the early strength of the concrete when removing forms and falsework. Methods of removal likely to cause damage to the concrete surface shall not be used. Supports shall be removed in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight. For structures of 2 or more spans, the sequence of falsework release shall be as specified in the Contract or approved by the Engineer.

Removal shall be controlled by field-cured cylinder tests. The removal shall not begin until the concrete has achieved 75% of the design compressive strength. To facilitate finishing, side forms carrying no load may be removed after 24 hours with the permission of the Engineer, but the curing process must be continued for 7 days.

When the results of field-cured cylinder tests are unavailable, the time periods listed in Table 6.01.03-1, exclusive of days when the temperature drops below 40°F, may govern the removal of forms.

**Table 6.01.03-1 Time Restrictions for Removal of Formwork**

Structure Element	Minimum Time Period
Arch Centers, centering under beams, pier caps, and unsupported elements	14 days
Slabs on grade, Abutments and Walls	24 hours
Columns	2 days
Bridge Decks	28 days

The Contractor may submit for review and approval by the Engineer, alternate methods to determine the in-place strength of the concrete for removal of forms and falsework.

- 2. Protection from Environmental Conditions:** The concrete shall be protected from damage due to weather or other environmental conditions during placing and curing periods. In-place concrete that has been damaged by weather conditions shall be either repaired to an acceptable condition or removed and replaced as determined by the Engineer.

- (a) **Rain Protection:** The placement of concrete shall not commence or continue unless

adequate protection satisfactory to the Engineer is provided by the Contractor.

**(b) Hot Weather Protection:** When the ambient air temperature is above 90°F, the forms, which will come in contact with the mix shall be cooled to below 90°F for a minimum of 1 hour prior to and 1 hour after completion of the concrete placement by means of a water spray or other methods satisfactory to the Engineer.

**(c) Cold Weather Protection:** When there is a probability of ambient air temperature below 40°F during placement and curing, a Cold-Weather Concreting Plan shall be submitted to the Engineer for review and comment. The Plan shall detail the methods and equipment, including temperature measuring devices that will be used to ensure that the required concrete and air temperatures are maintained.

1. **Placement:** The forms, reinforcing steel, steel beam flanges, and other surfaces which will come in contact with the mix shall be heated to a minimum of 40°F, by methods satisfactory to the Engineer, for a minimum of 1 hour prior to, and maintained throughout, concrete placement.

2. **Curing:** For the first 6 days, considered the initial cure period, the concrete shall be maintained at a temperature of not less than 45°F and the air temperature surrounding the structure shall be maintained at a temperature of not less than 60°F. When the concrete mix includes pozzolans or slag, the initial cure period shall be increased to 10 days. After the initial cure period, the air surrounding the structure shall be maintained above 40°F for an additional 8 days. If external heating is employed, the heat shall be applied and withdrawn gradually and uniformly so that no part of the concrete surface is heated to more than 90°F or caused to change temperature by more than 20°F in 8 hours. The Engineer may reduce or increase the amount of time that the structure must be protected or heated based on an indication of in-place concrete strength acceptable to the Engineer.

**(d) Additional Requirements for Bridge Decks:** Prior to the application of curing materials, all the concrete placed on bridge decks shall be protected from damage due to rapid evaporation by methods acceptable to the Engineer. During periods of low humidity (less than 60% relative humidity), sustained winds of 25 mph or more, or ambient air temperatures greater than 80°F the Contractor shall provide written details of additional measures to be taken during placement and curing.

Protection may include increasing the humidity of the surrounding air with fog sprayers and employing wind-breaks or sun-shades. Additional actions may include reduction of the temperature of the concrete prior to placement, scheduling placement during the cooler times of days or nights, or any combination of these actions.

**(e) Concrete Exposed to Salt Water:** No Construction joints shall be formed between the levels of extreme low water and extreme high water or the upper limit of wave action as determined by the Engineer.

**3. Transportation and Delivery of Concrete:** All material delivered to the Project shall be supplied by a producer qualified in accordance with M.03. The producer shall have sufficient plant capacity and trucks to ensure continuous delivery at the rate required to prevent the formation of cold joints.

**(a) Material Documentation:** All vendors producing concrete must have their weigh scales and mixing plant automated to provide a detailed ticket. Delivery tickets must include the following information:

1. State of Connecticut printed on ticket
2. Name of producer, identification of plant
3. Date and time of day
4. Type of material
5. Cubic yards of material loaded into truck
6. Project number, purchase order number, name of Contractor (if Contractor other than producer)
7. Truck number for specific identification of truck
8. Individual aggregate, cement, water weights and any admixtures shall be printed on plant tickets
9. Water/cement ratio, and
10. Additional water allowance in gallons based on water/cement ratio for mix

A State inspector may be present to monitor batching or weighing operations.

The Contractor shall notify the Engineer immediately if, during the production day, there is a malfunction of the recording system in the automated plant or weigh scales.

Manually written tickets containing all required information may be allowed for up to 1 hour after malfunction provided they are signed by an authorized representative of the producer.

- (b) Transportation of Mixture:** Trucks delivering concrete shall be qualified in accordance with M.03.

If the concrete mix arrives at the Project with a slump lower than allowed by specification, water may be considered as a means to temper concrete to bring the slump back to within specification. This tempering may only be done prior to discharge with the permission of the Engineer. The quantity of water in gallons added to the concrete cannot exceed the allowance shown on the delivery ticket.

The concrete shall be completely discharged into the forms within 1-1/2 hours from the batch time stamped on the delivery ticket. This time may be extended if the measured temperature of the concrete is below 90°F. This time may also be reduced if the temperature of the concrete is over 90° F. Rejected concrete shall be disposed of by the Contractor at no cost to the State.

The addition of chemical admixtures or air entrainment admixtures at the Project Site, to increase the workability or to alter the time of set, will only be permitted if prior approval has been granted by the Engineer. The addition of air entrainment admixtures at the Project Site will only be permitted by the producer's quality control staff. The Contractor is responsible for follow-up quality control testing to verify compliance with the Specifications.

**4. Acceptance Testing and Test Specimens:** The Contractor shall furnish the facilities and concrete required for sampling, transport to the testing location in the field, performing field testing and for casting sample cylinders for compressive-strength determinations. The Department will furnish personnel for sampling and casting Acceptance specimens and the number of specimens required will be determined by the Engineer. The equipment for the Department's testing is provided for elsewhere in the Contract.

- (a) Temperature, Air Content and Slump:** Field testing in accordance with AASHTO T-23, "Making and Curing Concrete Test Specimens in the Field" will be performed at the point of placement and at a frequency determined by the Engineer.



- (b) Acceptance Testing and Compressive Strength Specimens:** Concrete samples are to be taken at the point of placement into the forms or molds. Representatives of the Engineer will sample the mix.

**Table 6.01.03-2 Plastic Properties of Portland Cement Concrete**

Standard Mix Class	Air Content	Slump <sup>3</sup>	Concrete Temperature
PCC0334Z <sup>1</sup> (3300 psi)	6.0 +/- 1.5%	As submitted	60°-90° F
PCC0336Z <sup>1</sup> (3300 psi)			
PCC0446Z <sup>1</sup> (4400 psi)			
PCCXXX8Z <sup>1</sup>	7.5 +/- 1.5%	As submitted	
Modified Standards <sup>2</sup>	6.0 +/- 1.5% <sup>2</sup>	As submitted	
Special Provision Mix <sup>4</sup>	As specified	As submitted	
<sup>1</sup> "Z" denotes the Exposure Factor 0, 1 or 2 as described in Table M.03.02-1a			
<sup>2</sup> Modifications to Standard Mixes, including mixes placed by pumping, shall be reviewed by the Engineer prior to use. These include but are not limited to the use of chemical admixtures such as high range water reducing (HRWR) admixtures and the use of coarse aggregate sizes for that class not specified in M.03.			
<sup>3</sup> If the <u>only</u> modification is the addition of HRWR, the maximum allowable slump shall be 7 inches.			
<sup>4</sup> All concrete mixes with a mix design strength not shown in the table must be approved by the Engineer on a case-by-case basis. Limits on the plastic properties and strength requirements of these mixes are listed in the Specifications.			

The Contractor shall provide and maintain facilities on the Project Site, acceptable to the Engineer, for sampling, transporting the initial sample, casting, safe storage and initial curing of the concrete test specimens as required by AASHTO T-23. This shall include but not be limited to a sampling receptacle, a means of transport of the initial concrete sample from the location of the concrete placement to the testing location, a level and protected area of adequate size to perform testing, and a specimen storage container capable of maintaining the temperature and moisture requirements for initial curing of Acceptance specimens. The distance from the location of concrete placement to the location of testing and initial curing shall be 100 feet or less, unless otherwise approved by the Engineer.

The specimen storage container described in this section is in addition to the concrete cylinder curing box provided for elsewhere in the Contract.

After initial curing, the test specimens will be transported by Department personnel and stored in the concrete cylinder curing box until they can be transported to the Division of Materials Testing for strength evaluation.

- (c) Sampling Procedure for Pumping:** It is the responsibility of the Contractor to provide concrete that meets specification at the point of placement.

Samples of concrete shall be taken at the discharge end of the pump at the point of placement with the exception of underwater concrete. The Contractor may submit an alternate location to provide a sample from the discharge end of the pump with verification showing that the characteristics of the mix will not be altered from that of which would have been attained at the point of placement. The Engineer will review the documentation and other extenuating circumstances when evaluating the request.

In the case of underwater concrete the Contractor shall submit the proposed sampling location with the submittals required in 6.01.03-II-6(f).

**(d) Additional field testing:** Additional field testing such as density and yield measurements may be required at the time of placement as determined by the Engineer.

**5. Progression Cylinders and Compressive Strength Specimens:** Progression Cylinders outlined in this section are field cured compressive strength specimens taken for information related to when a structure or segment of a structure can be loaded or put into service, adequacy of curing and protection of concrete in the structure, or when formwork or shoring may be removed from the structure. The information produced from strength results of Progression Cylinders will not be considered for acceptance of the concrete.

The personnel, equipment, and molds for sampling, casting, curing and testing of Progression Cylinders shall be furnished by the Contractor at no expense to the Department.

Sampling, casting, and field curing of the specimens shall be performed in accordance with AASHTO T23 by an ACI Concrete Field Testing Technician Grade 1 or higher and will be witnessed by a representative of the Department.

The sample shall be taken at the point of placement into the forms or molds from 1 or more of the same truck loads that an Acceptance sample is taken from.

A minimum of 2 of cylinder results will be used to determine in-place strength.

Compression testing shall be performed in accordance with AASHTO T 22 by personnel approved by the Engineer.

A Certified Test Report in accordance with 1.06.07 shall be provided to the Engineer reporting the Progression Cylinder test results. A copy of the results of the compressive strength testing shall be provided to the Engineer at least 24 hours prior to any Project activity that the results may control.

**6. Handling and Placing Concrete:** Concrete shall be handled, placed, and consolidated by methods acceptable to the Engineer that will not segregate the mix and shall result in a dense homogeneous concrete. The methods used shall not cause displacement of reinforcing steel or other materials to be embedded in the concrete. Concrete shall not be placed until the forms and all materials have been inspected by the Engineer. All mortar from previous placements, debris, and foreign material shall be removed from the forms and steel prior to commencing placement. The forms and subgrade shall be thoroughly moistened with water immediately before concrete is placed. All water that has ponded within the forms shall also be removed. Temporary form spreader devices shall not be left in place.

All laitance or unsound material shall be removed before placing substructure concrete onto the surface of any concrete placed underwater.

Placement of concrete for each section of the structure shall be performed continuously between construction or expansion joints as shown on the plans. The delivery rate, placing sequence and methods shall be such that fresh concrete is always placed and consolidated against previously placed concrete before initial set has occurred. The temperature of the concrete mixture during placement shall be maintained between 60°F and 90°F. During and after placement of concrete, care shall be taken not to damage the concrete or break the bond with reinforcing steel. Platforms for workers and equipment shall not be supported directly on any reinforcing steel. Forces that may damage the concrete shall not be applied to the forms or reinforcing steel.

- (a) Sequence of Placement:** The sequence of placement shall be in accordance with the Contract or as permitted by the Engineer.

Concrete for integral horizontal members, such as caps, slabs, or footings shall not be placed until the concrete for the columns, substructure, culvert walls and similar vertical members has achieved sufficient strength as stated in 6.01.03-II-1(m).

The concrete in arches shall be placed in such a manner as to load the formwork uniformly and symmetrically.

The base slab or footings of cast-in-place box culverts shall reach sufficient strength before the remainder of the culvert is constructed.

- (b) Placement Methods:** The Contractor shall notify the Engineer at least 24 hours in advance of intention to place concrete.

Vibrators shall not be used to shift the fresh concrete horizontally. Vibrators shall be adequate to consolidate the concrete and integrate it with the previous lift.

The rate of concrete placement must not produce loadings that exceed those considered in the design of the forms.

The use of chutes and pipes for conveying concrete into the forms must be reviewed by the Engineer. Chutes shall be clean, lined with smooth watertight material and, when steep slopes are involved, shall be equipped with baffles or reverses. When the discharge must be intermittent, a hopper or other device for regulating the discharge shall be provided.

Aluminum shall not be permanently incorporated into the concrete unless otherwise specified.

When placing operations involve dropping the concrete more than 5 feet, the Contractor shall take action to prevent segregation of the mix and spattering of mortar on steel and forms above the elevation of the lift being placed. This restriction shall not apply to cast-in-place pilings.

When using stay-in-place forms, concrete shall not be dropped more than 3 feet above the top of the forms, and the concrete shall be discharged directly over the beams or girders.

- (c) Pumping:** The Contractor shall use equipment specifically manufactured to pump concrete mixes and that meets the needs of the specific concrete placement.

- (d) Consolidation:** Unless otherwise specified, all concrete, except concrete placed under water, shall be sufficiently consolidated by mechanical vibration immediately after placement.

The Contractor shall provide a sufficient number of commercially available mechanical immersion type vibrators to properly consolidate the concrete immediately after it is placed in the forms unless external form vibrators are used. The Contractor shall have an adequate number of operable vibrators available in case of breakdown.

External form vibrators may be used if submitted prior to concrete placement and reviewed by the Engineer.

Vibration shall not be applied directly to the reinforcement or hardened concrete. Special care shall be taken in placing and consolidating concrete around ornamental moulds, form liners and other embedded items. The vibrator shall not touch these items at any time.

- (e) Additional Requirements for Bridge Decks:** At least 15 days before the erection of the screed rails, the Contractor shall submit screed erection plans, grades and sequence of concrete placement and proposed rate of placing concrete for review by the Engineer.

These plans shall include details of equipment to be used in the placement and finishing of the concrete, including the number and type of personnel who will be engaged in placing the concrete. The screed equipment shall be a commercially available vibratory system. The use of wooden screeds is prohibited.

When setting screed rails for mechanical finishing, the Contractor shall take into consideration and make proper allowances for the deflection of the bridge superstructure due to all operations.

Screed and runway supports shall not be located on any stay-in-place metal form sheets, form supports or reinforcing steel. The Contractor shall operate the mechanical screed at least 24 hours prior to actual placement of the concrete to verify deck survey and equipment operations to the satisfaction of the Engineer.

A Pre-Placement Meeting shall be held on the project site with Contractor, Engineer and concrete supplier 48 hours before the concrete deck pour. The Pre-Placement Meeting will document and include discussion on the following topics:

**1. Schedule:**

- (a) Deck pour sequence
- (b) Daily start and finish times for concrete delivery
- (c) Anticipated completion time

**2. Key Personnel:**

- (a) Concrete placement foreman
- (b) Total number of personnel involved in deck pour and their roles during the pour
- (c) Concrete supplier
- (d) Concrete pump truck operator/service
- (e) Discuss QC/QA

**3. Placement:**

- (a) List of approved delivery trucks per pour
- (b) Pre-wetting forms prior to placement
- (c) Placement sequence
- (d) Rate of concrete placement and vibrator process
- (e) Monitor concrete temperature during placement
- (f) Transverse joint bulkheads
- (g) Approved concrete low-permeability mix design

**4. Curing:**

- (a) Curing materials (burlap, quilted blankets, etc.)
- (b) Means for pre-soaking curing materials.
- (c) Foggers
- (d) Soaker hoses
- (e) White Plastic Sheeting
- (f) Water source and supply tanks

Concrete shall be deposited in a uniform manner across the entire width being placed, and only 2 passes of the transverse screed will be permitted over a given deck area, unless otherwise allowed by the Engineer.

If the Contractor proposes to place concrete outside of daylight hours, an adequate lighting system must be provided.

Concrete shall be deposited in accordance with the placement sequence as noted on the plans. If no sequence is indicated, the Contractor shall provide a placement sequence to the Engineer for review. The placement sequence shall proceed in such a manner that the total deflection or settlement of supporting members, and the final finishing of the surface will occur before the initial set of the concrete takes place.

At construction joints, concrete shall not be placed against the previously placed concrete for at least 12 hours unless otherwise allowed by the Engineer.

- (f) Underwater Placement:** Concrete may only be placed under water within a cofferdam unless otherwise specified in the Contract or allowed by the Engineer. Placement shall begin following inspection and acceptance of the depth and character of the foundation material by the Engineer.

Underwater concrete mixes are considered non-standard designs and shall be submitted to the Engineer for approval. Typically a minimum of 10% additional cement than comparable non-underwater mixes will be required.

Underwater concrete shall be placed continuously with the surface of the concrete kept as horizontal as practical. To ensure thorough bonding, each succeeding layer shall be placed before the preceding layer has taken initial set. For large concrete placements, more than 1 tremie or pump shall be used to ensure compliance with this requirement.

Mass concrete placement requirements, outlined in 6.01.03-II-6(g), do not apply to underwater concrete.

To prevent segregation, underwater concrete shall be placed in a compact mass, in its final position, by means of a tremie, concrete pump, or other approved method and shall not be disturbed. Still water shall be maintained at the point of deposit. Cofferdams shall be vented during the placement and curing of the concrete to equalize the hydrostatic pressure and thus prevent flow of water through the concrete.

If a tremie is used, the method of depositing the concrete shall be detailed in a submission to the Engineer as a working drawing for review. The tube shall have watertight couplings and shall permit the free movement of the discharge end over the area of the work.

- (g) Mass concrete placement:** Mass concrete placement shall be defined as any placement, excluding underwater concrete placement, in which the concrete being cast has dimensions of 5 feet or greater in each of 3 different directions. For placements with a circular cross-section, a mass concrete placement shall be defined as any placement that has a diameter of 6 feet or greater and a height of 5 feet or greater. For all mass concrete placements, the mix temperature shall not exceed 85°F as measured at point of discharge into the forms.

Any special concrete mix design proposed by the Contractor to meet the above temperature requirements shall be submitted to the Engineer for review.

**7. Finishing Plastic Concrete:** Unless otherwise specified in the Contract, after concrete has been consolidated and prior to final curing, all surfaces of concrete that are not placed against forms shall be struck-off to the planned elevation or slope. The surface shall be finished by floating with an acceptable tool. While the concrete is still in a workable state, all construction and expansion joints shall be tooled with an edger. Joint filler shall be left exposed. For requirements on float finish, refer to 6.01.03-II-10, Finishing Concrete Surfaces.

After completion of the placing and finishing operation and for at least 12 hours after the concrete has set, the Contractor shall not operate any equipment in the immediate vicinity of the

freshly placed concrete if, in the opinion of the Engineer, it could cause excessive vibration, movement or deflection of the forms.

The addition of water to the surface of the concrete to assist in finishing operations will not be permitted.

**(a) Bridge Decks:** After the concrete has been consolidated and brought to the proper elevation by the screed machine, it shall be finished by use of a suitable float. The Contractor shall not disturb the fresh concrete after it has been finished. All finishing work, including the application of the fog spray and placement of the curing mats, shall be performed from work bridges supported above the deck surface. A work bridge shall be made available to the Engineer for inspection of the concrete work.

Surfaces that are to be covered with a waterproofing membrane shall be finished to a smooth surface, free of mortar ridges and other projections and in accordance with the membrane manufacturer's recommendations.

Unless otherwise noted in the Contract, the concrete wearing surfaces shall be given a skid-resistant texture by dragging, brooming, tining, or by a combination of these methods. These methods shall be done after floating and at such time and in such manner that the desired texture will be achieved while minimizing displacement of the larger aggregate particles.

1. **Dragging:** The surface shall be finished by dragging a seamless strip of damp burlap over the surface. The burlap to be dragged shall consist of sufficient layers and have sufficient length in contact with the concrete to slightly groove the surface. The burlap shall be drawn longitudinally along the surface in a slow manner so as to leave an even texture. The burlap shall be kept damp, clean, and free of particles of hardened concrete. The Contractor may propose an alternate material for the Engineer's consideration.
2. **Tining:** Tining shall be in a transverse direction using a wire broom, comb, or float having a single row of tines or fins. The tining grooves shall be between 1/16 inch and 3/16 inch wide and between 1/8 inch and 3/16 inch deep, spaced 1/2 inch to 3/4 inch on centers. Tining shall be discontinued 12 inches from the curb line on bridge decks. The area adjacent to the curbs shall be given a light broom finish longitudinally. As an alternative, tining may be achieved using a machine designed specifically for tining or grooving concrete pavements.

The transverse grooving shall be performed when the grooves can be formed to a maximum depth of 3/16 inch with relative ease and without the walls of the grooves closing in on each other. The tining shall be aligned so as to prevent overlapping of grooves in any 2 successive transverse passes. The Contractor shall measure the depth of the grooves in the presence of the Engineer with an appropriate device to ensure compliance.

**(b) Surface Testing and Correction:** The completed surface shall be constructed in accordance with grades and cross slopes shown on the plans. The entire surface shall be checked by the Contractor in the presence of the Engineer, with an acceptable 10 foot straightedge.

1. The surface shall not vary more than +/- 1/8 inch over 10 feet for decks which will not be covered with an overlay.
2. The surface shall not vary more than +/- 1/4 inch over 10 feet for decks which will be

covered with an overlay.

Variations greater than these, which, in the opinion of the Engineer, may adversely affect the riding qualities of the surface shall be corrected, and this shall be done at the expense of the Contractor. The Contractor shall submit a corrective procedure to the Engineer for review and approval. The procedure shall correct such irregularities by methods such as, but not limited to, concrete planing or grooving.

**8. Bearing Surfaces:** Concrete surfaces under metallic masonry plates and elastomeric bearings shall have a float finish. After the concrete has set, the area which will be in contact with the masonry plate shall be ground as necessary to provide full and even bearing. The finished surface shall not vary from a straightedge laid on the surface in any direction within the limits of the masonry plate by more than 0.0625 inch. Surfaces which fail to conform shall be ground or filled until acceptable to the Engineer.

**9. Curing Concrete:** All newly placed concrete shall be cured so as to prevent loss of water by use of the methods specified. The Engineer may request that the Contractor furnish a curing plan.

The duration of the initial and final curing period in total shall continue uninterrupted for a minimum of 7 days.

**(a) Curing Methods:**

1. Forms-In-Place Method: Formed surfaces of concrete may be cured by retaining the forms in place without loosening. During periods of hot weather, water shall be applied to the forms until the Engineer determines that it is no longer required.
2. Water Method: Exposed concrete surfaces shall be kept continuously wet by ponding, spraying, or covering with materials that are kept continuously and thoroughly wet. Such materials may consist of cotton mats, multiple layers of burlap, or other approved materials that do not discolor or otherwise damage the concrete.
3. Waterproof Cover Method: This method shall consist of covering exposed surfaces with a waterproof sheet material to prevent moisture loss from the concrete. The concrete shall be wet at the time the cover is installed. The sheets shall be of the widest practicable width and adjacent sheets shall overlap a minimum of 6.0 inches to form a waterproof cover of the entire concrete surface and shall be adequately secured. Broken or damaged sheets shall be immediately repaired and the concrete shall be remoistened.

**(b) Additional Requirements for Bridge Decks:**

Curing Plan: The Contractor shall submit to the Engineer, at least 14 days prior to the placement of concrete for the bridge deck, a detailed curing plan that describes the following:

- A. the initial and final curing durations,
- B. equipment and materials to be used for curing concrete and monitoring concrete temperature,
- C. and proposed primary and secondary water and heat sources
  1. Initial Curing Period: A water fog spray shall be used by the Contractor from the time of initial placement until the final curing period begins. The amount of fog spray shall be strictly controlled so that accumulations of standing or flowing water on the surface of the concrete shall not occur.

Should atmospheric conditions render the use of fog spray impractical, the Contractor shall request approval from the Engineer to use a curing compound that meets the requirements of M.03 in lieu of a fog spray. The application shall be in accordance with the manufacturer's recommendation and be compatible with the membrane waterproofing.

2. Final Curing: After completion of finishing and as soon as any bleed water has dissipated and the concrete reaches sufficient strength to avoid marring, the Final curing period shall begin and the entire concrete surface shall be covered with water-retaining materials such as cotton mats, multiple layers of burlap, or other materials approved by the Engineer. Materials used shall be kept saturated by means of an acceptable sprinkler or wetting system.

The Contractor may cover the wet water-retaining material with a suitable polyethylene film to minimize evaporation during the curing period. The use of the polyethylene film does not relieve the Contractor from maintaining saturation of the curing materials.

3. Temperature Monitoring: The internal temperature of the concrete shall be monitored with a calibrated continuous recording thermometer for a minimum of 7 days. The air temperature at the concrete surface or the air temperature between the concrete surface and its protective covering shall be monitored with a minimum of 1 recording thermometer.

The number and placement of the thermometers will be determined by the Engineer. A minimum of 2 thermometers per concrete placement shall be provided by the Contractor.

The following types of thermometers shall be used to monitor curing temperatures:

- i) Continuously Recording Thermometer: The thermometer shall be capable of continuously recording temperatures within a range of -4°F to 122°F for a minimum of 24 hours.
- ii) Maximum–Minimum Recording Thermometer: For all placements, the thermometer shall be capable of recording maximum and minimum temperatures in a range of -4°F to 122°F.

**10. Finishing Concrete Surfaces:** Any minor repairs due to fins, bulges, offsets and irregular projections shall be performed immediately following the removal of forms. For areas of newly placed concrete that are honeycombed or segregated the Contractor shall provide a written corrective procedure for review by the Engineer prior to the work being performed. Construction and expansion joints in the completed work shall be left carefully tooled and free of mortar and concrete. The joint filler shall be left exposed for its full length with clean and true edges.

The cavities produced by form ties and all other holes, broken corners or edges, and other defects shall be cleaned, saturated with water, pointed and trued with a mortar conforming to M.11.04. Cement similar in color to the exposed surface being repaired shall be added to the mortar. Mortar used in pointing shall be used within 1 hour of mixing. The concrete shall be finished as defined below if required and the cure continued as previously specified in 6.01.03-II-9, Curing Concrete.

Finishing work shall not interrupt the curing period unless permitted by the Engineer. The curing period may be extended to provide the minimum total number of days required.



Concrete surface finishes shall be classified as follows:

- (a) **Float Finish:** This finish shall be achieved by placing an excess of material in the form and removing or striking off of such excess forcing the coarse aggregate below the mortar surface. Concave surfaces in which water will be retained will not be allowed. After the concrete has been struck off, the surface shall be thoroughly worked and floated. Before this last finish has set, the surface shall be lightly stripped with a fine brush to remove the surface cement film, leaving a fine-grained, smooth, but sanded texture. Curing, as specified elsewhere, shall follow. Any surfaces that will support appurtenances such as light standards, railing, or fences shall be finished in accordance with 6.01.03-II-8, Bearing Surfaces.
- (b) **Rubbed Finish:** The initial rubbing shall only be allowed within 3 days after placement. The entire surface shall be thoroughly wet with a brush and rubbed with a No. 16 Carborundum Stone or an abrasive of equal quality, bringing the surface to a paste. The rubbing shall be continued sufficiently to remove all form marks and projections, producing a smooth, dense surface without pits or irregularities. The paste formed by the rubbing may be finished by stripping with a clean brush, or it may be spread uniformly over the surface and allowed to re-set. If all or portions of the rubbed surface are unacceptable to the Engineer or a rubbed finish is not provided within 3 days after removal of forms, the Contractor will be directed to provide a grout clean down finish.
- (c) **Grout Clean-Down Finish:** As soon as all cavities have been filled as required elsewhere and the cement mortar has set sufficiently, grout clean-down shall be performed. All burrs, unevenness, laitance, including that in air holes, and any other material which will adversely affect the bond of the grout to the concrete, shall be removed by acceptable methods. This cleaning shall be done from the top or uppermost part of the surface to be finished to the bottom.

A mixture of a fine aggregate and Portland cement shall be thoroughly blended while dry. The proportions shall be such that when mixed with the proper amount of water, the color will match that of the concrete to be finished. Water shall be added to this mixture in an amount which will bring the grout to a workable thick paint-like consistency.

The surface to be treated shall be thoroughly wetted with a sufficient amount of water to prevent the absorption of water from the grout. Grout shall then be applied to the wetted surface before setting of the grout occurs. Grout which has set shall not be re-tempered and shall be disposed of by the Contractor at no cost to the State.

The grout shall be uniformly applied over the entire surface, completely filling all air bubbles and holes. Immediately after applying the grout, the surface shall be floated with a suitable float, scouring the surface vigorously. While the grout is still plastic, all excess grout shall be removed.

After the final rubbing is completed and the surface has dried, it shall be rubbed to remove loose powder and shall be left free from all unsound patches, paste, powder, and objectionable marks. Wetting, application and removal of excess grout shall be completed in 1 work shift.

All finished surfaces shall be cured for a minimum of 24 hours. Horizontal surfaces shall have a float finish and vertical exposed surfaces shall have a rubbed finish. A grout clean down finish may be substituted for a rubbed finish as noted in this section or as directed by the Engineer.

## 11. Mortar, Grout, Epoxy and Joint Seal:

- (a) **Mortar and Grout:** This work consists of the making and placing of mortar and grout. At least 48 hours prior to the planned use, a copy of the installation instructions and MSDS sheets shall be provided to the Engineer for review and concurrence of their applicability and for verification of proper hole sizes in concrete structures. Such uses include mortar for filling under masonry plates, mortar used to fill voids and repair surface defects, grout used to fill sleeves for anchor bolts, and mortar and grout for other such uses where required or approved.

Concrete areas to be in contact with the mortar or grout shall be cleaned of all loose or foreign material that would in any way prevent bond, and the concrete surfaces shall be flushed with water and allowed to dry until no free-standing water is present.

The mortar or grout shall completely fill and shall be tightly packed into recesses and holes, on surfaces, under structural members, and at other locations specified. After placing, all surfaces of mortar or grout shall be cured as previously specified in 6.01.03-II-9(a)-2, for a period of not less than 3 days.

- (b) **Epoxy:** The epoxy shall be prepared and placed in accordance with the manufacturer's directions and with the equipment prescribed by the manufacturer. Instructions furnished by the supplier for the safe storage, mixing, handling and application of the epoxy shall be followed. Contents of damaged or previously opened containers shall not be used.
- (c) **Joint Seal:** This work consists of sealing joints where shown on the plans or as otherwise directed by the Engineer.

Before placement of the sealing material, the joints shall be thoroughly cleaned of all scale, loose concrete, dirt, dust or other foreign matter. Projections of concrete into the joint space shall be removed. The joint shall be clean and dry before the sealing compound is applied.

The joint sealant shall be prepared and placed in accordance with the manufacturer's directions and with the equipment prescribed by the manufacturer. The sealing compound shall be flush with, or not more than 1/8 inch above the adjacent surface of concrete, cutting off all excess compounds after the application. The joints shall be sealed in a neat and workmanlike manner and when the work is completed, the joints shall effectively seal against infiltration of moisture and water.

The Contractor shall arrange for, and have present at the commencement of the joint-sealing operation, a technically competent manufacturer's representative knowledgeable in the methods of installation of the sealant. The Contractor shall also arrange to have the representative present at such other times as the Engineer may request.

- (d) **Closed Cell Elastomer:** The closed cell elastomer shall be of the thickness specified and installed as shown on the plans and shall be in accordance with M.03.08-6.

**12. Application of Loads:** Loads shall not be applied to concrete structures until the concrete has attained sufficient strength and, when applicable, sufficient pre-stressing and post tensioning has been completed, so that damage will not occur. The means to determine when the concrete has attained sufficient strength shall be the use of Progression cylinders as defined elsewhere in this specification, or other means approved in advance by the Engineer.

- (a) **Earth Loads:** The placement of backfill shall not begin until the concrete is cured and has reached at least 80% of its specified strength unless otherwise permitted by the Engineer.

The sequence of placing backfill around structures shall minimize overturning or sliding forces and flexural stresses in the concrete.

- (b) Construction Loads:** Light materials and equipment may be hand carried onto bridge decks only after the concrete has been in place at least 24 hours providing curing is not interfered with and the surface texture is not damaged.

Prior to the concrete achieving its specified compressive strength, any other live or dead loads imposed on existing, new, or partially completed portions of structures, shall not exceed the reduced load carrying capacity of the structure, or portion of structure. The Contractor may be required to submit calculations to the Engineer that verify these requirements are being met. The compressive strength of concrete ( $f' c$ ) to be used in computing the load-carrying capacity shall be the smaller of the actual field compressive strength at the time of loading or the specified design strength of the concrete. The means to determine the actual field compressive strength shall be approved by the Engineer.

For post-tensioned structures, no live or dead loads shall be allowed on any span until the steel for that span has been tensioned.

- (c)** Precast concrete or steel girders shall not be placed on substructure elements until the substructure concrete has attained 85% of its specified strength.

No load shall be allowed on mortar or grout that has been in place less than 72 hours.

- (d) Traffic Loads:** The concrete deck will not be opened to traffic until at least 14 days after the last placement of deck concrete and until such concrete has attained its specified strength.

**13. Dispute Resolution:** The basis of any dispute resolution is side-by-side and quality control testing by the Contractor or the Contractor's representative. The Contractor and Engineer should perform independent testing on the material to reasonably establish the true characteristics of the material at the time of delivery. Absent of Contractor QC testing, the Engineer's test results will apply to the quantity of concrete represented by the sample, not to exceed 75 c.y.

**Air Content:** Contractor QC Testing must be performed by personnel qualified by The American Concrete Institute as an ACI Concrete Field Testing Technician Grade 1 or higher and performed in accordance with AASHTO T-23. If the Contractor's test results vary from those of the Engineer, the Contractor shall immediately notify the Engineer of the difference and work cooperatively to determine the reasonable cause and recognize the valid test. Should there be agreement, the result of the valid test will be used for acceptance and adjustment purposes for that lot of material. Should there not be an agreement as to the valid test, an additional set of tests should be performed. Results of all valid tests on the same lot may be averaged and used for acceptance and adjustment purposes. Should the Contractor wish to perform additional QC testing on subsequent material, the lot sizes may be adjusted to the amount of material included in that specific delivery. Any such QC testing must be witnessed and agreed to by the Engineer.

**Compressive Strength:** Contractor QC testing for compressive strength must be performed in accordance with AASHTO T-22 by personnel approved by the Engineer. Samples used to dispute the Engineer's test results must be made simultaneously and from the same batch of concrete. Should the Contractor wish to pursue a dispute resolution with regard to compressive strength, the Contractor shall submit in writing to the Engineer all test results, control charts, or other documentation that may be useful in determining if the specific lot(s) of material met the Contract specifications. The Engineer will consider the submittal and may average specific test results on the disputed lot(s) for acceptance and adjustment purposes. Destructive testing of any

kind on the placed concrete structure will not be allowed.

### **III. Additional Requirements for Surface Repairs and Structural Repairs**

**1. Work Area Access and Shielding:** Prior to removal of existing concrete, the Contractor shall provide access to the anticipated work areas so that the inspector and the Contractor may together determine and delineate the exact limits and locations of the work.

The Contractor shall design, furnish, install and remove a shield(s) to prevent debris from entering areas adjacent or beneath the work. The Contractor shall submit working drawings to the Engineer in accordance with 1.05.02. The shield(s) shall be maintained by the Contractor and remain in place during all phases of the repair work.

**2. Concrete Removal:** The perimeter of each area to be repaired shall be saw cut as shown on the plans. All concrete within that area shall be removed to at least 1 inch beneath any visible reinforcing steel and to sound concrete. The reinforcing steel shall not be damaged or its bond in the surrounding concrete. The Contractor must use fifteen (15) pound hammers or other methods accepted by the Engineer.

In addition to removal of concrete to a depth of 1 inch below reinforcing steel, localized areas of removal may be required if embedded galvanic anodes are specified in the Contract, to allow a minimum of 2 inches of concrete cover over the anodes.

Any steel reinforcing scheduled to be left in place that is damaged during the concrete removal process shall be replaced in accordance with 6.02 to the satisfaction of the Engineer and at the expense of the Contractor.

Corroded, missing, or broken reinforcing steel shall be replaced in accordance with 6.02 and as shown on the plans or as directed by the Engineer.

The Contractor shall perform the work in a manner that prevents debris from entering roadway lanes or areas below the structure. All debris shall be removed from the Site and disposed of by the Contractor.

**3. Surface Preparation:** All newly exposed surfaces of concrete shall be sandblasted and be visibly free from oil, solvent, grease, loose particles, or any other foreign matter. Exposed reinforcing steel shall be sandblasted in accordance with SSPC-SP-6, Commercial Blast Cleaning, to remove all contaminants, rust and rust scale.

**4. Installation of Embedded Galvanic Anodes:** After sandblasting reinforcing steel, galvanic anodes shall be embedded where shown on the plans and in accordance with the Contract.

**5. Welded Wire Fabric in Vertical and Overhead Surface Repairs:** Prior to installing formwork, steel welded wire fabric meeting the requirements of M.06.01-3 shall be installed at the proper depth in those areas as shown on the plans or directed by the Engineer. The fabric shall be tied to exposed reinforcing steel or anchored to sound concrete using means approved by the Engineer.

**6. Formwork:** Forms and support systems shall be designed in accordance with 6.01.03-II-1. Forms shall be so designed so that access is from the top of the formwork. If access is not possible from the top of the formwork, the Contractor shall submit a method of concrete placement for review by the Engineer.

**7. Concrete Placement and Curing:** Bonding compounds shall not be used before or during the placement of the concrete. Exposed surfaces shall be wetted with water immediately prior to placement. There shall be no excessive water on the surface or in the formwork. Light rust on sandblasted reinforcing steel can be anticipated and is acceptable.

The temperature of the air and surface to be repaired at the time of placement and curing shall be a minimum of 45°F. Concrete shall be placed and consolidated immediately with appropriate vibratory equipment.

Forms shall be kept moist and shall be left in place for a minimum of 7 days or as shown on the plans.

**8. Form Removal and Sequence of Repair:** Form removal shall be in accordance with 6.01.03-II-1(m) unless otherwise noted on the plans. The Contractor shall follow the sequence of repairs shown on the plans.

**9. Finishing:** Immediately following curing and form stripping, the exposed faces shall be finished in accordance with Subarticle 6.01.03-II-10(c) Grout Clean-Down Finish.

**10. Sounding of Completed Repairs:** Cured and finished areas may be sounded by the Engineer to detect the presence of subsurface voids or delamination. Such areas shall be removed and replaced by the Contractor at its expense until an acceptable repair is in place as determined by the Engineer.

**11. Sealing Concrete Surfaces:** After all repairs have been accepted, penetrating sealer shall be applied in accordance with the Contract to the repaired areas as well as all contiguous areas to the repair or as directed by the Engineer.

**6.01.04—Method of Measurement:** This work will be measured for payment as follows:

**1. Concrete used for new construction:** The quantity of concrete used for new construction will be the actual volume in cubic yards of the specified class, with the exception of underwater concrete, completed and accepted within the neat lines as shown on the plans or as ordered by the Engineer. Parapets will be measured for payment by the number of linear feet of parapet, completed and accepted. The length of parapet will be measured along the centerline of the top of the parapet.

When concrete is placed against bedrock, a maximum of 6 additional inches beyond the neat lines can be measured for payment.

No deduction will be made for panels, form liners, reinforcing bars, structural steel shapes or for pile heads. There will be no deduction made for the volume occupied by culvert and drainage pipes, scuppers, weep holes, public utility structures or any other opening, unless the surface area of any such single opening is 9 s.f. or more.

In the case of culverts or drainage pipes, the computation of the surface area will be based on the nominal diameter of the pipe, disregarding the thickness of the shell.

Miscellaneous materials necessary for completion of the work such as felt, mortar, grout, epoxy and joint seal will not be measured for payment.

Incidental work such as forming for anchor bolts, utilities, keyways, and sampling and testing will not be measured for payment.

The work to produce and administer the Concrete Quality Control Plan (CQCP) will not be measured for payment.

**2. Underwater Concrete:** When underwater concrete is used, it will be measured by the volume in cubic yards within the actual horizontal limits of the cofferdam and between the elevations established by the Engineer.

**3. Concrete used for Surface or Structural Repairs:** The quantity of concrete used for surface repairs or structural repairs will be the actual volume completed and accepted. Welded wire fabric used in repair areas will not be measured for payment.

**4. Joint Filler:** This material will be measured by the area in square feet of the joint filler, of the type and thickness specified, installed and accepted.

**5. Closed Cell Elastomer:** This material will be measured by the volume in cubic inches of elastomer, of the thickness specified, installed and accepted.

**6.01.05—Basis of Payment:** Payment for this work will be made as follows:

**1. Concrete:** Progress payments may be allowed for completed major labor elements of work such as forming, placing and curing. Prior to placement, the Contractor shall submit a proposed schedule of values for review and approval by the Engineer.

Payment for any lot of concrete allowed to remain in place will be adjusted when the field and laboratory testing of the material is completed. The quantity of concrete in each lot for new construction will be a maximum of 75 c.y. Payment for each lot of concrete will be adjusted based on the results of the acceptance testing performed by the Engineer.

The pay factors listed in Table 6.01.05-1 apply for Standard and Modified Standard Mix classes with regard to entrained air content.

**Table 6.01.05-1 Entrained Air Content Pay Factors**

Specified Entrained air (%)*				Pay factor (%)
6.0 +/- 1.5%		7.5 +/- 1.5%		1.00 (100)
4.3 and 4.4	7.6 and 7.7	5.8 and 5.9	9.1 and 9.2	0.98 (98)
4.1 and 4.2	7.8 and 7.9	5.6 and 5.7	9.3 and 9.4	0.96 (96)
3.9 and 4.0	8.0 and 8.1	5.4 and 5.5	9.5 and 9.6	0.94 (94)
3.7 and 3.8	8.2 and 8.3	5.2 and 5.3	9.7 and 9.8	0.92 (92)
3.5 and 3.6	8.4 and 8.5	5.0 and 5.1	9.9 and 10.0	0.90 (90)
Concrete lots with less than 3.5% or greater than 8.5% entrained air will be rejected.		Concrete lots with less than 5.0% or greater than 10% entrained air will be rejected.		
<b>*Air content measured at time and point of placement</b>				

The pay factors listed in Table 6.01.05-2a apply for Standard and Modified Standard Mix classes with regard to compressive strength.

**Table 6.01.05-2a Compressive Strength Pay Factors**

Compressive Strength (%)	Pay factor (%)
95 or greater	1.00 (100)
90 to 94.9	0.95 (95)
85 to 89.9	0.90 (90)
*Measured at 28 days	
Concrete lots with less than 85% specified strength will be rejected.	

The pay factors listed in Table 6.01.05-2b apply for Standard and Modified Standard Mix classes with regard to surface resistivity when specified in accordance with AASHTO T 358 using 4 inch × 8-inch cylinders.

**Table 6.01.05-2b Permeability Pay Factors**

Surface Resistivity (kΩ-cm)*	Pay factor (%)
29 or greater	1 (100)
25 to 28.9	0.85 (85)
21 to 24.9	0.75 (75)
<b>*Measured at 56 days</b>	
Concrete lots with resistivity values less than 21 will be rejected.	

The payment adjustment value for entrained air, 28-day strength, and permeability if applicable, for any lot of concrete for new construction that is allowed to remain in-place is determined using the formulas listed in Table 6.01.05-3a. An Index Price of \$400.00 per c.y. will be used to calculate each adjustment, except for Parapet Concrete, for which an Index Price of \$100 per l.f. will be used. The sum of the individual adjustment values will be deducted from the cubic yard or linear foot payment for the appropriate item.

**Table 6.01.05-3a Payment Adjustment Formulas for New Construction**

Adj (air) = (1 - air pay factor) × Index Price × lot size (c.y. or l.f.)
Adj (strength) = (1 - strength pay factor) × Index Price × lot size (c.y. or l.f.)
Adj (permeability) = (1 - permeability pay factor) × Index Price × lot size (c.y. or l.f.)
Total Adjustment = Adj (air) + Adj (strength) + Adj (permeability)

The payment adjustment value for entrained air and 28-day strength for any lot of repair concrete that is allowed to remain in-place is determined using the formulas listed in Table 6.01.05-3b. An index price of \$200.00 per c.f. shall be used to calculate each adjustment. The total adjustment value will be the sum of each individual adjustment value and will be deducted from the cubic foot payment for the appropriate item.

**Table 6.01.05-3b Payment Adjustment Formulas for Repair Concrete**

Adj (air) = (1 - air pay factor) × \$200/c.f. × lot size (c.f.)
Adj (strength) = (1 - strength pay factor) × \$200/c.f. × lot size (c.f.)
Total Adj = Adj (air) + Adj (strength)

The Contractor shall request permission from the Engineer to remove and replace a lot(s) of concrete to avoid a negative payment adjustment. Any replacement material will be sampled, tested and evaluated in accordance with this specification.

No direct payment will be made for any labor, equipment or materials used during the sampling and testing of the concrete for Progression or Acceptance. The cost shall be considered as included in the general cost of the work or as stated elsewhere in the Contract. The work of transporting the concrete test specimens, after initial curing, for Acceptance testing will be performed by the Department without expense to the Contractor.

This material used for new construction will be paid for at the Contract unit price per cubic yard or linear foot less any adjustments, for the specified class, complete in place, which price shall include all materials, equipment, tools, labor and work incidental thereto, including Concrete Quality Control Plan, heating, all admixtures, joint sealer, roofing felt, and any miscellaneous materials such as metal flashing and metal used in expansion joints and bearings.

**2. Underwater Concrete:** When this class of concrete is used, it will be paid for at the Contract unit price per cubic yard for "Underwater Concrete," complete in place, which price shall include all materials, equipment, tools, labor and work incidental thereto.

**3. Concrete Used For Structural Repairs or Surface Repairs:** The material used for structural repairs or surface repairs will be paid for at the Contract unit price per cubic foot less any adjustments, complete in place, which price shall include saw cutting, removing concrete, sandblasting, cleaning, forming, placing, curing, stripping, and finishing new surfaces, and all materials, equipment, tools, labor and clean-up incidental thereto.

**4. Joint Filler:** Expansion joint filler will be paid for at the Contract unit price per square foot for "Joint Filler for Bridges" of the type and thickness specified, complete in place, which price shall include all materials, equipment, tools, labor and work incidental thereto.

**5. Closed Cell Elastomer:** Closed cell elastomer will be paid for at the Contract unit price per cubic inch for "Closed Cell Elastomer" of the thickness specified, complete in place, which price shall include all materials, equipment, tools, labor and work incidental thereto.

Embedded galvanic anodes, deformed steel bars, and penetrating sealer, will be paid for separately.

Pay Item	Pay Unit
Footing Concrete	c.y.
Footing Concrete (Mass)	c.y.
Abutment and Wall Concrete	c.y.
Abutment and Wall Concrete (Mass)	c.y.
Column and Cap Concrete	c.y.
Column and Cap Concrete (Mass)	c.y.
Bridge Deck Concrete	c.y.
Bridge Deck Concrete (SIP Forms)	c.y.
Parapet Concrete	l.f.
Bridge Sidewalk Concrete	c.y.
Approach Slab Concrete	c.y.
Barrier Wall Concrete	c.y.
Underwater Concrete	c.y.
Surface Repair Concrete	c.f.
Structural Repair Concrete	c.f.
Class PCCXXYZ Concrete	c.y.
(Thickness and Type) Joint Filler for Bridges	s.f.
(Thickness) Closed Cell Elastomer	c.i.



## **SECTION 6.86 - DRAINAGE PIPES, DRAINAGE PIPE ENDS**

### **6.86.01—Description**

### **6.86.02—Materials**

### **6.86.03—Construction Methods**

### **6.86.04—Method of Measurement**

### **6.86.05—Basis of Payment**

**6.86.01—Description:** This work shall consist of furnishing, preparing and installing drainage pipes of the size and type specified, bedding material, joint sealant, rubber gaskets, clamps, collars, grout, grout collars, drainage trench excavation, backfilling or satisfactory disposal of all materials, the removal of which is necessary for the proper completion of the work, connecting proposed drainage systems to existing systems, plugging or abandoning existing pipes and removal of existing pipe within trench limits, as shown on the plans or as directed by the Engineer.

This Section shall also include removal of drainage pipes outside of drainage trench excavation limits, as defined in 2.86.03-1.

**6.86.02—Materials:** The materials for this work shall meet the following requirements: Drainage Pipe, Drainage Pipe Ends, Sealers, Gaskets and connection hardware shall meet the requirements of M.08.01.

Bedding Material shall meet the requirements of M.08.03-1.

Granular Fill, if necessary, shall meet the requirements of M.02.01.

Brick Masonry shall meet the requirements of M.11.03 and Mortar shall meet the requirements of M.11.04.

Concrete used for Concrete Pipe Connections shall be Class “F” Concrete meeting the requirements of M.03.

### **6.86.03—Construction Methods:**

**(1) Drainage Trench Excavation:** Drainage trench excavation and backfilling shall be performed in accordance with 2.86.03 and the requirements of the plans.

Where drainage pipe is to be laid below the surface, a drainage trench shall be excavated to the required depth, the bottom of which shall be graded to the elevation of the bottom of the bedding material.

Where drainage pipe is to be laid in a fill area, the embankment shall be placed and compacted to a minimum elevation 12 inches above the top of the proposed pipe, whereupon the drainage trench excavation shall be performed and the pipe installed.

- (2) **Rock in Drainage Trench Excavation:** When rock, as defined in 2.86.01-2, is encountered, work shall be performed in accordance with 2.86.03 and the requirements of the plans.
- (3) **Drainage Pipe Installation:** New or re-laid drainage pipes shall be installed on 4 inches of bedding material (12 inches if over rock in ledge formation), the details as shown on the plans, or as directed by the Engineer. Prior to placement of the drainage pipe, in accordance with the plans, bedding material shall be pre-shaped to 10% of the total height of the pipe in order to keep the pipe in the center of the trench. Following placement of the drainage pipe, bedding material backfill shall be placed in accordance with the following table:

Internal Pipe Diameter	Required Bedding Material Backfill
< 48 inches *	25% of total height of the pipe
≥ 48 inches *	12 inches above the top of the pipe
*Includes pipe arch of equivalent internal horizontal span See Standard Drawing	

The placement of the drainage pipe shall start at the downstream end and progress upstream or as shown on the plans, or as directed by the Engineer. All drainage pipes shall be carefully laid in the center of the drainage trench, true to the lines and grades given. Bell ends shall face upgrade and all joints shall be tight.

Joints in concrete pipe shall be sealed with cold-applied bituminous sealer, preformed plastic gaskets or flexible, watertight, rubber-type gaskets. Portland cement mortar shall not be used for sealing pipe joints except with permission of the Engineer.

When cold-applied bituminous sealer is used, the bell and spigot ends shall be wiped clean and dry before applying the bituminous sealer to the pipe ends. Before the drainage pipes are placed in contact with each other, the spigot or tongue end shall be completely covered with bituminous sealer; then the pipe shall be laid to line and grade so the inside surface of all abutting pipes are flush. Additional bituminous sealer shall be applied to the joint after the connection has been made to ensure a water tight connection.

Where the end of an existing drainage pipe is not compatible with the end of a proposed concrete pipe, the Contractor shall align the inner diameters of the pipes being connected, butt the pipe ends together, and construct a cast-in-place concrete pipe connection, as shown in the plans. Incompatible bell/spigot or tongue/groove ends shall be cut off as required to ensure the interior drainage pipe walls are aligned to provide a smooth transition between the pipes.

Metal pipe and pipe arches shall be carefully joined and firmly clamped together by approved connecting bands, which shall be properly bolted in place before any backfill is placed.

Newly installed drainage pipe which is not in true alignment, or which shows any settlement or distortion, shall be reinstalled in accordance with 1.05.03.

When drainage pipe outside of proposed drainage trench limits is to be removed, it shall be removed to the limits shown on the plans and all remaining pipes shall be plugged with cement masonry.

Where shown on the plans or directed by the Engineer, the Contractor shall plug abandoned existing pipes with cement masonry.

- (4) Drainage Pipe End Installation:** Reinforced concrete drainage pipe ends shall be placed on a prepared bed of the existing ground and accurately aligned as shown on the plans. The joints shall be sealed as specified in 6.86.03-3 and backfill shall be placed around both sides of the unit simultaneously to the elevation shown on the plans.

Metal drainage pipe ends shall be placed on a prepared bed of the existing ground and accurately aligned as shown on the plans. After the attachment of the drainage pipe end, backfill shall be placed around both sides of the unit up to the elevation shown on the plans, exercising caution to avoid displacement or deformation of the unit.

**6.86.04—Method of Measurement:** This work will be measured as follows:

**Drainage Trench Excavation**, in accordance with 2.86.04, will not be measured for payment.

**Rock in Drainage Trench Excavation** will be measured in accordance with 2.86.04.

**Bedding Material** will not be measured for payment.

**New and Re-laid Pipes and Pipe Arches** will be measured for payment by the actual number of linear feet of pipe or pipe arch of the various sizes and types, completed and accepted and measured in place along the invert. Coupling bands and fittings for pipes and pipe arches will not be measured for payment.

**Reinforced Concrete Drainage Pipe Ends and Metal Drainage Pipe Ends** will be measured for payment as separate units.

**Corrugated Metal Pipe Elbows** (of the Size and Type specified) will be measured for payment by the actual number of linear feet of pipe elbows completed and accepted, based on 6 linear feet per elbow, as shown on the plans. Coupling bands for elbows will not be measured for payment.

**Concrete Pipe Connection** will be measured for payment by the number of each concrete pipe connection constructed at locations where proposed concrete pipes tie into an existing pipe with an incompatible end, completed and accepted by the Engineer.

**Removal of drainage pipe** outside of drainage trench excavation limits, as defined in 2.86.03, will be measured for payment by the actual number of linear feet of drainage pipe removed.

There will be no measurement for plugging existing pipes with cement masonry.

**6.86.05—Basis of Payment:**

**Drainage Trench Excavation** for the installation of drainage pipes will not be paid separately but shall be included in the Contract unit price for the respective drainage pipe or pipe end item(s), in accordance with the provisions of 2.86.05.

**Rock in Drainage Trench Excavation** will be paid for in accordance with the provisions of 2.86.05.

**Bedding Material** necessary for the installation of drainage items described herein will be included in the Contract unit price for the respective drainage pipe or pipe end item(s). Bedding material required to fill voids when rock in drainage trench is encountered will not be measured for payment but shall be included in the Contract unit price for "Rock in Drainage Trench Excavation," in accordance with 2.86.05.

**New Pipes and Pipe Arches** will be paid for at the Contract unit price per linear foot for "(Size and Type) Pipe (Thickness) – 0' to 10' Deep," "(Size and Type) Pipe (Thickness) – 0' to 20' Deep," "(Size) Pipe Arch (Thickness) – 0' to 10' Deep" or "(Size) Pipe Arch (Thickness) – 0' to 20' Deep" complete in place, including materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

**Relaid Pipes and Pipe Arches** will be paid for at the Contract unit price per linear foot for "Relaid Pipe (Size and Type) – 0' to 10' Deep," "Re-laid Pipe (Size and Type) – 0' to 20' Deep," "Relaid Pipe Arch (Size and Type) – 0' to 10' Deep," or "Relaid Pipe Arch (Size and Type) – 0' to 20' Deep," complete in place, including all materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

**Reinforced Concrete Drainage Pipe Ends and Metal Drainage Pipe Ends** will be paid for at the Contract unit price for each drainage pipe end of the Size and Type specified, complete in place, including all excavation, materials, attachment systems, equipment, tools and labor incidental thereto.

**Corrugated Metal Pipe Elbows** will be paid for at the Contract unit price per linear foot for "(Size and Type) Corrugated Metal Pipe Elbow" including all materials, drainage trench excavation, bedding material, equipment, tools, and labor incidental thereto.

**Concrete Pipe Connection** will be paid for at the Contract unit price each for "Concrete Pipe Connection" complete in place, including all materials, equipment, tools and labor incidental thereto.

**Removal of drainage pipes** of all types and sizes, outside of drainage trench excavation limits, as defined in 2.86.03-1, will be paid for at the Contract unit price per linear foot for "Remove Existing Pipe – 0' to 10' Deep," or "Remove Existing Pipe – 0' to 20' Deep," which price shall include excavation, temporary trench protection, backfill, and all equipment, tools and labor incidental thereto.

There will be no direct payment for the plugging of existing drainage pipes, but the cost thereof shall be included in the respective drainage Contract item(s).

Pay Item	Pay Unit
(Size and Type) Pipe (Thickness) – 0' to 10' Deep	l.f.
(Size and Type) Pipe (Thickness) – 0' to 20' Deep	l.f.
(Size and Type) Pipe Arch (Thickness) – 0' to 10' Deep	l.f.
(Size and Type) Pipe Arch (Thickness) – 0' to 20' Deep	l.f.
Relaid (Size and Type) Pipe– 0' to 10' Deep	l.f.
Relaid (Size and Type) Pipe– 0' to 20' Deep	l.f.
(Size and Type) Relaid Pipe Arch – 0' to 10' Deep	l.f.
(Size and Type) Relaid Pipe Arch – 0' to 20' Deep	l.f.
(Size) Reinforced Concrete Drainage Pipe End	ea.
(Size) Metal Drainage Pipe End	ea.
(Size and Type) Corrugated Metal Pipe Elbow	l.f.
Concrete Pipe Connection	ea.
Remove Existing Pipe – 0' to 10' Deep	l.f.
Remove Existing Pipe – 0' to 20' Deep	l.f.

## **SECTION 12.00 – GENERAL CLAUSES FOR HIGHWAY SIGNING**

### **Description:**

Work under this item shall conform to the requirements of Section 12.00 supplemented as follows:

### **12.00.07 – Global Positioning System (GPS) coordinates for signs:**

The Contractor shall obtain and provide to the Engineer sign installation data, including Global Positioning System (GPS) latitude and longitude coordinates, for all new permanent State owned and maintained signs (temporary and construction signs are not to be included) installed in the project. The Engineer shall forward the sign data to the Division of Traffic Engineering for upload into the Highway Sign Inventory and Maintenance Management Program (SIMS). Sign data submissions or questions relating to SIMS or GPS shall be sent to [DOT-SignInventory@ct.gov](mailto:DOT-SignInventory@ct.gov).

The horizontal datum is to be set to the State Plane Coordinate System, North American Datum of 1983 (NAD83) in feet. The minimum tolerance must be within 10 feet. The format of the GPS information shall be provided in a Microsoft Office compatible spreadsheet (Excel) file with data for each sign. The record for each sign installed is to be compatible with the anticipated CTDOT Sign Inventory and Management System (CTSIMS). The following format shall be used. However, the data fields noted by “#” are not required for the project submission. These entries will be completed as part of the Traffic Engineering CTSIMS data upload.

The cost of this work shall be included in the cost of the respective sign face – sheet aluminum and sign face – extruded aluminum items. The receipt of this electronic database must be received and accepted by the Engineer prior to final payment for items involving permanent highway signing. The electronic database information shall detail information regarding the sign actually installed by the project.

Field Number	Type	size	Description
1	text	20	Record Number (starting at 1...)
2	text	20	Sign Catalog Number
# 3	text	10	Size Height
# 4	text	10	Size Width
5	text	25	Legend
# 6	text	10	Background Color
# 7	text	10	Copy Color
8	Link	25	Material (see acceptable categories)
9	text	30	Comments if any
# 10	text	20	MUTCD Type
11	text	15	Town

	12	text	5	Route
	13	text	5	Route direction
#	14	text	10	Highway Log Mileage
	15	text	15	Latitude
	16	text	15	Longitude
	17	text	25	Mounting Type
	18	text	25	Reflective Sheeting Type
	19	date	25	Date Installed
	20	text	10	Number of Posts
	21	text	255	Sheeting Manufacturer name and address
	22	text	15	State Project Number (or)
	23	text	15	Encroachment Permit number.
	24	Graphic	*	Sign Picture Graphic.

\* Graphics provided shall be representative of the sign supplied and be in color. Graphic formats shall be either JPG or TIFF and provided with a recommended pixel density of 800 x 600. The graphic shall be inserted in the supplied media in field 24 for each sign.

## **SECTION M.03 - PORTLAND CEMENT CONCRETE**

*Replace Section M.03 in its entirety with the following:*

### **M.03.01—Component Materials**

### **M.03.02—Mix Design Requirements**

### **M.03.03—Producer Equipment and Production Requirements**

### **M.03.04—Curing Materials**

### **M.03.05—Non Shrink, Non Staining Grout**

### **M.03.06—Expansive Cement for Anchoring**

### **M.03.07—Chemical Anchors**

### **M.03.08—Joint Materials**

### **M.03.09—Protective Compound/Sealers**

### **M.03.10—Formwork**

### **M.03.01—Component Materials**

**1. Coarse Aggregate:** Coarse aggregate shall meet the requirements of M.01.

**2. Fine Aggregate:** Fine aggregate shall meet the requirements of M.01.

#### **3. Cement:**

**(a) Portland:** Types I, II, and III Portland cement shall meet the requirements of AASHTO M 85. Type I and Type III Portland cement shall be used only when required or expressly permitted by the Project specification or the Engineer. The use of Type I or III will require that these mixtures be submitted as Non-standard Mix Designs. All cement shall be provided by a mill participating in the Departments' Cement Certification program. The requirements of the Certification Program are detailed in the Departments' Quality Assurance Program for Materials.

**(b) Pre-Blended Cements:** Binary or Ternary cements consisting of Portland Cement and supplemental cementitious materials may be used provided that all the requirements of M.03.01- 3(a) and -3(c) are met.

**(c) Replacement Materials:** Unless already approved as a Standard Mix Design, any Contractor proposed Mix Designs with partial replacement of Portland Cement (PC) with fly ash or ground granulated blast furnace slag (GGBFS), shall be submitted in writing to the Engineer for approval prior to the start of work, on a project-by-project basis. The type of material, source, and the percentage of the PC replaced shall be clearly indicated. Upon request, a Certified Test Report for the cement replacement material shall be provided to the Engineer for use during the Mix Design review.

**1. Fly Ash:** Fly ash to be used as a partial replacement for Portland cement shall meet the requirements of AASHTO M 295, either Class C or Class F, including the uniformity requirements of Table 2A. Loss on Ignition for either class of fly ash shall not exceed 4.0%. Fly ash may be used to replace up to a maximum of 20% of the required Portland cement for mixes without permeability requirements. For mixes with permeability requirements, the maximum of 20% may be exceeded. The fly ash shall be substituted on a weight basis, with a minimum of 1 lb. of fly ash for 1 lb. of Portland



cement. Different classes of fly ash or the same class from different sources shall not be permitted on any single project without the written approval of the Engineer.

2. **Ground Granulated Blast Furnace Slag (GGBFS):** GGBFS used as a partial replacement for Portland cement shall meet the requirements of AASHTO M 302/ASTM C989, Grade 100 or 120. As determined by the Engineer, GGBFS may be used to replace a maximum of 30% of the required Portland cement for mixes without permeability requirements. For mixes with permeability requirements, the maximum of 30% may be exceeded. The Engineer may restrict or prohibit the use of GGBFS if ambient temperatures anticipated during the placement and initial curing of the concrete are low. The GGBFS shall be substituted on a weight basis, with a minimum of 1 lb. of slag for 1 lb. of Portland cement. Different sources of GGBFS shall not be permitted on any single project without the written approval of the Engineer.

**4. Water:** All water used in the mixing of concrete shall be odorless and clear in appearance. Surface water may be used if not taken from shallow or muddy sources; classified as Class C or Class D on the Department of Energy and Environmental Protection (DEEP) Water Quality Classification mapping; and accommodations have been made to prevent contaminants from entering the supply to the satisfaction of the Engineer. The Engineer may request that water from any surface or ground source be tested in accordance with AASHTO T26 and AASHTO D512 if the appearance or scent of the water is suspect. To be acceptable, the pH of the water must not be less than 6.0 or greater than 8.0 and Chloride Ion Concentration of the water must not exceed 250ppm. Potable water taken directly from a municipal or regional water supply may be used for mixing concrete without testing. Heating or cooling of water may be required to meet mix temperature requirements at time of placement.

**5. Admixtures:** All admixtures shall perform their function without injurious effects upon the concrete. If requested by the TDC, the Contractor shall present a certified statement from a recognized laboratory attesting to this requirement. A "recognized" laboratory is any cement and concrete laboratory approved and inspected regularly by the Cement and Concrete Reference Laboratory (CCRL). The statement shall contain results of compression tests of cylinder specimens made with concrete utilizing the admixture(s) in proportions equal to those proposed by the Contractor. The results of at least 5 standard 6 inch x 12 inch cylinders of each mix design shall be listed with the results of at least 5 like-sized cylinders not utilizing the admixture(s). Specimens must be made and cured in the laboratory in accordance with AASHTO T 126 and will be tested in accordance with AASHTO T 22.

- (a) **Air-Entraining Admixtures:** In the event that air entrained concrete is required, an admixture meeting the requirements of AASHTO M 154 may be used. Tests for 7 and 28-day compressive and flexural strengths and resistance to freezing and thawing are required whereas tests for bleeding, bond strength and volume change will not be required.
- (b) **Other Chemical Admixtures:** In the event that concrete properties are specified that require the use of additional admixtures, or the Contractor proposes the use of additional admixtures to facilitate placement, the admixtures shall meet the requirements of AASHTO M194M/M, including the 1 year performance data.

**M.03.02—Mix Design Requirements**

**1. Standard ConnDOT Mix Designs:** Standard Mix Designs shall be designed in accordance with applicable sections of ACI 211 and ACI 318. The mixtures shall consist of Portland cement, fine aggregate, coarse aggregate, admixtures, and water proportioned in accordance with Table M.03.02-1. The mixtures shall also be designed to obtain the plastic properties of Portland cement concrete as specified in Table 6.01.03-2.

**Table M.03.02-1 Standard Portland Cement Concrete Mixes**

Class <sup>1</sup>	Max. Water/Cement <sup>2</sup> ratio	Min. Cement <sup>2</sup> Content - lb./c.y.	Air Content %	Electrical Resistivity (Permeability) kΩ-cm AASHTO T 358
PCC0223Z	0.69	455	6 +/- 1.5	NA
PCC0334Z	0.48	615		NA
PCC0336Z	0.50	564		NA
PCC0354Z	0.49	615		NA
PCC0446Z	0.44	658		NA
PCC04462	0.42			29 minimum
PCC0556Z	0.40			NA
PCC05562	0.40			29 minimum
PCCXXX81 <sup>3</sup>	0.46		7.5 +/- 1.5	15 maximum
PCCXXX82	0.40			29 minimum

<sup>1</sup> PCCXYZ where:

PCC = Portland Cement Concrete

XXX = 28-day minimum compressive strength (psi/100)

Y = Nominal Maximum Aggregate Size (U.S. Sieve No. Designation)

Z = Exposure Factor (See Table M.03.02-1a)

<sup>2</sup> Portland Cement may be partially replaced within a Standard Mix Design by other approved cementitious material meeting the requirements of M.03.01-3(c) if permitted by the Engineer.

<sup>3</sup> When this class is paid for in a surface or structural repair concrete item, the plastic properties necessary for confined placement to ensure appropriate workability for consolidation within the forms shall be noted on the delivery ticket by the concrete supplier.

**Table M.03.02-1a Exposure Factor per Application**

<b>Exposure</b>		<b>Application</b>
0	Benign	Elements not exposed to weather (buried, enclosed)
1	Moderate	Elements not in contact with salt water or deicing chemicals
2	Severe	Elements in contact with salt water, deicing chemicals, flowing/standing water

Mix designs shall indicate the dosage of admixtures anticipated to provide plastic properties required in the Project specification. Plastic properties of standard mix classes of concrete in the plastic state are listed in Table 6.01.03-2.

Standard Mix Designs are required to be designed and submitted by the concrete producers, and are approved by the Department on a standing basis. Submittal or re-approval of these Standard Mix Designs on an annual basis is not required. Previously approved producer-designed Standard Mixes that have a record of satisfactory performance may be utilized on Department projects unless there is a change in the gravimetric properties or the sources of any materials. Revisions to the Standard Mix Designs, which include changes in component sources, can be submitted at any time to the TDC, but must be approved prior to use on Department projects.

**2. Non-Standard CTDOT Mix Designs:** Any proposed Mix Designs that do not comply with Table M.03.02-1 are required to be submitted 15 days prior to use on a project-by-project basis and be approved by the TDC prior to use. The use of an approved admixture with an otherwise approved Standard Mix Design is not considered non-standard.

All Non-standard Mix Designs used for load-bearing structures shall contain a minimum of 658 lb./c.y. of cementitious materials.

Concrete used in applications such as flowable fill or controlled low-strength material may be designed with less than 658 lb./c.y. of cementitious materials.

### **M.03.03—Producer Equipment and Production Requirements**

**1. General Requirements:** The source of the concrete must be approved by the Engineer prior to use on Department projects. Specifically the location and capacity of the central mix or dry batch plant, and complement of truck mixers/haulers, shall be adequate for continuous placement of concrete on a typical Department project. Approval may be revoked at any time in accordance with 1.06.01.

- (a) Inspection:** The production facility supplying hydraulic cement concrete shall have a current Certification of Ready Mixed Concrete Production Facilities from the National Ready Mixed Concrete Association (NRMCA), or equivalent certification approved by the Engineer.
- (b)** In addition to the requirements of approved third party certification, the facility shall produce batch tickets that meet the requirements of 6.01.03-3(a).
- (c) Quality Control:** The Contractor is responsible for all aspects of Quality Control (QC). As determined by the Engineer, should material delivered to a project not meet specification, the Contractor may be required to submit to the Engineer a corrective procedure for approval within 3 calendar days. The procedure shall address any minor adjustments or corrections made to the equipment or procedures at the facility.
- (d) Suspension:** As determined by the Engineer, repeated or frequent delivery of deficient material to a Department project may be grounds for suspension of that source of material. A detailed QC plan that describes all QC policies and procedures for that facility may be

required to formally address quality issues. This plan must be approved by the Engineer and fully implemented, prior to reinstatement of that facility.

**2. Hand Mixed Concrete:** Hand mixing shall be permitted only with the permission of the Engineer. Hand mixed batches shall not exceed 1/2 c.y. in volume. Hand mixing will not be permitted for concrete to be placed under water.

#### **M.03.04—Curing Materials**

**1. Water:** Any water source deemed acceptable by the Engineer for mixing concrete may be used to provide water for curing purposes. Surface water may be used if classified as Class C or Class D on the Department of Energy and Environmental Protection (DEEP) Water Quality Classification mapping and accommodations have been made to prevent contaminants from entering the supply to the satisfaction of the Engineer. In general, water shall not be taken from shallow or muddy sources. In cases where sources of supply are relatively shallow, the intake pipe shall be enclosed to exclude silt, mud, grass, etc.; and the water in the enclosure shall be maintained at a depth of not less than 2 feet under the intake pipe.

**2. Mats:** Mats for curing concrete shall be capable of maintaining moisture uniformly on the surface of the concrete. The mats shall not contain any materials such as dyes, sugar, etc., that may be injurious to the concrete.

The length or width of the mats shall be sufficient to cover all concrete surfaces being cured. Should more than one mat be required, sufficient overlap shall be provided by the Contractor as determined by the Engineer.

**3. Liquid Membrane-Forming Compound:** Liquid membrane-forming compound shall meet the requirements of AASHTO M 148 Type 2, Class B, or shall be a water-soluble linseed oil-based compound meeting the requirements of AASHTO M 148, Type 2.

**4. White Polyethylene Sheeting (Film):** White polyethylene sheeting (film) shall meet the requirements of AASHTO M 171.

#### **M.03.05—Non Shrink, Non Staining Grout**

**1. Bagged (pre-mixed):** Bagged (pre-mixed) formulations of non-shrink grout shall meet the requirements of ASTM C1107. The grout shall be mixed with potable water for use. The grout shall be mixed to a flowable consistency as determined by ASTM C230. All bagged material shall be clearly marked with the manufacturer's name, date of production, batch number, and written instructions for proper mixing, placement and curing of the product.

**2. Bulk:** The Contractor may formulate and design a grout mix for use on the Project in lieu of using a pre-bagged product. The Contractor shall obtain prior written approval of the Engineer for any such proposed Mix Design. Any such Mix Design shall include the proportions of hydraulic cement, potable water, fine aggregates, expansive agent, and any other necessary additive or admixture. This material shall meet all of the same chemical and physical requirements as shall the pre-bagged grout, in accordance with ASTM C1107.

#### **M.03.06—Expansive Cement for Anchoring**

The premixed anchoring cement shall be non-metallic, concrete gray in color and prepackaged. The mix shall consist of hydraulic cement, fine aggregate, expansive admixtures and water meeting the following requirements:

**1.** The anchoring cement shall have a minimum 24 hour compressive strength of 2,600 psi when tested in accordance with ASTM C109.

2. The water content of the anchoring cement shall be as recommended by the manufacturer. Water shall meet the requirements of M.03.01-4.

The Contractor shall provide a Certified Test Report and Materials Certificate for the premixed anchoring cement in accordance with 1.06.07. The Contractor shall also provide, when requested by the Engineer, samples of the premixed anchoring cement for testing and approval.

### **M.03.07—Chemical Anchors**

Chemical anchor material must be listed on the Departments' Qualified Products List and approved by the Engineer for the specified use.

The chemical anchor material shall be epoxy or polyester polymer resin. It shall not contain any metals or other products that promote corrosion of steel. The Contractor shall supply the Engineer with a Certified Test Report and Materials Certificate for the chemical anchor material in accordance with 1.06.07. When requested by the Engineer, the Contractor shall also provide samples of the chemical anchor material.

### **M.03.08—Joint Materials**

**1. Transverse Joints for Concrete Pavement:** Transverse joints shall consist of corrosion resistant load transfer devices, poured joint seal and in addition, in the case of expansion joints, expansion joint filler all meeting the following requirements:

- (a) The corrosion resistant load transfer device shall be coated steel or sleeved steel or be made of corrosion resistant material. The dimensions of any devices used shall be as shown on the plans, exclusive of any coating or sleeving. Core material of coated or sleeved metallic devices shall be steel meeting the requirements of AASHTO M 255M/M 255 Grade 520, or steel having equal or better properties and approved by the Engineer. Nonmetallic devices shall meet the various strength requirements applicable to metallic devices as well as all other requirements stated herein.
- (b) All coated load transfer devices shall meet the requirements of AASHTO M 254. Uncoated or sleeved load transfer devices shall meet the applicable physical requirements of AASHTO M 254. The use of field applied bond breakers will not be permitted.
- (c) The basis of acceptance for corrosion resistant load transfer devices shall be the submission by the Contractor of a minimum of 2 samples accompanied by Certified Test Reports meeting the requirements of 1.06.07 demonstrating that the load transfer device meets the requirements of AASHTO M 254 for the type of device supplied. The Engineer reserves the right to reject any load transfer device deemed unsatisfactory for use.

**2. Joint Filler for Concrete Curbing:** Expansion joint filler shall be either preformed expansion joint filler or wood joint filler as indicated on the plans and shall meet the following requirements:

- (a) Preformed expansion joint filler shall be the bituminous cellular type and shall meet the requirements of AASHTO M 213.
- (b) Boards for wood joint filler shall have 2 planed sides and shall be redwood, cypress or white pine. Redwood and cypress boards shall be of sound heartwood. White pine boards shall be of sound sapwood. Occasional small, sound knots and medium surface checks will be permitted provided the board is free of any defects that will impair its usefulness for the purpose intended. The joint filler may be composed of more than one length of board in the length of the joint, but no board of a length less than 6 feet shall be used; and the

separate boards shall be held securely to form a straight joint. Boards composed of pieces that are jointed and glued shall be considered as one board.

- (c) Dimensions shall be as specified or shown on the plans; and tolerances of plus 1/16 inch thickness, plus 1/8 inch depth and plus 1/4 inch length will be permitted.
- (d) All wood joint filler boards shall be given a preservative treatment by brushing with creosote oil meeting the requirements of AASHTO M 133. After treatment, the boards shall be stacked in piles, each layer separated from the next by spacers at least 1/4 inch thick; and the boards shall not be used until 24 hours after treatment. Prior to concreting, all exposed surfaces of the wood filler shall be given a light brush coating of form oil.
- (e) Testing of board expansion joint filler shall be in accordance with pertinent sections of AASHTO T 42.

**3. Longitudinal Joint Devices:** The metal used in the fabrication of longitudinal joint devices shall meet ASTM requirements for each type of metal used. The dimensions shall be as shown on the plans.

**4. Expansion Joint Fillers for Bridges and Bridge Bearings:**

- (a) Preformed expansion joint filler for bridges shall meet the requirements of AASHTO M 153, Type I or Type II.
- (b) Pre-molded expansion joint filler for bridge bearings shall meet the requirements of AASHTO M 33.

**5. Joint Sealants:**

(a) **Joint Sealer for Pavement:** The joint sealer for pavement shall be a rubber compound of the hot-poured type and shall meet the requirements of AASHTO M 324 Type II unless otherwise noted on the plans or in the special provisions.

(b) **Joint Sealer for Structures:** Structure joint sealers shall be one of the following type sealants:

1. Where "Joint Seal" is specified on the plans, it shall meet the requirements of the Federal Specifications SS-S-200-E (Self-leveling type), TT-S-0227E (COM-NBS) Type II-Class A (Non-sag type), or 1 component polyurethane-base elastomeric sealants conforming to FS TT-S-00230C Type II-Class A or an approved equal.

A Certified Test Report will be required in accordance with 1.06.07, certifying that the sealant meets the requirements set forth in the Federal Specification. Should the consignee noted on a Certified Test Report be other than the Prime Contractor, a Materials Certificate shall be required to identify the shipment.

2. Where "Silicone Joint Sealant" is specified on the plans, it shall be one of the following or an approved equal:
  - i. Sealant, manufactured by the Dow Corning Corporation, Midland, Michigan 48686-0994
  - ii. Dow Corning 888 Silicone Joint Sealant or
  - iii. Dow Corning 888-SL Self-Leveling Silicone Joint 48686-0994

**6. Closed Cell Elastomer:** The closed cell elastomer shall meet the requirements of ASTM D1056, Grade RE-41 B2. The elastomer shall have a pressure-sensitive adhesive backing on one side.

The Contractor shall deliver the closed cell elastomer to the job site a minimum of 30 days prior to installation. Prior to the delivery of the closed cell elastomer, the Contractor shall notify the Engineer of the date of shipment and the expected date of delivery. Upon delivery of the closed cell elastomer to the job site, the Contractor shall immediately notify the Engineer.

Each separate length, roll or container shall be clearly tagged or marked with the manufacturer's name, trademark and lot number. A lot is defined as that amount of closed cell elastomer manufactured at 1 time from 1 batch of elastomer. A batch is defined as that amount of elastomer prepared and compounded at 1 time. The Contractor shall furnish a Certified Test Report in accordance with 1.06.07, confirming that the closed cell elastomer meets the requirements set forth in these specifications. Should the co-signee noted on a Certified Test Report be other than the Prime Contractor, a Materials Certificate shall be required to identify shipment.

The Contractor shall furnish a 1 foot length of closed cell elastomer in each lot for purposes of inspection and testing by the Engineer. The Engineer will cut a 1 foot sample from each lot and inspect the sample for conformance to size, and perform physical tests on the sample as deemed necessary.

The Engineer shall reject any lot or portion of a lot that does not meet the requirements stated herein. A rejected lot or portion of a lot may be resubmitted provided the Contractor has removed or corrected, in a manner acceptable to the Engineer, all non-conforming material.

#### **M.03.09—Protective Compound/Sealers**

The brand and type of material must be listed on the Department's Qualified Products List and approved by the Engineer for the specified use.

#### **M.03.10—Formwork**

**1. Stay-in-place Forms:** Material for stay-in-place metal forms shall be made of zinc-coated (galvanized) steel sheet meeting ASTM Specification A653 (Structural Steel (SS) Grade 33 through 80). The minimum thickness shall be 20 gauge. Coating weight shall meet the requirements of ASTM A924, Class G235, and shall otherwise meet all requirements relevant to steel stay-in-place metal forms and the placing of concrete as specified herein and as noted in the Contract.

Form supports shall either be fabricated and meet the same material requirements as the forms, or be fabricated from structural steel meeting the requirements of ASTM A36 and shall be hot-dip galvanized in accordance with ASTM A123.

Lightweight filler material for forms shall be as recommended by the form manufacturer.

**2. Temporary Forms and Falsework:** Forms and Falsework shall be of wood, steel or other material approved by the Engineer. This approval does not relieve the Contractor from employing adequately sized materials of sufficient rigidity to prevent objectionable distortion of the formed concrete surfaces caused by pressure of the plastic concrete and other loads incidental to the construction operations.

## **SECTION M.04 - BITUMINOUS CONCRETE MATERIALS**

Section M.04 is being deleted in its entirety and replaced with the following:

### **M.04.01—Bituminous Concrete Materials and Facilities**

### **M.04.02—Mix Design and Job Mix Formula (JMF)**

### **M.04.03—Production Requirements**

**M.04.01—Bituminous Concrete Materials and Facilities:** Each source of material, Plant, and laboratory used to produce and test bituminous concrete must be qualified on an annual basis by the Engineer. AASHTO or ASTM Standards noted with an (M) have been modified and are detailed in Table M.04.03-5.

Aggregates from multiple sources of supply must not be blended or stored in the same stockpile.

**1. Coarse Aggregate:** All coarse aggregate shall meet the requirements listed in M.01.

**2. Fine Aggregate:** All fine aggregate shall meet the requirements listed in M.01.

**3. Mineral Filler:** Mineral filler shall conform to the requirements of AASHTO M 17.

#### **4. Performance Graded (PG) Asphalt Binder:**

##### **(a) General:**

- i. PG asphalt binder shall be uniformly mixed and blended and be free of contaminants such as fuel oils and other solvents. Binder shall be properly heated and stored to prevent damage or separation.
- ii. The binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29. The Contractor shall submit a Certified Test Report and bill of lading representing each delivery in accordance with AASHTO R 26(M). The Certified Test Report must also indicate the binder specific gravity at 77°F; rotational viscosity at 275°F and 329°F; and the mixing and compaction viscosity-temperature chart for each shipment.
- iii. The Contractor shall submit the name(s) of personnel responsible for receipt, inspection, and record keeping of PG binder. Contractor Plant personnel shall document specific storage tank(s) where binder will be transferred and stored until used and provide binder samples to the Engineer upon request. The person(s) shall assure that each shipment is accompanied by a statement certifying that the transport vehicle was inspected before loading was found acceptable for the material shipped and that the binder is free of contamination from any residual material, along with 2 copies of the bill of lading.
- iv. The blending or combining of PG binders in 1 storage tank at the Plant from different suppliers, grades, or additive percentages is prohibited.

**(b) Basis of Approval:** The request for approval of the source of supply shall list the location where the material will be manufactured, and the handling and storage methods, along with necessary certification in accordance with AASHTO R 26(M). Only suppliers/refineries that have an approved “Quality Control Plan for Performance Graded Binders” formatted in accordance with AASHTO R 26(M) may supply PG binders to Department projects.

##### **(c) Standard Performance Grade (PG) Binder:**

- i. Standard PG binder shall be defined as “Neat.” Neat PG binders shall be free from modification with: fillers, extenders, reinforcing agents, adhesion promoters,



thermoplastic polymers, acid modification and other additives such as re-refined motor oil, and shall indicate such information on each bill of lading and Certified Test Report.

ii. The standard asphalt binder shall be PG 64S-22.

**(d) Modified Performance Grade (PG) Binder:** The modified asphalt binder shall be Performance Grade PG 64E-22 asphalt modified solely with a Styrene-Butadiene-Styrene (SBS) polymer. The polymer modifier shall be added at either the refinery or terminal and delivered to the bituminous concrete production facility as homogenous blend. The stability of the modified binder shall be verified in accordance with ASTM D7173 using the Dynamic Shear Rheometer (DSR). The DSR  $G^*/\sin(\delta)$  results from the top and bottom sections of the ASTM D7173 test shall not differ by more than 10%. The results of ASTM D7173 shall be included on the Certified Test Report. The binder shall meet the requirements of AASHTO M 332 (including Appendix X1) and AASHTO R 29.

**(e) Warm Mix Additive or Technology:**

i. The warm mix additive or technology must be listed on the North East Asphalt User Producer Group (NEAUPG) Qualified Warm Mix Asphalt (WMA) Technologies List at the time of bid, which may be accessed online at <http://www.neaupg.uconn.edu>.

ii. The warm mix additive shall be blended with the asphalt binder in accordance with the manufacturer's recommendations.

iii. The blended binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29 for the specified binder grade. The Contractor shall submit a Certified Test Report showing the results of the testing demonstrating the binder grade. In addition, it must include the grade of the virgin binder, the brand name of the warm mix additive, the manufacturer's suggested rate for the WMA additive, the water injection rate (when applicable), and the WMA Technology manufacturer's recommended mixing and compaction temperature ranges.

## **5. Emulsified Asphalts:**

**(a) General:**

i. The emulsified asphalt shall meet the requirements of AASHTO M 140(M) or AASHTO M 208 as applicable.

ii. The emulsified asphalts shall be free of contaminants such as fuel oils and other solvents.

iii. The blending at mixing Plants of emulsified asphalts from different suppliers is prohibited.

**(b) Basis of Approval:**

i. The request for approval of the source of supply shall list the location where the material is manufactured, the handling and storage methods, and certifications in accordance with AASHTO R 77. Only suppliers that have an approved "Quality Control Plan for Emulsified Asphalt" formatted in accordance with AASHTO R 77 and that submit monthly split samples per grade to the Engineer may supply emulsified asphalt to Department projects.

ii. Each shipment of emulsified asphalt delivered to the Project site shall be accompanied with the corresponding Certified Test Report listing Saybolt viscosity, residue by evaporation, penetration of residue, and weight per gallon at 77°F and Material Certificate.

iii. Anionic emulsified asphalts shall meet the requirements of AASHTO M-140. Materials

used for tack coat shall not be diluted and meet grade RS-1 or RS-1h. When ambient temperatures are 80°F and rising, grade SS-1 or SS-1h may be substituted if permitted by the Engineer.

- iv. Cationic emulsified asphalt shall meet the requirements of AASHTO M-208. Materials used for tack coat shall not be diluted and meet grade CRS-1. The settlement and demulsibility test will not be performed unless deemed necessary by the Engineer. When ambient temperatures are 80°F and rising, grade CSS-1 or CSS-1h may be substituted if permitted by the Engineer.

**6. Reclaimed Asphalt Pavement (RAP):**

(a) General: RAP is a material obtained from the cold milling or removal and processing of bituminous concrete pavement. RAP material shall be crushed to 100% passing the 1/2 inch sieve and free from contaminants such as joint compound, wood, plastic, and metals.

(b) Basis of Approval: The RAP material will be accepted on the basis of one of the following criteria:

- i. When the source of all RAP material is from pavements previously constructed on Department projects, the Contractor shall provide a Materials Certificate listing the detailed locations and lengths of those pavements and that the RAP is only from those locations listed.
- ii. When the RAP material source or quality is not known, the Contractor shall request approval from the Engineer at least 30 calendar days prior to the start of the paving operation. The request shall include a Material Certificate and applicable test results stating that the RAP consists of aggregates that meet the specification requirements of M.04.01-1 through M.04.01-3 and that the binder in the RAP is substantially free of solvents, tars and other contaminants. The Contractor is prohibited from using unapproved material on Department projects and shall take necessary action to prevent contamination of approved RAP stockpiles. Stockpiles of unapproved material shall remain separate from all other RAP materials at all times. The request for approval shall include the following:
  - 1. A 50-lb. sample of the RAP to be incorporated into the recycled mixture.
  - 2. A 25-lb. sample of the extracted aggregate from the RAP.

**7. Crushed Recycled Container Glass (CRCG):**

(a) Requirements: The Contractor may propose to use clean and environmentally-acceptable CRCG in an amount not greater than 5% by weight of total aggregate.

(b) Basis of Approval: The Contractor shall submit to the Engineer a request to use CRCG. The request shall state that the CRCG contains no more than 1% by weight of contaminants such as paper, plastic, and metal and conforms to the following gradation:

<b>CRCG Grading Requirements</b>	
<u>Sieve Size</u>	<u>Percent Passing</u>
3/8 inch	100
No. 4	35-100
No. 200	0.0-10.0

The Contractor shall submit a Material Certificate to the Engineer stating that the CRCG complies with all the applicable requirements in this Section.

**8. Joint Seal Material:** Joint seal material must meet the requirements of ASTM D6690 - Type 2. The Contractor shall submit a Material Certificate in accordance with 1.06.07 certifying that the joint seal material meets the requirements of this Section.

**9. Recycled Asphalt Shingles (RAS):** RAS shall consist of processed asphalt roofing shingles from post-consumer asphalt shingles or from manufactured shingle waste. The RAS material under consideration for use in bituminous concrete mixtures must be certified as being asbestos-free and shall be entirely free of whole, intact nails. The RAS material shall meet the requirements of AASHTO MP 23.

The Producer shall test the RAS material to determine the asphalt content and the gradation of the RAS material. The Producer shall take necessary action to prevent contamination of RAS stockpiles.

The Contractor shall submit a Material Certificate to the Engineer stating that the RAS complies with all the applicable requirements in this Section.

**10. Plant Requirements:**

(a) General: The Plant producing bituminous concrete shall comply with AASHTO M 156.

(b) Storage Silos: The Contractor may use silos for short-term storage with the approval of the Engineer. A storage silo must have heated cones and an unheated silo cylinder if it does not contain a separate internal heating system. When multiple silos are filled, the Contractor shall discharge 1 silo at a time. Simultaneous discharge of multiple silos for the same Project is not permitted.

Type of silo cylinder	Maximum storage time for all classes (hr)	
	<u>HMA</u>	<u>WMA/PMA</u>
Open Surge	4	Mfg Recommendations*
Unheated - Non-insulated	8	Mfg Recommendations*
Unheated - Insulated	18	Mfg Recommendations*
Heated - No inert gas	TBD by the Engineer	TBD by the Engineer

\*Not to exceed HMA limits

(c) Documentation System: The mixing Plant documentation system shall include equipment for accurately proportioning the components of the mixture by weight and in the proper order, controlling the cycle sequence, and timing the mixing operations. Recording equipment shall monitor the batching sequence of each component of the mixture and produce a printed record of these operations on each Plant ticket, as specified herein.

If recycled materials are used, the Plant tickets shall include their dry weight, percentage, and daily moisture content.

If a WMA Technology is added at the Plant, the Plant tickets shall include the actual dosage rate.

For drum Plants, the Plant ticket shall be produced at 5 minute intervals and maintained by the vendor for a period of 3 years after the completion of the Project.

For batch Plants, the Plant ticket shall be produced for each bath and maintained by the vendor for a period of 3 years after the completion of the Project. In addition, an asterisk (\*)

shall be automatically printed next to any individual batch weight(s) exceeding the following tolerances:

Each Aggregate Component	±1.5% of individual or cumulative target weight for each bin
Mineral Filler	±0.5% of the total batch
Bituminous Material	±0.1% of the total batch
Zero Return (Aggregate)	±0.5% of the total batch
Zero Return (Bituminous Material)	±0.1% of the total batch

The entire batching and mixing interlock cut-off circuits shall interrupt and stop the automatic batching operations when an error exceeding the acceptable tolerance occurs in proportioning.

The scales shall not be manually adjusted during the printing process. In addition, the system shall be interlocked to allow printing only when the scale has come to a complete rest. A unique printed character (m) shall automatically be printed on the truck and batch plant printout when the automatic batching sequence is interrupted or switched to auto-manual or full manual during proportioning.

**(d) Aggregates:** Aggregate stockpiles shall be managed to prevent segregation and cross contamination. For drum Plants only, the percent moisture content, at a minimum prior to production and half way through production, shall be determined.

**(e) Mixture:** The dry and wet mix times shall be sufficient to provide a uniform mixture and a minimum particle coating of 95% as determined by AASTO T 195(M).

Bituminous concrete mixtures shall contain no more than 0.5% moisture when tested in accordance with AASHTO T 329.

**(f) RAP:** RAP moisture content shall be determined a minimum of twice daily (prior to production and halfway through production).

**(g) Asphalt Binder:** A binder log shall be submitted to the Department's Central Lab on a monthly basis.

**(h) Warm mix additive:** For mechanically foamed WMA, the water injection rate shall be monitored during production and not exceed 2.0% by total weight of binder. For additive added at the Plant, the dosage rate shall be monitored during production.

**(i) Testing Laboratory:** The Contractor shall maintain a laboratory to test bituminous concrete mixtures during production. The laboratory shall have a minimum of 300 s.f., have a potable water source and drainage in accordance with the CT Department of Public Health Drinking Water Division, and be equipped with all necessary testing equipment as well as with a PC, printer, and telephone with a dedicated hard-wired phone line. In addition, the PC shall have a high speed internet connection and a functioning web browser with unrestricted access to <https://ctmail.ct.gov>. This equipment shall be maintained in working order at all times and be made available for use by the Engineer.

The laboratory shall be equipped with a heating system capable of maintaining a minimum temperature of 65°F. It shall be clean and free of all materials and equipment not associated with the laboratory. Sufficient light and ventilation must be provided. During summer months

adequate cooling or ventilation must be provided so the indoor air temperature shall not exceed the ambient outdoor temperature.

The laboratory testing apparatus, supplies, and safety equipment shall be capable of performing all the applicable tests in their entirety that are referenced in AASHTO R 35 and AASHTO M 323. The Contractor shall ensure that the Laboratory is adequately supplied at all times during the course of the Project with all necessary testing materials and equipment.

The Contractor shall maintain a list of laboratory equipment used in the acceptance testing processes including, but not limited to, balances, scales, manometer/vacuum gauge, thermometers, and gyratory compactor, clearly showing calibration and/or inspection dates, in accordance with AASHTO R 18. The Contractor shall notify the Engineer if any modifications are made to the equipment within the laboratory. The Contractor shall take immediate action to replace, repair, or recalibrate any piece of equipment that is out of calibration, malfunctioning, or not in operation.

#### **M.04.02—Mix design and Job Mix Formula (JMF)**

##### **1. Curb Mix:**

(a) Requirements: The Contractor shall use bituminous concrete that meets the requirements of Table M.04.02-1. RAP may be used in 5% increments by weight up to 30%.

(b) Basis of Approval: Annually, an approved JMF based on a mix design for curb mix must be on file with the Engineer prior to use.

The Contractor shall test the mixture for compliance with the submitted JMF and Table M.04.02-1. The maximum theoretical density (Gmm) will be determined by AASHTO T 209. If the mixture does not meet the requirements, the JMF shall be adjusted within the ranges shown in Table M.04.02-1 until an acceptable mixture is produced.

An accepted JMF from the previous operating season may be acceptable to the Engineer provided that there are no changes in the sources of supply for the coarse aggregate, fine aggregate, recycled material (if applicable) and the Plant operation had been consistently producing acceptable mixture.

Any change in component source of supply or consensus properties must be approved by the Engineer. A revised JMF shall be submitted prior to use.

**TABLE M.04.02-1:  
Control Points for Curb Mix Mixtures**

Mix	Curb Mix	Production Tolerances from JMF Target
<b>Grade of PG Binder content %</b>	<b>PG 64S-22 6.5 - 9.0</b>	<b>0.4</b>
<b>Sieve Size</b>		
No. 200	3.0 - 8.0 (b)	2.0
No. 50	10 - 30	4
No. 30	20 - 40	5
No. 8	40 - 70	6
No. 4	65 - 87	7
1/4 inch		
3/8 inch	95 - 100	8
1/2 inch	100	8
3/4 inch		8
1 inch		
2 inch		
<b>Additionally, the fraction of material retained between any 2 consecutive sieves shall not be less than 4%.</b>		
<b>Mixture Temperature</b>		
<b>Binder</b>	325°F maximum	
<b>Aggregate</b>	280-350°F	
<b>Mixtures</b>	265-325°F	
<b>Mixture Properties</b>		
<b>Air Voids (VA) %</b>	0 – 4.0 (a)	
<b>Notes:</b> (a) Compaction Parameter 50 gyrations ( $N_{des}$ ) (b) The percent passing the No. 200 sieve shall not exceed the percentage of bituminous asphalt binder.		

**2. Superpave Design Method – S0.25, S0.375, S0.5, and S1:**

(a) **Requirements:** All designated mixes shall be designed using the Superpave mix design method in accordance with AASHTO R 35. A JMF based on the mix design shall meet the requirements of Tables M.04.02-2 to M.04.02-5. Each JMF and component samples must be submitted no less than 7 days prior to production and must be approved by the Engineer prior to use. All JMFs expire at the end of the calendar year.

All aggregate component consensus properties and tensile strength ratio (TSR) specimens shall be tested at an AASHTO Materials Reference Laboratory (AMRL) by NETTCP Certified Technicians.

All bituminous concrete mixes shall be tested for stripping susceptibility by performing the TSR test procedure in accordance with AASHTO T 283(M) at a minimum every 36 months. The compacted specimens may be fabricated at the Plant and then tested at an AMRL accredited facility. A minimum of 45000 grams of laboratory or plant blended mixture and the

corresponding complete Form MAT-412s shall be submitted to the Division of Material Testing (DMT) for design TSR testing verification. The mixture submitted shall be representative of the corresponding mix design as determined by the Engineer.

- i. Superpave Mixtures with RAP: RAP may be used with the following conditions:
  - RAP amounts up to 15% may be used with no binder grade modification.
  - RAP amounts up to 20% may be used provided a new JMF is approved by the Engineer. The JMF submittal shall include the grade of virgin binder added. The JMF shall be accompanied by a blending chart and supporting test results in accordance with AASHTO M 323 Appendix X1, or by testing that shows the combined binder (recovered binder from the RAP, virgin binder at the mix design proportions, warm mix asphalt additive and any other modifier if used) meets the requirements of the specified binder grade.
  - Two (2) representative samples of RAP shall be obtained. Each sample shall be split, and 1 split sample shall be tested for binder content in accordance with AASHTO T 164 and the other in accordance with AASHTO T 308.
  - RAP material shall not be used with any other recycling option.
- ii. Superpave Mixtures with RAS: RAS may be used solely in HMA S1 mixtures with the following conditions:
  - RAS amounts up to 3% may be used.
  - RAS total binder replacement up to 15% may be used with no binder grade modification.
  - RAS total binder replacement up to 20% may be used provided a new JMF is approved by the Engineer. The JMF submittal shall include the grade of virgin binder added. The JMF shall be accompanied by a blending chart and supporting test results in accordance with AASHTO M 323 Appendix X1, or by testing that shows the combined binder (recovered binder from the RAP, virgin binder at the mix design proportions, warm mix asphalt additive and any other modifier if used) meets the requirements of the specified binder grade.
  - Superpave Mixtures with RAS shall meet AASHTO PP 78 design considerations.
- iii. Superpave Mixtures with CRCG: CRCG may be used solely in HMA S1 mixtures. One percent (1%) of hydrated lime, or other accepted non-stripping agent, shall be added to all mixtures containing CRCG. CRCG material shall not be used with any other recycling option.
- (b) Basis of Approval: The following information must be included in the JMF submittal:
  - i. Gradation, consensus properties and specific gravities of the aggregate, RAP or RAS.
  - ii. Average asphalt content of the RAP or RAS by AASHTO T 164.
  - iii. Source of RAP or RAS and percentage to be used.
  - iv. Warm mix Technology, manufacturer's recommended additive rate and tolerances, and manufacturer recommended mixing and compaction temperatures.
  - v. TSR test report and anti-strip manufacturer and recommended dosage rate if applicable.
  - vi. Mixing and compaction temperature ranges for the mix with and without the warm-mix technology incorporated.
  - vii. JMF ignition oven correction factor by AASHTO T 308.

With each JMF submittal, the following samples shall be submitted to the Division of Materials Testing:

- 4 - one (1) quart cans of PG binder, with corresponding Safety Data Sheet (SDS)
- 1 - 50 lbs. bag of RAP
- 2 - 50 lbs. bags of Plant-blended virgin aggregate

A JMF may not be approved if any of the properties of the aggregate components or mix do not meet the verification tolerances as described in the Department's current QA Program for Materials, Acceptance and Assurance Testing Policies and Procedures.

Any material based on a JMF, once approved, shall only be acceptable for use when it is produced by the designated Plant, it utilizes the same components, and the production of material continues to meet all criteria as specified in Tables M.04.02-2, M.04.02-3 and M.04.02-4. A new JMF must be submitted to the Engineer for approval whenever a new component source is proposed.

Only 1 mix with 1 JMF will be approved for production at a time. Switching between approved JMF mixes with different component percentages or sources of supply is prohibited.



**TABLE M.04.02-2: Superpave Master Range for Bituminous Concrete Mixture Design Criteria**

	<b>S0.25</b>		<b>S0.375</b>		<b>S0.5</b>		<b>S1</b>	
Sieve	Control Points		Control Points		Control Points		Control Points	
inches	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)
2.0	-	-	-	-	-	-	-	-
1.5	-	-	-	-	-	-	100	-
1.0	-	-	-	-	-	-	90	100
3/4	-	-	-	-	100	-	-	90
1/2	100	-	100	-	90	100	-	-
3/8	97	100	90	100	-	90	-	-
No. 4	72	90	-	72	-	-	-	-
No. 8	32	67	32	67	28	58	19	45
No. 16	-	-	-	-	-	-	-	-
No. 30	-	-	-	-	-	-	-	-
No. 50	-	-	-	-	-	-	-	-
No. 100	-	-	-	-	-	-	-	-
No. 200	2.0	10.0	2.0	10.0	2.0	10.0	1.0	7.0
VMA (%)	16.5 ± 1		16.0 ± 1		15.0 ± 1		13.0 ± 1	
VA (%)	4.0 ± 1		4.0 ± 1		4.0 ± 1		4.0 ± 1	
Gse	JMF value		JMF value		JMF value		JMF value	
Gmm	JMF ± 0.030		JMF ± 0.030		JMF ± 0.030		JMF ± 0.030	
Dust / effective binder	0.6 - 1.2		0.6 - 1.2		0.6 - 1.2		0.6 - 1.2	
TSR	≥ 80%		≥ 80%		≥ 80%		≥ 80%	
T-283 Stripping	Minimal as determined by the Engineer							

(c) Mix Status: Each facility will have each type of bituminous concrete mixture rated based on the results of the previous year of production. Mix status will be provided to each bituminous concrete Producer prior to the beginning of the paving season.

The rating criteria are based on compliance with Air Voids and Voids in Mineral Aggregate (VMA) as indicated in Table M.04.03-4 and are calculated as follows:

Criteria A: Percentage of acceptance test results with compliant air voids.

Criteria B: The average of the percentage of acceptance results with compliant VMA and the percentage of acceptance results with compliant air voids.

The final rating assigned will be the lower of the rating obtained with Criteria A or Criteria B.

Mix status is defined as:

“A” – Approved: Assigned to each mixture type from a production facility with a current rating of 70% or greater, or to each mixture type completing a successful PPT.

“PPT” – Pre-Production Trial: Temporarily assigned to each mixture type from a production facility when:

1. there are no compliant acceptance production test results submitted to the Department from the previous year;
2. there is a source change in one or more aggregate components;
3. there is a component percentage change of more than 5% by weight;
4. there is a change in RAP percentage;
5. the mixture has a rating of less than 70% from the previous season;
6. it is a new JMF not previously submitted; or
7. the average of 10 consecutive acceptance results for VFA, Density to  $N_{ini}$  or dust to effective binder ratio does not meet the criteria in tables M.04.02-2 and M.04.02-4.

Bituminous concrete mixtures rated with a “PPT” status cannot be used on Department projects. Testing shall be performed by the Producer with NETTCP certified personnel on material under this status. Test results must confirm that specification requirements in Tables M.04.02-2 through M.04.02-4 are met and the binder content (Pb) meets the requirements in Table M.04.03-2 before material can be used. One of the following methods must be used to verify the test results:

Option A: Schedule a day when a Department Inspector can be at the facility to witness testing

Option B: When the Contractor or their representative performs testing without being witnessed by an Inspector, the Contractor shall submit the test results and a split sample including 2 gyratory molds, 5,000 grams of boxed bituminous concrete, and 5,000 grams of cooled loose bituminous concrete for verification testing and approval

Option C: When the Contractor or their representative performs testing without being witnessed by a Department Inspector, the Engineer may verify the mix in the Contractor’s laboratory

Witnessing or verifying by the Department of compliant test results will change the mix’s status to “A”

The differences between the Department’s test results and the Contractor’s must be within the “C” tolerances included in the [Department’s QA Program for Materials, Acceptance and Assurance Testing Policies and Procedures](#) in order to be verified.

“U” – Not Approved: Status assigned to a type of mixture that does not have an approved JMF. Bituminous concrete mixtures with a “U” status cannot be used on Department projects.

**TABLE M.04.02-3:  
Superpave Consensus Properties Requirements for Combined Aggregate**

Traffic Level	Design ESALs (80kN) Millions	Coarse Aggregate Angularity <sup>(1)</sup>	Fine Aggregate Angularity AASHTO T 304, Method A Minimum %	Flat and Elongated Particles <sup>(2)</sup> ASTM D4791, Maximum %	Sand Equivalent AASHTO T 176, Minimum %
		ASTM D5821, Minimum %			
1	< 0.3	55/- -	40	10	40
2	0.3 to < 3.0	75/- -	40	10	40
3	≥ 3.0	95/90	45	10	45

Notes:  
<sup>(1)</sup> 95/90 denotes that a minimum of 95% of the coarse aggregate, by mass, shall have one fractured face and that a minimum of 90% shall have two fractured faces.  
<sup>(2)</sup> Criteria presented as maximum Percent by mass of flat and elongated particles of materials retained on the No. 4 sieve, determined at 5:1 ratio.

**TABLE M.04.02-4: Superpave Traffic Levels and Design Volumetric Properties**

Traffic Level	Design ESALs (million)	Number of Gyration by Superpave Gyratory Compactor			Percent Density of Gmm from HMA/ WMA Specimen			Voids Filled with Asphalt (VFA) Based on Nominal Mix Size - Inch			
		N <sub>ini</sub>	N <sub>des</sub>	N <sub>max</sub>	N <sub>ini</sub>	N <sub>des</sub>	N <sub>max</sub>	0.25	0.375	0.5	1
1	<0.3	6	50	75	≤91.5	96.0	≤98.0	70-80	70-80	70-80	67-80
2	0.3 to <3.0	7	75	115	≤90.5	96.0	≤98.0	65-78	65-78	65-78	65-78
3	≥3.0	7	75	115	≤90.0	96.0	≤98.0	65-77	65-76	65-75	65-75

**TABLE M.04.02-5:  
Superpave Minimum Binder Content by Mix Type and Level**

<b>Mix Type</b>	<b>Level</b>	<b>Binder Content Minimum</b>
S0.25	1	5.80
S0.25	2	5.70
S0.25	3	5.70
S0.375	1	5.70
S0.375	2	5.60
S0.375	3	5.60
S0.5	1	5.10
S0.5	2	5.00
S0.5	3	5.00
S1	1	4.60
S1	2	4.50
S1	3	4.50

**M.04.03—Production Requirements:**

**1. Standard Quality Control Plan (QCP) for Production:** The QCP for production shall describe the organization and procedures, which the Contractor shall use to administer quality control. The QCP shall include the procedures used to control the production process, to determine when immediate changes to the processes are needed, and to implement the required changes. The QCP must detail the inspection, sampling and testing protocols to be used, and the frequency for each.

Control Chart(s) shall be developed and maintained for critical aspect(s) of the production process as determined by the Contractor. The control chart(s) shall identify the material property, applicable upper and lower control limits, and be updated with current test data. As a minimum, the following quality characteristics shall be included in the control charts:

- percent passing No. 4 sieve
- percent passing No. 200 sieve
- binder content
- air voids
- Gmm
- Gse
- VMA

The control chart(s) shall be used as part of the quality control system to document variability of the bituminous concrete production process. The control chart(s) shall be submitted to the Engineer the first day of each month.

The QCP shall also include the name and qualifications of a Quality Control Manager. The Quality Control Manager shall be responsible for the administration of the QCP, including compliance with the plan and any plan modifications.

The Contractor shall submit complete production testing records to the Engineer within 24 hours in a manner acceptable to the Engineer.

The QCP shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QCP must also include a list of sampling and testing methods and frequencies used during production, and the names of all Quality Control personnel and their duties.

Approval of the QCP does not imply any warranty by the Engineer that adherence to the plan will result in production of bituminous concrete that complies with these specifications. The Contractor shall submit any changes to the QCP as work progresses.

## **2. Acceptance Requirements:**

### **(a) General:**

For those mixes with a total estimated project tonnage over 500 tons, a NETTCP HMA Paving Inspector certified Contractor representative shall obtain a field sample of the material placed at the project site in accordance with AASHTO T 168 using the procedure indicated in Section 5.2.3 or an alternate procedure approved by the Engineer. Sampling from the truck at the Plant in accordance with AASHTO T 168 using the procedure indicated in Section 5.2.2 will be allowed for those mixes with a total estimated project tonnage equal to or less than 500 tons. Regardless of sampling location, the sample shall be quartered by the Contractor in accordance with AASHTO R 47 and placed in an approved container. The container shall be sealed with a security tape provided by the Department and labelled to include the project number, date of paving, mix type, lot and subplot numbers and daily tonnage. The minimum weight of each quartered sample shall be 14000 grams. The Contractor shall transport one of the containers to the Departments Central Laboratory in Rocky Hill, retain one of the sealed containers for potential use in dispute resolution and test the remaining samples for acceptance in accordance with past practice.

The Contractor shall submit all acceptance tests results to the Engineer within 24 hours or prior to the next day's production. All acceptance test specimens and supporting documentation must be retained by the Contractor and may be disposed of with the approval of the Engineer. All quality control specimens shall be clearly labeled and separated from the acceptance specimens.

Contractor personnel performing QC and acceptance testing must be present at the facility prior to, during, and until completion of production, and be certified as a NETTCP HMA Plant Technician or Interim HMA Plant Technician and be in good standing. Production of material for use on State projects must be suspended by the Contractor if such personnel are not present. Technicians found by the Engineer to be non-compliant with NETTCP policies and procedures or Department policies may be removed by the Engineer from participating in the acceptance testing process for Department projects until their actions can be reviewed.

Verification and dispute resolution testing will be performed by the Engineer in accordance with the Department's QA Program for Materials.

Should the Department be unable to validate the Contractor's acceptance test result(s) for a lot of material, the Engineer will use results from verification testing and re-calculate the pay adjustment for that lot. The Contractor may request to initiate the dispute resolution process in writing within 24 hours of receiving the adjustment and must include supporting documentation or test results to justify the request.

**(b) Curb Mix Acceptance Sampling and Testing Procedures:** Curb Mixes shall be tested by the Contractor at a frequency of 1 test per every 250 tons of cumulative production, regardless of the day of production.

When these mix designs are specified, the following acceptance procedures and AASHTO test methods shall be used:

**TABLE M.04.03-1: Curb Mix Acceptance Test Procedures**

<b>Protocol</b>	<b>Reference</b>	<b>Description</b>
<b>1</b>	<b>AASHTO T 30(M)</b>	Mechanical Analysis of Extracted Aggregate
<b>2</b>	<b>AASHTO T 168</b>	Sampling of Bituminous Concrete
<b>3</b>	<b>AASHTO T 308</b>	Binder Content by Ignition Oven Method (adjusted for aggregate correction factor)
<b>4</b>	<b>AASHTO T 209(M)<sup>(2)</sup></b>	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
<b>5</b>	<b>AASHTO T 312<sup>(2)</sup></b>	<sup>(1)</sup> Superpave Gyrotory Molds Compacted to N <sub>des</sub>
<b>6</b>	<b>AASHTO T 329</b>	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method

**Notes:** <sup>(1)</sup> One (1) set equals 2 each of 6-inch molds. Molds to be compacted to 50 gyrations.  
<sup>(2)</sup> Once per year or when requested by the Engineer.

i. Determination of Off-Test Status:

1. Curb Mix is considered “off test” when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1 for that mixture. If the mix is “off test,” the Contractor must take immediate actions to correct the deficiency and a new acceptance sample shall be tested on the same day or the following day of production.
2. When multiple silos are located at 1 site, mixture supplied to 1 project is considered as coming from 1 source for the purpose of applying the “off test” status.
3. The Engineer may cease supply from the Plant when test results from 3 consecutive samples are not within the JMF tolerances or the test results from 2 consecutive samples not within the control points indicated in Table M.04.02-1 regardless of production date.

ii. JMF Revisions

1. If a test indicates that the bitumen content or gradation are outside the tolerances, the Contractor may make a single JMF revision as allowed by the Engineer prior to any additional testing. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.
2. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.

(c) Superpave Mix Acceptance:

i. Sampling and Testing Procedures

Production Lot: The lot will be defined as one of the following types:

- Non-PWL Production Lot for total estimated Project quantities per mixture less than 3500 tons: All mixture placed during a single continuous paving operation.
- PWL Production Lot for total estimated Project quantities per mixture of 3500 tons or more: Each 3500 tons of mixture produced within 30 calendar days.

Production Sub Lot:

- For Non-PWL: As defined in Table M.04.03-2
- For PWL: 500 tons (The last sub lot may be less than 500 tons.)

Partial Production Lots (For PWL only): A Lot with less than 3500 tons due to:

- completion of the course;
- a Job Mix Formula revision due to changes in:
  - o cold feed percentages over 5%,
  - o target combined gradation over 5%,
  - o target binder over 0.15%,
  - o any component specific gravity; or
- a lot spanning 30 calendar days.

The acceptance sample(s) location(s) shall be selected using stratified - random sampling in accordance with ASTM D3665 based on:

- the total daily estimated tons of production for non-PWL lots, or
- the total size for PWL lots.

One (1) acceptance sample shall be obtained and tested per sub lot with quantities over 125 tons. The Engineer may direct that additional acceptance samples be obtained. For non-PWL lots, one (1) acceptance test shall always be performed in the last sub lot based on actual tons of material produced.

For non-PWL lots, quantities of the same mixture per Plant may be combined daily for multiple State projects to determine the number of sub lots.

The payment adjustment will be calculated as described in 4.06.

**TABLE M.04.03-2:  
Superpave Acceptance Testing Frequency per Type/Level/Plant for Non-PWL Lots**

Daily Quantity Produced in Tons (Lot)	Number of Sub Lots/Tests
0 to 125	0, Unless requested by the Engineer
126 to 500	1
501 to 1,000	2
1,001 to 1,500	3
1,500 or greater	1 per 500 tons or portions thereof

The following test procedures shall be used for acceptance:

**TABLE M.04.03-3: Superpave Acceptance Testing Procedures**

Protocol	Procedure	Description
1	AASHTO T 168	Sampling of bituminous concrete
2	AASHTO R 47	Reducing samples to testing size
3	AASHTO T 308	Binder content by ignition oven method (adjusted for aggregate correction factor)
4	AASHTO T 30(M)	Gradation of extracted aggregate for bituminous concrete mixture
5	AASHTO T 312	<sup>(1)</sup> Superpave gyratory molds compacted to $N_{des}$
6	AASHTO T 166	<sup>(2)</sup> Bulk specific gravity of bituminous concrete
7	AASHTO R 35	<sup>(2)</sup> Air voids, VMA
8	AASHTO T 209(M)	Maximum specific gravity of bituminous concrete (average of 2 tests)
9	AASHTO T 329	Moisture content of bituminous concrete

- Notes:** <sup>(1)</sup> One (1) set equals 2 each of 6-inch molds. Molds to be compacted to  $N_{max}$  for PPTs and to  $N_{des}$  for production testing. The first sub lot of the year shall be compacted to  $N_{max}$ .
- <sup>(2)</sup> Average value of 1 set of 6-inch molds.

If the average ignition oven corrected binder content differs by 0.3% or more from the average of the Plant ticket binder content in 5 consecutive tests regardless of the production date (moving average), the Contractor shall immediately investigate, determine an assignable cause, and correct the issue. When 2 consecutive moving average differences are 0.3% or more and no assignable cause has been established, the Engineer may require a new ignition oven aggregate correction factor to be performed or to adjust the current factor by the average of the differences between the corrected binder content and production Plant ticket for the last 5 acceptance results.

The Contractor shall perform TSR testing within 30 days after the start of production for all design levels of HMA- and PMA- S0.5 Plant-produced mixtures, in accordance with AASHTO T 283(M). The TSR test shall be performed at an AMRL certified laboratory by NETTCP certified technicians. The compacted specimens may be fabricated at the Plant and then tested at an AMRL accredited facility. A minimum of 45000 grams of plant blended mixture and the corresponding complete Form MAT-412s shall be submitted to the DMT for production TSR testing verification. The mixture submitted shall be representative of the corresponding mix design as determined by the Engineer. Additionally, the TSR test report and tested specimens shall be submitted to the Engineer for review. Superpave mixtures that require anti-strip additives (either liquid or mineral) shall continue to meet all requirements specified herein for binder and bituminous concrete. The Contractor shall submit the name, manufacturer, percent used, technical datasheet and SDS for the anti-strip additive (if applicable) to the Engineer.

i. Determination of Off-Test Status:

1. Superpave mixes shall be considered “*off test*” when any control point sieve, binder content, VA, VMA, and Gmm value is outside of the limits specified in Table M.04.03-4 or the target binder content at the Plant is below the minimum binder



content stated in Table M.04.02-5. Note that further testing of samples or portions of samples not initially tested for this purpose cannot be used to change the status.

2. Any time the bituminous concrete mixture is considered off-test:
  - A. The Contractor shall notify the Engineer when the Plant is “*off test*” for any mix design that is delivered to the Project in any production day. When multiple silos are located at 1 site, mixture supplied to 1 project is considered as coming from 1 source for the purpose of applying the “*off test*” determination.
  - B. The Contractor must take immediate actions to correct the deficiency, minimize “*off test*” production to the Project, and obtain an additional Process Control (PC) test after any corrective action to verify production is in conformance with the specifications. A PC test will not be used for acceptance and is solely for the use of the Contractor in its quality control process.

ii. Cessation of Supply for Superpave Mixtures in Non-PWL Lots:

A mixture **shall not be used** on Department projects when it is “off test” for:

1. four (4) consecutive tests in any combination of VA, VMA or Gmm, regardless of date of production, or
2. two (2) consecutive tests in the control point sieves in 1 production shift.

As a result of cessation of supply, the mix status will be changed to PPT

iii. JMF revisions:

JMF revisions are only permitted prior to or after a production shift. A JMF revision is effective from the time it was submitted and is not retroactive to the previous test(s).

JMF revisions shall be justified by a documented trend of test results.

Revisions to aggregate or RAP specific gravities are only permitted when testing is performed at an AMRL certified laboratory by NETTCP certified technicians.

A JMF revision is required when the Plant target RAP or bin percentage deviates by more than 5% or the Plant target binder content deviates by more than 0.15% from the active JMF.

**TABLE M.04.03-4: Superpave Mixture Production Requirements**

	<b>S0.25</b>		<b>S0.375</b>		<b>S0.5</b>		<b>S1</b>		Tolerances
Sieve	Control Points		Control Points		Control Points		Control Points		From JMF Targets <sup>(2)</sup>
inches	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	+/- Tolerance
1.5	-	-	-	-	-	-	100	-	
1.0	-	-	-	-	-	-	90	100	
3/4	-	-	-	-	100	-	-	90	
1/2	100	-	100	-	90	100	-	-	
3/8	97	100	90	100	-	90	-	-	
No. 4	72	90	-	72	-	-	-	-	
No. 8	32	67	32	67	28	58	19	45	
No. 16	-	-	-	-	-	-	-	-	
No. 200	2.0	10.0	2.0	10.0	2.0	10.0	1.0	7.0	
Pb	JMF value		JMF value		JMF value		JMF value		0.3 <sup>(3)</sup>
VMA (%)	16.5		16.0		15.0		13.0		1.0 <sup>(4)</sup>
VA (%)	4.0		4.0		4.0		4.0		1.0 <sup>(5)</sup>
Gmm	JMF value		JMF value		JMF value		JMF value		0.030
Mix Temp. – HMA <sup>(6)</sup>	265-325°F <sup>(1)</sup>		265-325°F <sup>(1)</sup>		265-325°F <sup>(1)</sup>		265-325°F <sup>(1)</sup>		
Mix Temp. – PMA <sup>(6)</sup>	285-335°F <sup>(1)</sup>		285-335°F <sup>(1)</sup>		285-335°F <sup>(1)</sup>		285-335°F <sup>(1)</sup>		
Prod. TSR	N/A		N/A		≥80%		N/A		
T-283 Stripping	N/A		N/A		Minimal TBD by the Engineer		N/A		

**Notes:** <sup>(1)</sup> 300°F minimum after October 15.

<sup>(2)</sup> JMF tolerances shall be defined as the limits for production compliance.

<sup>(3)</sup> 0.4 for PWL lots

<sup>(4)</sup> 1.3 for all PWL lots except S/P 0.25 mixes. 1.1 for S/P 0.25 Non-PWL lots. 1.4 for S/P 0.25 PWL lots

<sup>(5)</sup> 1.2 for PWL lots

<sup>(6)</sup> Also applies to placement

**Table M.04.03-5:  
Modifications to Standard AASHTO and ASTM Test Specifications and Procedures**

<b>AASHTO Standard Method of Test</b>	
<b>Reference</b>	<b>Modification</b>
<b>T 30</b>	Section 7.2 through 7.4 Samples are not routinely washed for production testing
<b>T 209</b>	Section 7.2 The average of 2 bowls is used proportionally in order to satisfy minimum mass requirements. 8.3 Omit Pycnometer method.
<b>T 283</b>	When foaming technology is used, the material used for the fabrication of the specimens shall be cooled to room temperature, and then reheated to the manufacturer's recommended compaction temperature prior to fabrication of the specimens.
<b>AASHTO Standard Recommended Practices</b>	
<b>Reference</b>	<b>Modification</b>
<b>R 26</b>	<p>All laboratory technician(s) responsible for testing PG binders shall be certified or Interim Qualified by NETTCP as a PG Asphalt Binder Lab Technician. All laboratories testing binders for the Department are required to be accredited by the AMRL.</p> <p>Sources interested in being approved to supply PG binders to the Department by use of an "in-line blending system" must record properties of blended material and additives used.</p> <p>Each source of supply of PG binder must indicate that the binders contain no additives used to modify or enhance their performance properties. Binders that are manufactured using additives, modifiers, extenders, etc., shall disclose the type of additive, percentage and any handling specifications or limitations required.</p> <p>All AASHTO M 320 references shall be replaced with AASHTO M 332.</p> <p>Once a month, 1 split sample and test results for each asphalt binder grade and each lot shall be submitted by the PG binder supplier to the Department's Central Lab. Material remaining in a certified lot shall be re-certified no later than 30 days after initial certification. Each April and September, the PG binder supplier shall submit test results for 2 BBR tests at 2 different temperatures in accordance with AASHTO R 29.</p>

## **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](mailto: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](http://www.ct.gov/dot)

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

## **SMALL CONTRACTOR AND SMALL CONTRACTOR MINORITY BUSINESS ENTERPRISES (SET-ASIDE)**

March, 2001

NOTE: Certain requirements and procedures stated in this "Special Provision" are applicable prior to the execution of the Contract.

### **I. GENERAL**

- A. The Contractor shall cooperate with the Connecticut Department of Transportation (CONNDOT) in implementing the required contract obligations concerning "Small Contractor" and "Small Contractor Minority Business Enterprise" use on this Contract in accordance with Section 4a-60g of the Connecticut General Statutes as revised. References, throughout this "Special Provision", to "Small Contractors" are also implied references to "Small Contractor Minority Business Enterprises" as both relate to Section IIA of these provisions. The Contractor shall also cooperate with CONNDOT in reviewing the Contractor's activities relating to this provision. This "Special Provision" is in addition to all other equal opportunity employment requirements of this Contract.
- B. For the purpose of this "Special Provision", the "Small Contractor(s)" and "Minority Business Enterprise(s)" named to satisfy the set-aside requirement must be certified by the Department of Administrative Services, Business Connections/ Set-Aside Unit [(860) 713-5236 [www.das.state.ct.us/busopp.htm](http://www.das.state.ct.us/busopp.htm)] as a "Small Contractor" and "Minority Business Enterprises" as defined by Section 4a-60g Subsections (1) and (3) of the Connecticut General Statutes as revised and is subject to approval by CONNDOT to do the work for which it is nominated pursuant to the criteria stipulated in Section IIC-3.
- C. Contractors who allow work which they have designated for "Small Contractor" participation in the preaward submission required under Section IIC to be performed by other than the approved "Small Contractor" organization and prior to concurrence by CONNDOT, will not be paid for the value of the work performed by organizations other than the "Small Contractor" designated.
- D. If the Contractor is unable to achieve the specified contract goals for "Small Contractor" participation, the Contractor shall submit written documentation to CONNDOT's Manager of Construction Operations indicating his/her good faith efforts to satisfy goal requirements. Documentation is to include but not be limited to the following:



1. A detailed statement of the efforts made to select additional subcontract opportunities for work to be performed by each "Small Contractor" 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 contracts with each "Small Contractor", including the names, addresses, dates and telephone numbers of each "Small Contractor" contacted, and a description of the information provided to each "Small Contractor" regarding the scope of services and anticipated time schedule of items proposed to be subcontracted and the nature of response from firms contacted.
  3. For each "Small Contractor" that placed a subcontract quotation which the Contractor considered not to be acceptable, provide a detailed statement of the reasons for this conclusion.
  4. Documents to support contacts made with CONNDOT requesting assistance in satisfying the contract specified or adjusted "Small Contractor" dollar requirements.
  5. Document other special efforts undertaken by the Contractor to meet the defined goal.
- E. Failure of the Contractor to have at least the specified dollar amount of this contract performed by "Small Contractor" as required in Section IIA of this "Special Provision" will result in the reduction in contract payment to the Contractor by an amount equivalent to that determined by subtracting from the specific dollar amount required in Section IIA, the dollar payments for the work actually performed by each "Small Contractor". The deficiency in "Small Contractor" achievement, will therefore, be deducted from the final contract payment. However, in instances where the Contractor can adequately document or substantiate its good faith efforts made to meet the specified or adjusted dollar amount to the satisfaction of CONNDOT, no reduction in payments will be imposed.
- F. All records must be retained for a period of three (3) years following completion of the contract and shall be available at reasonable times and places for inspection by authorized representatives of CONNDOT.
- G. Nothing contained herein, is intended to relieve any contractor or subcontractor or material supplier or manufacturer from compliance with all applicable Federal and State legislation or provisions concerning equal employment opportunity, affirmative action, nondiscrimination and related subjects during the term of this Contract.

## II. SPECIFIC REQUIREMENTS

In order to increase the participation of "Small Contractors", CONNDOT requires the following:

A. Not less than **twelve (12%)** percent of the **final** value of this Contract shall be subcontracted to and performed by, and/or supplied by, manufactured by and paid to "Small Contractors" and/or "Small Contractors Minority Business Enterprises".

*If the above percentage is zero (0%) AND an asterisk (\*) has been entered in the adjacent brackets [ ], this Contract is 100% solely set-aside for participation by "Small Contractors" and/or "Small Contractors Minority Business Enterprises".*

B. The Contractor shall assure that each "Small Contractor" will have an equitable opportunity to compete under this "Special Provision", particularly by arranging solicitations, time for the preparation of Quotes, Scope of Work, and Delivery Schedules so as to facilitate the participation of each "Small Contractor".

C. The Contractor shall provide to CONNDOT's Manager of Contracts within Seven (7) days after the bid opening the following items:

1. An affidavit (Exhibit I) completed by each named "Small Contractor" subcontractor listing a description of the work and indicating the dollar amount of all contract(s) and/or subcontract(s) that have been awarded to him/her for the current State Fiscal Year (July 1 - June 30) does not exceed the Fiscal Year limit of \$10,000,000.00.
2. A certification of work to be subcontracted (Exhibit II) signed by both the Contractor and the "Small Contractor" listing the work items and the dollar value of the items that the nominated "Small Contractor" is to perform on the project to achieve the minimum percentage indicated in Section IIA above.
3. A certification of past experience (Exhibit III) indicating the scope of work the nominated "Small Contractor" has performed on all projects, public and private, for the past two (2) years.
4. In instances where a change from the originally approved named "Small Contractor" (see Section IB) is proposed, the Contractor is required to submit, in a reasonable and expeditious manner, a revised submission, comprised of the documentation required in Section IIC, Paragraphs 1, 2 and 3 and Section E together with documentation to substantiate and

justify the change, (i.e., documentation to provide a basis for the change) to CONNDOT's Manager of Construction Operations for its review and approval prior to the implementation of the change. The Contractor must demonstrate that the originally named "Small Contractor" is unable to perform in conformity to specifications, or unwilling to perform, or is in default of its contract, or is overextended on other jobs. The Contractor's ability to negotiate a more advantageous contract with another "Small Contractor" is not a valid basis for change. Documentation shall include a letter of release from the originally named "Small Contractor" indicating the reason(s) for the release.

- D. After the Contractor signs the Contract, the Contractor will be required to meet with CONNDOT's Manager of Construction Operations or his/her designee to review the following:
1. What is expected with respect to the "Small Contractor" set aside requirements.
  2. Failure to comply with and meet the requirement can and will result in monetary deductions from payment.
  3. Each quarter after the start of the "Small Contractor" the Contractor shall submit a report to CONNDOT's Manager of Construction Operations indicating the work done by, and the dollars paid to each "Small Contractor" to date.
  4. What is required when a request to sublet to a "Small Contractor" is submitted.
- E. The Contractor shall submit to CONNDOT's Manager of Construction Operations all requests for subcontractor approvals on standard forms provided by the Department.

If the request for approval is for a "Small Contractor" subcontractor for the purpose of meeting the contract required "Small Contractor" percentage stipulated in Section IIA, a copy of the legal contract between the Contractor and the "Small Contractor" subcontractor must also be submitted at the same time. Any subsequent amendments or modifications of the contract between the Contractor and the "Small Contractor" subcontractor must also be submitted to CONNDOT's Manager of Construction Operations with an explanation of the change(s). The contract must show items of work to be performed, unit prices and, if a partial item, the work involved by both parties.

In addition, the following documents are to be attached:

- (1) A statement explaining any method or arrangement for renting equipment. If rental is from a Contractor, a copy of Rental Agreement must be submitted.
- (2) A statement addressing any special arrangements for manpower.
- (3) A statement addressing who will purchase material.

F. Contractors subcontracting with a "Small Contractor" to perform work or services as required by this "Special Provision" shall not terminate such firms without advising CONNDOT, in writing, and providing adequate documentation to substantiate the reasons for termination if the designated "Small Contractor" firm has not started or completed the work or the services for which it has been contracted to perform.

G. Material Suppliers or Manufacturers

If the Contractor elects to utilize a "Small Contractor" supplier or manufacturer to satisfy a portion or all of the specified dollar requirements, the Contractor must provide the Department with:

1. An executed Affidavit Small Contractor (Set-Aside) Connecticut Department of Transportation Affidavit Supplier or Manufacturer (sample attached), and
2. Substantiation of payments made to the supplier or manufacturer for materials used on the project.

Brokers and packagers shall not be regarded as material Suppliers or manufacturer.

H. Non-Manufacturing or Non-Supplier "Small Contractor" Credit

Contractors may count towards its "Small Contractor" goals the following expenditures with "Small Contractor" firms that are not manufacturers or suppliers:

1. Reasonable fees or commissions charged for providing a bona fide service such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, material or supplies necessary for the performance of the contract provided that the fee or commission is determined by the Department of Transportation to be reasonable and consistent with fees customarily allowed for similar services.

2. The fees charged for delivery of materials and supplies required on a job site (but not the cost of the materials and supplies themselves) when the hauler, trucker, or delivery service is not also the manufacturer of or a regular dealer in the materials and supplies, provided that the fee is determined by the Department of Transportation to be reasonable and not excessive as compared with fees customarily allowed for similar services.
3. The fees or commissions charged for providing any bonds or insurance specifically required for the performance of the Contract, provided that the fee or commission is determined by the Department of Transportation to be reasonable and not excessive as compared with fees customarily allowed for similar services.

### III. **BROKERING**

For the purpose of this "Special Provision", a "Broker" is one who acts as an agent for others in negotiating contracts, purchases, sales, etc., in return for a fee or commission. Brokering of work by a "Small Contractor" is not allowed and is a contract violation.

### IV. **PRE-AWARD WAIVERS:**

If the Contractor's submission of the "Small Contractor" listing, as required by Section IIC indicates that it is unable, by subcontracting to obtain commitments which at least equal the amount required by Section IIA, it may request, in writing, a waiver of up to 50% of the amount required by Section IIA. To obtain such a waiver, the Contractor must submit a completed "Application for Waiver of Small Contractor Minority Business Enterprise Goals" to CONNDOT's Manager of Contracts which must also contain the following documentation:

1. Information described in Section ID.
2. For each "Small Contractor" contacted but unavailable, a statement from each "Small Contractor" confirming its unavailability.

Upon receipt of the submission requesting a waiver, the CONNDOT's Manager of Contracts shall submit the documentation to the Director of the Office of Contract Compliance who shall review it for completeness. After completion of the Director of Contract Compliance's review, she/he should write a narrative of his/her findings of the application for a waiver, which is to include his/her recommendation. The Director of Contract Compliance shall submit the written narrative to the Chairperson of the DBE Screening Committee at least five (5) working days before the scheduled meeting. The Contractor shall be invited to attend the meeting and present his/her position. The DBE Screening Committee shall render a decision on the waiver request within five (5)

working days after the meeting. The DBE Screening Committee's decision shall be final. Waiver applications are available from the CONNDOT Manager of Contracts.

SMALL CONTRACTOR/\*MINORITY BUSINESS ENTERPRISE
(\* Delete if not Applicable)
SET-ASIDE PROGRAM
(QUALIFICATION AFFIDAVIT)

PROJECT(s) \_\_\_\_\_
(INCLUDING TOWN & DESCRIPTION)

STATE OF \_\_\_\_\_ CONNECTICUT \_\_\_\_\_

COUNTY OF \_\_\_\_\_

I \_\_\_\_\_, ACTING IN BEHALF

OF \_\_\_\_\_, DO HEREBY CERTIFY

PERSON FIRM OR ORGANIZATION

AND AFFIRM THAT THE INFORMATION SET FORTH BELOW IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE. AS OF THIS DATE \_\_\_\_\_ THE LIST OF SMALL CONTRACTOR SET-ASIDE PROGRAM - CONTRACTS AND/OR SUBCONTRACTS AWARDED DURING THE CURRENT FISCAL YEAR ( JULY 1 - JUNE 30) 20 \_\_\_\_\_ IS AS FOLLOWS:

Table with 5 columns: Col. 1 TOWN AND PROJECT NUMBER, Col. 2 STATE AGENCY WHICH AWARDED CONTRACT, Col. 3 CONTRACT AMOUNT AWARDED UNDER THIS PROGRAM, Col. 4 AMOUNT OF WORK SUBCONTRACTED FROM OTHER FIRMS UNDER THIS PROGRAM, Col. 5 TOTAL AMOUNT OF ALL WORK UNDER THIS PROGRAM Col. 3 Plus Col. 4. Includes a 'TOTALS' row at the bottom.

NAME OF PERSON, FIRM OR ORGANIZATION

(FIRM SEAL)

SIGNATURE & TITLE OF OFFICIAL

SWORN TO AND SUBSCRIBED BEFORE ME BY \_\_\_\_\_

WHO IS PERSONALLY KNOWN TO ME, THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20 \_\_\_\_\_

(NOTARY PUBLIC)

MY COMMISSION EXPIRES \_\_\_\_\_ SEAL

PLEASE NOTE THAT ALL THE WORK AWARDED OR SUBCONTRACTED TO YOUR FIRM UNDER THE SET-ASIDE PROGRAM IN A FISCAL YEAR (JULY 1-JUNE 30) INCLUDING THIS PROJECT, CANNOT BE MORE THAN \$10,000,000.00





CERTIFICATION  
PAST CONSTRUCTION EXPERIENCE

EXHIBIT III

SMALL CONTRACTOR / \* MINORITY BUSINESS ENTERPRISES \* Delete if not applicable

PLEASE LIST ALL CONSTRUCTION PROJECTS YOUR ORGANIZATION HAS WORKED ON IN THE PAST TWO FISCAL YEARS

PROJECT LOCATION NUMBER AND DESCRIPTION APPLICABLE	CONTRACT AMOUNT	IF WORK PERFORMED AS PRIME GIVE OWNERS NAME IF WORK PERFORMED AS SUBCONTRACTOR GIVE CONTRACTORS NAME	START DATE	ACTUAL OR ESTIMATED COMPLETION DATE	NAME AND PHONE OF OWNER OR PRIME CONTRACTOR AS

SIGNED BY: \_\_\_\_\_  
SMALL BUSINESS CONTRACTOR  
\*MINORITY BUSINESS ENTERPRISES

D.O.T. PROJECT NO. \_\_\_\_\_

\* Delete if not applicable

MARCH, 2001

**SMALL CONTRACTOR/SMALL CONTRACTOR MINORITY BUSINESS ENTERPRISE  
(MBE) (SET-ASIDE) CONNECTICUT DEPARTMENT OF TRANSPORTATION  
AFFIDAVIT – SUPPLIER OR MANUFACTURER**

This affidavit must be completed by the State Contractor's designated Small Contractor/ Small Contractor Minority Business Enterprise (MBE), notarized and attached to the contractor's request to utilize a Small Contractor/Small Contractor Minority Business Enterprise (MBE) supplier or manufacturer as a credit towards its Small Contractor/Small Contractor Minority Business Enterprise (MBE) contract requirement; failure to do so will result in not receiving credit towards the contract Small Contractor/Small Contractor Minority Business Enterprise (MBE) requirement.

State Project No. \_\_\_\_\_  
Federal Aid Project No. \_\_\_\_\_  
Description of Project \_\_\_\_\_

I, \_\_\_\_\_, acting in behalf of \_\_\_\_\_  
(Name of person signing Affidavit) (Small Contractor/Small Contractor MBE contractor person,  
\_\_\_\_\_ of which I am the \_\_\_\_\_ affirm that \_\_\_\_\_  
firm, association or certify and corporation) (Title of Person) (Small  
Contractor/Small Contractor MBE person, firm, association or corporation)  
\_\_\_\_\_ is a certified Small Contractor/Small  
Contractor Minority Business Enterprise, as defined by Section 4a-60g of the Connecticut General  
Statutes, as revised.

I further certify and affirm that \_\_\_\_\_  
(Small Contractor/Small Contractor MBE person, firm, association or corporation)  
will assume the actual and contractual responsibility for the provision of the materials and/or supplies  
sought by \_\_\_\_\_. If a manufacturer, I produce goods from raw  
(State Contractor)  
materials or substantially alter them before resale, or if a supplier, I perform a commercially useful  
function in the supply process.

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

\_\_\_\_\_  
(Name of Small Contractor/Small Contractor MBE person, firm, association or corporation)

\_\_\_\_\_  
(Signature and Title of Official making the Affidavit)

Subscribed and sworn to before me, the \_\_\_\_\_ day of \_\_\_\_\_ 200\_\_\_\_\_.

\_\_\_\_\_  
Notary Public (Commissioner of the Superior Court)

My Commission Expires \_\_\_\_\_

**CERTIFICATE OF CORPORATION**

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

\_\_\_\_\_  
(Signature of Person Certifying)

\_\_\_\_\_  
(Date)

(Corporate Seal)

## **ITEM #0202216A – EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL**

**Description:** This work shall consist of excavating existing channel bottom material in areas where the channel bottom is to be disturbed and regraded to create a work area for a bridge, culvert, articulated concrete block placement or cofferdam installation. This item shall also include the stockpiling and protecting of the excavated material on the Site, subsequent placement of the stockpiled material in the channel, and the removal and proper disposal of all unused and unacceptable material.

**Materials:** The material for this item shall consist of the existing naturally-formed rocks, cobbles, gravel, soils and clean natural sediments from within the channel.

Any material excavated from ledge (bedrock) formations or broken from larger boulders will not be accepted. Broken concrete will not be accepted.

**Construction Methods:** The Contractor shall submit for the Engineer's approval a proposed location for stockpiling material. The proposed location shall be upland where disruption to the stream channel or impact to wetland areas caused by moving the excavated channel bottom material to and from the stockpile are minimized during the placement of material. The Contractor shall prepare the area approved by the Engineer, suitable in size and location for stockpiling the existing channel bottom material.

The stockpile shall be located where it can remain undisturbed for the duration of the stream channel construction and shall be protected using sedimentation control measures. The stockpile area shall be cleared and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of a separation barrier such as: structural fabric, polyethylene sheeting, or similar. The stockpile area shall be adequately covered to protect the excavated channel bottom material from erosion by rain or other forces.

After clearing and grubbing, the Engineer will identify the limits of the exposed channel bottom material to be excavated under this item. The Engineer will identify the bottom limit of excavation, an amount up to but not exceeding 24 inches in depth, based upon visual inspection of the channel bottom material, unless otherwise specified in the Contract. After the limits of excavation have been determined, the Contractor shall excavate the channel bottom material, separate from any other roadway, structure, channel or unsuitable material excavation in the area. After the channel bottom material, and approved supplemental streambed channel material if needed, has been placed in the stockpile area, no other excavated or off-Site material shall be placed in the stockpile.

The stockpiled channel bottom material shall be placed at the designated location(s) to the required thickness as shown on the plans, denoted on the permit application, or as directed by the Engineer. Equipment and placement techniques shall prevent integration with the surrounding material and shall keep the channel bottom material relatively homogenous. Channel material

shall be placed in a manner that replicates the original condition of the channel prior to excavation.

The Contractor shall perform all containment, diversion, or other separation of the channel flow when placing the channel bottom material to minimize sediment transport downstream.

The disposal of any surplus or unsuitable material shall be in accordance with Section 2.02. Restore the stockpile area as directed by the Engineer.

If it is agreed by the Engineer that there is an insufficient quantity of excavated channel bottom material within the Project limits, the Contractor shall obtain Supplemental Streambed Channel Material as specified under that item.

**Method of Measurement:** This work will be measured for payment by the number of cubic yards of channel bottom material excavated, stockpiled, maintained, and accepted, including disposal of unacceptable and surplus materials.

The Engineer will delineate the horizontal pay limit prior to the start of excavation. The vertical pay limit will be measured from the top of the existing channel bottom to the bottom of excavation required specifically for the stockpiling of channel bottom material.

Any material excavated beyond the approved horizontal pay limits or deeper than the depth of channel bottom material identified and approved by the Engineer will not be measured for payment under this item. Should such additional excavation be required to complete the Contract work, it will be measured for payment separately under the applicable pay items.

**Basis of Payment:** Payment for this work will be made at the Contract unit price per cubic yard for "Excavation and Reuse of Existing Channel Bottom Material." The price shall include all materials, equipment, tools and labor incidental to the preparation of the stockpile area, excavation of channel bottom, hauling of the material to the stockpile, and separation of any rock ledge or concrete debris, storing, and protecting (including but not limited to sedimentation controls and covering of excavated material).

Payment for clearing and grubbing of the approved stockpile area will be included in the item "Clearing and Grubbing."

Payment for the removal and proper disposal of all unused and unacceptable material will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Payment for supplemental streambed channel material will be included in the item "Supplemental Streambed Channel Material." If no item appears in the proposal, the work will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Payment for all containment, diversion or other separation of stream flow from the excavation of channel bottom material will be included in the item "Cofferdam and Dewatering" or special provision for "Handling Water."

Excavation of material not identified by the Engineer for stockpiling and reuse in accordance with this specification will be paid in accordance with Section 2.02.

Pay Item	Pay Unit
Excavation and Reuse of Existing Channel Bottom Material	c.y.

## **ITEM #0202217A – SUPPLEMENTAL STREAMBED CHANNEL MATERIAL**

**Description:** This work shall consist of procuring, transporting and placing supplemental streambed channel material meeting the visual inspection requirements herein, along stream bank/channel improvement locations as shown on the plans or denoted on the Project's permit applications. This work shall also include any necessary temporary protection and stockpiling of the supplemental streambed channel material on the Site and removal and proper disposal of all unused material.

**Materials:** When a sufficient quantity of material is not available from the existing streambed channel within the permitted footprint of the Site, the Contractor shall furnish visually inspected and accepted supplemental streambed channel material from an off-Site source.

The supplemental streambed channel material for this item shall be consistent with the existing naturally-formed cobbles and rocks, gravel, and clean natural sediments found within the existing channel. Rock excavated from ledge (bedrock) formations, broken from larger boulders, broken concrete or angular material will not be accepted. Rock larger than 12 inches in diameter will not be accepted. Silts and clays will not be accepted.

The visual inspection of the supplemental streambed channel material shall be performed by the Engineer at the off-Site source prior to delivery of material to the Site. The Contractor shall notify the Engineer at least 10 days in advance of the need for inspection of proposed off-Site material.

**Construction Methods:** At the start of construction, the Contractor shall prepare an area, approved by the Engineer, suitable in size and location for stockpiling the supplemental streambed channel bottom material. The Contractor shall select an upland location where disruption to the stream channel or impact to wetland areas caused by moving the supplemental streambed channel bottom material to and from the stockpile are minimized during the placement of material. The stockpile shall be located where it can remain undisturbed for the duration of the stream channel construction and shall be protected using sedimentation control measures.

The stockpile area shall be cleared and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of structural fabric if required. The stockpile area shall be adequately covered to protect the supplemental streambed channel material from erosion by rain or other forces. After the supplemental streambed channel material and the excavated channel bottom material to be reused have been placed in the stockpile areas, no other excavated or off-Site material shall be placed in the stockpiles.

The reused and supplemental streambed channel material shall be placed at the designated location(s) to the required thickness as shown on the plans or denoted on the permit application, or as directed by the Engineer. Equipment and placement techniques shall prevent integration

with the surrounding material and shall keep the channel bottom material relatively homogenous. Reused and supplemental streambed channel material shall be placed in a manner that replicates the original condition of the channel prior to excavation.

The Contractor shall perform all containment, diversion, or other separation of the channel flow when placing the reused and supplemental streambed channel material to minimize sediment transport downstream.

The disposal of any surplus or unsuitable material shall be in accordance with Section 2.02. Restore the stockpile area as directed by the Engineer.

**Method of Measurement:** Work under this item shall be measured for payment as provided under Article 1.09.04 – Extra and Cost-Plus Work.

The sum of money shown on the estimate and in the itemized proposal as “Estimated Cost” for this work will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount bid for the Contract.

**Basis of Payment:** This work will be paid for under Article 1.09.04 – Extra and Cost Plus Work.

Payment for clearing and grubbing of the approved stockpile area will be included in the item “Clearing and Grubbing.”

Payment for excavation and reuse of existing channel bottom material will be included in the item “Excavation and Reuse of Existing Channel Bottom Material.”

Payment for all containment, diversion or other separation of stream flow from the excavation of channel bottom material will be included in the item “Cofferdam and Dewatering” or special provision for "Handling Water."

Pay Item	Pay Unit
Supplemental Streambed Channel Material	est.



**ITEM #0204151A - HANDLING WATER**

**Description:** Work under this item shall consist of designing, furnishing, installing, maintaining, removing and disposing of a temporary water handling system. This may include water-handling-cofferdams (temporary barriers), bypass pipes, bypass pumps/hoses, temporary energy dissipation, sumps, drainage channels, and equipment and work necessary for dewatering.

A temporary water handling system redirects surface water beyond, through, or around the limits of construction to allow work to be done in the dry.

**Materials:** The materials required for this work shall be as shown on the plans, on the accepted working drawings, or as ordered by the Engineer.

**Construction Methods:** The Contractor shall prepare and submit written procedures for handling water. Working drawings, in accordance with Article 1.05.02, shall also be prepared and submitted.

The Contractor shall consider stream conditions and water elevations associated with the Site to determine the type of temporary water handling system required to redirect water away from work being performed. The system shall be designed to be compatible with the stage construction and Maintenance and Protection of Traffic, as indicated in the Contract, and shall conform to Section 1.10.

The Contractor shall be responsible for maintenance of the water handling system. If the system becomes damaged or displaced during construction, the system shall be corrected as required.

Unless otherwise provided or directed, all temporary water handling system components shall be removed and disposed of in an acceptable manner when no longer required.

**Method of Measurement:** The work under this item, being paid 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 price for “Handling Water” or “Handling Water (Site No. X)” complete and accepted, which price shall include designing (including submittals and working drawings), furnishing, installing, maintaining, removing, and disposing of all temporary water handling system components as are necessary for completion of the work. This price shall include all materials, equipment, tools, labor and work incidental thereto.

A schedule of values for payment shall be submitted to the Engineer for review and comment.

Pay Item	Pay Unit
Handling Water	l.s.

**ITEM #0406275A - FINE MILLING OF BITUMINOUS CONCRETE (0" TO 4")**

**Description:** This work shall consist of the milling, removal, and disposal of existing bituminous concrete pavement.

**Construction Methods:** The Contractor shall remove the bituminous concrete material using means acceptable to the Engineer. The pavement surface shall be removed to the line, grade, and existing or typical cross-section shown on the plans or as directed by the Engineer.

The bituminous concrete material shall be disposed of offsite by the Contractor at an approved disposal facility unless otherwise stated in the Contract.

Any milled surface, or portion thereof, that is exposed to traffic shall be paved within five (5) calendar days unless otherwise stated in the plans or Contract.

The equipment for milling the pavement surface shall be designed and built for milling bituminous concrete pavements. It shall be self-propelled with sufficient power, traction, and stability to maintain depth and slope and shall be capable of removing the existing bituminous concrete pavement.

The milling machine shall be equipped with a built-in automatic grade averaging control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results. The longitudinal controls shall be capable of operating from any longitudinal grade reference, including string line, contact ski (30 feet minimum), non-contact ski (20 feet minimum), or mobile string line (30 feet minimum). The transverse controls shall have an automatic system for controlling cross-slope at a given rate. The Engineer may waive the requirement for automatic grade or slope controls where the situation warrants such action.

The machine shall be able to provide a 0 to 4 inch deep cut in one pass. The rotary drum of the machine shall use carbide or diamond tipped tools spaced not more than  $\frac{5}{16}$  inch apart. The forward speed of the milling machine shall be limited to no more than 45 feet/minute. The tools on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.

The machine shall be equipped with an integral pickup and conveying device to immediately remove material being milled from the surface of the roadway and discharge the millings into a truck, all in one operation. The machine shall also be equipped with a means of effectively limiting the amount of dust escaping from the milling and removal operation.

When milling smaller areas or areas where it is impractical to use the above described equipment, the use of a lesser equipped milling machine may be permitted when approved by the Engineer.

Protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor's responsibility and shall be repaired at the Contractor's expense.

To prevent the infiltration of milled material into the storm drainage system, the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that has fallen into inlet openings or inlet grates shall be removed at the Contractor's expense.

**Surface Tolerance:** The milled surface shall provide a satisfactory riding surface with a uniform textured appearance. The milled surface shall be free from gouges, longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, improper use of equipment, or poor workmanship. The Contractor, under the direction of the Inspector, shall perform random spot-checks with a Contractor supplied ten-foot straightedge to verify surface tolerances at a minimum of five (5) locations per day. The variation of the top of two ridges from the testing edge of the straightedge, between any two ridge contact points, shall not exceed  $\frac{1}{4}$  inch. The variation of the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed  $\frac{1}{4}$  inch. Any unsatisfactory surfaces produced are the responsibility of the Contractor and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer.

The depth of removal will be verified by taking measurements every 250 feet per each pass of the milling machine, or as directed by the Engineer. These depth measurements shall be used to monitor the average depth of removal.

Where a surface delamination between bituminous concrete layers or a surface delamination of bituminous concrete on Portland cement concrete causes a non-uniform texture to occur, the depth of milling shall be adjusted in small increments to a maximum of  $\pm \frac{1}{2}$  inch to eliminate the condition.

When removing bituminous concrete pavement entirely from an underlying Portland cement concrete pavement, all of the bituminous concrete pavement shall be removed leaving a uniform surface of Portland cement concrete, unless otherwise directed by the Engineer.

Any unsatisfactory surfaces produced by the milling operation are the Contractor's responsibility and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer.

No vertical faces, transverse or longitudinal, shall be left exposed to traffic unless the requirements below are met. This shall include roadway structures (catch basins, manholes, utility valve boxes, etc.). If any vertical face is formed in an area exposed to traffic, a temporary paved transition shall be established according to the requirements shown on the plans. If the milling machine is used to form a temporary transition, the length of the temporary transition shall conform to Special Provision Section 4.06 –Bituminous Concrete, "Transitions for Roadway Surface," the requirements shown on the plans, or as directed by the Engineer. At all

permanent limits of removal, a clean vertical face shall be established by saw cutting prior to paving.

Roadway structures shall not have a vertical face of greater than one (1) inch exposed to traffic as a result of milling. All structures within the roadway that are exposed to traffic and greater than one (1) inch above the milled surface shall receive a transition meeting the following requirements:

For roadways with a posted speed limit of 35 mph or less\*:

1. Round structures with a vertical face of greater than 1 inch to 2.5 inches shall be transitioned with a hard rubber tapered protection ring of the appropriate inside diameter designed specifically to protect roadway structures.
2. Round structures with a vertical face greater than 2.5 inches shall receive a transition of bituminous concrete formed at a minimum 24 to 1 (24:1) taper in all directions.
3. All rectangular structures with a vertical face greater than 1 inch shall receive a transition of bituminous concrete formed at a minimum 24 to 1 (24:1) taper in all directions.

\*Bituminous concrete tapers at a minimum 24 to 1 (24:1) taper in all directions may be substituted for the protection rings if approved by the Engineer.

For roadways with a posted speed limit of 40, 45 or 50 mph:

1. All structures shall receive a transition of bituminous concrete formed at a minimum 36 to 1 (36:1) taper in the direction of travel. Direction of travel includes both the leading and trailing side of a structure. The minimum taper shall be 24 to 1 (24:1) in all other directions.

For roadways with a posted speed limit of greater than 50 mph:

1. All structures shall receive a transition of bituminous concrete formed at a minimum 60 to 1 (60:1) taper in the direction of travel. Direction of travel includes both the leading and trailing side of a structure. The minimum taper shall be 24 to 1 (24:1) in all other directions.

All roadway structure edges and bituminous concrete tapers shall be clearly marked with fluorescent paint. The paint shall be maintained throughout the exposure to traffic.

The milling operation shall proceed in accordance with the requirements of the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications, or other Contract requirements. The more stringent specification shall apply.

Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a sweeper truck. The sweeper truck shall be equipped with a water tank and be capable of removing the millings and loose debris from the surface. The sweeper truck shall operate at a forward speed that allows for the maximum pickup of millings from the roadway surface. Other sweeping equipment may be provided in lieu of the sweeper truck where acceptable by the Engineer.

Any milled area that will not be exposed to live traffic for a minimum of 48 hours prior to paving shall require a vacuum sweeper truck in addition to, or in lieu of, mechanical sweeping. The vacuum sweeper truck shall have sufficient power and capacity to completely remove all millings from the roadway surface including any fine particles within the texture of the milled surface. Vacuum sweeper truck hose attachments shall be used to clean around pavement structures or areas that cannot be reached effectively by the main vacuum. Compressed air may be used in lieu of vacuum attachments if approved by the Engineer.

**Method of Measurement:** This work will be measured for payment by the number of square yards of area from which the milling of asphalt has been completed and the work accepted. No area deductions will be made for minor unmilled areas such as catch basin inlets, manholes, utility boxes and any similar structures.

**Basis of Payment:** This work will be paid for at the Contract unit price per square yard for “Fine Milling of Bituminous Concrete (0” to 4”).” This price shall include all equipment, tools, labor, and materials incidental thereto.

No additional payments will be made for multiple passes with the milling machine to remove the bituminous surface.

No separate payments will be made for cleaning the pavement prior to paving; providing protection and doing handwork removal of bituminous concrete around catch basin inlets, manholes, utility valve boxes and any similar structures; repairing surface defects as a result of the Contractors negligence; providing protection to underground utilities from the vibration of the milling operation; removal of any temporary milled or paved transition; removal and disposal of millings; furnishing a sweeper truck and sweeping after milling. The costs for these items shall be included in the Contract unit price.

Pay Item	Pay Unit
Fine Milling of Bituminous Concrete (0”to 4”)	S.Y.

**ITEM #0514226A – PRESTRESSED DECK UNITS (3’-0” X 2’-0”)**

Work under these items shall conform to the requirements of Section 5.14 amended as follows:

**Article 5.14.01—Description:** Add the following:

All prestressed deck units shall be cast and approved prior to initiation of the Route 14 detour.

**Article 5.14.03—Construction Methods: 1. Shop Drawings:** Add the following:

Prior to fabrication, the Contractor shall submit working drawings and supporting computations for the embedded lifting and seating devices required for the handling and installation of the prestressed deck units to the Engineer for review in accordance with 1.05.02. The working drawings for the lifting hooks shall include complete details and substantiating calculations including any manufacturer’s data. Prior to applying load to the embedded devices, the concrete shall attain the minimum concrete compressive strength associated with the safe working load of the device.

Prior to installation of the prestressed deck units, the Contractor shall submit working drawings and supporting computations for the lifting and placement of the prestressed deck units, to the Engineer for review in accordance with 1.05.02. Cranes shall be operated in accordance with the Connecticut Department of Public Safety regulations. The Contractor shall be responsible for verifying the weight of each lift. The working drawing submittal shall include, but not be limited to the following:

- Plan of the work area showing all structures, roads, railroad tracks, Federal and State regulated areas as depicted on the plans, overhead and subsurface utilities, property lines, or any other information relative to erection. No picks shall be allowed over vehicular, pedestrian, railway or vessel traffic.
- A detailed narrative describing the lifting and installation sequence.
- Manufacture’s data sheet for the crane(s) including the load/capacity chart. The capacity of the crane shall be adequate for the total lift/pick load including rigging, spreaders and other materials. In the area of railroads and navigable waterways, the capacity shall be as required by the regulatory authorities.
- Manufacturer’s data sheets and product data sheets for all rigging (slings, spreader bars, blocks, etc.), lifting devices, and other connecting equipment and hardware listing the number, type, size, arrangement and capacity of each.
- Location of each crane for each pick.

- Crane support measures, including any support beneath the outriggers such as bearing pads, crane mats, planking or special decking, or other means to transfer the crane's total weight (including the lifted load) into the earth or structure beneath it.
- Delivery location of each component.
- Boom length and the lift and setting radius for each pick (or maximum lift radius).
- Pick point location(s) on each component.
- Lifting weight of each component including rigging (clamps, spreader beams, etc.)

## **ITEM #0601091A - SIMULATED STONE MASONRY**

### **Description:**

This item shall consist of furnishing and installing textured and colored formed concrete surfaces using simulated stone molds (form liners) and a color staining system designed to duplicate closely the appearance of natural stone as described herein of the type and size called for on the plans, including accessories and hardware and in accordance with these specifications. The architectural form liner simulated stone masonry shall be monolithically formed with the reinforced concrete wall.

### **Materials:**

1. Quality Of Work: The process of form lining, texturing and color staining of the hardened concrete shall be performed in strict accordance with the manufacturer's written recommendations and as approved by the Engineer.
2. The design and pattern of form lined concrete surfaces shall follow the layout shown on the contract plans and the manufacturer's standard drawing. Final coloration of cast stone concrete surfaces shall closely simulate the appearance of real stone.
3. Quality Assurance:
  - a. Manufacturer of Simulated Stone Molds and Custom Coloring Systems shall have five years experience making custom simulated stone molds and color stains to create formed concrete surfaces to match natural stone shapes, surface textures and colors.
  - b. Contractor/Subcontractor (installer) shall have five years experience pouring vertically formed architectural concrete. The installer shall be trained in the manufacturer's special techniques in order to achieve realistic surfaces.
  - c. Color Stain System Application shall be performed by the manufacturer or manufacturer's authorized representative. The stain shall be applied by an applicator who has experience with similar projects.
  - d. A Pre-installation Meeting shall be scheduled with the manufacturer's representative, installer, designer, and Department inspection personnel to assure understanding of simulated stone masonry use, color staining application, and to coordinate the work.
4. Protection: The contractor is solely responsible for construction methods, means, techniques, and for construction site safety precautions. The contractor shall conduct all construction operations in conformance with all applicable local, state and federal safety laws, rules,



regulations and codes. All Material Safety Data Sheets (MSDS) shall be available for inspection.

5. Manufacturer: Subject to compliance with the design and specification requirements, the contractor shall provide simulated stone masonry and color staining system as manufactured by Custom Rock International, Inc., St. Paul, Minnesota, or approved equivalent.
6. Materials:
  - a. Simulated Stone Molds (form liners) shall be made of reusable elastomeric form liners, made of high-strength urethane and cutable form liners, made of lower grade urethane, easily attachable to forms. Formliners shall leave crisp, sharp definition of the architectural surface. Recurring textural configurations exhibited by repeating, recognizable shadow patterns shall be prevented by proper casting of formliner patterns. Form liners shall not compress more than 1/4 inch when concrete is poured at a rate of 10 vertical feet per hour. Form liners shall be removable without causing deterioration of surface or underlying concrete. No substitutions will be permitted.
  - b. The form liner shall conform to the Pattern No. 1208K “Drystack” manufactured by Custom Rock International, St. Paul, Minnesota, or an approved equivalent pattern as shown on the plans with a maximum relief of 2”, and including texture and color staining system.
  - c. The form liner shall be designed to permit 180 degree rotation and interconnection with itself or another pattern liner of differing horizontal dimension. Maximum relief of pattern and the average relief shall be as shown on the contract plans. The simulated stone pattern shall vary in a random manner in the coursing parameters to prevent noticeable multiple duplicate pattern repetition and avoid stacked joints.
  - d. In addition to orthogonal surfaces, the form liner shall be capable of forming curved and/or battered surfaces, if shown on the plans, while maintaining the dimensioned coursing and plumb vertical joints without distortion.
7. Release Agent: The release agent shall be compatible with simulated stone masonry and with color staining system to be applied to surface, as recommended by the manufacturer.
8. Form Ties: Form ties shall be designed to separate at least one inch back from finished surface, leaving only a neat hole that can be plugged with compatible patching material.
9. Color Stain: The color stain shall be a penetrating stain mix as provided by the manufacturer, shall achieve color variations present in the natural stone being simulated for the project, as approved by the Engineer and in accordance Items 1 and 2 above. The stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight or weathering. The stain mix shall be a water borne, low V.O.C. material, less than 180 grams/liter, and shall meet

requirements for weathering resistance of 2000 hours accelerated exposure measured by weather-o-meter in accordance with ASTM G23 with 3-bulb. Scrub test 1000 revolutions. Abrasive resistance (Tabor-CF-10) 500 cycles. Adhesion ASTM D3359 1.OOMM cross cuts on glass pass 3 or higher on a scale of 1 to 5. The contractor shall supply information pertaining to chemical resistance in accordance with ASTM D1308.

### **Construction Methods:**

1. Shop Drawings and Submittals: Before fabricating any materials, the contractor shall submit shop drawings, product data sheets and samples to the Engineer for approval in accordance with Article 1.05.02 for the materials listed in Item 3 below. These drawings and submittals shall include, but not be limited to, the following information: manufacturer's name, listing of product compliance with referenced specification standards, complete details of the assemblies, material designations, nominal hardness of appropriate materials, design loads, quantities and locations. The Engineer's drawings shall not be reproduced, traced or used for shop drawings or erection purposes.
2. Field Measurements: Prior to ordering or fabricating any materials, the contractor shall take complete and accurate field measurements.
3. Submittals:
  - a. Catalog cuts, manufacturer's literature, and technical data for the materials specified herein, including but not limited to simulated stone mold pattern, form liner, release agent, concrete patching material and color charts for staining of hardened concrete.
  - b. Photographs: Color photographs of three (3) similar past projects of the manufacturer. Include project names, locations and a telephone number of the previous projects Owner's representatives.
  - c. Samples: Form ties, sample and description, showing method of separation when forms are removed.
  - d. Plan, elevation and details to show overall pattern, joint locations, form tie locations, and end, edge and other special conditions.
4. Scheduling: Schedule color stain application with earthwork and back filling of any wall areas making sure that all simulated stone texture is colored to the minimum distance below grade. Delay adjacent plantings until color application is completed. Coordinate the work to prevent interference with other trades.

5. Test Panels: At least 30 days prior to construction of the first textured and colored concrete surfaces, the Contractor shall prepare a test panel with a full scale field mock-up of the formed concrete surface (4' x 4') showing the proposed color, pattern, joint treatment and layout as shown on the plans or in the Manufacturer's catalog. If the resulting appearance is not acceptable to the Engineer, adjustments shall be made to the color, pattern, finished texture and/or joint treatment and another test panel shall be prepared for inspection. The accepted mock-up shall provide the standard for the work.
  
6. Installation:
  - a. Contractor's responsibilities:
    1. Install liners.
    2. Apply manufacturer release agent.
    3. Install concrete as specified elsewhere in the Specifications.
    4. Remove form liner.
    5. Patching, grinding and bush hammering of form liner seams as required.
    6. Provide scaffolding and heat as required, and clean water for power washing of the hardened concrete prior to the staining process.
    7. Power washing and patching of form liners.
    8. Return of form liners to manufacturer.
  
  - b. Manufacturer's responsibilities:
    1. Ship and supply form liners and release agent.
    2. Technical information.
    3. Power wash wall.
    4. Apply the color staining process.
  
7. Liner to Form Attachment System: Securely attach form liners to forms with wood or sheet metal screws; threaded inserts added to the back of the form liner for bolts to fasten the form liner through the forms, or; bolted through the face of the form liner with flat head bolts inserted in a pattern joint and through the form liner and forming system. Construction adhesives may be used, but not on reusable forms. Place adjacent form liners with less than 1/4 inch separation between form liners.
  
8. Release of Form Liners From Hardened Concrete: Only manufacturer recommended form release agents (Lark V or Orna Con) shall be utilized and shall be applied to the form liners before the concrete is poured. Release agents shall be applied in strict accordance with release agent manufacturer recommendations. Hand-charged sprayers will only be allowed if a thin uniform coating of release agent is obtained on the form liner.
  
9. Remove the form liner from the wall within 24 hours of pouring the concrete. The form liners may be detached from the forms and then removed from the concrete, or they may remain attached to the forms and the entire forming system removed from the concrete.

Remove the form liners from the top, down. Curing of concrete may be accomplished with form liners and forms placed back against the wall after the initial detachment. Other means of curing can also be used including curing blankets and/or plastic. Curing compounds shall not be used.

10. Care and Cleaning of Form Liner: Form liners shall be cleaned the same day they are removed from the wall with a power wash and mild detergent. Synthetic brushes with stiff bristles may be used on stubborn areas. Mild acid washes may also be used. Solvents shall not be used. If necessary, patching of holes shall be performed with 100% clear silicone caulk. Form liners shall be stored inside or under a protective, non-transparent cover, in a vertical, upside-down position.
11. Wall Patching and Preparation: After form liners are removed from the hardened concrete, the textured uncolored surface shall be prepared for color staining. All holes larger than 3/4" in greatest principal dimension shall be filled with concrete patching material such as Tamm's Speed-Crete or equal mixed with latex or acrylic bonder, as approved by the manufacturer and Engineer. All honeycombed areas shall be filled and textured to match surrounding areas. Seam lines and other unnatural protrusions shall be ground down to match adjacent areas with a hand-held power grinder using discs made for concrete. Grinding of seams shall be performed immediately after removal of the form liners. Perform final bush hammering to blend defects and ground areas into the final rock texture. In particular, the process of wall patching and preparation shall be subject to approval of the manufacturer and Engineer.
12. Color Staining (by manufacturer): The hardened concrete shall be a minimum of 30 days old before color staining is applied. Power wash the wall to free it from laitance, dirt, oil and other objectionable materials. After the wall has dried, the color staining process is applied using colors approved by the Engineer. Color staining shall be applied in such a way that the stones shall have individual colorations from adjacent stones. Water-based stains shall be used in air temperatures between 50 degrees F and 100 degrees F. Solvent-based stains shall be used in air temperatures of 50 degrees F and below, but in no case when the temperature of the hardened concrete is 40 degrees and falling. During color staining operations the Contractor shall protect property, pedestrians, vehicular and other traffic in the vicinity of the wall against damage or disfigurement from errant stain materials. Comply with all environmental regulations regarding surface cleaning, stain application, ground and watercourse protection and disposal protection of waste materials. Refer to Section 1.10 of the Standard Specifications (Form 817).
13. Simulated Stone Molds Preparation: Clean and make free of buildup prior to each pour. Inspect for blemishes and tears. Repair if needed following manufacturer's recommendations.

**Method of Measurement:**

This work shall be measured for payment by the actual number of square yards of the face area of accepted architectural form liner, poured in place simulated stone masonry, completed within the neat lines as shown on the plans, or as ordered by the Engineer.

**Basis of Payment:**

This Work will be paid for at the contract unit price per square yard for “Simulated Stone Masonry”, complete in place, which price shall include all equipment, formwork molds, test panels, and all other tools and labor incidental thereto.

This work shall also include the cost of furnishing and application of the color stain system to the simulated stone masonry surface.

Pay Item

Simulated Stone Masonry

Pay Unit

s.y.

## **ITEM #0601276A – PRECAST SUBSTRUCTURE ELEMENTS**

### **Description:**

Work under this item shall consist of furnishing, erecting and installing all precast substructure elements (abutment stems and wingwall stems), including all necessary materials and equipment to complete the work as shown on the plans. The use of cast-in-place concrete will not be considered for substitution.

This item shall also include the development of an Assembly Plan for the erection of the precast elements.

All precast abutment elements shall be cast and approved prior to initiation of the Route 14 detour. The Assembly Plan shall be approved prior to the initiation of the Route 14 detour.

### **Materials:**

1. The concrete mix design for all precast elements shall meet the requirements of M.03.02, Class PCC05560, and shall be submitted to the Engineer.
2. The concrete mix design for the cast-in-place elements and components, such as shear keys and voids, shall meet the requirements of M.03.02, Class PCC05560, and shall be submitted to the Engineer.
3. The reinforcement shall be galvanized and shall conform to the requirements of Article M.06.01.
4. Corrugated metal pipe shall conform to the requirements of AASHTO M 36 or AASHTO M 245.
5. All lifting fixtures, keys, threaded inserts, bolts, devices, attachments, and miscellaneous hardware cast into precast concrete component shall be of a design satisfactory for the purpose intended and shall be galvanized in accordance with ASTM A153 or ASTM B695, grade 50, or be stainless steel. All portions of the lifting and seating devices shall be recessed from the finished concrete surface.
6. The dowel bar splicer system shall be galvanized and shall conform to the requirements of Subarticle M.06.02.
7. Non-shrink grout shall meet the requirements of M.03.05 and be suitable for submerged applications.
8. Leveling Methods: Precast elements shall be placed on leveling devices that are adjustable and can support the anticipated loads. Leveling devices shall be designed by

the contractor. Flowable grout or controlled low strength material may be used after the placement on the leveling devices if further leveling of the precast elements deemed necessary. The leveling devices shall be shown on the working drawings.

### **Construction Methods:**

**1. Submittals:** All submittals shall include a title sheet with the following:

- Project number, town and crossing.
- Bridge number, when shown on the plans.
- Design code, as applicable.
- Contact information for fabricator – contact information shall include name and address of the fabricator and the name of contact person with phone number and email address.

**(a) Shop Drawings - Precast Concrete Components:** Prior to fabrication, the Contractor shall submit shop drawings to the Engineer for approval in accordance with the plans, Subarticle 1.05.02-3, and as follows:

- Submit shop drawings for each precast substructure element.
- Prepare shop drawings.
- Show all lifting inserts, dowel bar splicer system, hardware, or devices and locations on the shop drawings for Engineer's approval.
- Show locations and details of the lifting devices, including supporting calculations, type, and amount of any additional reinforcing required for lifting. Design all lifting devices based on the no cracking criteria in Chapter 8 of the PCI Design Handbook (seventh edition).
- Suggest shop drawings be dimensioned from working points or working lines to prevent the cumulation of dimensional tolerances.
- Show minimum compressive strength attained prior to handling the precast elements.
- Show details of leveling devices or vertical adjusting hardware.
- Do not order materials or begin work until receiving final approval of the shop detail drawings.
- The Department will reject any elements fabricated before receiving written approval, or any elements that deviate from the approved drawings. The Contractor is responsible for costs incurred due to faulty detailing or fabrication.

**(b) Working Drawings - Lifting and Seating Devices:** Prior to fabrication, the Contractor shall submit working drawings and supporting computations for the embedded lifting and seating devices required for the handling and installation of the precast concrete components to the Engineer for review in accordance with 1.05.02. Prior to applying load to the embedded devices, the concrete shall attain

the minimum concrete compressive strength associated with the safe working load of the device.

(c) **Working Drawings - Installation of Precast Substructure Elements:** Prior to installation of the precast elements, the Contractor shall submit working drawings and supporting computations for the lifting and placement of the precast concrete components, to the Engineer for review in accordance with 1.05.02. Cranes shall be operated in accordance with the Connecticut Department of Public Safety regulations. The Contractor shall be responsible for verifying the weight of each lift. The working drawing submittal shall include, but not be limited to the following:

- Plan of the work area showing all structures, roads, railroad tracks, Federal and State regulated areas as depicted on the plans, overhead and subsurface utilities, property lines, or any other information relative to erection. No picks shall be allowed over vehicular, pedestrian, railway or vessel traffic.
- A detailed narrative describing the lifting and installation sequence.
- Manufacturer's data sheet for the crane(s) including the load/capacity chart. The capacity of the crane shall be adequate for the total lift/pick load including rigging, spreaders and other materials. In the area of railroads and navigable waterways, the capacity shall be as required by the regulatory authorities.
- Manufacturer's data sheets and product data sheets for all rigging (slings, spreader bars, blocks, etc.), lifting devices, and other connecting equipment and hardware listing the number, type, size, arrangement and capacity of each.
- Location of each crane for each pick.
- Crane support measures, including any support beneath the outriggers such as bearing pads, crane mats, planking or special decking, or other means to transfer the crane's total weight (including the lifted load) into the earth or structure beneath it.
- Delivery location of each component.
- Boom length and the lift and setting radius for each pick (or maximum lift radius).
- Pick point location(s) on each component.
- Lifting weight of each component including rigging (clamps, spreader beams, etc.)

(d) **Assembly Plan:** The Assembly Plan is a document prepared by the Contractor and a qualified Engineer with specific knowledge of the Contractor's equipment and "means and methods" for constructing the precast elements required to complete the work on this project. The development of this Assembly Plan is closely linked to the schedule of operations and the interim material strengths necessary for the work to progress.



The Assembly Plan will be reviewed by both the Engineer of Record and the District Construction personnel similar to a Working Drawing and shall be approved prior to the initiation of road closure. The approved Assembly Plan will serve as the governing specification with respect to progressing with construction prior to necessary material strengths as stated in Form 817.

The following is the minimum required for the Assembly Plan Submission:

- Include details and/or cut sheets of all equipment that will be employed for the assembly of the substructure.
- Include details of all equipment to be used to lift substructure elements including cranes, excavators, lifting slings, sling hooks, and jacks. Include crane locations, operation radii, and lifting calculations. Factors of safety for all lifting calculations of elements will be 125% of the weight of the element being lifted.
- Follow Chapter 8 of the PCI Design Handbook (seventh edition) for handling, erection, and bracing requirements. Calculations shall be prepared for the lifting and handling in accordance with the no discernible cracking criteria and shall be submitted as part of the Assembly Plan. Lifting hook locations and hardware should be coordinated with the fabricator.
- Include a work area plan, depicting all affected utilities, drainage, and protective measures that will be employed throughout the construction activities.
- Submit full size 22"x34" sheets depicting the assembly procedures for the precast substructure elements.
- Include a detailed schedule with a timeline for all operations. In development of the schedule the Contractor shall account for setting and cure time for void concrete and concrete closure pours.
- Include calculations for the interim stages of construction. These calculations will provide the necessary material strengths required to proceed to the next stage in construction. A minimum factor of safety of 2.0 is required in preparation of the calculations and testing performed by the Contractor will be required before the Contractor is allowed to proceed.
- Include methods of providing temporary support of the elements. Include methods of adjusting and securing the element after placement.
- Include procedures for controlling erection tolerances for both the horizontal and vertical direction. Include details of any alignment jigs including bi-level templates for reinforcing anchor dowels.
- Include methods for forming and curing closure pour concrete and concrete to fill voids.
- Include methods for leveling of precast elements.
- The Assembly Plan shall be bound into one complete document and shall be prepared and stamped by a registered Professional Engineer licensed in the State of Connecticut.

- (e) **Product Data – Field Installed Materials:** Prior to installation of the precast concrete components, the Contractor shall submit product data for field installed materials, such as flowable grout, controlled low strength material, etc., not addressed in other submissions to the Engineer for review in accordance with 1.05.02.

**2. Fabrication and Manufacture:** The fabrication and manufacture of the precast elements shall conform to the latest edition of the AASHTO LRFD Bridge Design Specifications, including the latest interim specifications, as supplemented by the following:

**2-1. Forms and Forming Material:** Forms shall be mortar-tight and sufficiently strong to prevent misalignment of adjacent precast sections. Forms shall be constructed to allow their removal without damage to the concrete. A positive means of supporting reinforcing cages in place during forming shall be required.

The forms shall not be removed until the concrete is sufficiently strong to avoid possible damage to the concrete. Forms shall not be removed without approval being granted by the Engineer. Damage to the concrete due to early removal of the forms shall be cause for rejection.

All forming materials used for casting cylindrical openings for lifting holes or holes for grouting deformed steel bars shall be removed. All non-plastic material used as forms for casting weepholes shall also be removed.

**2-2. Concrete Mix:** The Contractor shall design and submit to the Engineer for review a concrete mix that shall attain a minimum 28 day compressive strength,  $f'_c$ , of 5,000 psi.

**2-3. Reinforcement Steel:** Shall be subject to the provisions of Articles 6.02.03-2 through 6.02.03-8. The welding of reinforcement, unless specifically indicated in the Plans, shall not be permitted.

**2-4. Placing Concrete:** Concrete shall not be deposited in the forms until the Engineer has verified the presence and proper location of the reinforcing steel, the couplers, and other components, and has given his approval thereof.

Provide the Engineer a tentative casting schedule at least two (2) weeks in advance to make inspection and testing arrangements. A similar notification is required for the shipment precast elements to the job site.

Concrete shall not be deposited into the forms when the ambient temperature is below 40° F or above 100° F, unless adequate heating or cooling procedures are provided and have been previously approved by the Engineer. The concrete temperature shall be within the range of 60° F to 90° F at the time of placement.

Truck-mixed or transit-mixed concrete will not be allowed.

Production during the winter season, from November 15 to March 15 inclusive, will be permitted only in a completely enclosed structure of suitable size and dimension that provides a controlled atmosphere for the protection of both the casting operation and the product.

Outside concreting operations will not be permitted during rainfall unless the operation is completely under cover.

The concrete shall be vibrated internally, or externally, or both, as ordered by the Engineer. The vibrating shall be done with care in such a manner as to avoid displacement of reinforcing steel, forms, or other components. There shall be no interruption in the pouring of any of the members. Concrete shall be carefully placed in the forms and sufficiently vibrated to produce a surface that is free from imperfections such as honeycombing, segregation, cracking, or checking. Any deficiencies noted in the members may be cause for rejection.

#### **2-5. Test Cylinders:**

During the casting of the substructure elements, the Contractor shall make test cylinders under the supervision of a representative of the Department. A minimum of 4 cylinders shall be taken during each production run or as ordered by the Engineer. The dimensions and type of cylinder mold shall be as specified by the Engineer. Cylinders shall be cured under the requirements of ASTM C31 and shall be used to determine the 28 day compressive strength requirements ( $f'_c$ ). The Engineer also reserves the right to request and test core specimens from the sections to determine their adequacy.

**2-6. Finishing:** All fins, runs, or mortar shall be removed from the concrete surfaces which will remain exposed. Form marks on exposed surfaces shall be smoothed by grinding. All exposed, outside concrete surfaces shall be given a grout clean-down finish in accordance with Subarticle 6.01.03-21.

**2-7. Handling and Storage:** Care shall be taken during storage, transporting, hoisting and handling of all pieces to prevent damage. Sections damaged by improper storing, transporting or handling shall be repaired or replaced by the Contractor, as directed by the Engineer and at no cost to the Department. All storage and handling operations shall be as directed by the Engineer.

The substructure elements shall not be shipped to the job site until the 28 day strength ( $f'_c$ ) has been attained.

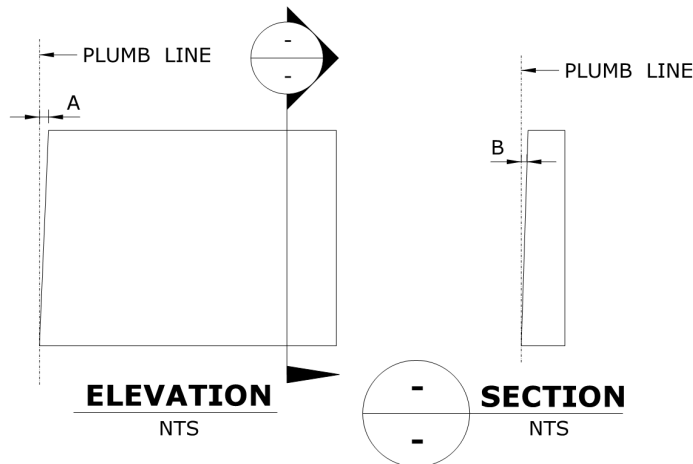
**2-8. Repairs:** The Engineer shall evaluate the acceptability and the cause of the defects and the service condition of the substructure elements. No repairs shall be done by the Contractor unless permission has been granted by the Engineer. The Contractor shall submit to the Engineer, for review, the proposed methods and materials to be used in the

repair operation. All repairs shall be sound and properly finished and cured before the substructure elements are delivered to the job site. The Contractor shall bear the costs of all repair work.

**2-9. Working Lines:** One common working line shall be used for all transverse and longitudinal measurements.

**2-10. Fabrication Tolerances:** The length of each precast element measured along its longitudinal axes shall be equal to that shown on the plans plus or minus  $\frac{1}{4}$ ". The thickness of each precast element shall be equal to that shown on the plans plus or minus  $\frac{1}{4}$ ". The height of each precast element, measured from the bottom to the top of the of the precast elements, shall be equal to that shown on the plans plus or minus  $\frac{1}{4}$ ".

**2-11. Erection Tolerances:** The top of precast substructure element elevation shall be equal to that shown on the plans plus or minus  $\frac{1}{4}$ ". The end squareness, dimension "A" in the elevation below, shall not exceed plus or minus  $\frac{1}{8}$ ". Dimension "B", as shown in the section below, shall not exceed plus or minus  $\frac{1}{4}$ " for every 10' of precast element height.



**2-12. Shop-fitting:** Adjacent precast substructure element connections shall be dry fit at the casting yard prior to shipment of the precast concrete sections.

### 3. Quality Assurance :

1. All precast elements shall be fabricated by a CTDOT approved PCI certified fabricator with a minimum certification of "B1".
2. Permanently mark each precast element with date of casting and supplier identification. Stamp markings in fresh concrete.
3. Prevent cracking or damage of precast elements during handling and storage.

4. Replace defects and breakage of precast elements:

- Members that sustain damage or surface defects during fabrication, handling, storage, hauling, or erection are subject to review or rejection.
  - Obtain approval before performing repairs.
  - Repair work must reestablish the elements' structural integrity, durability, and aesthetics to the satisfaction of the Engineer.
  - Determine the cause when damage occurs and take corrective action.
  - Failure to take corrective action, leading to similar repetitive damage, can be cause for rejection of the damaged element.
  - Cracks that extend to the nearest reinforcement plane and fine surface cracks that do not extend to the nearest reinforcement plane but are numerous or extensive are subject to review and rejection.
  - Full depth cracking and breakage greater than one foot are cause for rejection.
5. Construct precast elements to tolerances shown on the plans. Where tolerances are not shown, follow tolerance limits in the PCI MNL116-99, "Manual for Quality Control for Plants and Protection of Structural Precast Concrete Products, 4<sup>th</sup> Edition".

The plant will document all test results. The quality control file will contain at least the following information:

- a. Element identification.
  - b. Date and time of cast.
  - c. Concrete cylinder test results.
  - d. Quantity of used concrete and the batch printout.
  - e. Form-stripping date and repairs if applicable.
  - f. Location/number of blockouts and lifting inserts.
  - g. Temperature and moisture of curing period.
  - h. Document lifting device details, requirements, and inserts.
6. The concrete strengths required for various operations shall be indicated on the Assembly Plan. The Contractor shall demonstrate that these minimum strengths have been met through the use of material testing. As such, the Contractor will be required to perform strength testing at the Contractor's own expense, and shall be responsible for taking a sufficient number of concrete cylinders and/or cubes to meet this requirement. The Contractor shall not rely solely on compressive tests conducted by CTDOT, as the CTDOT testing schedule may not be changed to accommodate Contractor's scheduling requirements for interim testing.

**4. Installation:** The installation of the precast substructure elements shall be in accordance with the plans and the following:

The installation of the precast substructure elements shall proceed as required by the

sequence of construction, stage construction plans, the special provisions entitled “Prosecution and Progress” and “Maintenance and Protection of Traffic”, and shall be in accordance with the method outlined in Assembly Plan.

The Contractor shall review the approved Assembly Plan. If changes are warranted due to varying site conditions, resubmit the plan for review and approval. Working points, working lines, and benchmark elevations shall be established prior to placement of all elements.

Concrete shall be placed in all shear keys and precast element voids only after the horizontal and vertical alignment within the tolerances specified herein is warranted. The precast elements after placement shall be protected from damage, rotation, and displacement during the concrete placement.

Concrete to be placed inside the precast element voids around the pile tops shall be allowed to flow partially under the stem. The entire underside of the stem need not be filled with concrete.

The installation of elements above the abutment stems is not permitted until the compressive test result of the cylinders for the concrete used for the shear keys and voids has reached the specified minimum values in the approved Assembly Plan.

Exposed surfaces of all shear keys and voids shall form a smooth and continuous plane, free from irregularities, with the adjacent concrete.

After its installation, any precast substructure element, as determined by the Engineer, not acceptable in vertical or horizontal alignment for any reason, including but not limited to settlement, displacement, misfit, shall be removed by the Contractor and correctly installed, as directed by the Engineer and at the Contractor’s expense.

All portions of the lifting and seating devices that extend to or beyond the finished concrete surface shall be removed. All fixtures or holes cast into the sections for lifting or seating shall be completely filled with non-shrink grout and finished smooth and flush with the adjacent concrete surface.

**Method of Measurement:**

This work will be measured for payment by the cubic yards of precast elements, of the size indicated, complete and accepted.

For all precast elements the various materials to fill voids and shear keys cast into the elements shall be considered included in this Item and not measured separately for payment. The calculation of the volume of concrete used for the payment of this Item shall include all voids and keys and be based on the overall plan and elevation dimensions of the elements.

**Basis of Payment:**

Payment for this work will be made at the contract unit price per cubic yard for "Precast Substructure Elements", complete and accepted in place, which price shall include all equipment, materials, tools and labor incidental to the manufacture, shipping, repair, temporary bracing and installation of all precast concrete elements, development of Assembly Plan, and work incidental thereto, including heating and cooling, curing and all admixtures. Price includes all concrete, reinforcement, leveling devices, corrugated metal pipes, dowel bar splicer system, and lifting hardware required to install the precast substructure elements in accordance with the plans or as ordered by the Engineer.

Pay Item

Precast Substructure Elements

Pay Unit

C.Y.

## **ITEM #0703014A - ROUNDED RIPRAP**

*Work under this item shall meet the requirements of Section 7.03, amended as follows:*

**7.03.01–Description:** *Add the following:*

This item shall consist of furnishing and placing rounded riprap within an existing or proposed streambed or streambank to improve, create and restore aquatic habitat within the existing or proposed streambed limits.

**7.03.02–Materials:** *Add the following:*

**3. Rounded Riprap:** The stone for this work shall meet the requirements of Article M.12.02 except that they shall be rounded and not angular.

Rounded riprap material the Contractor proposes to supply from an off-Site source must be inspected and approved by the Engineer at the source prior to the excavation or hauling of the material to the Site. The Contractor shall give the Engineer a minimum of 2 weeks' notice to allow scheduling of on-Site inspection and approval of the material.

**7.03.03–Construction Methods:** *Add the following:*

Before placing any rounded riprap material, the Contractor shall give the Engineer a minimum of 10 days' notice to allow scheduling of on-Site inspection.

The Contractor shall place the rounded riprap in the locations as shown on the plans or as directed by the Engineer, or by the Engineer's authorized representative.



## **ITEM #0703040A - PLACEMENT OF TOE BOULDERS**

**Description:** Work under this item shall consist of furnishing and placing boulders within an existing or proposed channel bed to improve or create aquatic habitat and to support streambank stabilization efforts through the proposed Site. This item shall also include maintaining a stockpile of the material on the Site, placement of the stockpiled material in the channel, and the removal and proper disposal of all unused and unacceptable material.

**Materials:** The individual toe boulder type and size used shall be as noted on the plans or as directed by the Engineer. The mineral composition and color of the boulders selected shall replicate, to the extent possible, the existing boulders on-Site.

Individual boulder material for this item shall be sound, durable and free from decomposed stones or other defects impairing durability, and shall be resistant to the action of air and water.

Material the Contractor proposes to use must be inspected and approved by the Engineer or their authorized delegate prior to the excavation of existing on-Site material within the Project limits or hauling of material from an off-Site source. The Contractor shall provide the Engineer at least 10 work days' notice for the inspection and approval of the individual boulders.

The following will **NOT** be accepted:

- individual boulders consisting of sandstone, shale, or other rock material prone to disintegration
- boulders with visible cracks or spalling
- rock excavated from ledge (bedrock) formations or broken from larger boulders
- boulders with sharp corners, angular edges, or edges as a result of cutting or crushing operations
- broken concrete.

**Construction Methods:** The Contractor shall submit for the Engineer's approval a proposed location plan for stockpiling the toe boulders. The proposed location shall be suitable in size and upland of the channel to minimize disruption to the channel or impact to wetland areas caused by moving the materials to and from the stockpile during the placement of material. The stockpile area shall be prepared in accordance with the "Required Best Management Practices" in Article 1.10.03.

Prior to installation, the Contractor shall stake out the centerline for the placement of the toe boulders by indicating each end location and shall notify the Engineer field for a review. The final location will be at the discretion of the Engineer or their authorized delegate.

The Contractor shall provide the Engineer at least 10 work days' notice prior to initiating the placement of the toe boulders. The work and placement of the toe boulders shall be in the locations indicated on the plans or as directed by the Engineer or their authorized delegate. No

work on the toe boulder placement will be allowed on-Site without the presence of the Engineer or their authorized delegate in order to oversee the construction activities.

Equipment: When placing and maneuvering the boulders within the channel or embedding boulders into the streambank, the Contractor shall use an excavator with a bucket and thumb. Any other equipment proposed to be used shall be reviewed and approved in advance by Engineer or their authorized delegate.

All disturbed areas, including the stockpile area, shall be permanently stabilized using approved sediment and erosion control measures and in accordance with the required "Erosion and Sedimentation Control Plan".

**Method of Measurement:** This work will be measured for payment by the total linear feet of toe boulders installed and accepted, including disposal of unacceptable and surplus materials.

**Basis of Payment:** This work will be paid for at the Contract unit price for "Placement of Toe Boulders," completed and accepted. The price shall include all materials, equipment, tools and labor incidental to the preparation of the stockpile area, excavation of channel bottom, hauling of the material to the stockpile, separation of any rock ledge or concrete debris, and storing and protecting (including sedimentation controls and covering) of excavated material.

Pay Item	Pay Unit
Placement of Toe Boulders	l.f.

**ITEM #0707009A – MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)**

**Description:** Work under this item consists of furnishing and installing a seamless elastomeric waterproofing membrane system applied to a concrete or steel surface as shown on the plans, in accordance with this specification and as directed by the Engineer. Work shall also include conditioning of the surface to be coated and all quality-control testing noted herein.

The completed membrane system shall be comprised of a primer coat followed by the membrane coating which is applied in one or two layers for a minimum total thickness of 80 mil (2 mm), an additional 40 mil (1mm) membrane layer with aggregate broadcast into the material while still wet, and a bond coat of bitumen-based adhesive material.

**Materials:** The Contractor shall select a waterproofing membrane system from the Department's current Qualified Product List (QPL) for Spray-Applied Membrane Waterproofing System. All materials incorporated in the works shall meet the Manufacturer's specification for the chosen system. The Engineer will reject any system that is not on the QPL.

**Materials Certificate:** The Contractor shall submit to the Engineer a Materials Certificate for the primer and membrane and bond coat material in accordance with the requirements of Article 1.06.07.

**Construction Methods:** At least ten days prior to installation of the membrane system, the Contractor shall submit to the Engineer, the manufacturer's recommended procedure for preparing the deck surface, pre-treatment or preparing at cracks and gaps, treatment at curbs, vertical surfaces or discontinuities, applying the primer and membrane, and placing of aggregated coat. Procedures shall also include recommended repairs of system non-compliant issues identified during application. The system shall be applied to the prepared area(s) as defined in the plans strictly in accordance with the Manufacturer's recommendations.

A technical representative, in the direct employ of the manufacturer, shall be present on-site immediately prior to and during application of the membrane. The representative shall inspect and approve the surface prior to priming, and provide guidance on the handling, mixing and addition of components and observe application of the primer and membrane. The representative shall perform all required quality-control testing and remain on the Project site until the membrane has fully cured.

All quality-control testing, including verbal direction or observations on the day of the installation, shall be recorded and submitted to the Engineer for inclusion in the Project's records. A submittal of the quality-control testing data shall be received by project personnel prior to any paving over the finished membrane or within 24 hours following completion of any staged portion of the work.

1. **Applicator Approval:** The Contractor's membrane Applicator shall be fully trained and licensed by the membrane manufacturer and shall have successfully completed at least three spray membrane projects in the past five years. The Contractor shall furnish references from those projects, including names of contact persons and the names, addresses and phone numbers of persons who supervised the projects. This information shall be submitted to the Engineer prior to the start of construction. The Engineer shall have sole authority to determine the adequacy and compliance of the submitted information. Inadequate proof of ability to perform the work will be grounds to reject proposed applicators.

2. **Job Conditions:**

(a) **Environmental Requirements:** Air and substrate temperatures shall be between 32°F (0°C) and 104°F (40°C) providing the substrate is above the dew point. Outside of this range, the Manufacturer shall be consulted.

The Applicator shall be provided with adequate disposal facilities for non hazardous waste generated during installation of the membrane system. The applicator shall follow safety instructions regarding respirators and safety equipment.

(b) **Safety Requirements:** All open flames and spark producing equipment shall be removed from the work area prior to commencement of application.

"No Smoking" signs shall be visibly posted at the job site during application of the membrane waterproofing.

Personnel not involved in membrane application shall be kept out of the work area.

3. **Delivery, Storage and Handling:**

(a) **Packaging and Shipping:** All components of the membrane system shall be delivered to the site in the Manufacturer's packaging, clearly identified with the products type and batch number.

(b) **Storage and Protection:** The Applicator shall be provided with a storage area for all components. The area shall be cool, dry and out of direct sunlight and shall be in accordance with the Manufacturer's recommendations and relevant health and safety regulations.

Copies of Material Safety Data Sheets (MSDS) for all components shall be kept on site for review by the Engineer or other personnel.

- (c) Shelf Life - Membrane Components: Packaging of all membrane components shall include a shelf life date sealed by the Manufacturer. No membrane components whose shelf life has expired shall be used.

4. Surface Preparation:

- (a) Protection: The Applicator shall be responsible for the protection of equipment and adjacent areas from over spray or other contamination. Parapets and bridge joints shall be masked prior to application of the materials.
- (b) Surface Preparation: Sharp peaks and discontinuities shall be ground smooth. The surface profile of the prepared substrate is not to exceed 1/4 inch (6 mm) (peak to valley) and areas of minor surface deterioration of 1/2 inch (13 mm) and greater in depth shall also be repaired. The extent and location of the surface patches require the approval of the Engineer before the membrane system is applied.

Surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae, growth, laitance, friable matter, dirt, bituminous products, and previous waterproofing materials. If required, degreasing shall be done by detergent washing in accordance with ASTM D4258.

The surface shall be abrasively cleaned, in accordance with ASTM D4259, to provide a sound substrate free from laitance.

Voids, honeycombed areas, and blow holes on vertical surfaces shall be repaired in the same manner.

All steel components to receive membrane waterproofing shall be blast cleaned in accordance with SSPC SP6 and coated with the membrane waterproofing system within the same work shift.

5. Inspection and Testing: Prior to priming of the surface, the Engineer, Applicator and Manufacturer's technical representative shall inspect and approve the prepared substrate.

- (a) Random tests for deck moisture content shall be conducted on the substrate by the Applicator at the job site using a "Sovereign Portable Electronic Moisture Master Meter," a "Tramex CMEXpertII Concrete Moisture Meter" or approved equal. The minimum frequency shall be one test per 1000 s.f. (100 sq.m) but not less than three tests per day per bridge. Additional tests may be required if atmospheric conditions change and retest of the substrate moisture content is warranted.

The membrane system shall not be installed on substrate with a moisture content greater than that recommended by the system's manufacturer, but shall not be greater than 6%, whichever is less.

- (b) Random tests for adequate tensile bond strength shall be conducted on the substrate using an adhesion tester in accordance with the requirements of ASTM D4541. The minimum frequency shall be one test per 5,000 s.f. (500 sq.m) but not less than three adhesion tests per bridge.

Adequate surface preparation will be indicated by tensile bond strengths of primer to the substrate greater than or equal to 150 psi (1.0 MPa) or failure in a concrete surface and greater than or equal to 300 psi (2.1 MPa) for steel surfaces.

If the tensile bond strength is lower than the minimum specified, the Engineer may request additional substrate preparation. Any primer not adequately applied shall be removed and a new primer applied at the Contractor's expense, as directed by Engineer.

- (c) Cracks and grouted joints shall be treated in accordance with the Manufacturer's recommendations, as approved or directed by the Engineer.

#### 6. Application:

- (a) The System shall be applied in four distinct steps as follows:
  - 1) Substrate preparation and gap/joint bridging preparation
  - 2) Priming
  - 3) Membrane application
  - 4) Membrane with aggregate
- (b) Immediately prior to the application of any components of the System, the surface shall be dry (see Section 5a of this specification) and any remaining dust or loose particles shall be removed using clean, dry oil-free compressed air or industrial vacuum.
- (c) Where the area to be treated is bound by a vertical surface (e.g. curb or wall), the membrane system may be continued up the vertical, as shown on the plans or as directed by the Engineer.
- (d) The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results, in accordance with the Manufacturer's recommendations or as approved or directed by the Engineer.
- (e) A neat finish with well defined boundaries and straight edges shall be provided by the Applicator.
- (f) Primer: The primer shall consist of one coat with an overall coverage rate of 125 to 175 s.f./gal (3.0 to 4.3sq.m/1) unless otherwise recommended in the manufacturer's written instructions.

All components shall be measured and mixed in accordance with the Manufacturer's recommendations.

The primer shall be spray applied using a single component spray system approved for use by the Manufacturer. If required by site conditions and allowed by the manufacturer, brush or roller application will be allowed.

The primer shall be allowed to cure tack-free for a minimum of 30 minutes or as required by the Manufacturer's instructions, whichever time is greater, prior to application of the first lift of waterproofing membrane.

Porous concrete (brick) may require a second coat of primer should the first coat be absorbed.

- (g) Membrane: The waterproofing membrane shall consist of one or two coats for a total dry film thickness of 80 mils (2 mm). If applied in two coats, the second coat shall be of a contrasting color to aid in quality assurance and inspection.

The membrane shall be comprised of Components A and B and a hardener powder which is to be added to Component B in accordance with the Manufacturer's recommendations.

The substrate shall be coated in a methodical manner.

Thickness checks: For each layer, checks for wet film thickness using a gauge pin or standard comb-type thickness gauge shall be carried out typically once every 100 s.f. (9 sq.m). Where rapid set time of the membrane does not allow for wet film thickness checks, ultrasonic testing (steel surfaces only), calibrated point-penetrating (destructive) testing, in-situ sampling (cutout of small sections for measuring thicknesses), or other methods approved by the Engineer shall be employed for determination of dry film thickness. The measured thickness of each and every individual test of the membrane shall be greater than or equal to the required thickness.

Bond Strength: Random tests for adequate tensile bond strength shall be conducted on the membrane in accordance with the requirements of ASTM D4541. The minimum test frequency shall be one test per 5,000 s.f. (500 sq.m) but no less than three adhesion tests per bridge. Adequate adhesion will be indicated by tensile bond strengths of the membrane to the substrate of greater than or equal to 150 psi (0.7 MPa) or failure in a concrete surface and greater than or equal to 300 psi (2.1 MPa) for steel surfaces.

Spark Testing: Following application of the membrane, test for pin holes in the cured membrane system over the entire application area in accordance with ASTM D4787- "Continuity Verification of Liquid or Sheet Linings Applied to Concrete Substrates."

Conduct the test at voltages recommended by the manufacturer to prevent damage to the membrane.

Repair the membrane system following destructive testing and correct any deficiencies in the membrane system or substrate noted during quality-control testing in accordance with the manufacturer's recommendations to the satisfaction of the Engineer at no additional cost to the State.

- (h) Repairs: If an area is left untreated or the membrane becomes damaged, a patch repair shall be carried out to restore the integrity of the system. The damaged areas shall be cut back to sound materials and wiped with solvent (e.g. acetone) up to a width of at least four inches (100 mm) on the periphery, removing any contaminants unless otherwise recommended by the manufacturer. The substrate shall be primed as necessary, followed by the membrane. A continuous layer shall be obtained over the substrate with a four inches (100 mm) overlap onto existing membrane.

Where the membrane is to be joined to existing cured material, the new application shall overlap the existing by at least four inches (100 mm). Cleaning and surface preparation on areas to be lapped shall be as recommended in the manufacturer's written instructions.

- (i) Aggregated Finish:
  - 1) Apply an additional 40 mil (1 mm) thick layer of the membrane material immediately followed by an aggregate coating, before the membrane cures, at a rate to fully cover the exposed area. The membrane and aggregate shall be fully integrated after the aggregate has been applied and the membrane cured.
  - 2) Localized areas not fully coated shall be touched-up with additional membrane and aggregate as needed.
  - 3) Remove loose and excess aggregate from the surface to the satisfaction of the Engineer and dispose of properly after application prior to allowing traffic onto finished surface or application of tack coat.

- (j) Bond Coat:

Prior to application of a bituminous concrete overlay, the aggregated finish shall be coated with a bonding material. The bonding material shall be per the membrane waterproofing manufacturer's recommendations.

- 7. Final Review: The Engineer and the Applicator shall jointly review the area(s) over which the completed System has been installed. Any irregularities or other items that do not meet the requirements of the Engineer shall be addressed at this time.

**Method of Measurement:** The quantity to be paid for under this item shall be the number of square yards (square meters) of waterproofed surface completed and accepted.



**Basis of Payment:** This item will be paid for at the contract unit price per square yard (square meter) of “Membrane Waterproofing (Cold Liquid Elastomeric),” complete in place, which price shall include all surface preparation, furnishing, storing and applying the system, technical representative and quality control tests, and any necessary repairs and remediation work as well as all materials, equipment, tools, labor incidental to this work.

<u>Pay Item</u>	<u>Pay Unit</u>
Membrane Waterproofing (Cold Liquid Elastomeric)	s.y. (sq.m)

## **ITEM #0912502A – REMOVE METAL BEAM RAIL (BRIDGE)**

Section 9.12 of Standard Form 817 shall be modified as follows:

### **9.12.01 – Description:**

This work shall include removing the bridge mounted metal beam rail assemblies. Work under this item shall also include salvaging the existing metal beam rail posts within the bridge limits.

### **9.12.03 – Construction Methods:**

The existing bridge mounted metal beam rail shall not be removed until the work zone is adequately protected from intrusion of vehicles as approved by the Engineer in the field. Under no circumstances shall traffic be allowed to operate without a physical barrier in between traffic and the work zone. The barrier may be removed when all proposed metal beam rail is properly installed.

All components of the metal beam rail system shall be completely removed, with the exception of the embedded portion of anchor bolts in the existing concrete deck.

All rail elements and posts shall be removed. The removed posts shall be salvaged. The salvaged material shall be bound and secured to pallets, on flatbed trucks, and transported to the following location by the Contractor in accordance with directions given by authorized State personnel:

CT DOT District 2 – Bridge Maintenance, 660 Middlesex Turnpike Old Saybrook, CT 06475. The point of contact for all deliveries is Alan Ference at 860-388-3366, and shall be notified at least a week in advance between the hours of 8:00 am to 3:30 pm, Monday through Friday, excluding State holidays. All deliveries shall be conducted during business hours and be completed prior to the close of business.

### **9.12.04 – Method of Measurement:**

This work shall be measured for payment by the number of linear feet of existing bridge mounted metal beam rail removed, measured horizontally between metal bridge rail posts. The existing metal beam rail posts to be salvaged will not be measured for payment.

**9.12.05 – Basis of Payment:** This work will be paid for at the contract unit price per linear foot for “Remove Metal Beam Rail (Bridge)”, which price shall include the removal, disposal, and all equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Remove Metal Beam Rail (Bridge)	l.f.

## **ITEM #0917010A – REPAIR GUIDERAIL**

**Description:** Work under this item shall consist of the repair of newly installed guiderail. It shall be repaired in the locations originally installed and fabricated in conformity with the lines, designations, dimensions, and details shown on the plans or as ordered by the Engineer.

**Materials:** The material for guiderail shall meet the requirements as specified within the original applicable contract items.

When repairing guiderail, the Contractor shall reuse any undamaged existing guiderail elements, timber rail, wire rope, appropriate posts, delineators, lap bolts, and other hardware within the project limits as approved by the Engineer to repair the guiderail. The Contractor shall use new materials when any components of the existing railing are damaged or missing and cannot be obtained from other guiderail systems being removed or converted within the Project limits.

**Construction Methods:** The repair of guiderail shall be in accordance with contraction methods as specified within the original applicable contract items.

Guiderail, including end anchors, which has been installed in final condition and accepted by the Engineer, shall be eligible for reimbursement for repairs subject to the conditions described below. If multiple runs are to be installed in a single stage as indicated in the contract documents, determination for reimbursement shall be made when all runs within the stage are complete and accepted as previously described. On projects without designated stages, guiderail installations must be complete and serving the intended function as determined by the Engineer.

When newly installed guiderail is damaged by public traffic, the following conditions must be satisfied prior to reimbursement for payment;

1. The damage must have been caused solely by the traveling public.
2. The contractor shall provide satisfactory evidence that such damage was caused by public traffic. Such as accident reports obtained from the Connecticut Department of Public Safety, police agencies or insurance companies; statements by reliable, unbiased eyewitnesses; or identification of the vehicle involved in the accident.
3. The contractor shall attempt to collect the costs from the person or persons responsible for the damage and provide documentation of those efforts to the satisfaction of the Engineer.
4. If such evidence cannot be obtained, the Engineer may determine that the damage was not caused by the Contractor and reimbursement for payment is warranted.

This repair provision does not relieve the Contractor of the requirements of Section 1.07, any other contractual requirements for maintenance and protection of traffic and final acceptance and relief of responsibility for the project.

The contractor shall remain responsible for the safety and integrity of the guiderail system for the duration of the project. In the event the guiderail is damaged, the Contractor shall provide sufficient cones, drums and other traffic control devices to provide safe passage by the public. When ordered by the Engineer, the Contractor shall furnish replacement parts and immediately repair the guiderail, but in no case more than 24 hours after notification from the Engineer. In non-emergency situations, the guiderail shall be repaired within 72 hours. The repaired guiderail or anchorages, when completed, shall conform to these specifications for a new system. The Contractor shall be responsible for the removal and the proper disposal of all damaged material and debris.

**Method of Measurement:** Guiderail damaged solely by the traveling public will be measured for payment. Damage caused by the Contractor's equipment or operations will not be measured for payment.

The sum of money shown on the estimate and in the itemized proposal as "Estimated Cost" for repair of guiderail will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount bid for the contract.

**Basis of Payment:** Repair of guiderail will be paid for in accordance with Article 1.09.04 as required to restore the rail to its full working condition in conformance with these specifications for a new system. There will be no payment for maintenance and protection of traffic for work associated with this item unless, in the opinion of the Engineer, the sole purpose of the maintenance and protection of traffic is for repair of the guiderail.

<u>Pay Item</u>	<u>Pay Unit</u>
Repair Guiderail	est. (est.)

**ITEM #0950019A – TURF ESTABLISHMENT - LAWN**

**Description:** The work included in this item shall consist of providing an accepted stand of grass by furnishing and placing seed as shown on the plans or as directed by the Engineer.

**Materials:** The materials for this work shall conform to the requirements of Section 9.50 of Standard Specification Form 817. The following mix shall be used for this item:

**Turf Seed Mix:**

In order to preserve and enhance the diversity, the source for seed mixtures shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland. One approved seed mixture is detailed below. Other proposed mixtures must be approved by the ConnDOT Landscape Design office.

<u>Proportion (Percent)</u>	<u>Species Common name</u>	<u>Scientific name</u>
20	Kentucky Bluegrass Improved varieties	Poa pratensis
45	Red Fescue Improved varieties	Festuca rubra
35	Perennial Ryegrass Improved varieties	Lolium perenne

**Construction Methods:** Construction Methods shall be those established as agronomically acceptable and feasible and that are approved by the Engineer. Rate of application shall be field determined in Pure Live Seed (PLS) based on the minimum purity and minimum germination of the seed obtained. Calculate the PLS for each seed species in the mix. Adjust the seeding rate for the above composite mix, based on 250 lbs. per acre. The seed shall be mulched in accordance with Article 9.50.03.

**Method of Measurement:** This work will be measured for payment by the number of square yards of surface area of accepted established grasses as specified or by the number of square yards of surface area of seeding actually covered and as specified.

**Basis of Payment:** This work will be paid for at the contract unit price per square yard for “Turf Establishment - Lawn” which price shall include all materials maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 60% may be made for work completed, but not accepted.

**Pay Item**  
Turf Establishment - Lawn

**Pay Unit**  
S.Y.

## **ITEM #0950040A - CONSERVATION SEEDING FOR SLOPES**

**Description:** The work included in this item shall consist of providing an accepted stand of established conservation grasses by furnishing and placing seed as shown on the plans, permits, or as directed by the Engineer within the wetland mitigation Sites(s) or other areas when required.

**Materials:** All conservation grass mixture sources shall be locally obtained within the Northeast USA (New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland) in order to preserve and enhance the diversity of native conservation grass species.

Three qualified conservation seed mixtures are detailed below:

1. **New England Conservation/Wildlife Mix**, New England Wetland Plants, Inc. 820 West Street Amherst, MA 01002, or equal. Rate shall be 1 pound PLS per 1,750 sq. ft.
2. **5311 Conservation Mix**, Ernst Conservation Seeds, Inc. 8884 Mercer Pike, Meadville, PA 16335, or equal. Rate shall be 3-5 pound PLS per 1,000 sq. ft.
3. **Vermont Conservation and Wildlife**, Vermont Wetland Plant Supply, LLC, P.O. Box 153, Orwell, VT 05760, or equal. Rate shall be 1 pound PLS per 2,180 sq. ft.

Fertilizer, if required, shall meet the requirements of Article M.13.03.

Mulch shall meet the requirements of Article M.13.05.

Erosion control matting shall be bio-degradable and meet the requirements of Article M.13.09.

All conservation seed mixture sources shall be reviewed and approved by the Engineer in advance of purchase and prior to application.

The Materials Certificate for all seed mixtures shall have a statement that certifies that the seed mixture does not include any invasive species pursuant to Connecticut General Statutes Sec. 22a-381d or any State Threatened or State Endangered species pursuant to Connecticut General Statutes Sec. 26-303. The seed tags from the bags are to be removed by the Engineer upon delivery and attached to the Materials Certificate. Seeding shall not occur if these requirements are not met.

All approved seed mixtures shall be obtained in sufficient quantities to meet the pure live seed (PLS) application rates as determined by the seed analysis of the mixture.

**Construction Methods:** Construction methods shall be those established as agronomically acceptable and feasible and shall be approved by the Engineer. The methods described in Article 9.50.03 shall be amended as follows:

Conservation seeding for slopes for wetland mitigation Site(s): Seeding shall occur during the fall season immediately following construction of the wetland mitigation Site(s). Seeding for wetland mitigation Site(s) must occur from August 15<sup>th</sup> to October 31<sup>st</sup>.

For non-wetland mitigation Site(s), seeding shall occur during the dates specified in Article 9.50.03-2.

If seed is purchased in bulk rather than by PLS, the rate of application must be adjusted to meet the required PLS seeding rate. This seeding rate shall be increased by the appropriate percentage as determined by the following formula based off of the information provided on the seed tags at delivery.

$$(\text{Germination Percentage} \times \text{Purity Percentage}) / 100 = \text{Percentage PLS}$$

The Engineer will verify that the seed is applied at a rate that will allow for 100 percent PLS.

Mowing will not be allowed within areas that are seeded with conservation seed mix, unless authorized by the Engineer.

**Method of Measurement:** This work will be measured for payment by the number of square yards of surface area of accepted established conservation grasses as specified.

**Basis of Payment:** This work will be paid for at the Contract unit price per square yard for “Conservation Seeding for Slopes,” which price shall include all materials, maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 50% may be made for work completed, but not accepted. Full payment shall not be made until the area has been accepted by the Engineer.

Pay Item	Pay Unit
Conservation Seeding for Slopes	s.y.

## **ITEM #0950043A - WETLAND GRASS ESTABLISHMENT**

**Description:** The work included in this item shall consist of providing an accepted stand of established wetland grasses by furnishing and placing seed as shown on the plans, permits, or as directed by the Engineer within the Wetland Mitigation Area(s) or other areas when required.

**Materials:** All wetland grass mixture sources shall be locally obtained within the Northeast USA including New England, New York, Pennsylvania, New Jersey, Delaware, or Maryland in order to preserve and enhance the diversity of native wetland grass species.

The placement of fertilizer, mulch or bio-degradable erosion control matting will not be allowed within any wetland area.

All wetland seed mixture sources shall be approved by the Engineer prior to purchase.

Three (3) qualified wetland seed mixtures are as follows:

- 1. New England Wet Mix (Wetland Seed Mix)**, New England Wetland Plants, Inc. 820 West Street Amherst, MA 01002, or equal. Rate shall be 1 pound PLS per 2,500 sq. ft.
- 2. OBL Wetland Mix**, Ernst Conservation Seeds, Inc. 8884 Mercer Pike, Meadville, PA 16335, or equal. Rate shall be 1 pound PLS per 2,000 sq. ft.
- 3. Vermont Wetland Shrub**, Vermont Wetland Plant Supply, LLC, P.O. Box 153, Orwell, VT 05760, or equal. Rate shall be 1 pound PLS per 2,420 sq. ft.

All seed mixtures must be reviewed and approved by the Engineer prior to application. All seed Materials Certificates must have seed mixtures that shall not include any invasive species pursuant to Connecticut General Statute Sec. 22a-381d, or any State Threatened or State Endangered species known pursuant to Connecticut General Statute Sec. 26-303 which would be a violation of the Connecticut Endangered Species Act. The seed tags from the bags are to be removed by the Engineer upon delivery and attached to the Materials Certificate. No seeding shall occur if the requirements are not met.

All approved seed mixtures shall be obtained in sufficient quantities to meet the pure live seed (PLS) application rates as determined by the seed analysis of the mixture.

**Construction Methods:** Construction methods shall be those established as agronomically acceptable and feasible and approved by the Engineer.

Wetland grass establishment seeding for Wetland Mitigation Site(s): Seeding shall occur during the fall season immediately following construction of the wetland site(s). Fall seeding must occur from August 15<sup>th</sup> to October 31<sup>th</sup>.



Wetland grass establishment seeding for areas other than the Wetland Mitigation Site(s), when required: Seeding dates shall adhere to Form 817 Section 9.50 – Turf Establishment.

Seeding shall be applied to wetland areas that will not be routinely inundated. If seed is purchased in bulk rather than by PLS, the rate of application must be adjusted to meet the required PLS seeding rate. This seeding rate shall be increased by the appropriate percentage based on the information provided on the seed tags at delivery, as determined by the following formula:

$$(\text{Germination Percentage} \times \text{Purity Percentage})/100 = \text{Percentage PLS}$$

The Engineer shall verify that the seed is applied at a rate that will allow for 100% PLS.

**Method of Measurement:** This work will be measured for payment by the number of square feet of surface area of established wetland seed mixture, planted, and accepted as specified or by the number of square feet of surface area of seeding actually covered as specified.

**Basis of Payment:** This work shall be paid at the Contract unit price per square foot for “Wetland Grass Establishment,” which price shall include all materials maintenance, equipment, tools, labor, transportation, operations and all work incidental thereto. Partial payment of up to 50% may be made for work completed, but not accepted. Full payment shall not be made until the area has been accepted by the Engineer.

Pay Item	Pay Unit
Wetland Grass Establishment	s.f.

## **ITEM #0952051A - CONTROL AND REMOVAL OF INVASIVE VEGETATION**

**Description:** This work shall include the development and implementation of an Invasive Vegetation Removal Plan (IVRP) to outline the materials, labor, and equipment the Contractor plans to use for the complete eradication and treatment of the invasive vegetation. The work shall also include the identification, excavation, removal, and off-Site disposal of unwanted vegetation as indicated on the plan sheets, permits or as directed by the Engineer.

All invasive vegetation listed on the following websites will be subject to eradication:

- Connecticut Invasive Plant Working Group (CIPWG) Invasive Plants Council  
([http://cipwg.uconn.edu/invasive\\_plant\\_list/](http://cipwg.uconn.edu/invasive_plant_list/))
- US Army Corps of Engineers (ACOE) New England District Compensatory Mitigation Guidance Appendix K  
([http://www.nae.usace.army.mil/portals/74/docs/regulatory/Mitigation/2016\\_New\\_England\\_Compensatory\\_Mitigation\\_Guidance.pdf](http://www.nae.usace.army.mil/portals/74/docs/regulatory/Mitigation/2016_New_England_Compensatory_Mitigation_Guidance.pdf))

All vegetation designated for removal shall be eradicated in its entirety in accordance with the IVRP submitted by the Contractor and approved by the Engineer. Certain situations may require the full and complete mechanical excavation of invasive vegetation including its entire root system. The use of herbicides will not be permitted between the dates of October 1 and May 31.

**Materials:** All herbicides shall be registered for the species being treated and shall be formulated as applicable for target-species foliar treatment, cut surface, or injection applications. Where work in or immediately adjacent to wetlands is necessary, the product label(s) for any chemical/adjuvant formulation applied must indicate that the formulation is approved for aquatic environments.

### **Construction Methods:**

**1. IVRP:** Prior to any ground disturbance within the Project limits, the Contractor shall submit an IVRP to the Engineer for review and approval. Within 30 days of receipt of the submittal, the Engineer will notify the Contractor whether the IVRP is approved, rejected or requires modifications by the Contractor. If any part of the plan is not approved, the Contractor shall promptly make any necessary changes and re-submit the entire plan for approval. The entire plan must be approved in writing prior to beginning any work on Site. In all cases, mechanical means shall be considered before the use of herbicides. If mechanical means is neither feasible nor recommended, an explanation must be provided in the IVRP. All removal methods shall prevent the spread of seeds – no mowing or “Brush Hog” equipment will be allowed. The approved methods must be capable of total removal and eradication of all identified invasive species in the designated areas throughout the Contract and the 1-Year Plant Establishment Period.

The IVRP shall include a schedule and outline with the following information:

- 1) The Contractor’s methods of determining invasive vegetation surveyed limits, including:

- a. Stake out the limits prior to the initial treatment
  - b. Maintain a record of the staked limits throughout the life of the Contract
- 2) Identification of the type(s) of invasive species present within the field surveyed limits
- 3) A marked up plan sheet outlining the invasive species limits and identifying the types of invasive species present within those limits and total square yards of proposed removal
- 4) For each species present on-Site, the following shall be described:
  - a. Methods to eradicate specific invasive plant species for the life of the Contract (e.g. mechanical, herbicide, etc.) shall include any initial, intermediate and 1-Year Plant Establishment Period Treatment eradication methods for each plant species
  - b. Types and concentrations of any herbicides to be used, including any adjuvants, SDS sheets, types of tools or machinery to be used
  - c. Schedules showing dates and eradication methods for the initial, intermediate, and 1-Year Plant Establishment Period Treatments. This schedule must take into consideration stage construction, the time period required between herbicide application, and the physical removal of the target species wherever such methodology is employed
- 5) All invasive species are considered controlled materials and are to be taken off-Site to an approved disposal facility. For disposal methods:
  - a. Provide address of location, current permits / letters from the town authorizing such activity and a Site map (complete with regulated areas)
  - b. Wood chips from invasive species are not allowed to be stockpiled or reused on-Site
  - c. Wood chipping on-Site will be allowed if temporarily stored in a properly contained enclosure and removed at the end of the treatment cycle
  - d. Invasive plants shall not be buried on-Site
- 6) Proof of CT DEEP licensure for herbicide application
- 7) A description of safety equipment required
- 8) Procedures for handling chemical spills

Where certain species of invasive vegetation are present and identified on the plan sheets, permits, or as identified in the field by the Engineer, the removal via bulk mechanical excavation of such vegetation and the underlying soils may be required as directed. The approved method must be capable of the removal of all soil to a depth where invasive plant material and root system is no longer evident, or as directed by the Engineer.

Whether the Contractor's method of removal is by mechanical excavation or cutting and spraying of herbicides, invasive species must be removed separately from clearing and grubbing operations and disposed at an approved location as described in the Contractor's IVRP.

No equipment or vehicles other than that required to complete the work will be permitted in the areas designated for invasive vegetation removal. Any equipment used to process invasive vegetation, such as chippers and transport vehicles, must be cleaned prior to further use.

Any invasive species control and removal work performed throughout the duration of the Contract that causes damage or soil disturbance shall be repaired at the Contractor's expense

within 7 days. It is the Contractor's responsibility to identify additional areas of concern for invasive vegetation within the limits of the Project, notify the Engineer, and to amend the IVRP. The Contractor shall be responsible to identify invasive vegetation at all times of the year and to prepare a plan for its eradication without assistance.

All treatments, with the exception of an initial mechanical excavation of invasive species, will not be allowed outside of the optimal growing season between the dates of October 1 and May 31.

Herbicide applications will not be permitted during any rain event or during windy conditions. Broadcast or uncontrolled spray application will not be permitted and care must be taken to avoid contacting non-target native species. If any non-target native species to remain within the Project limits are inadvertently treated with herbicide and perish, the Contractor will be responsible to replace in-kind species at no cost to the State.

Remove all twining vines in treetops to the greatest extent possible without damaging the branches of the supporting desired vegetation. Cut and remove vines overtopping tree canopies to the extent practical. Climbing spikes will not be permitted for aerial work.

The Contractor shall also:

- 1) Maintain the labels for herbicides being used in his/her possession
- 2) Conduct all herbicide formulations and applications, including the addition of appropriate surfactants and other adjuvants, in strict conformance with the manufacturer's recommendation and per requirements of regulatory agencies
- 3) Maintain a written record of herbicide application, including the formulation, concentration, area treated, and date for each application. The records are to be provided by the commercial applicator and submitted to the Engineer following each treatment

Flush cut brush and trees shall not be more than 2 inches above the ground line. Prune out any branches on non-treatment plants that are damaged during removal of vegetation. All corrective pruning shall conform to the National Arborists Association Pruning Standards.

Wherever removal operations result in exposed soils, disturbed areas shall be vegetatively stabilized with the appropriate seed mix and protected with hay, cellulosic fiber mulch, or erosion control matting.

Once the IVRP is approved, a field review shall be scheduled for the Contractor and Engineer to review the limits of invasive species removal (surveyed and flagged by the Contractor prior to the meeting), the specific species required to be removed, and the Contractor's submitted invasive species removal plan. At this time, the Engineer may identify additional invasive species or designate additional areas for removal that are not included with the Contractor's submitted IVRP.

If changes are required to the approved IVRP during the life of the Contract, these changes shall be documented by the Contractor and resubmitted to the Engineer for review and approval

a minimum of 10 days prior to beginning of the additional work associated with the change. The Contractor shall provide a 10 day work notice to the Engineer prior to proceeding with each treatment.

**2. Treatments:** The treatment schedule below may be modified based on field conditions at the discretion of the Engineer. The Contractor shall provide a 10 day work notice to the Engineer prior to proceeding with each treatment. In all cases, each treatment must be reviewed once the work is performed, and accepted before payment is made for that treatment stage.

Initial Treatment: Shall commence at the beginning of the Contract time, prior to clearing and grubbing activities. Any invasive species found within a proposed cut slope shall be fully eradicated to the satisfaction of the Engineer prior to any earth work operations. After the completion of the initial treatment, the work must be reviewed and accepted by the Engineer prior to any earth excavation in that area. If herbicide is the initial treatment method, a minimum of 14 days is required prior to clearing and grubbing operations, so the herbicide application can take effect.

Intermediate Treatment(s): Shall be conducted during the optimal growing season between the dates of June 1 and September 30 for invasive species up to and including 10 days prior to plant installation or at the end of the Project if no landscaping plan is in the Contract. Optimal treatment times may be specific to the species being treated and this must be considered and documented when developing the Invasive Vegetation Removal Plan. Several treatments may be required to treat all species that are present.

1-Year Plant Establishment Period Treatment: Treatments as needed or as directed by the Engineer shall be conducted throughout the 1-Year Plant Establishment Period or when required under another Contract item.

**Method of Measurement:** This work will be measured for payment by the number of square yards of invasive vegetation identified, surveyed, treated and eradicated as required including any required re-treatment of any regrowth or new growth. No additional payment will be made for subsequent treatments. The area for removal will be surveyed and flagged prior to treatment and measured. After a review of the surveyed limits, the Engineer may designate additional areas for removal that are not shown on the plans. These additional areas will be measured for payment and included as part of the Contract work.

Where selective removal is required, the square yards of the drip line of the invasive vegetation will be measured for payment.

**Basis of Payment:** This work will be paid for at the Contract unit price per square yard for "Control and Removal of Invasive Vegetation." This payment shall include all labor, surveys, materials, tools, and equipment necessary for limits of the invasive area(s); maintenance of the limits throughout the Project; species identification; and cutting, excavation, treating, re-treating, removal, and off-Site disposal of designated invasive plant material. Off-Site disposal of residue shall include the loading, transport, dumping, and fees associated with legal off-site disposal.

- Upon approval of the required IVRP, the Contractor will receive a payment equal to 10% of the estimated Contract value
- Upon initial herbicide or mechanical removal treatment methods as it is described in the IVRP, the Contractor will receive a payment equal to 20% of all areas receiving treatment
- Upon successful completion of the initial treatment period, as determined during the review by the Engineer, the Contractor will receive a payment equal to 20%
- Upon successful completion of the intermediate treatment period as determined during the Site review by the Engineer, the Contractor will receive a payment equal to 20%
- Upon successful completion of the 1-Year Plant Establishment Period covering all treated areas on the Project (or the last treatment for those Projects which may not include a 1-Year Plant Establishment Period), the Contractor will receive final payment equal to the measured areas in place and treated, less any previous payments

Where bulk excavation is required for removal, this work shall be covered under the Contract Item "Earth Excavation" for all excavation in excess of 2 feet. All other vegetation not designated as invasive vegetation shall be removed in compliance with the Item "Clearing and Grubbing" in accordance with Section 2.01.

Vegetative stabilization of disturbed areas will be paid for under the respective Contract Items: "Turf Establishment," "Wetland Grass Establishment," or "Conservation Seeding for Slopes."

Pay Item	Pay Unit
Control and Removal of Invasive Vegetation	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

Furnishing Description	Office Size			
	Small	Med.	Large	Extra Large
	Quantity			
Business telephone system for three lines with ten handsets, intercom capability, and one speaker phone for conference table.	-	-	-	1
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

Furnishing Description	Office Size			
	Small	Med.	Large	Extra Large
	Quantity			
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 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.

Pay Item  
Construction Field Office, Medium

Pay Unit  
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 "Prosecution and Progress":

#### **Route 14 (Huntington Road)**

The Contractor shall maintain and protect a minimum of one lane in each direction on a paved travel path not less than 11 feet in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width.

The Contractor will be allowed to close Route 14 (for duration of no more than 63 consecutive days) and detour traffic as shown on the Detour Plan contained in the contract plans.

#### **All Other Roadways**

The Contractor shall maintain and protect a minimum of one lane of traffic in each direction, each lane on a paved travel path not less than 11 feet in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least an alternating one-way traffic operation, on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet and 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 allowed to close said driveways to perform the required work during those periods when the businesses are closed, unless permission is granted from the business owner to close the driveway during business hours. If a temporary closure of a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure.

**Article 9.71.03 - Construction Method is supplemented as follows:**

**General**

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway (bridge) section by the end of a workday (work night), 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 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 workday, if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary traversable slope of 4:1 or flatter that is acceptable to the Engineer.

If applicable, when an existing sign is removed, it shall be either relocated or replaced by a new sign during the same working day.

The Contractor shall not store any material on-site which would present a safety hazard to motorists or pedestrians (e.g. fixed object or obstruct sight lines).

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed, except during the allowable periods.

**Existing Signing**

The Contractor shall maintain all existing overhead and side-mounted signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary, and install temporary sign supports if necessary and as directed by the Engineer.

**Requirements for winter**

The Contractor shall schedule a meeting with representatives from the Department including the offices of Maintenance and Traffic, and the Town/City to determine what interim traffic control measures the Contractor shall accomplish for the winter to provide safety to the 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 -Non-Limited Access Multilane Roadways**

**Secondary and Local Roadways**

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

**Interim Pavement Markings**

The Contractor shall install painted pavement markings, which shall include centerlines, edge lines, lane lines (broken lines), lane-use arrows, and stop bars, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work day/night. If the next course of bituminous concrete pavement will be placed within seven days, edge lines are not required. The painted pavement markings will be paid under the appropriate items.

If the Contractor will install another course of bituminous concrete pavement within 24 hours, the Contractor may install Temporary Plastic Pavement Marking Tape in place of the painted pavement markings by the end of the work day/night. These temporary pavement markings shall include centerlines, lane lines (broken lines) and stop bars; edge lines are not required. Centerlines shall consist of two 4 inch wide yellow markings, 2 feet in length, side by side, 4 to 6 inches apart, at 40-foot intervals. No passing zones should be posted with signs in those areas where the final centerlines have not been established on two-way roadways. Stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side. The Contractor shall remove and dispose of the Temporary Plastic Pavement Marking Tape when another course of bituminous concrete pavement is installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

If an intermediate course of bituminous concrete pavement will be exposed throughout the winter, then Epoxy Resin Pavement Markings should be installed unless directed otherwise by the Engineer.

**Final Pavement Markings**

The Contractor should install painted pavement markings on the final course of bituminous concrete pavement by the end of the work day/night. If the painted pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the painted pavement markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the painted pavement markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

The Contractor shall install permanent Epoxy Resin Pavement Markings in accordance with Section 12.10 entitled "Epoxy Resin Pavement Markings" after such time as determined by the Engineer.

## **TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS**

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

### **TRAFFIC CONTROL PATTERNS**

Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

- Speed and volume of traffic
- Duration of operation
- Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

If a lane reduction taper is required to shift traffic, the entire length of the taper should be installed on a tangent section of roadway so that the entire taper area can be seen by the motorist.

Any existing signs that are in conflict with the traffic control patterns shall be removed, covered, or turned so that they are not readable by oncoming traffic.

When installing a traffic control pattern, a Buffer Area should be provided and this area shall be free of equipment, workers, materials and parked vehicles.

Typical traffic control plans 19 through 25 may be used for moving operations such as line striping, pot hole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns will not be required when vehicles are on an emergency patrol type activity or when a short duration stop is made and the equipment can be contained within the shoulder. Flashing lights and appropriate trafficperson shall be used when required.

Although each situation must be dealt with individually, conformity with the typical traffic control plans contained herein is required. In a situation not adequately covered by the typical traffic control plans, the Contractor must contact the Engineer for assistance prior to setting up a traffic control pattern.

**PLACEMENT OF SIGNS**

Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs shall be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

**ALLOWABLE ADJUSTMENT OF SIGNS AND DEVICES SHOWN ON THE TRAFFIC CONTROL PLANS**

The traffic control plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans whenever possible.

The proper application of the traffic control plans and installation of traffic control devices depends on actual field conditions.

Adjustments to the traffic control plans shall be made only at the direction of the Engineer to improve the visibility of the signs and devices and to better control traffic operations. Adjustments to the traffic control plans shall be based on safety of work forces and motorists, abutting property requirements, driveways, side roads, and the vertical and horizontal curvature of the roadway.

The Engineer may require that the traffic control pattern be located significantly in advance of the work area to provide better sight line to the signing and safer traffic operations through the work zone.

Table I indicates the minimum taper length required for a lane closure based on the posted speed limit of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the traffic control plans cannot be achieved.

**TABLE I – MINIMUM TAPER LENGTHS**

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE
30 OR LESS	180
35	250
40	320
45	540
50	600
55	660
65	780

## **SECTION 1. WORK ZONE SAFETY MEETINGS**

- 1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of DOT Construction, Connecticut State Police (Local Barracks), Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the project. Other work zone safety meetings during the course of the project should be scheduled as needed.
- 1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. Any issues that can't be resolved at these meetings will be brought to the attention of the District Engineer and the Office of Construction. The agenda should include:
- Review Project scope of work and time
  - Review Section 1.08, Prosecution and Progress
  - Review Section 9.70, Trafficpersons
  - Review Section 9.71, Maintenance and Protection of Traffic
  - Review Contractor's schedule and method of operations.
  - Review areas of special concern: ramps, turning roadways, medians, lane drops, etc.
  - Open discussion of work zone questions and issues
  - Discussion of review and approval process for changes in contract requirements as they relate to work zone areas

## **SECTION 2. GENERAL**

- 2.a) If the required minimum number of signs and equipment (i.e. one High Mounted Internally Illuminated Flashing Arrow for each lane closed, two TMAs, Changeable Message Sign, etc.) are not available; the traffic control pattern shall not be installed.
- 2.b) The Contractor shall have back-up equipment (TMAs, High Mounted Internally Illuminated Flashing Arrow, Changeable Message Sign, construction signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. The only exception to this is in the case of sudden equipment breakdowns in which the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.
- 2.c) Failure of the Contractor to have the required minimum number of signs, personnel and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for loss time.
- 2.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to

the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

### **SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS**

- 3.a) Lane Closures shall be installed beginning with the advance warning signs and proceeding forward toward the work area.
- 3.b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advance warning signs.
- 3.c) Stopping traffic may be allowed:
- As per the contract for such activities as blasting, steel erection, etc.
  - During paving, milling operations, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.
  - To move slow moving equipment across live traffic lanes into the work area.
- 3.d) Temporary road closures using Rolling Road Blocks (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:
- RRB may not start prior to the time allowed in the contract Limitations of Operation for sign pattern installation. Sign pattern removal must be complete prior to the time indicated in the Limitations of Operation for restoring the lanes to traffic.
  - On limited access highways with 4 lanes or more, a RRB may not start until the Limitations of Operation Chart allows a 2 lane closure. In areas with good sight lines and full shoulders, opposite side lead signs should be installed in a separate operation.
  - Truck-Mounted Impact Attenuators (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 Truck-Mounted Impact Attenuators TMAs and police vehicles leave the shoulder or on-ramp and accelerate to a normal roadway speeds in each lane, then the vehicles will position themselves side by side and decelerate to the RRB speed on the highway.
  - An additional Truck-Mounted Impact Attenuator TMAs equipped with a Portable Changeable Message Sign shall be utilized to advise the motorists that sign pattern installation / removal is underway. The Pre-Warning Vehicle (PWV) should be initially positioned in the right shoulder ½ mile prior to the RRB operation. If a traffic queue reaches the PWV's initial location, the contractor shall slowly reverse the PWV along the shoulder to position itself prior to the new back of queue. A Pre-Warning Vehicle, as specified elsewhere in the contract, shall be utilized to advise the motorists that sign pattern installation / removal is underway.

- The RRB duration shall not exceed 15 minutes from start of the traffic block until all lanes are opened as designated in the Limitation of Operation 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 respective construction District.
  - RRB should not be utilized 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. Attenuator trucks (and State Police if available) should be used to protect the workers installing the taper in the additional lane.
  - Exceptions to these work procedures may be submitted to the District Office for consideration. A minimum of 2 business days should be allowed for review and approval by the District.
  - The RRB procedures (including any approved exceptions) will be reviewed and discussed by the inspection team and the Contractor 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, the work will proceed as recommended by the Department Trooper. Any unresolved issues will be addressed the following day.
- 3.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
- 3.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path prior to merging/exiting with/from the main line traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.
- 3.g) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.
- 3.h) On limited access roadways, workers are prohibited from crossing the travel lanes to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

#### **SECTION 4. USE OF HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW**

- 4.a) On limited access roadways, one Flashing Arrow shall be used for each lane that is closed. The Flashing Arrow shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the traffic control plan. For

multiple lane closures, one Flashing Arrow is required for each lane closed. If conditions warrant, additional Flashing Arrows should be employed (i.e.: curves, major ramps, etc.).

- 4.b) On non-limited access roadways, the use of a Flashing Arrow for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Flashing Arrow.
- 4.c) The Flashing Arrow shall not be used on two lane, two-way roadways for temporary alternating one-way traffic operations.
- 4.d) The Flashing Arrow board display shall be in the “arrow” mode for lane closure tapers and in the “caution” mode (four corners) for shoulder work, blocking the shoulder, or roadside work near the shoulder. The Flashing Arrow shall be in the “caution” mode when it is positioned in the closed lane.
- 4.e) The Flashing Arrow shall not be used on a multi-lane roadway to laterally shift all lanes of traffic, because unnecessary lane changing may result.

#### **SECTION 5. USE OF TRUCK MOUNTED OR TRAILER MOUNTED IMPACT ATTENUATOR VEHICLES (TMAs)**

- 5.a) For lane closures on limited access roadways, a minimum of two TMAs shall be used to install and remove traffic control patterns. If two TMAs are not available, the pattern shall not be installed.
- 5.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to utilize the TMAs.
- 5.c) Generally, to establish the advance and transition signing, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane. The flashing arrow board mounted on the TMA should be in the “flashing arrow” mode when taking the lane. The sign truck and workers should be immediately ahead of the second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, the TMAs shall travel in the closed lane until all Changeable Message Signs, signs, Flashing Arrows, and cones/drums are installed. The flashing arrow board mounted on the TMA should be in the “caution” mode when traveling in the closed lane.
- 5.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs shall be positioned at each additional work area as needed. The flashing arrow board mounted on the TMA should be in the “caution” mode when in the closed lane.

- 5.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to the specification entitled “Truck-Mounted or Trailer-Mounted Impact Attenuator”. Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) should be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.
- 5.f) TMAs should be paid in accordance with how the unit is utilized. If it is used as a TMA and is in the proper location as specified, then it should be paid at the specified hourly rate for “Truck-Mounted or Trailer-Mounted Impact Attenuator”. When the TMA is used as a Flashing Arrow, it should be paid at the daily rate for “High Mounted Internally Illuminated Flashing Arrow”. If a TMA is used to install and remove a pattern and is also used as a Flashing Arrow in the same day, then the unit should be paid 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 a Flashing Arrow during the same day, then the unit should be paid at the daily rate as a “High Mounted Internally Illuminated Flashing Arrow”.

#### **SECTION 6. USE OF TRAFFIC DRUMS AND TRAFFIC CONES**

- 6.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.
- 6.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.
- 6.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.
- 6.d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

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

- 7.a) For lane closures on limited access roadways, one CMS shall be used in advance of the traffic control pattern. Prior to installing the pattern, the CMS shall be installed and in operation, displaying the appropriate lane closure information (i.e.: Left Lane Closed - Merge Right). The CMS shall be positioned ½ - 1 mile ahead of the lane closure taper. If the nearest Exit ramp is greater than the specified ½ - 1 mile distance, than an additional CMS shall be positioned a sufficient distance ahead of the Exit ramp to alert motorists to the work and therefore offer them an opportunity to take the exit.



- 7.b) CMS should not be installed within 1000 feet of an existing CMS.
- 7.c) On non-limited access roadways, the use of CMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the CMS.
- 7.d) The advance CMS is typically placed off the right shoulder, 5 feet from the edge of pavement. In areas where the CMS cannot be placed beyond the edge of pavement, it may be placed on the paved shoulder with a minimum of five (5) traffic drums placed in a taper in front of it to delineate its position. The advance CMS shall be adequately protected if it is used for a continuous duration of 36 hours or more.
- 7.e) When the CMS are no longer required, they should be removed from the clear zone and have the display screen cleared and turned 90° away from the roadway.
- 7.f) The CMS generally should not be used for generic messages (ex: Road Work Ahead, Bump Ahead, Gravel Road, etc.).
- 7.g) The CMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs (Examples include: Exit 34 Closed Sat/Sun - Use Exit 35, All Lanes Closed - Use Shoulder, Workers on Road - Slow Down).
- 7.h) Messages that need to be displayed for long periods of time, such as during stage construction, should be displayed with construction signs. For special signs, please coordinate with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.

7.i) The messages that are allowed on the CMS are as follows:

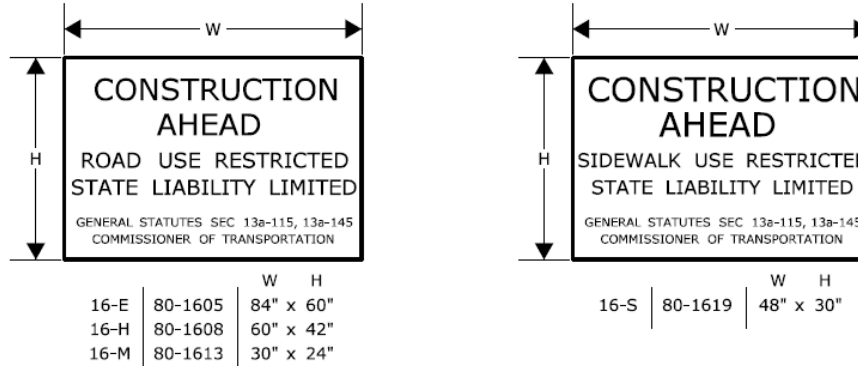
<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>	<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	WORKERS ON ROAD	REDUCE SPEED
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	WORKERS ON ROAD	SLOW DOWN
5	RIGHT LANE CLOSED	MERGE LEFT	13	EXIT XX CLOSED	USE EXIT YY
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	EXIT XX CLOSED USE YY	FOLLOW DETOUR
7	RIGHT LANE CLOSED	REDUCE SPEED	15	2 LANES SHIFT AHEAD	USE CAUTION
8	2 RIGHT LANES CLOSED	REDUCE SPEED	16	3 LANES SHIFT AHEAD	USE CAUTION

For any other message(s), approval must be received from the Office of Construction prior to their use. No more than two (2) displays shall be used within any message cycle.

**SECTION 8. USE OF STATE POLICE OFFICERS**

- 8.a) State Police may be utilized only on limited access highways and secondary roadways under their primary jurisdiction. One Officer may be used per critical sign pattern. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Likewise, in areas with moderate traffic and wide, unobstructed medians, left lane closures can be implemented without State Police presence. Under some situations it may be desirable to have State Police presence, when one is available. Examples of this include: nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur, however they are not required.
- 8.b) Once the pattern is in place, the State Police Officer should be positioned in a non-hazardous location in advance of the pattern. If traffic backs up beyond the beginning of the pattern, then the State Police Officer shall be repositioned prior to the backup to give warning to the oncoming motorists. The State Police Officer and TMA should not be in proximity to each other.
- 8.c) Other functions of the State Police Officer(s) may include:
- Assisting entering/exiting construction vehicles within the work area.
  - Enforcement of speed and other motor vehicle laws within the work area, if specifically requested by the project.
- 8.d) State Police Officers assigned to a work site are to only take direction from the Engineer.

### SERIES 16 SIGNS



THE 16-S SIGN SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHALL BE INSTALLED ON ANY MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHALL BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMPS PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

THE LOCATION OF SERIES 16 SIGNS CAN BE FOUND ELSEWHERE IN THE PLANS OR INSTALLED AS DIRECTED BY THE ENGINEER.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS, AND MAJOR TOWN/CITY ROADWAYS.

SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

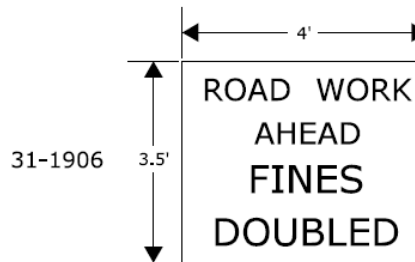
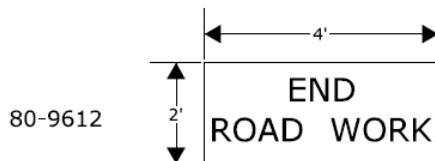
### REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

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

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

### "END ROAD WORK" SIGN

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



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN  
**REQUIRED SIGNS**

## NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.
2. SIGNS (AA), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.
3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.
4. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.
5. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.
6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.
7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).
8. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.
9. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
10. SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

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

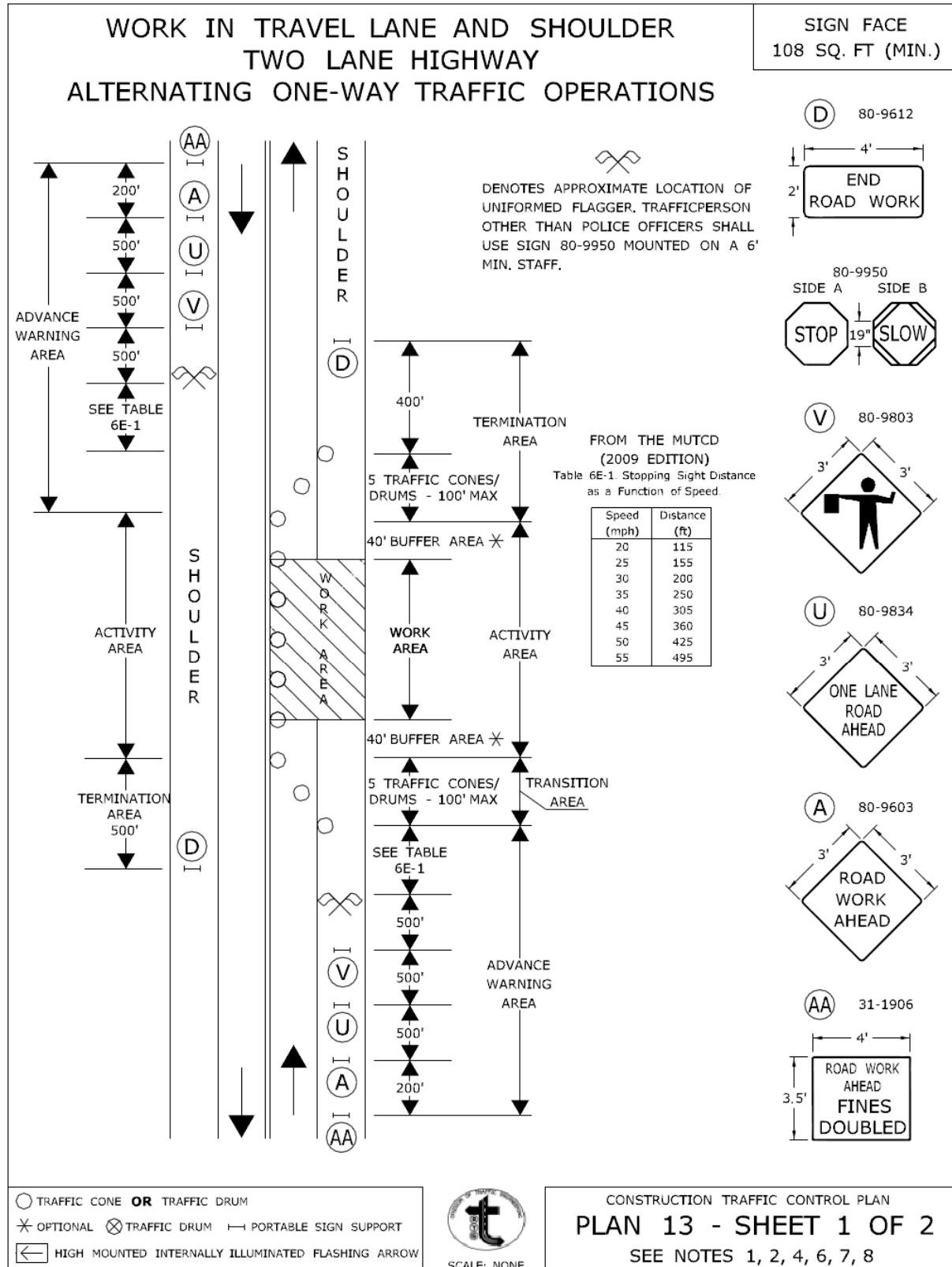
METRIC CONVERSION CHART (1" = 25mm)

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



SCALE: NONE

### CONSTRUCTION TRAFFIC CONTROL PLAN NOTES



- TRAFFIC CONE OR TRAFFIC DRUM
- ✱ OPTIONAL ✕ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
- ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW



CONSTRUCTION TRAFFIC CONTROL PLAN  
**PLAN 13 - SHEET 1 OF 2**  
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION  
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Harlow* Charles S. Harlow  
2012.06.05 15:55:23-04'00"  
PRINCIPAL ENGINEER

# 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. Harlow* Charles S. Harlow  
2012.06.05 15:55:45-04'00"  
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”.

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.”

**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)**

<b>Number of Posts in Project =&gt;</b>	<b>51-100</b>	<b>101-250</b>	<b>251-1000</b>	<b>&gt;1000</b>
<b>Sample Size=&gt;</b>	<b>5 Posts</b>	<b>10 Posts</b>	<b>40 Posts</b>	<b>60 Posts</b>
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 Supplemental to Form 817 and Required Provisions follow this page and are hereby made part of this Contract.

- **PERMITS AND/OR PERMIT APPLICATIONS**

<b>Permit Name</b>	<b>Issue Date</b>
General Permit for Water Resource Construction Activities	July 2, 2019
ACOE Self-Verification Notification	July 1, 2019

- **SUPPLEMENTAL SPECIFICATIONS TO STANDARD SPECIFICATIONS FORM 817**

- **Construction Contracts - Required Contract Provisions (State Funded Only Contracts)**



Connecticut Department of  
 Energy & Environmental Protection  
 79 Elm Street  
 Hartford, CT 06106-5127  
 www.ct.gov/deep

KIMBERLY C. LESAY  
 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION  
 2800 BERLIN TPKE  
 PO BOX 317546  
 NEWINGTON, CT 06111-4113

7/02/2019

Dear Applicant:

This letter is to confirm the receipt of the following application package:

Permit Type: Construction Activities-GP-3(a)(8-9)  
 DOT PROJECT #123-066, REPLACEMENT OF BRIDGE NO. 00681,  
 HUNTINGTON ROAD (ROUTE 14) OVER MERRICK BROOK, SCOTLAND

Your application has been assigned the following number: 201908026  
 Please include this number on all correspondence regarding this application.

As of today, the following materials have been received:

ITEM	REQUIRED FEE	FEE RECEIVED	RECEIVED ON
Application Package			6/26/2019
Application Fee	0.00		

The fee for this application has been discounted 100%.

If there are any questions regarding this notice, please feel free to contact the Central Permit Processing Unit at (860) 424-4004 or DEEP.CentralPermits@ct.gov

If you have specific technical questions regarding your application, please contact the permit program directly: Inland Water Resources Division (860) 424-3019

As a reminder, depending on the type of permit you are seeking, you may be required to publish notice of your application in accordance with section 22a-6g of the General Statutes and submit a copy of such notice to DEEP. If this is the case, DEEP will not process your application further until we have received the certified copy of such notice.

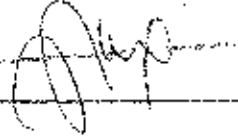
Please remember to check your security settings to be sure you can receive e-mails from (ct.gov) addresses. Also, please notify the department if your e-mail address changes.

Thank you.

Sincerely,

Central Permit Processing Unit

JUN 28 2019

SEARCHED BY 

**INTERDEPARTMENTAL  
MESSAGE**

**STATE OF CONNECTICUT**

<b>To</b>	NAME, TITLE Central Permit Processing Unit, 1st Floor	DATE June 25, 2019
	AGENCY, ADDRESS Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106	
<b>From</b>	NAME, TITLE Kimberly C. Jessay, Transportation Assistant Planning Director	TELEPHONE (860) 594-2931
	AGENCY, ADDRESS Department of Transportation, 2800 Berlin Turnpike, Newington, CT 06131-7546	

**Subject:** State Project No. 123-66  
 Replacement of Bridge No. 00681, Route 14 over Merrick Brook  
 Town of Scotland  
 General Permit for Water Resource Construction Activities

Attached is one original CT DEEP Request for Authorization Form for the General Permit for Water Resource Construction Activities associated with the above referenced project.

Any questions pertaining to this application may be directed to Mr. Andrew H. Davis, Transportation Supervising Planner of my staff, at 860-594-2157.

Attachments

Marilyn R. Gould/mrg

INTERDEPARTMENTAL  
MESSAGE

STATE OF CONNECTICUT

<i>To</i>	NAME, TITLE Central Permit Processing Unit Floor	DATE June 25, 2019
	AGENCY, ADDRESS Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106	
<i>From</i>	NAME, TITLE Kimberly C. D'Esay Transportation Assistant Planning Director	TELEPHONE (860) 594-2931
	AGENCY, ADDRESS Department of Transportation, 2800 Berlin Turnpike, Newington, CT 06131-7546	

**Subject:** State Project No. 123-66  
Replacement of Bridge No. 00681, Route 14 over Merrick Brook  
Town of Scotland  
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Attachments

Marilyn R. Gould/mrg



bcc: Kimberly C. Lesay – Andrew H. Davis – Christopher Samorajczyk – Marilyn R. Gould  
Mary E. Baker – Bao K. Chuong – Raymond I. Basar – Susan P. Morrison  
Robert E. Obey, District 2



**Connecticut Department of  
Energy & Environmental Protection**

CPPU USE ONLY

App #: \_\_\_\_\_  
 Doc #: \_\_\_\_\_  
 Check #: \_\_\_\_\_

## Permit Application Transmittal Form

Please complete this transmittal form in accordance with the instructions in order to ensure the proper handling of your application(s) and the associated fee(s). Print legibly or type.

### Part I: Applicant Information:

- \*If an applicant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, applicant's name shall be stated exactly as it is registered with the Secretary of State.
- If an applicant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

Applicant: **Connecticut Department of Transportation**  
 Mailing Address: **2800 Berlin Turnpike, P.O. Box 317546**  
 City/Town: **Newington** State: **CT** Zip Code: **06131-7546**  
 Business Phone: **860-594-2931** ext.: \_\_\_\_\_  
 Contact Person: **Kimberly C. Lesay** Phone: **860-594-2931** ext. \_\_\_\_\_  
 E-Mail: **kimberly.lesay@ct.gov**

Applicant (check one):  individual  \*business entity  federal agency  state agency  municipality  tribal  
 \*If a business entity, list type (e.g., corporation, limited partnership, etc.): \_\_\_\_\_  
 Check if any co-applicants. If so, attach additional sheet(s) with the required information as supplied above.

Please provide the following information to be used for *billing purposes only*, if different:

Company/Individual Name: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 City/Town: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_ ext. \_\_\_\_\_

### Part II: Project Information

Brief Description of Project: *(Example: Development of a 50 slip marina on Long Island Sound)*  
**CTDOT Project No. 123-066, Replacement of Bridge No. 00681, Huntington Road (Route 14) over Merrick Brook**

Location (City/Town): **Scotland**

Other Project Related Permits (*not* included with this form):

Permit Description	Issuing Authority	Submittal Date	Issuance Date	Denial Date	Permit #
SV-19	USACE	Concurrent			

### Part III: Individual Permit Application and Fee Information

New, Mod. or Renew	Individual Permit Applications	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
	<b>AIR EMISSIONS</b>				
	New Source Review <input type="checkbox"/> Revision <input type="checkbox"/> minor mod	\$940.00			1 + 0
	Title V Operating Permits <input type="checkbox"/> Revision <input type="checkbox"/> minor mod <input type="checkbox"/> non-minor mod	none			1 + 0
	Title IV	none			1 + 0
	Clean Air Interstate Rule (CAIR)	none			1 + 0
	<b>WATER DISCHARGES</b>				
	To Groundwater	\$1300.00			1 + 1
	To Sanitary Sewer (POTW)	\$1300.00			1 + 1
	To Surface Water (NPDES)	\$1300.00			1 + 1
	<b>WATER PLANNING AND MANAGEMENT</b>				
	Dam Safety	none			1 + 2
	Domestic Sewage Treatment Works (For municipal and private sewage treatment facilities discharging to surface waters)	\$1300.00/ Mod = \$940			1 + 1
	Water Diversion (consumptive) and Registrations	★			1 + 5
	<b>LAND AND WATER RESOURCES</b>				
	Flood Management Certification	none			1 + 1
	Flood Management Certification Exemption	none			1 + 1
	Inland Wetlands and Watercourses (State Agencies Only)	none			1 + 5
	Inland 401 Water Quality Certification	none			1 + 5
	FERC- Hydropower Projects- 401 Water Quality Certification	none			
	Water Diversion (non-consumptive)	★			1 + 5
	Certificate of Permission	\$375.00			1 + 2
	Coastal 401 Water Quality Certification	none			1 + 2
	Structures and Dredging/and Fill/Tidal Wetlands	\$660.00			1 + 2
	<b>WASTE MANAGEMENT</b>				
	Aerial Pesticide Application	★			1 + 2
	Aquatic Pesticide Application	\$200.00			1 + 0
	CGS Section 22a-454 Waste Facilities	★			1 + 1
	Disruption of a Solid Waste Disposal Area	\$0			1 + 1
	Hazardous Waste Treatment, Storage and Disposal Facilities	★			1 + 1
	Marine Terminal License	\$100.00			1 + 0
	Stewardship	\$4000.00			1 + 1
	Solid Waste Facilities	★			1 + 1
	Waste Transportation	★			1 + 0
		Subtotal ➡	0	0	
	<b>GENERAL PERMITS and AUTHORIZATIONS</b>	Subtotals Page 3 & 4 ➡	1	\$2,500.00	
	Enter subtotals from Part IV, pages 3 - 8 of this form	Subtotals Page 5 ➡	0	\$0.00	
		Subtotals Page 6 ➡	0	\$0.00	
		<b>TOTAL ➡</b>	<b>1</b>	<b>\$2,500.00</b>	
	<input type="checkbox"/> Indicate whether municipal discount or state waiver applies	Less Applicable Discount ➡		100%	
		<b>AMOUNT REMITTED ➡</b>		\$0.00	
Check # ➡	<input type="text"/>	Check or money order should be made payable to: "Department of Energy and Environmental Protection"			

★ See fee schedule on individual application.

**Part IV: General Permit Registrations and Requests for Other Authorizations**  
**Application and Fee Information**

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
<b>AIR EMISSIONS</b>				
<input type="checkbox"/> Limit Potential to Emit from Major Stationary Sources of Air Pollution	\$2750.00			1 + 0
<input type="checkbox"/> Diagnostic and Therapeutic X-Ray Devices (Medical X-Ray) Registration	\$190.00/Xray device			1 + 0
<input type="checkbox"/> Radioactive Materials and Industrial Device Registration (Ionizing Radiation)	\$200.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> License Revocation Request	\$0			★★
<input type="checkbox"/> Other, (please specify):				
<b>WATER DISCHARGES</b>				
<input type="checkbox"/> Categorical Industry User to a POTW				
<input type="checkbox"/> Discharges ≥ 10,000 gpd	\$8250.00			1 + 0
<input type="checkbox"/> Discharges < 10,000 gpd	\$3125.00			
<input type="checkbox"/> Comprehensive Discharges to Surface Water and Groundwater				
<input type="checkbox"/> Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEEP	\$1250.00			
<input type="checkbox"/> Domestic Sewage	\$625.00			1 + 0
<input type="checkbox"/> Food Service Establishment Wastewater		No Registration		
<input type="checkbox"/> Groundwater Remediation Wastewater				
<input type="checkbox"/> Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEEP	\$1250.00			
<input type="checkbox"/> Miscellaneous Discharges of Sewer-Compatible Wastewater				
<input type="checkbox"/> Registration Only	\$500.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEEP	\$1000.00			
<input type="checkbox"/> Nitrogen Discharges		No Registration		
<input type="checkbox"/> Point Source Discharges from Application of Pesticides	\$200.00			1 + 0
<input type="checkbox"/> Stormwater Associated with Commercial Activities	\$300.00			1 + 0
<input type="checkbox"/> Stormwater Associated with Industrial Activities				
<input type="checkbox"/> No Exposure Certification	\$250.00			1 + 0
<input type="checkbox"/> <50 employees—see general permit for additional requirements	\$500.00			
<input type="checkbox"/> >50 employees—see general permit for additional requirements	\$1000.00			
<input type="checkbox"/> Stormwater & Dewatering Wastewaters-Construction Activities	★			1 + 0
<input type="checkbox"/> Stormwater from Small Municipal Separate Storm Sewer Systems (MS4)	\$625.00			1 + 0
<input type="checkbox"/> Stormwater from DOT Separate Storm Sewer Systems (DOT MS4)	\$0			1 + 0
<input type="checkbox"/> Subsurface Sewage Disposal Systems Serving Existing Facilities	★★			1 + 0
<input type="checkbox"/> Swimming Pool Wastewater - Public Pools and Contractors	\$500.00			1 + 0
<input type="checkbox"/> Vehicle Maintenance Wastewater				
<input type="checkbox"/> Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEEP	\$1250.00			
<input type="checkbox"/> Emergency/Temporary Authorization - Discharge to POTW	\$1500.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization - Discharge to Surface Water	\$1500.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization - Discharge to Groundwater	\$1500.00			1 + 0
<input type="checkbox"/> Other, (please specify):				
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal	0	\$0.00

★ See fee schedule on registration/application.

★★ Contact the specific permit program for this information.  
 (Contact numbers are provided in the instructions)

**Part IV: General Permit Registrations and Requests for Other Authorizations (continued)**

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
<b>AQUIFER PROTECTION PROGRAM</b>				
<input type="checkbox"/> Registration for Regulated Activities	\$625.00			1 + 0
<input type="checkbox"/> Permit Application to Add a Regulated Activity	\$1250.00			1 + 0
<input type="checkbox"/> Exemption Application from Registration	\$1250.00			1 + 0
<b>WATER PLANNING AND MANAGEMENT</b>				
<input type="checkbox"/> Dam Safety Repair and Alteration: Non Filing			No Registration	
<input type="checkbox"/> Dam Safety Repair and Alteration: Filing - No PE	\$100.00			1 + 0
<input type="checkbox"/> Dam Safety Repair and Alteration: Filing - PE	\$200.00			1 + 0
<input type="checkbox"/> Dam Safety Repair and Alteration: Approval of Filing	\$250.00			1 + 0
<input type="checkbox"/> Diversion of Remediation Groundwater			No Registration	
<input type="checkbox"/> Diversion of Water for Consumptive Use: Reauthorization Categories	\$2500.00			1 + 0
<input type="checkbox"/> Diversion of Water for Consumptive Use: Authorization Required	\$2500.00			1 + 4
<input type="checkbox"/> Diversion of Water for Consumptive Use: Filing Only	\$1500.00			1 + 1
<input checked="" type="checkbox"/> Water Resource Construction Activities	★	1	\$2,500.00	1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Notice of High Hazard Dam or a Significant Hazard Dam	\$0			1 + 0
<input type="checkbox"/> Other, (please specify):				
<b>LAND AND WATER RESOURCES</b>				
<b>Minor Coastal Structures</b>				
<input type="checkbox"/> 4/40 Docks/Access Stairs	\$700.00			1 + 1
<input type="checkbox"/> Beach Grading			No Registration	
<input type="checkbox"/> Buoys or Markers			No Registration	
<input type="checkbox"/> Experimental Activities/Scientific Monitoring Devices			No Registration	
<input type="checkbox"/> Harbor Moorings			No Registration	
<input type="checkbox"/> Non-harbor Moorings	\$250.00			1 + 1
<input type="checkbox"/> Osprey Platforms and Perch Poles			No Registration	
<input type="checkbox"/> Pump-out Facilities			No Registration	
<input type="checkbox"/> Swim Floats			No Registration	
<b>Coastal Maintenance</b>				
<input type="checkbox"/> Backflow Prevention Structure			No Registration	
<input type="checkbox"/> Beach Grading/Raking			No Registration	
<input type="checkbox"/> Catch Basin Cleaning			No Registration	
<input type="checkbox"/> Coastal Remedial Activities Required by Order	\$700.00			1 + 1
<input type="checkbox"/> Coastal Restoration			No Registration	
<input type="checkbox"/> DEEP Boat Launch Infrastructures			No Registration	
<input type="checkbox"/> DOT Infrastructures			No Registration	
<input type="checkbox"/> Marina and Mooring Field Reconfiguration	\$700.00			1 + 1
<input type="checkbox"/> Minor Seawall Repair			No Registration	
<input type="checkbox"/> Placement of Culch			No Registration	
<input type="checkbox"/> Reconstruction of Legally Existing Structure/Obstruction/Encroachment	\$300.00			1 + 1
<input type="checkbox"/> Removal of Derelict Structures			No Registration	
<input type="checkbox"/> Residential Flood Hazard Mitigation	\$100.00			1 + 1
<input type="checkbox"/> Temporary Access of Construction Vehicles/Equipment			No Registration	
<input type="checkbox"/> Programmatic General Permit	★			1 + 1
<input type="checkbox"/> Emergency/Temporary Authorization				
<input type="checkbox"/> Other, (please specify):				
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal	1	\$2,500.00

★ See fee schedule on registration/application.

★★ Contact the specific permit program for this information.  
(Contact numbers are provided in the instructions)

**Part IV: General Permit Registrations and Requests for Other Authorizations (continued)**

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
<b>WASTE MANAGEMENT</b>				
<input type="checkbox"/> Addition of Grass Clippings at Registered Leaf Composting Facilities	\$500.00			1 + 0
<input type="checkbox"/> Beneficial Use Determination	★			1 + 0
<input type="checkbox"/> Collection and Storage of Post Consumer Paint	\$0			1 + 0
<input type="checkbox"/> Connecticut Solid Waste Demonstration Project	\$1000.00			1 + 0
<b>Construct and Operate a Commercial Facility for the Management of Recyclable Materials and Certain Solid Wastes (Commercial GP)</b>				
<input type="checkbox"/> Asbestos Containing Materials	\$1,250.00/\$625			1 + 0
<input type="checkbox"/> Ash Residue	\$1,250.00/\$625			1 + 0
<input type="checkbox"/> Clean Wood: Tier III	\$500.00/\$250			1 + 0
<input type="checkbox"/> Clean Wood: Tier II	\$250.00/\$125			1 + 0
<input type="checkbox"/> Construction and Demolition Waste: Tier III	\$1,250.00/\$625			1 + 0
<input type="checkbox"/> Construction and Demolition Waste: Tier II	\$500.00/\$250			1 + 0
<input type="checkbox"/> Non-RCRA Hazardous Waste/Compatible Solid Wastes	\$1,250.00/\$625			1 + 0
<input type="checkbox"/> Recyclables	\$500.00/\$250			1 + 0
<input type="checkbox"/> Universal Wastes/Compatible Solid Wastes	\$1,250.00/\$625			1 + 0
<b>Contaminated Soil and/or Staging Management (Staging/Transfer)</b>				
<input type="checkbox"/> New Registrations	\$250.00			1 + 0
<input type="checkbox"/> New Approval of Registrations	\$1500.00			1 + 0
<input type="checkbox"/> Renewal of Registrations	\$250.00			1 + 0
<input type="checkbox"/> Renewal of Approval of Registrations	\$750.00			1 + 0
<input type="checkbox"/> Disassembling Used Electronics	\$2000.00			1 + 0
<input type="checkbox"/> Leaf Composting Facility	\$0			1 + 1
<input type="checkbox"/> Municipal Transfer Station	\$800.00			1 + 1
<input type="checkbox"/> One Day Collection of Certain Wastes and Household Hazardous Waste	\$1000.00			1 + 0
<input type="checkbox"/> Sheet Leaf Composting Notification	\$0			★★
<b>Special Waste Authorization</b>				
<input type="checkbox"/> Landfill or RRF Disposal	\$660.00			
<input type="checkbox"/> Asbestos Disposal	\$300.00			1 + 0
<input type="checkbox"/> homeowner	\$0			
<input type="checkbox"/> Storage and Processing of Asphalt Roofing Shingle Waste	\$2500.00			1 + 0
<input type="checkbox"/> Storage and Processing of Scrap Tires for Beneficial Use	\$1250.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★★			★★
<input type="checkbox"/> Other, (please specify):				
<b>REMEDATION</b>				
<input type="checkbox"/> In Situ Groundwater Remediation: Enhance Aerobic Biodegradation	★			1 + 2
<input type="checkbox"/> In Situ Groundwater Remediation: Chemical Oxidation	\$500.00			1 + 0
<input type="checkbox"/> Emergency/Temporary Authorization	★			★★
Note: Carry subtotals over to Part III, page 2 of this form.		Subtotal	0	\$0.00

★ See fee schedule on registration/application.

★★ Contact the specific permit program for this information.

(Contact numbers are provided in the Instructions)

**Affirmative Action, Equal Employment Opportunity and Americans with Disabilities**

The Connecticut Department of Energy and Environmental Protection is an Affirmative Action/Equal Opportunity Employer that is committed to complying with the requirements of the Americans with Disabilities Act (ADA). Please contact us at (860) 418-5910 or [deep.accommodations@ct.gov](mailto:deep.accommodations@ct.gov) if you: have a disability and need a communication aid or service; have limited proficiency in English and may need information in another language; or if you wish to file an ADA or Title VI discrimination complaint.



Connecticut Department of  
**Energy & Environmental Protection**  
 Bureau of Water Protection & Land Reuse  
 Inland Water Resources Division

## Request for Authorization Form for the General Permit for Water Resource Construction Activities

Please complete this form in accordance with the general permit (DEEP-IWRD-GP-013) to ensure the proper handling of your request. Print or type unless otherwise noted. You must submit the fee along with this completed form.

CPPU USE ONLY	
App #:	_____
Doc #:	_____
Check #:	_____
Program: GP IWRD Construction Activities	

### Part I: Request and Fee Type

Check the appropriate box identifying the request type.

<input type="checkbox"/> \$5000 [#1757] for each <b>Request for Authorization</b> for Section 3(a)(1), (a)(2), (a)(3), (a)(4), (a)(5), (a)(6), or (a)(7) activities under the subject general permit, unless you qualify as one of the following:  <input type="checkbox"/> \$2500 for any municipality  <input type="checkbox"/> \$2500 for electronic filing*	<input checked="" type="checkbox"/> \$2500 [#1758] for each <b>Request for Authorization</b> for Section 3(a)(8) or 3(a)(9) activities under the subject general permit, unless you qualify as one of the following:  <input type="checkbox"/> \$1250 for any municipality  <input type="checkbox"/> \$1250 for electronic filing*
<p><i>*In order to file electronically, ALL supporting documents under Part VI of this application must be submitted in an electronic format on a CD, along with this original completed application in hard copy.</i></p>	
<p>The request will not be processed without the fee. The fee shall be non-refundable and shall be paid by check or money order to the Department of Energy and Environmental Protection.</p>	
<p>Town where site is located: <u>Scotland</u></p>	
<p>Brief Description of Project: <b>Replacement of Bridge No. 00681, Huntington Road (Route 14) over Merrick Brook. Work also includes removal of the existing bridge and placement of scour protection, including permanent sheeting, rip rap, and boulders.</b></p>	

## Part II: Requestor Information

- If a requester is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, requester's name shall be stated **exactly** as it is registered with the Secretary of State. Please note, for those entities registered with the Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at the Secretary of State's database (CONCORD). ([www.concord-sots.ct.gov/CONCORD/index.jsp](http://www.concord-sots.ct.gov/CONCORD/index.jsp))
- If a requester is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).
- If there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the Request to Change Company/Individual Information to the address indicated on the form. If there is a change in name of the entity holding a DEEP license or a change in ownership, contact the Office of Planning and Program Development (OPPD) at 860-424-3003. For any other changes you must contact the specific program from which you hold a current DEEP license.

### 1. Requester Name: Connecticut Department of Transportation

Mailing Address: 2800 Berlin Turnpike

City/Town: Newington

State: CT Zip Code: 06111

Business Phone: 860-594-2931

ext.:

Contact Person: Kimberly C. Lesay

Phone: 860-594-2931 ext.

E-mail: [kimberly.lesay@ct.gov](mailto:kimberly.lesay@ct.gov)

\*By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject request. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes.

#### a) Requester Type (check one):

individual     federal agency     state agency     municipality     tribal

\*business entity (\*If a business entity complete i through iii):

i) check type:  corporation     limited liability company     limited partnership

limited liability partnership     statutory trust     Other: \_\_\_\_\_

ii) provide Secretary of the State business ID #: \_\_\_\_\_ This information can be accessed at database (CONCORD). ([www.concord-sots.ct.gov/CONCORD/index.jsp](http://www.concord-sots.ct.gov/CONCORD/index.jsp))

iii)  Check here if your business is **not** registered with the Secretary of State's office.

Check here if any co-registrants. If so, attach additional sheet(s) with the required information as requested above.

#### b) Requester's interest in property at which the proposed activity is to be located:

site owner     option holder     lessee     easement holder     operator

other (specify): \_\_\_\_\_



## Part II: Requestor Information (continued)

### 2. Billing contact, if different than the requester.

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Contact Person:

Title:

Email:

### 3. Primary contact for departmental correspondence and inquiries, if different than the requester.

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Contact Person:

Title:

Email:

\*By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject request. Please remember to check your security settings to be sure you can receive e-mails from ".ct.gov" addresses. Also, please notify the department if your e-mail address changes.

### 4. Attorney or other representative, if applicable:

Firm Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Attorney:

Email:

### 5. Site Owner, if different than the requester.

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Contact Person:

Title:

Email:

**Part II: Requestor Information (continued)**

6. **Engineer(s) or other consultant(s) employed or retained to assist in preparing the request or in designing or constructing the activity.**

Name: **Connecticut Department of Transportation**

Mailing Address: **2800 Berlin Turnpike**

City/Town: **Newington**

State: **CT**

Zip Code: **06111**

Business Phone: **360-594-3145**

ext.

Contact Person: **Susan P. Morrison**

Title: **Design Engineer**

Email: **susan.morrison@ct.gov**

Service Provided: **Design Engineer**

Check here if additional sheets are necessary, and label and attach them to this sheet.

**Part III: Site Information**

**1. SITE NAME AND LOCATION**

Name of Site : **CT DOT Bridge No. 00681**

Street Address or Location Description: **Huntington Road (Route 14) over Merrick Brook**

City/Town: **Scotland**

State: **CT**

Zip Code: **06264**

Tax Assessor's Reference: Map

Block

Lot

Latitude and longitude of the exact location of the proposed activity in degrees, minutes, and seconds or in decimal degrees: Latitude: **41°41'54.5"** Longitude: **72°05'03.3"**

Method of determination (check one):

GPS

USGS Map

Other (please specify): **Google Earth**

If a USGS Map was used, provide the quadrangle name:

2. **INDIAN LANDS:** Is or will the facility be located on federally recognized Indian lands?  Yes  No

3. **COASTAL BOUNDARY:** Is the activity which is the subject of this registration located within the coastal boundary as delineated on DEEP approved coastal boundary maps?  Yes  No

If yes, and this registration is for a new authorization, or a modification of an existing authorization where the physical footprint of the subject activity is modified, you must submit a Coastal Consistency Review Form (DEEP-APP-004) with your registration as Attachment C.

Information on the coastal boundary is available at [www.cteco.uconn.edu/map\\_catalog.asp](http://www.cteco.uconn.edu/map_catalog.asp) (Select the town and then select coastal boundary. If the town is not within the coastal boundary you will not be able to select the coastal boundary map.) or the local town hall or on the "Coastal Boundary Map" available at DEEP Maps and Publications (860-424-3555).

### Part III: Site Information (continued)

4. **ENDANGERED OR THREATENED SPECIES:** According to the most current "State and Federal Listed Species and Natural Communities Map", is the project site located within an area identified as a habitat for endangered, threatened or special concern species?  Yes  No Date of Map: **Dec. 2018**

If yes, complete and submit a *Request for NDDB State Listed Species Review Form* (DEEP-APP-007) to the address specified on the form. **Please note NDDB review generally takes 4 to 6 weeks and may require additional documentation from the registrant.**

A copy of the completed *Request for NDDB State Listed Species Review Form* and the CT NDDB response **must** be submitted with this completed registration as Attachment D.

For more information visit the DEEP website at [www.ct.gov/deep/nddbrequest](http://www.ct.gov/deep/nddbrequest) or call the NDDB at 860-424-3011.

5. **AQUIFER PROTECTION AREAS:** Is the site located within a mapped Level A or Level B Aquifer Protection Area, as defined in CGS section 22a-354a through 22a-354bb?

Yes  No If yes, check one:  Level A or  Level B

If **Level A**, are any of the regulated activities, as defined in RCSA section 22a-354i-1(34), conducted on this site?  Yes  No

If yes, and your business is **not** already registered with the Aquifer Protection Program, contact the local aquifer protection agent or DEEP to take appropriate actions.

For more information on the Aquifer Protection Area Program visit the DEEP website at [www.ct.gov/deep/aquiferprotection](http://www.ct.gov/deep/aquiferprotection) or contact the program at 860-424-3020.

6. **CONSERVATION OR PRESERVATION RESTRICTION:** Is the property subject to a conservation or preservation restriction?  Yes  No

If Yes, proof of written notice of this registration to the holder of such restriction or a letter from the holder of such restriction verifying that this registration is in compliance with the terms of the restriction, must be submitted as Attachment E.

### Part IV: Construction Activity Details

- Proposed Date of Initiation of Activity: Spring 2020
- Anticipated Date of Completion: Fall 2020
- Name of the wetland or watercourse involved with or adjacent to the subject activity:  
Merrick Brook
- Is the subject activity within a watercourse or floodplain?  Yes  No
- Will the subject activity be within a FEMA floodway?  Yes  No
- If the project requires a Flood Management Certification for the subject activity, provide the Flood Management Certification Number: N/A

**Part IV: Construction Activity Details (continued)**

7. Disturbance to wetlands, watercourses and flood plains:

Wetlands (acres):

excavation: 0.018 (temp.) fill: 0.050 (perm.) total disturbance: 0.068 acres

Floodplain (cubic yards):

excavation: 0 fill: 0 net: 0

Watercourse (linear feet): 100

8. Describe the present and intended use(s) of the property at which the subject activity will be conducted and the reason for conducting or maintaining the activity.

Bridge No. 00681 carries an estimated average daily traffic of 4400 vehicles on Huntington Road (Route 14) over Merrick Brook. The bridge was built in 1914 and is currently rated in "Serious" condition due to spalled concrete of the encased steel beams and severe section losses due to corrosion of the exposed beams. It currently spans 21 feet. The drainage area at the bridge is approximately 8.36 square miles.

The replacement structure's abutments will be located behind the existing abutments to assist with water handling and increase the hydraulic opening. When finished, it will provide one lane of traffic in each direction. Permanent sheet piling and riprap will protect the structure from scour to reduce the likelihood of having to do future repairs in the wetlands. Boulders will provide slope protection at southwest corner of the bridge.

9. Describe all natural and manmade features impacted by the subject activity, including wetlands, watercourses, fish and wildlife habitat, floodplains, and structures and appurtenances thereto, and the impact of the subject activity on such features.

Permanent sheet piles within the streambed will be reduced to one foot below the mudline to minimize impacts to the natural features. Riprap is to be installed only where deemed necessary to protect the channel and embankments from scour. Boulders at the southwest sloped embankment will reduce erosion. The concrete riparian shelf will support wildlife crossing beneath the bridge.

Impacts to the stream will be minimized through adherence to the Form 817 Section 1.10 Best Management Practices and the 2004 Stormwater Quality Manual. During construction, fish passage conditions will be maintained and unconfined in-stream work will be restricted to June 1 through September 30, inclusive. Sedimentation and Erosion Control Systems will be installed to limit disturbances to protect wetlands and watercourses through adherence to the 2002 Connecticut Guideline for Soil Erosion and Sediment Control.

Permanent impacts to the inland wetlands and watercourse are necessary to install permanent sheet piles, riprap and boulders. It is also necessary to remove the existing structure and to extend the existing drainage pipe. Permanent impacts total 2145 square feet

Temporary impacts are necessary in order to remove trees and to place construction equipment in order to maintain one way alternating traffic during construction. Any areas disturbed will be regraded and reseeded. Temporary impacts total 791 square feet.

The project is not located within a FEMA flood zone.

Check here if additional sheets are necessary, and label and attach them to this sheet.

## Part V: Supporting Documents

Check the applicable box below for each attachment being submitted with this request. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment A, etc.) and be sure to include the requester's name as indicated on this request. ***In order to file electronically, ALL supporting documents must be submitted in an electronic format on a CD with this original completed application in hard copy.***

- Attachment A: Location Map: A depiction, on an 8.5" x 11" copy of the relevant portion of the most recent version of the United States Geologic Survey topographic map (Scale 1:24,000), of the exact location of the property at which such activity will be conducted.
- Attachment B: Site plan pursuant Section 4(c) (2) (l) of the subject general permit.
- Attachment C: Coastal Consistency Review Form (DEEP-APP-004), if applicable.
- Attachment D: Copy of the completed Request for NDDB State Listed Species Review Form (DEEP-APP-007) and the NDDB response, if applicable.
- Attachment E: Conservation or Preservation Restriction Information, if applicable.
- Attachment F: A copy of the Category 2 approval letter from the Army Corps of Engineers, or a copy of the Appendix 1A: Category 1 Certification Form filed with the US Army Corps of Engineers, if applicable.
- Attachment G: Drainage Maintenance Plan, Trail Maintenance Plan, Boat Launch Maintenance Plan, or Beach Maintenance Plan for Inland Beaches as defined in Section 2 of the subject general permit, if applicable.
- Attachment H: Other information provided by requester (list): **DEEP Fisheries Signed Plans, Interagency Meeting Notes, FEMA Firmette, Project Correspondence, Site Photos**  
\_\_\_\_\_

**Part VI: Requester Certification**

The requester *and* the individual(s) responsible for actually preparing the request must sign this part. A request will be considered incomplete unless all required signatures are provided. If the requester is the preparer, please mark N/A in the spaces provided for the preparer.

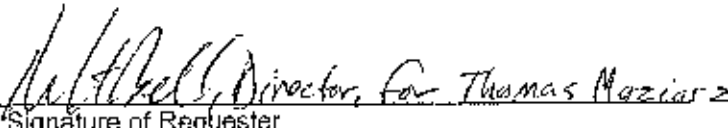
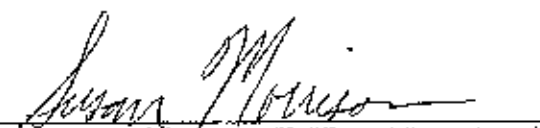
"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief.

I certify that this general permit request for authorization is on complete and accurate forms as prescribed by the commissioner without alteration of the text.

I understand that the subject activity is authorized only on or after the date the commissioner issues a written approval of registration with respect to such activity.

I certify that a complete copy of this request for authorization, including all documents attached thereto, was sent by regular or certified mail or was hand delivered to the municipal wetlands agency, zoning commission, planning commission or combined planning and zoning commission, and conservation commission of each municipality which is or may be affected by the subject activity.

I understand that a false statement in the submitted information may be punishable as a criminal offense, in accordance with section 22a-5 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute."

	<u>6/25/2019</u>
Signature of Requester	Date
<b>Thomas J. Maziarz</b>	<b>Bureau Chief, Policy &amp; Planning</b>
Name of Requester (print or type)	Title (if applicable)
	<u>6/25/2019</u>
Signature of Preparer (if different than above)	Date
<b>Susan P. Morrison</b>	<b>Design Engineer</b>
Name of Preparer (print or type)	Title (if applicable)

Check here if additional signatures are required. If so, please reproduce this sheet and attach signed copies to this sheet. You must include signatures of any person preparing any report or parts thereof required in this registration (i.e., professional engineers, surveyors, soil scientists, consultants, etc.)

Note: Please submit this completed Request for Authorization, Fee, and all Supporting Documents to:

CENTRAL PERMIT PROCESSING UNIT  
 DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION  
 79 ELM STREET  
 HARTFORD, CT 06106-5127

You must submit a complete copy of this completed request for authorization, including supporting documents, to the municipal wetlands agency, zoning commission, planning commission or combined planning and zoning commission, and conservation commission of each municipality which is or may be affected by the subject activity.

## **Attachment A: Location Map**

### **General Permit for Water Resource Construction Activities**

Applicant: State of Connecticut, Department of Transportation

Project No.: 123-066

Replacement of Bridge No. 00681 carrying Huntington Road (Route 14) over Merrick Brook

Town of Scotland

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#### **List of Attachments**

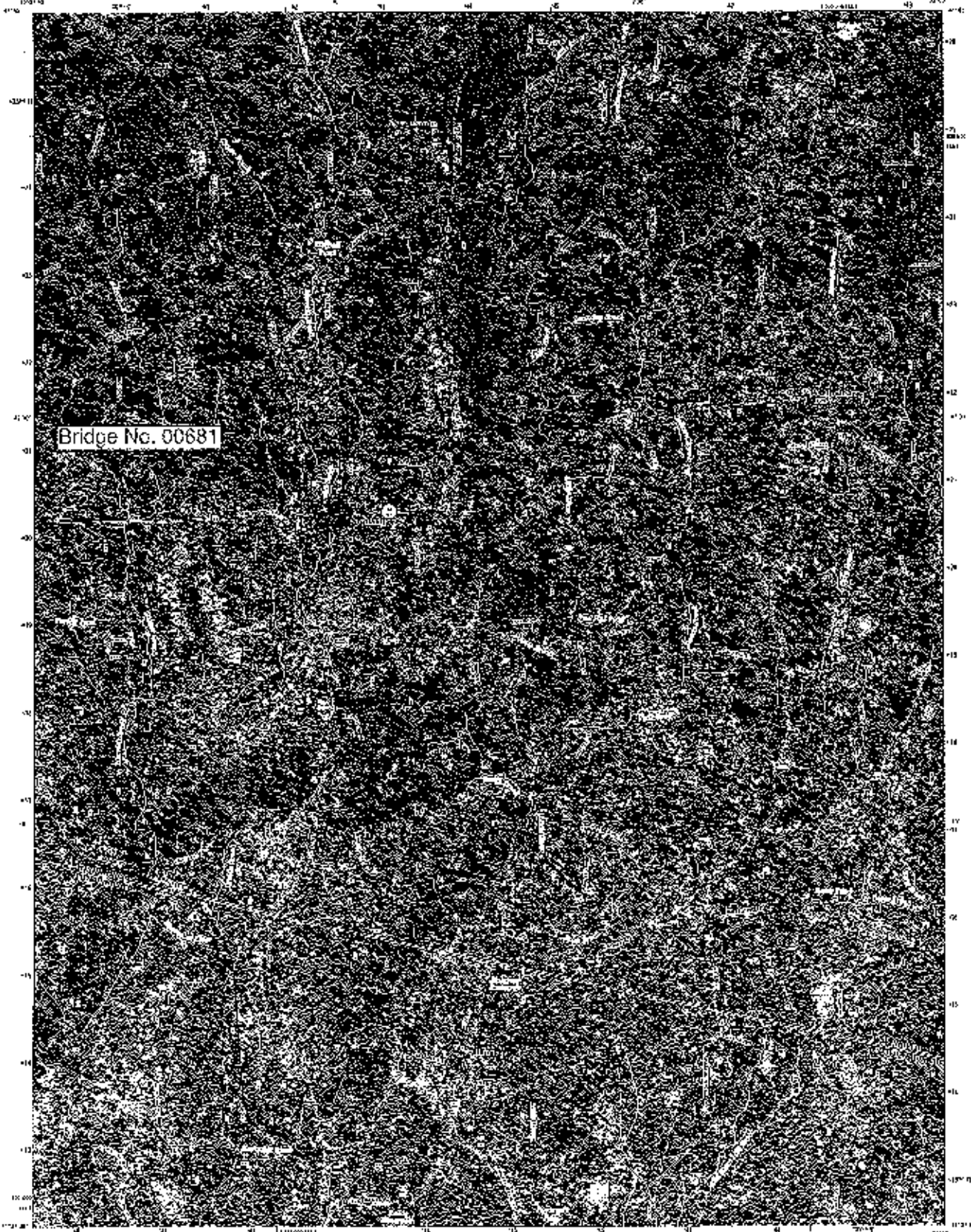
- U.S.G.S. Topographic Quadrangle Map No. 57  
QUAD: Scotland  
Scale: 1:24,000  
Dated: 2015



U.S. DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY



SCOTLAND QUADRANGLE  
CONNECTICUT  
3.5-MINUTE SERIES



Produced by the USGS and the National Geospatial  
Intelligence Agency  
Map Scale: 1:25,000  
Map Date: 2012  
Map Title: Scotland Quadrangle, Connecticut  
Map Series: 3.5-Minute Series  
Map Projection: UTM  
Map Datum: NAD 83  
Map Contour Interval: 20 Feet  
Map Contour Elevation: 100 Feet  
Map Contour Color: Brown  
Map Contour Style: Solid  
Map Contour Width: 0.5 Millimeters  
Map Contour Spacing: 20 Feet  
Map Contour Label: 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000  
Map Contour Label Color: Black  
Map Contour Label Style: Bold  
Map Contour Label Width: 0.5 Millimeters  
Map Contour Label Spacing: 20 Feet  
Map Contour Label Offset: 0.5 Millimeters  
Map Contour Label Rotation: 0 Degrees  
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SCOTLAND, CT  
2012





06/05/2019

**PROJECT 0123-0066  
RT. 14 OVER MERRICK BROOK  
SCOTLAND  
BRIDGE 00681  
PROJECT DESCRIPTION**

Bridge 00681 carries Route 14, also called Huntington Road, over Merrick Brook in the Town of Scotland. It is located approximately 1.8 miles north of the junction with Route 82 (East Haddam Rd.). The existing structure is a single span concrete encased steel stringer bridge, approximately 21' long with a 24.6' out to out width. The concrete encased steel stringers sit on stone masonry abutments. R-B 350 metal beam rail extends from the approaches over the bridge beyond the wingwalls on both sides of the roadway on Route 14. The average daily traffic (ADT) is approximately 4,400 vehicles per day according to the most recent inspection report.

The structure was inspected by Bridge Safety and Evaluation and the superstructure was rated in serious condition due to spalled concrete of the encased steel beams and severe section losses due to corrosion of the exposed beams. Due to the extent of the deterioration of the existing bridge, Bridge Safety and Evaluation recommended the structure be replaced.

The proposed rehabilitation for Bridge No.00681 consists of the replacement of the existing structure with an integral abutment bridge with a length of 60' and an out-to-out width of 37.25'. The existing natural streambed material will be reused.

The design will require a full road closure of Route 14 within the project limits during the bridge replacement. Route 14 will be detoured for a period of no more than eight weeks. A water-handling-cofferdam will be installed around existing abutments to allow the demolition of the existing structure and installation of riprap, natural streambed material, and toe boulders. Fully enclosed cofferdams will be installed around proposed abutments for ground water handling and supporting the roadway and embankments. The design will utilize the Accelerated Bridge Construction (ABC) method, which entails the bridge components, including abutments and wingwalls are prefabricated and supported by a deep foundation, which will be installed during a road closure. Additionally, the deck, parapets, and approach slabs will be cast during the road closure. No construction activity will be performed within the watercourse outside of the allowable timeframe for instream work required by DEEP Fisheries.

Based on the recommendation from the ConnDOT Hydraulics and Drainage Unit, the integral abutment bridge structure type was chosen. The proposed bridge will improve hydraulic conveyance capacity, reduce the potential for future scour, and ensure the safety of the structure while undergoing pressure flow in a major storm event. The drainage area of this wetland is 8.4 square miles. As a result of this project, there will be no adverse impacts hydraulic wise to the existing floodplain.

This project has been presented in front of DEEP and USACE at an Interagency Coordination Meeting dated November 30, 2017, and concurrence with the structure type has been given. Coordination with DEEP fisheries has been completed, and their comments have been incorporated into the project documents. There will be temporary and permanent wetland impact required for the structure construction totaling 2936 square feet. Permits will be obtained from DEEP and USACE prior to the start of construction.

**Permits:** An Inland Wetland General Permit and USACE Self-Verification Form are anticipated to be needed prior to construction.

## **Attachment B: Site Plan**

### **General Permit for Water Resource Construction Activities**

Applicant: State of Connecticut, Department of Transportation

Project No.: 123-066

Replacement of Bridge No. 00681 carrying Huntington Road (Route 14) over Merrick  
Brook

Town of Scotland

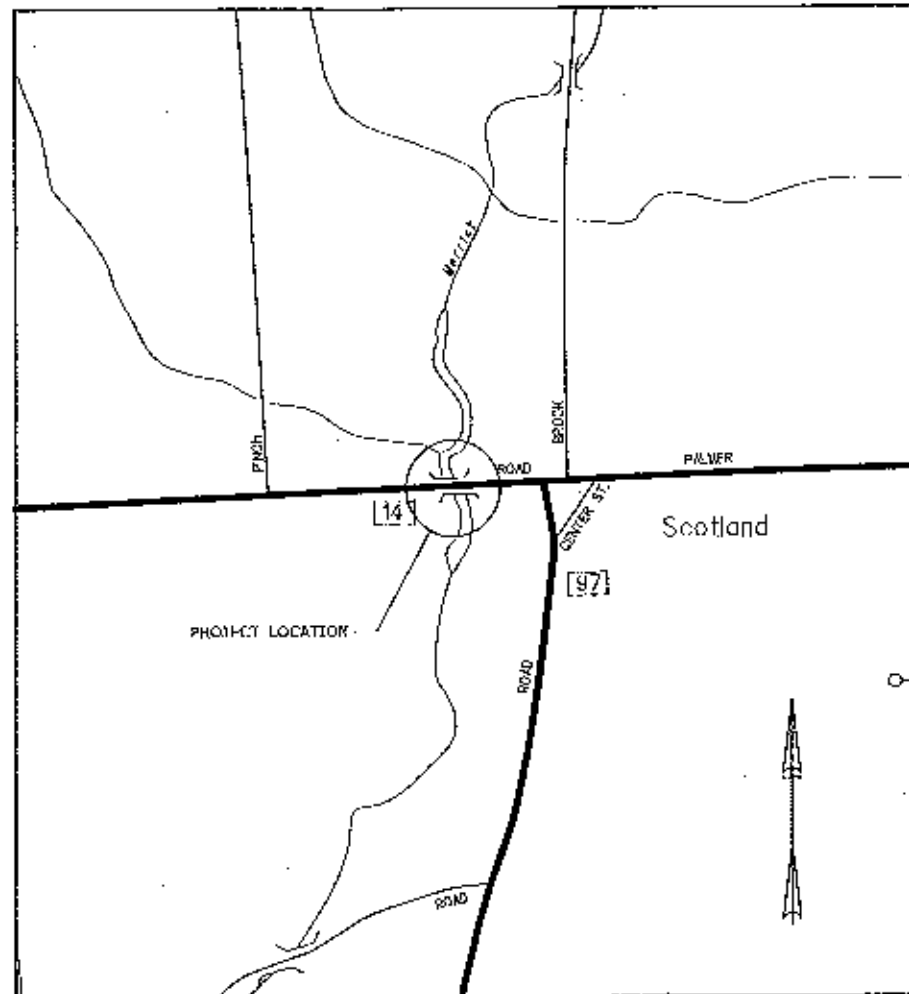
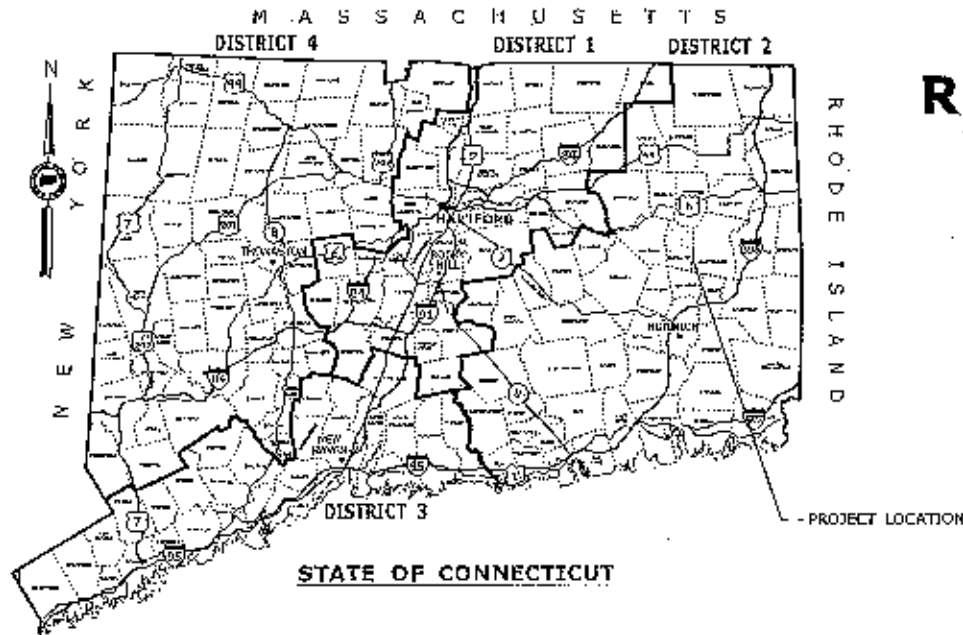
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# CONNECTICUT DEPARTMENT OF TRANSPORTATION



## ENVIRONMENTAL PERMIT PLANS STATE PROJECT NO. 123-066 REPLACEMENT OF BRIDGE NO. 00681 ROUTE 14 OVER MERRICK BROOK IN THE TOWN OF SCOTLAND



LOCATION PLAN  
SCALE: 1" = 500'

LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL SITE PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	ELEVATIONS & SECTION
PMT-05	WATER HANDLING PLAN
PMT-06	CONSTRUCTION SEQUENCE 1
PMT-07	CONSTRUCTION SEQUENCE 2
PMT-08	CONSTRUCTION DETAILS
PMT-09	PERMIT PLANTING PLAN

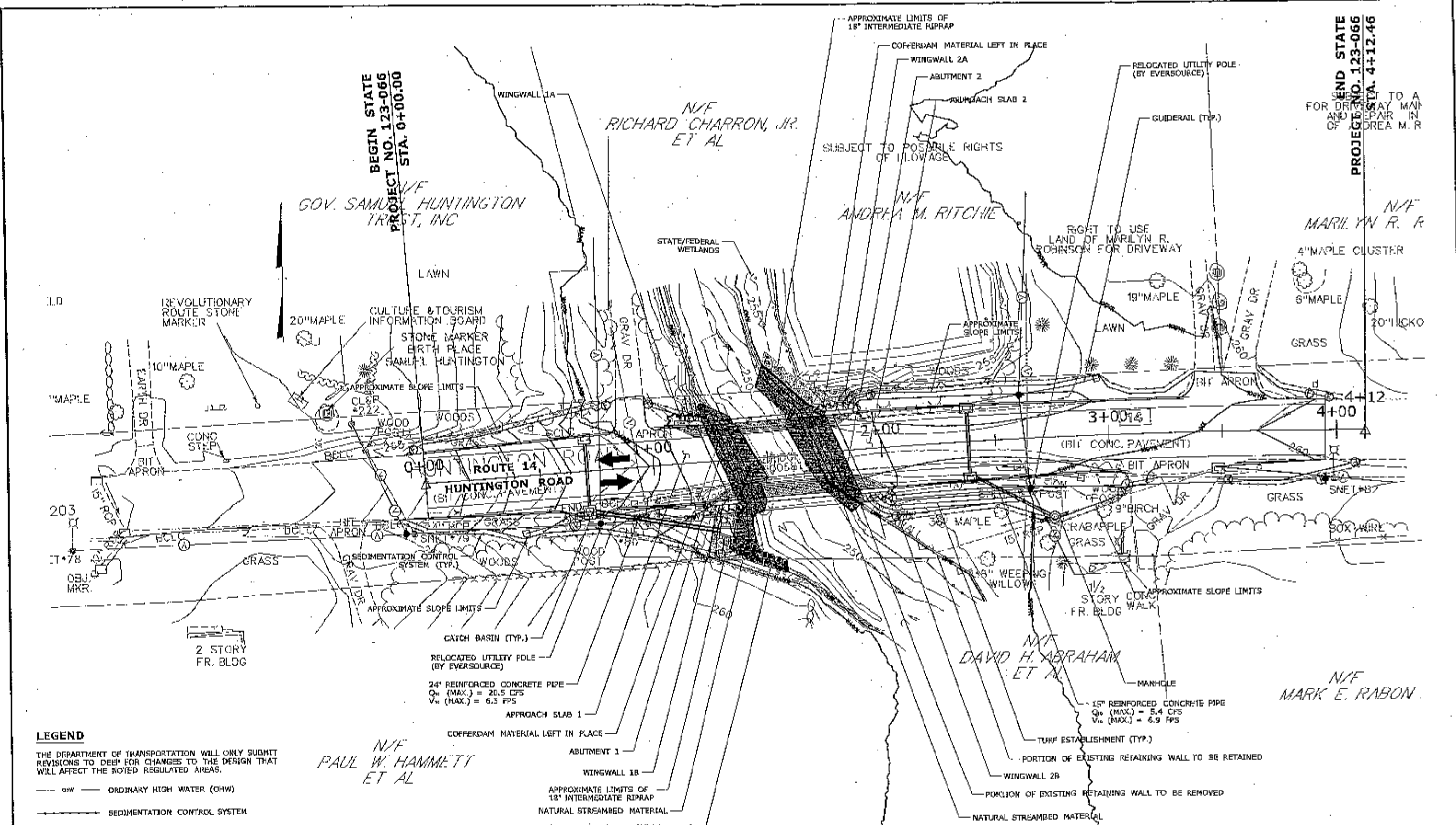
**GENERAL NOTES:**

1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USACE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983 VERTICAL DATUM BASED ON NGVD OF 1988.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION, FORM 817, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	DATE	THE INFORMATION INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED SURVEYING BY THE STATE AND IS NOT WARRANTEED TO INDICATE THE CONTIGUOUS OF A LOW QUALITY OF WORK WHICH WILL BE REQUIRED.	DESIGNED BY: SPM	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING	PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	YEAR: SCOTLAND	PROJECT NO. 123-066
						CHECKED BY: RIB		APPROVED BY:		DRAWING NO.: PMT-01	SHEET NO.:
					SCALE AS NOTED						



**GENERAL SITE PLAN**

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

**LEGEND**  
 THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- OHW — ORDINARY HIGH WATER (OHW)
- SED — SEDIMENTATION CONTROL SYSTEM
- SFW — STATE/ FEDERAL WETLANDS
- 100YR — EXISTING 100-YR FLOOD (CALCULATED)

**NOTE A**  
 LARGE BOULDERS APPROXIMATELY 3 FEET IN DIAMETER SHALL BE PLACED AS DIRECTED IN THE FIELD BY DEEP FISHERIES/DEP STAFF. SEE SPECIAL PROVISION "PLACEMENT OF TOE BOULDERS".

24" REINFORCED CONCRETE PIPE  
 $Q_u$  (MAX.) = 20.5 CFS  
 $V_u$  (MAX.) = 6.3 FPS

APPROACH SLAB 1

COFFERDAM MATERIAL LEFT IN PLACE

ABUTMENT 1

WINGWALL 1B

APPROXIMATE LIMITS OF 18" INTERMEDIATE RIPRAP

NATURAL STREAMBED MATERIAL

PLACEMENT OF TOE BOULDERS (SEE NOTE A)

15" REINFORCED CONCRETE PIPE  
 $Q_u$  (MAX.) = 5.4 CFS  
 $V_u$  (MAX.) = 6.9 FPS

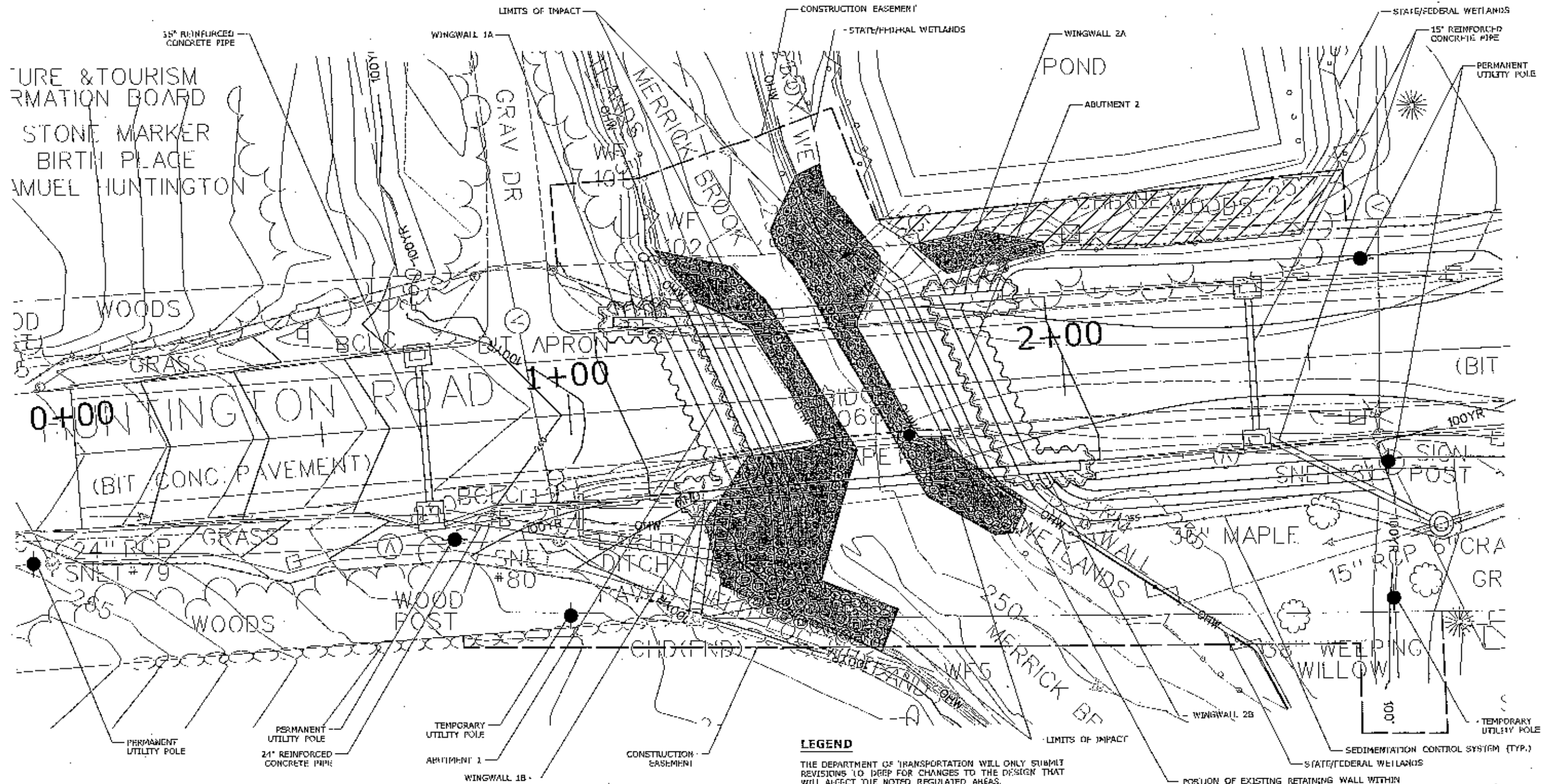
TURF ESTABLISHMENT (TYP.)

PORTION OF EXISTING RETAINING WALL TO BE REMOVED

WINGWALL 2B

NATURAL STREAMBED MATERIAL

REV.	DATE	REVISION (DESCRIPTION)	SHEET NO.	DATE	SCALE	SCALE	SCALE	PROJECT TITLE	TOWN	PROJECT NO.	DRAWING NO.	SHEET NO.
				07/20/2018	1"=20'	1"=20'	1"=20'	REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	SCOTLAND	123-066	PMT-02	
THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION. IT IS TO BE USED ONLY FOR THE PROJECT AND PURPOSE SPECIFIED HEREIN. NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PERMISSION IN WRITING FROM THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION.						STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION		OFFICE OF ENGINEERING		GENERAL SITE PLAN		



	WETLAND IMPACTS (ABOVE OHW)	WATERWAY IMPACTS (BELOW OHW)	TOTAL
PERMANENT IMPACTS	420 S.F. (0.010 A.C.)	1725 S.F. (0.040 A.C.)	2145 S.F. (0.050 A.C.)
TEMPORARY IMPACTS	791 S.F. (0.018 A.C.)	0 S.F. (0.000 A.C.)	791 S.F. (0.018 A.C.)
TOTAL IMPACTS	1211 S.F. (0.028 A.C.)	1725 S.F. (0.040 A.C.)	2936 S.F. (0.068 A.C.)

NOTE: THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

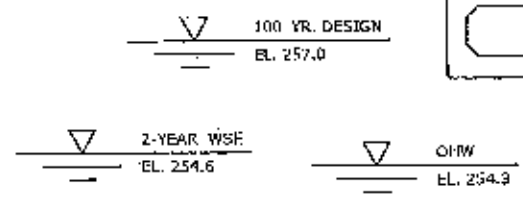
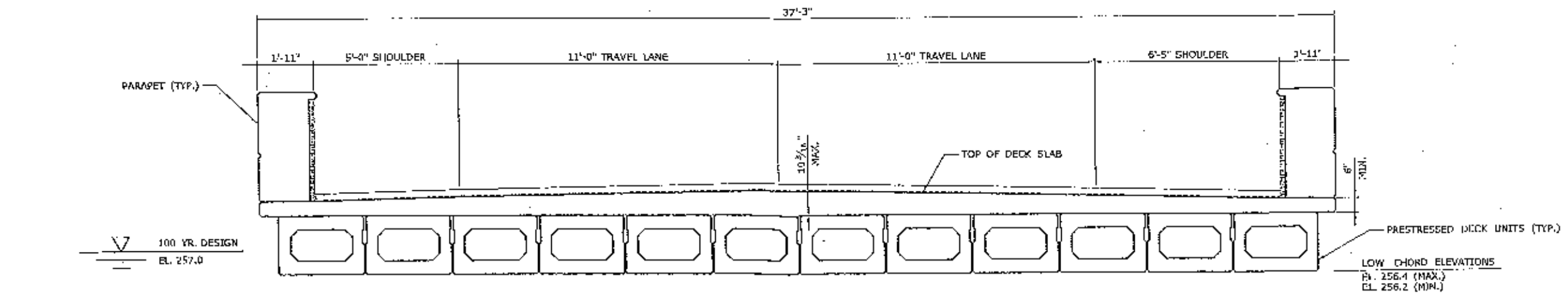
**LEGEND**

- — — — — STREAM
- ○ — ○ — SEDIMENTATION CONTROL SYSTEM
- OHW — ORDINARY HIGH WATER (OHW)
- — — — — WETLAND LIMITS
- 100YR — FEMA 100-YEAR FLOOD (CALCULATED)
- — — — — (X)-BORDAM MATERIAL LEFT IN PLACE
- ○ ○ ○ ○ WATER HANDLING COFFERDAM
- [Stippled Area] PERMANENT WETLAND IMPACTS
- [Hatched Area] TEMPORARY WETLAND IMPACTS

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

PROJECT NO. 123-068 DRAWING NO. <b>PMT-03</b> SHEET NO. 4 OF 10	TOWN <b>SCOTLAND</b> DRAWING TITLE <b>WETLAND/WATERCOURSE IMPACT PLAN</b>	PROJECT TITLE <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION OFFICE OF ENGINEERING SIGNATURE: _____ BLOCK: _____ APPROVED BY: _____
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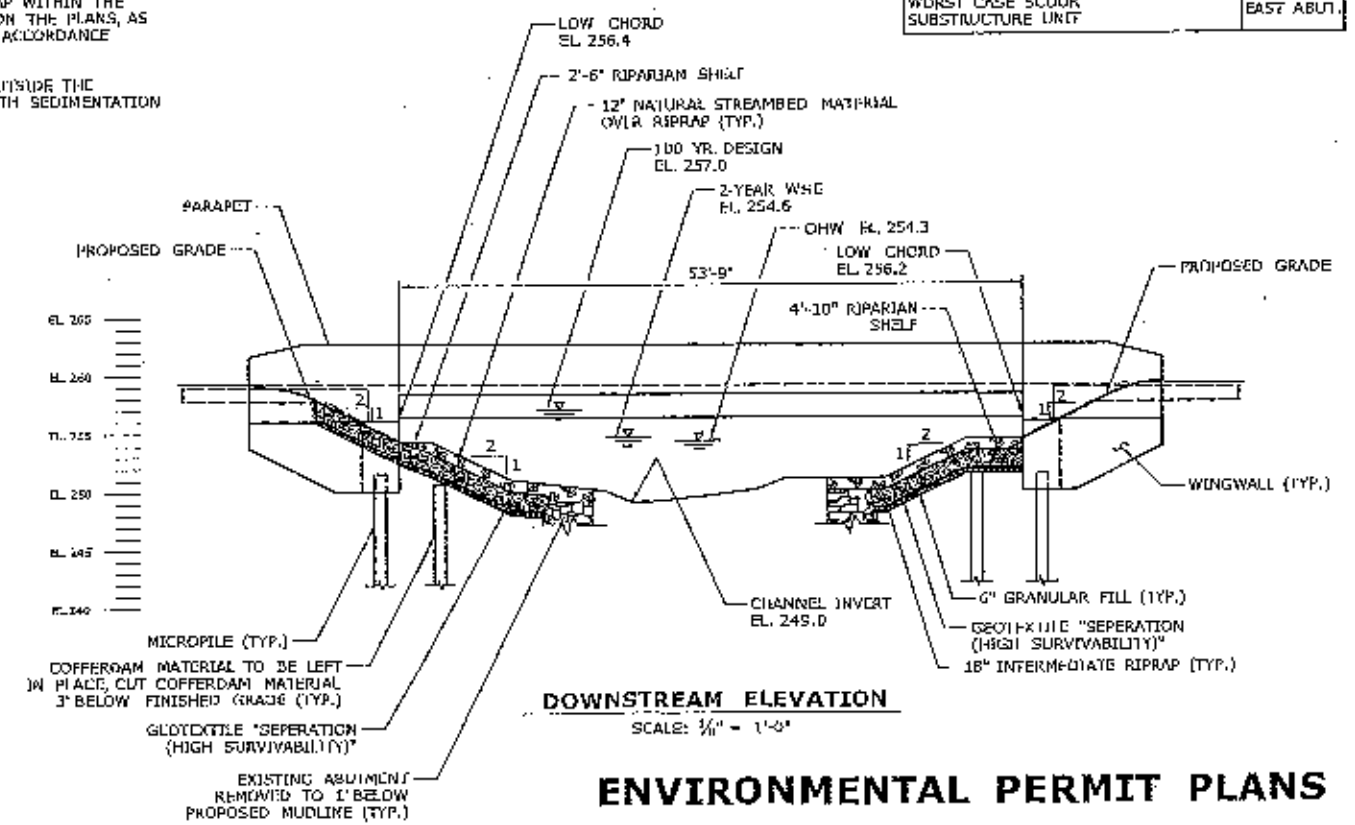
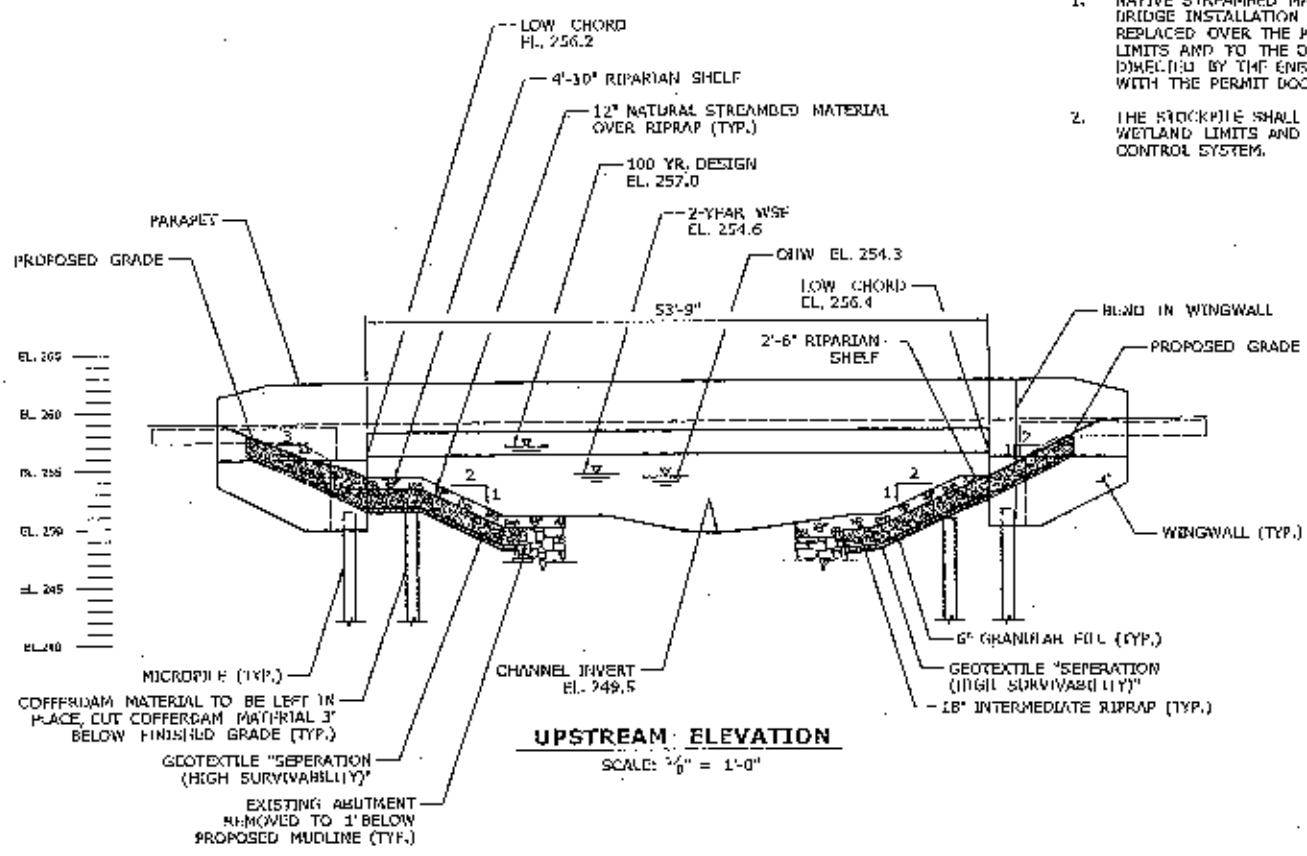


**TYPICAL SECTION**  
SCALE: 1/2" = 3'-0"

HYDRAULIC DATA	
DRAINAGE AREA (SQ. MI.)	8.4
DESIGN FREQUENCY (-YEAR)	100
DESIGN DISCHARGE (CFS)	1090
AVERAGE DAILY FLOW ELEVATION (FT) (CALCULATED)	252.7
UPSTREAM DESIGN WATER SURFACE ELEVATION (FT)	257.7
DOWNSTREAM DESIGN WATER SURFACE ELEVATION (FT)	247.0
MAXIMUM SCOUR FREQUENCY (F-F)	238.5
FREQUENCY (-YEAR)	230
DISCHARGE (CFS)	2105
WORST CASE SCOUR SUBSTRUCTURE UNIT	EAST ABUT.

**NATIVE STREAMBED MATERIAL NOTES:**

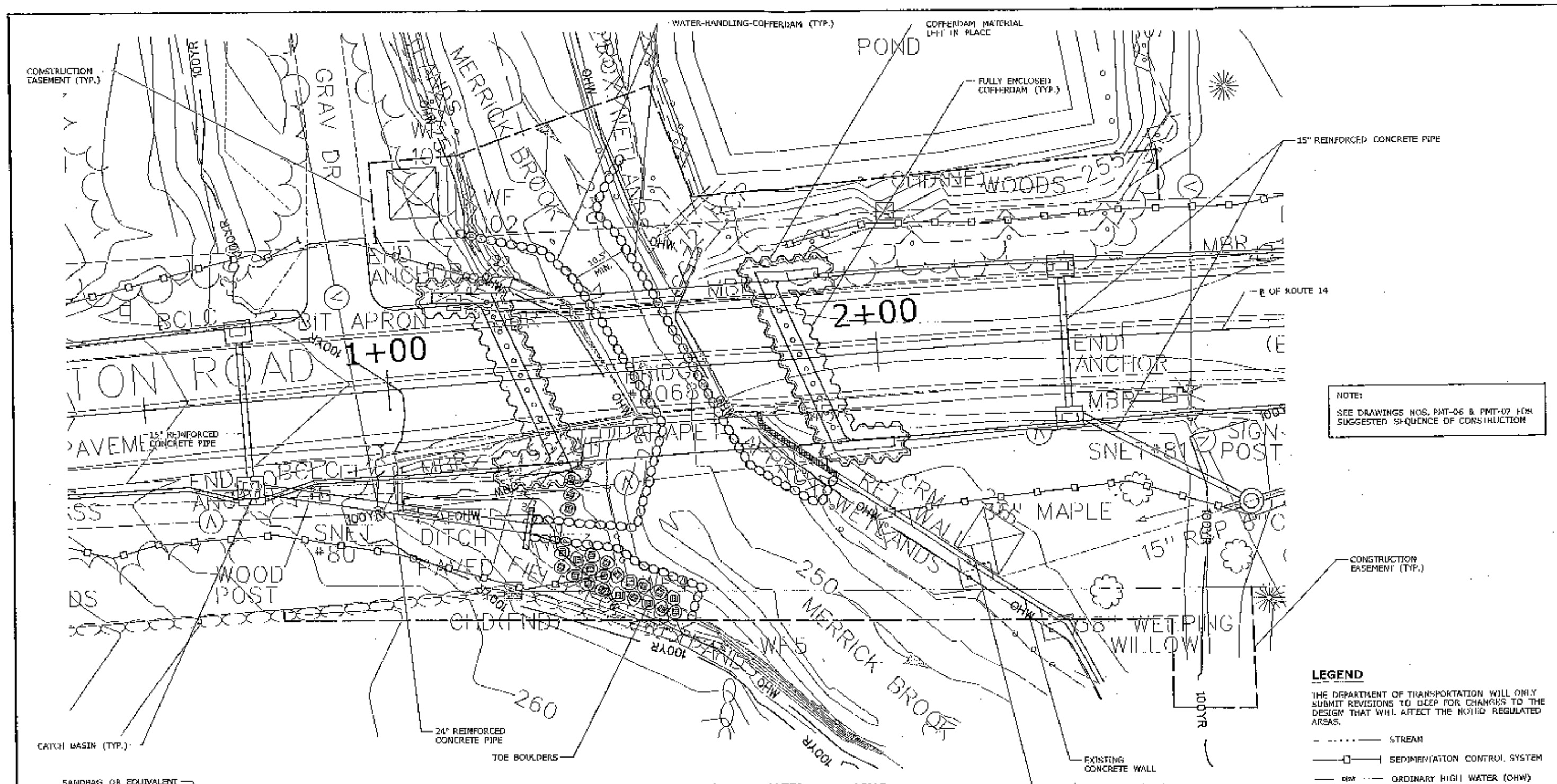
1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE BRIDGE INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED OVER THE PROPOSED RIPRAP WITHIN THE LIMITS AND TO THE DEPTH SHOWN ON THE PLANS, AS DIRECTED BY THE ENGINEER, AND IN ACCORDANCE WITH THE PERMIT DOCUMENTS.
2. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.



**ENVIRONMENTAL PERMIT PLANS**  
PLAN DATE: JUNE 05, 2019

<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>		<p>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE. 14) OVER MERRICK BROOK</p>		<p>SCOTLAND ELEVATION AND SECTION</p>		<p>PROJECT NO. 123-066</p>
<p>DESIGNED BY: SPM</p> <p>CHECKED BY: KJB</p> <p>SCALE AS NOTED</p>		<p>OFFICE OF ENGINEERING</p>		<p>PROJECT TITLE</p>		<p>DRAWING NO. PMT-04</p>
<p>DATE</p>		<p>REVISION DESCRIPTION</p>		<p>DATE</p>		<p>SHEET NO.</p>





NOTE:  
SEE DRAWINGS NOS. PMT-06 & PMT-07 FOR SUGGESTED SEQUENCE OF CONSTRUCTION

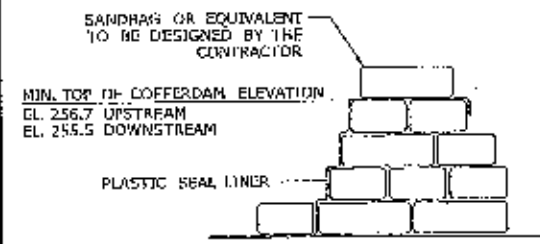
- LEGEND**
- — — — — STREAM
  - [ ] — SEDIMENTATION CONTROL SYSTEM
  - [ ] — ORDINARY HIGH WATER (OHW)
  - - - - - WETLAND LIMITS
  - - - - - 100-YEAR FLOOD (CALCULATED)
  - ~~~~~ COFFERDAM
  - ~~~~~ COFFERDAM MATERIAL LEFT IN PLACE
  - WATER HANDLING COFFERDAM

**WATER HANDLING NOTES**

1. TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF PLASTIC LINER, SANDBAGS, OR ANY OTHER APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND EXCAVATION, AND SHALL CONFORM TO PERMITS.
2. NO ADDITIONAL REGULATORY IMPACTS WILL BE ALLOWED BEYOND THE AREAS SHOWN ON THE IMPACT PLANS. ALL DISTURBED AREAS SHALL BE RESTORED.
3. EXISTING DRAINAGE PIPES SHALL BE MAINTAINED AND PROTECTED DURING CONSTRUCTION. THESE DRAINAGE PIPES SHALL REMAIN IN OPERATION THROUGHOUT CONSTRUCTION AND BE PROTECTED FROM DAMAGE, ROTATION, AND DISPLACEMENT BY MEANS AND METHODS OF THE CONTRACTOR.

**TEMPORARY HYDRAULIC DATA**

AVERAGE DAILY FLOW (ADF)	15 CFS
AVERAGE DAILY SPKING FLOW (ASGF)	29.3 CFS
2-YEAR FREQUENCY DISCHARGE	380 CFS
TEMPORARY DESIGN DISCHARGE	380 CFS
TEMPORARY DESIGN FREQUENCY	2-YEAR
TEMPORARY WATER SURFACE ELEV.	255.7 FT - UPSTREAM 254.5 FT - DOWNSTREAM



**WATER HANDLING COFFERDAM**  
NOT TO SCALE

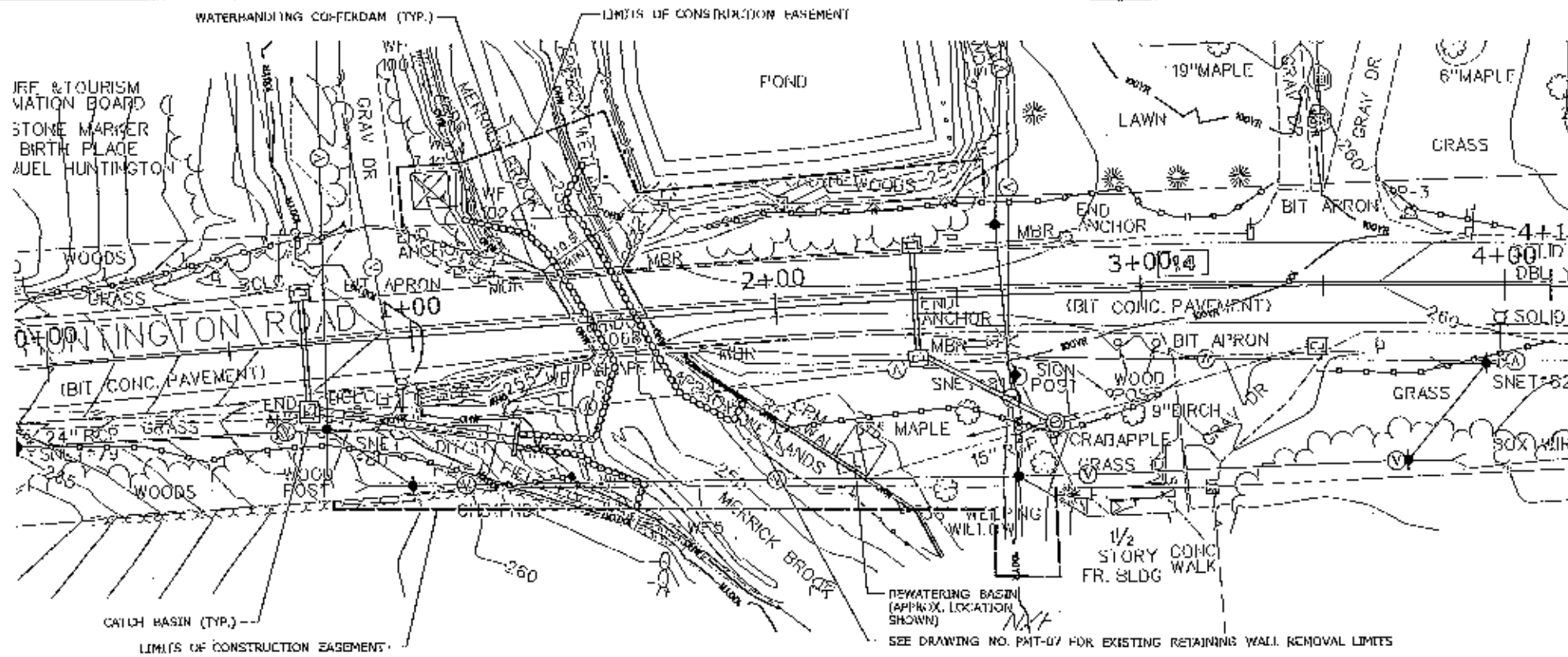
**PLAN - WATER HANDLING**  
SCALE: 1" = 10'

**ENVIRONMENTAL PERMIT PLANS**

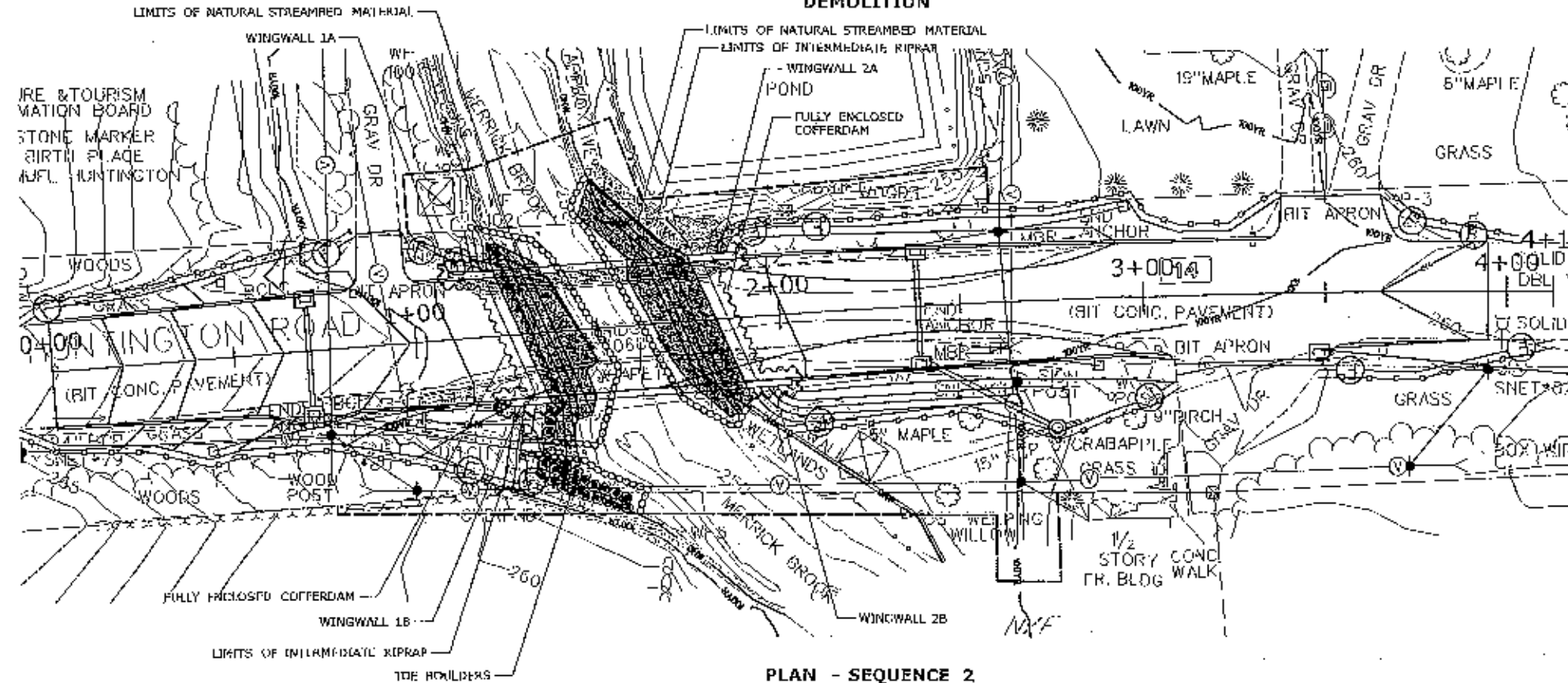
PLAN DATE: JUNE 05, 2019

<p>DESIGNED BY: SPM</p> <p>CHECKED BY: RIR</p> <p>SCALE: AS NOTED</p>	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	<p>DESIGNED BY: SPM</p> <p>CHECKED BY: RIR</p> <p>SCALE: AS NOTED</p>	<p>OFFICE OF ENGINEERING</p>	<p>PROJECT TITLE:</p> <p><b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b></p>	<p>TOWN:</p> <p><b>SCOTLAND</b></p>	<p>PROJECT NO.:</p> <p>0123-0066</p> <p>PERMIT NO.:</p> <p><b>PMT-05</b></p>
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**PLAN - SEQUENCE 1  
DEMOLITION**



**PLAN - SEQUENCE 2  
CONSTRUCTION**

**SEQUENCE 1 - WATER HANDLING AND DEMOLITION  
SUGGESTED SEQUENCE OF CONSTRUCTION**

1. CLEAR AND GRUB, CONTROL AND REMOVE INVASIVE VEGETATION AND INSTALL SEDIMENTATION CONTROL.
2. RELOCATE UTILITY POLES TO TEMPORARY LOCATIONS (BY OTHERS).
3. INSTALL PILES AND TEST PRODUCTION PILLS.
4. CLOSE ROAD AND DETOUR TRAFFIC.
5. INSTALL DEBRIS SHIELD AND REMOVE EXISTING SUPERSTRUCTURE.
6. INSTALL DRAINAGE PIPES AND CATCH BASINS.
7. INSTALL TEMPORARY WATER HANDLING AND DEWATERING BASINS.
8. REMOVE EXISTING ADUTMENTS AND WINGWALLS TO EL. 240.0. REMOVE PORTION OF EXISTING RETAINING WALL.

**LEGEND**

- THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.
- STREAM
  - SEDIMENTATION CONTROL SYSTEM
  - ORDINARY HIGH WATER (OHW)
  - WETLAND LIMITS
  - FEMA 100-YEAR FLOOD (CALCULATED)

**SEQUENCE 2 - CONSTRUCTION**

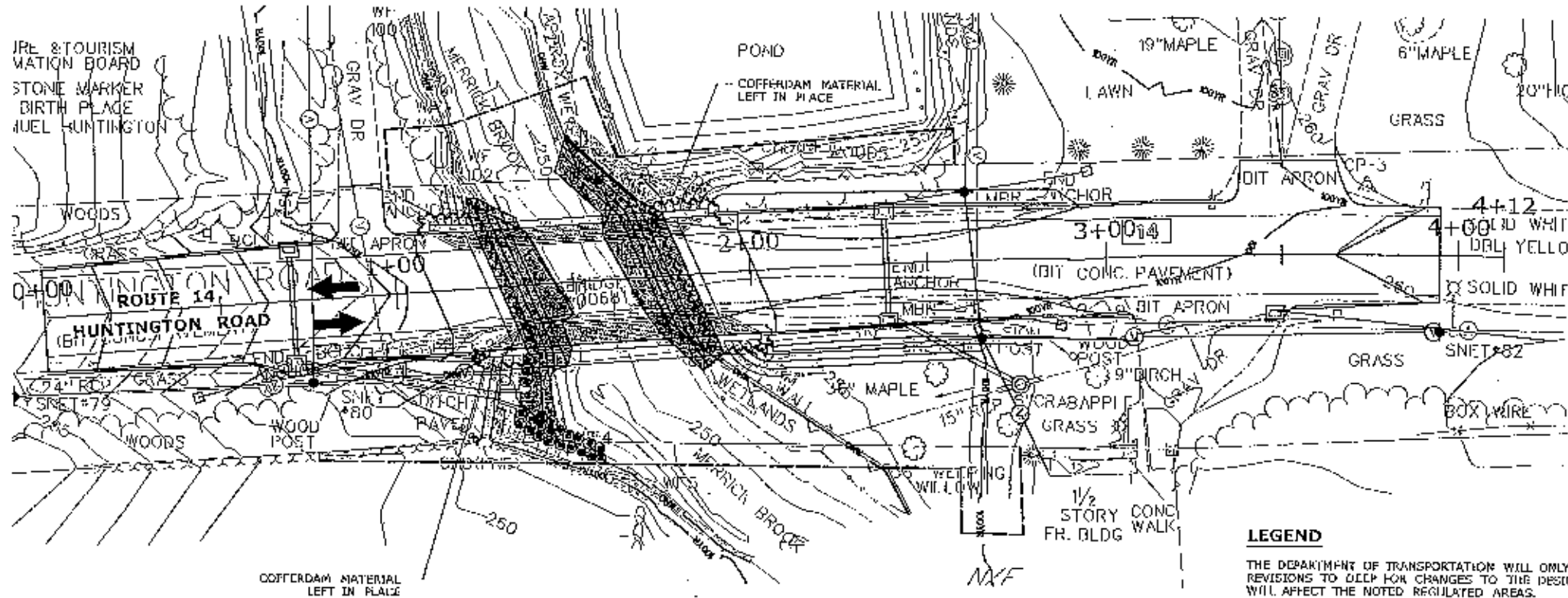
**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. INSTALL FULLY ENCLOSED COFFERDAMS FOR NEW ADUTMENTS AROUND PILES AND EXCAVATE.
2. PLACE GRANULAR FILL WITHIN COFFERDAM AND INSTALL PRECAST ABUTMENTS, BACKFILL AS NEEDED.
3. REMOVE COFFERDAM WITHIN ROADWAY LIMITS AND CUT COFFERDAM MATERIAL LEFT IN PLACE BELOW GRADE.
4. PLACE INTERMEDIATE RIPRAP ALONG EMBANKMENTS AND PLACE TOE BOULDERS. REMOVE TEMPORARY WATER HANDLING.
5. INSTALL PRESTRESSED DECK UNITS AND POST-TENSION.
6. CONSTRUCT CONCRETE DECK SLAB, APPROACH SLABS, AND BRIDGE PARAPETS.
7. APPLY WATERPROOFING MEMBRANE AND INSTALL HMA OVERLAY ON BRIDGE AND APPROACHES. APPLY TEMPORARY PAVEMENT MARKINGS.
8. INSTALL TEMPORARY PROTECTIVE FENCE. INSTALL APPROACH METAL BEAM RAILS.
9. OPEN ROADWAY TO TRAFFIC.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION INCLUDING ESTIMATED QUANTITIES OF WORK, QUANTITIES OF MATERIALS, AND COSTS IS BASED ON LATEST INFORMATION OF THE STATE AND IS IN NO WAY WARRANTED TO ASSURE THE ACCURACY OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNER/DRAWN: SPM CHECKED BY: RIB SCALE IN FEET SCALE 1" = 20' 	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION OFFICE OF ENGINEERING HUNTINGTON ROAD PROJECT NO.: 125-068 DRAWING TITLE: CONSTRUCTION SEQUENCE 1	PROJECT NO.: 125-068 DRAWING TITLE: CONSTRUCTION SEQUENCE 1 SHEET NO.: PMT-06
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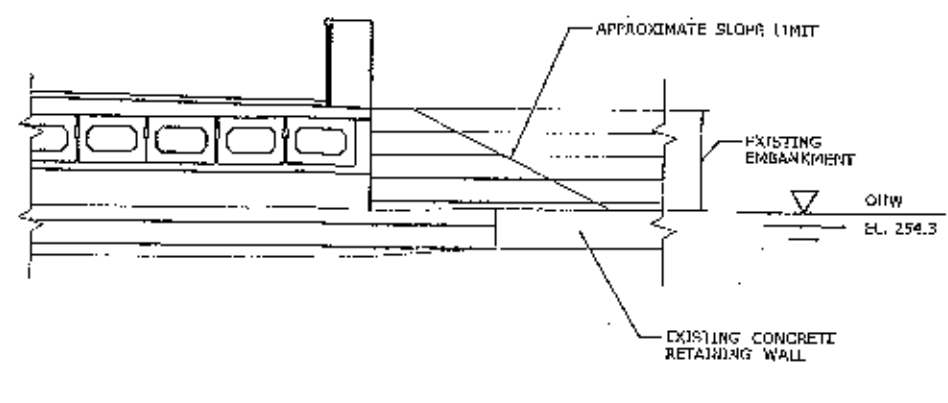
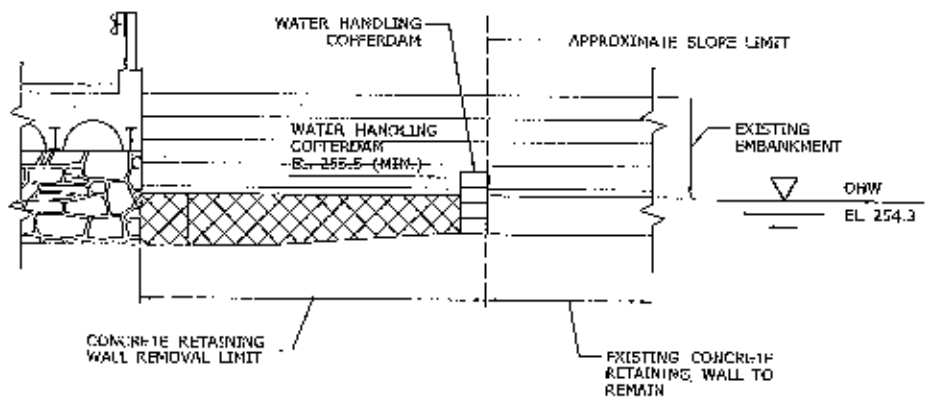


- SEQUENCE 3 - CONSTRUCTION**
- SUGGESTED SEQUENCE OF CONSTRUCTION**
1. RELOCATE UTILITY POLES TO PERMANENT LOCATIONS (BY OTHERS).
  2. INSTALL PROTECTIVE FENCE ON PARAPETS.
  3. REMOVE ACCESS ROADS.
  4. PLACE TOPSOIL, LANDSCAPE, AND ESTABLISH TURF.
  5. INSTALL PERMANENT PAVEMENT MARKINGS AND INLAID THERMOPLASTIC PAVEMENT MARKING SYSTEM.
  6. REMOVE EROSION AND SEDIMENTATION CONTROL SYSTEM UPON PERMANENT STABILIZATION.

**LEGEND**

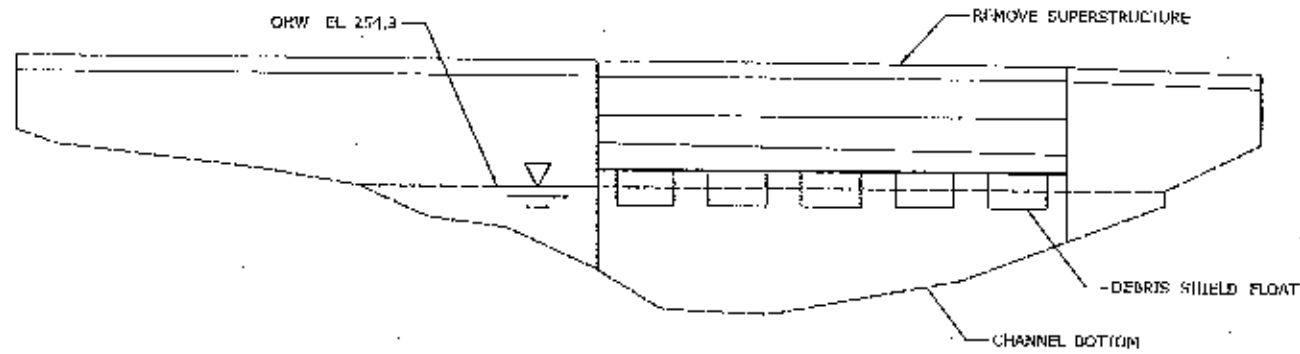
THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEAL FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- STREAM
- SEDIMENTATION CONTROL SYSTEM
- OHW --- ORDINARY HIGH WATER (OHW)
- WETLAND LIMITS
- FEMA 100-YEAR FLOOD (CALCULATED)

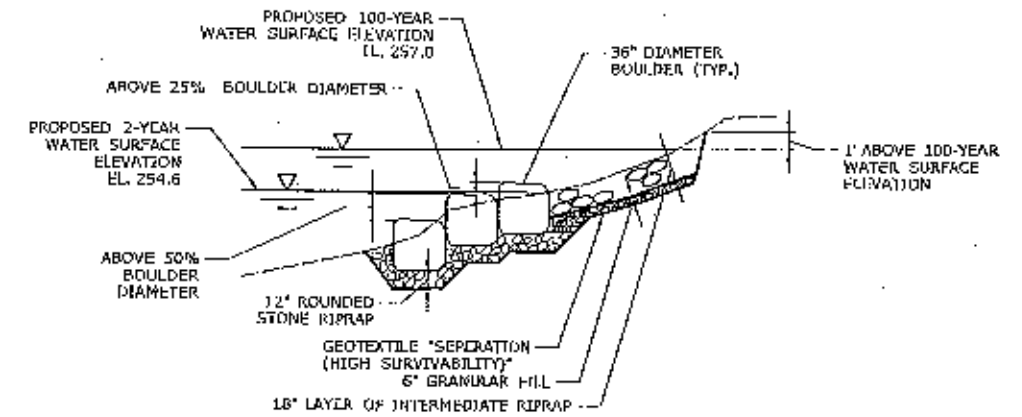


**ENVIRONMENTAL PERMIT PLANS**  
PLAN DATE: JUNE 05, 2019

DATE: _____ REVISION DESCRIPTION: _____ SHEET NO.: _____ PROJECT NO.: 123-055	THE INFORMATION INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INFORMATION PROVIDED BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OR ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNED BY: SPM CHECKED BY: RIB SCALE IN FEET: 1"=20' SCALE: 1"=20'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	DRAWN BY: _____ CHECKED BY: _____ APPROVED BY: _____	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. D0681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	STATE: SCOTLAND DRAWING TITLE: CONSTRUCTION SEQUENCE 2	PROJECT NO.: 123-055 DRAWING NO.: PMT-07 SHEET NO.: _____
		PROJECT NO.: 123-055 DRAWING NO.: PMT-07 SHEET NO.: _____					



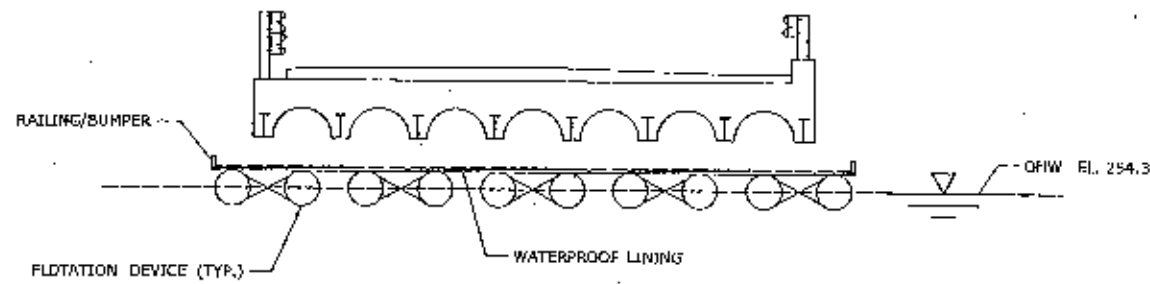
**ELEVATION - DEBRIS SHIELD**  
SCALE: 3/4" = 1'-0"



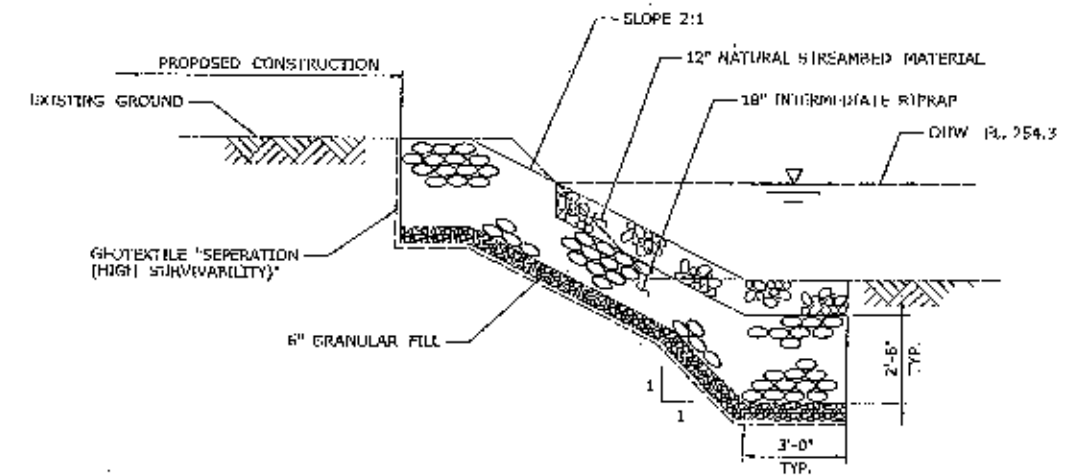
**SECTION - BOULDER PLACEMENT**  
NOT TO SCALE

**DEBRIS SHIELD FLOAT NOTES:**

1. FLOAT SHALL HAVE WATERPROOF LINING AND RAILING/BUMPER SYSTEM TO PREVENT DEBRIS FROM ENTERING THE WATERWAY.
2. FLOAT SHALL BE SUFFICIENTLY BUOYANT SO AS NOT TO BE FOUNDED ON THE SUBSTRATE AT ANY TIME DURING ITS USE. AT NO TIME SHALL THE DEBRIS SHIELD BOTTOM OUT.
3. WHEN NOT IN USE, FLOAT SHALL BE STORED WITHIN THE PROJECT IMPACT AREA.
4. WORKLOAD SHALL NOT BE STORED WITHIN THE WATERWAY NOR WITHIN UNDISTURBED WETLANDS.



**SECTION - DEBRIS SHIELD**  
SCALE: 5/16" = 1'-0"

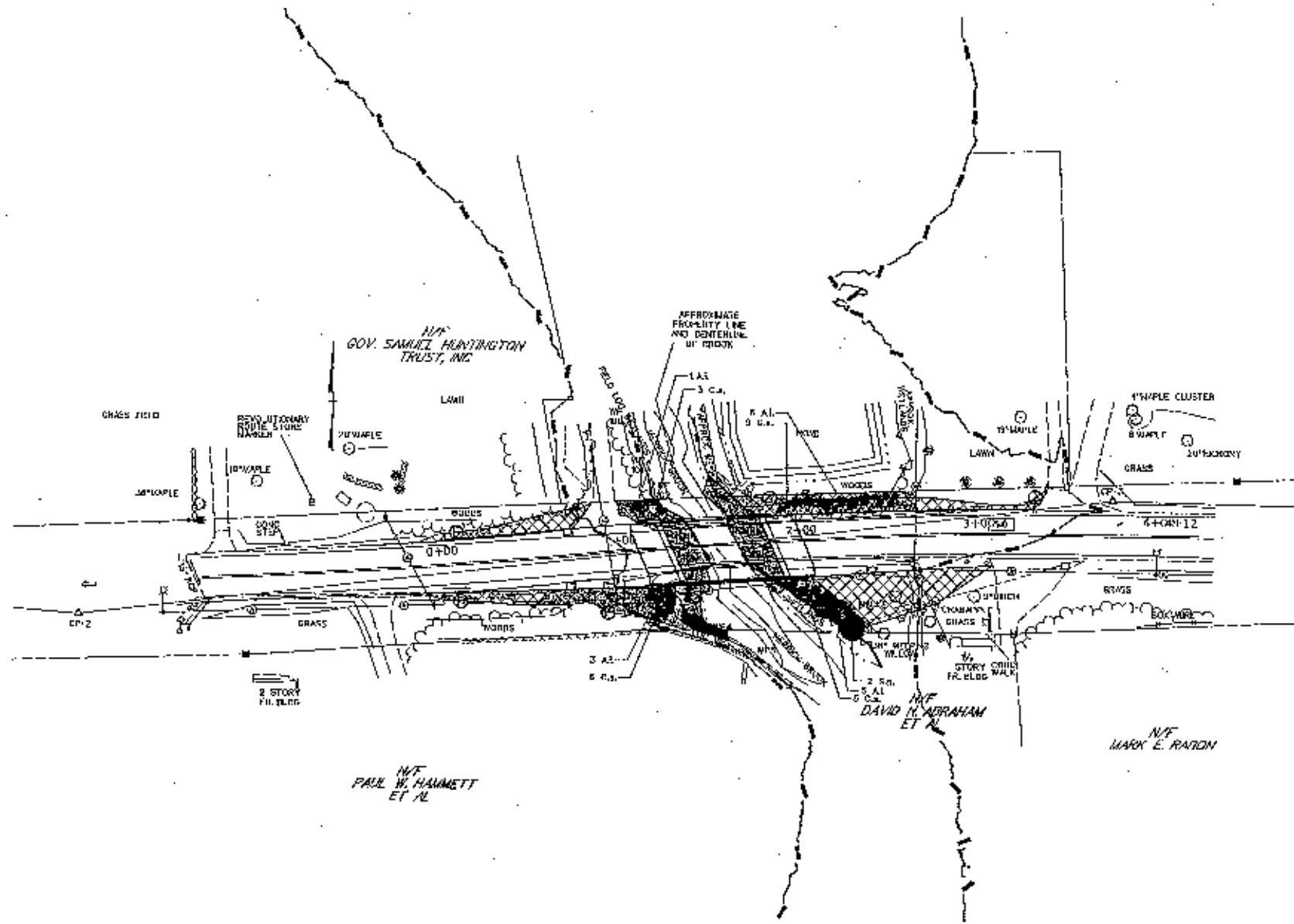


**DETAIL - RIPRAP FOR SLOPE PROTECTION**  
NOT TO SCALE

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019






THE INFORMATION, INCLUDING ESTIMATED QUANTITIES, IS BASED ON THE INFORMATION PROVIDED BY THE CLIENT AND IS TO BE USED AS A GUIDE ONLY. THE CONTRACTOR SHALL VERIFY THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNED BY: SPM CHECKED BY: RIB SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	TOWN: SCOTLAND	PROJECT NO.: 123-066 DRAWING NO.: PMT-08 SHEET NO.:	
APP.	DATE	REVISION DESCRIPTION	SHEET NO.	PRINTED DATE: 04/20/19				



**PERMIT PLANT LIST**

KEY	BOTANICAL NAME	COMMON NAME	SP. #	Quantity	Spacing	Location
AJ	<i>Asus Incana</i>	Spangled Aster	4' - 5' H.I.B.B.	25	7' On Center	OEL
C.S.	<i>Comus scutell</i>	Red root Dogwood	74" - 80" H.I.B.B.	23	5' On Center	PAW
Sa.	<i>Sida sp.</i>	Red Willow	1 3/4" - 2" DB D.B.	2	Field Locate	OHL
				Control and Removal of Invasive Vegetation	840 S.Y.	
				Conservation Seeding for Slopes	250 S.Y.	
				Wetland Grass Establishment	250 S.Y.	

**LEGEND**

-  CONTROL AND REMOVAL OF INVASIVE VEGETATION
-  CONSERVATION SEEDING FOR SLOPES
-  100-YR FLOOD LIMIT
-  STATE/FEDERAL WETLANDS
-  ORDINARY HIGH WATER LINE

**NOTES**

- PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY CHANGES TO PERMIT PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING.
- ALL TREES AND SHRUBS MUST CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK FOR DECIDUOUS SHRUBS, CHAPTER THREE AND MEET THE MINIMUM CONTAINER SIZE AND ROOT MASS AND NUMBER OF CANES FOR TYPE AND HEIGHT.
- ALL PLANTS SHALL BE STRAIGHT SPECIES, NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.
- DISTURBED AREAS BELOW THE WETLAND LINE SHALL BE SEEDING WITH WETLAND SEED MIX. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE COVERED WITH WOOD CHIP MULCH OR CONSERVATION SEEDING FOR SLOPES UNLESS OTHERWISE NOTED.
- THE EXACT QUANTITIES AND LIMITS FOR CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE FIELD DETERMINED.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON EXISTING INVESTIGATIONS OF THE STATE AND IS NOT INTENDED TO BE A GUARANTEE OF WORK WHICH WILL BE PERFORMED.		DESIGN: MM CHECKED BY: SF SCALE IN FEET: 1"=40' SCALE: 1"=40'	 <b>STATE OF CONNECTICUT</b> DEPARTMENT OF TRANSPORTATION	SIGNATURE: [Blank] OFFICE OF ENGINEERING APPROVED BY: [Blank]	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. 9 (RTE 14) OVER MERRICK BROOK</b>	TOWN: <b>SCOTLAND</b>	PROJECT NO.: 123-068 DRAWING TITLE: <b>PERMIT PLANTING PLAN</b>	SHEET NO.: <b>PMT-09</b>
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## **Attachment H: Other Information**

### **General Permit for Water Resource Construction Activities**

Applicant: State of Connecticut, Department of Transportation

Project No.: 123-066

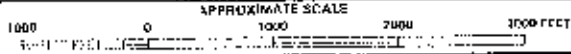
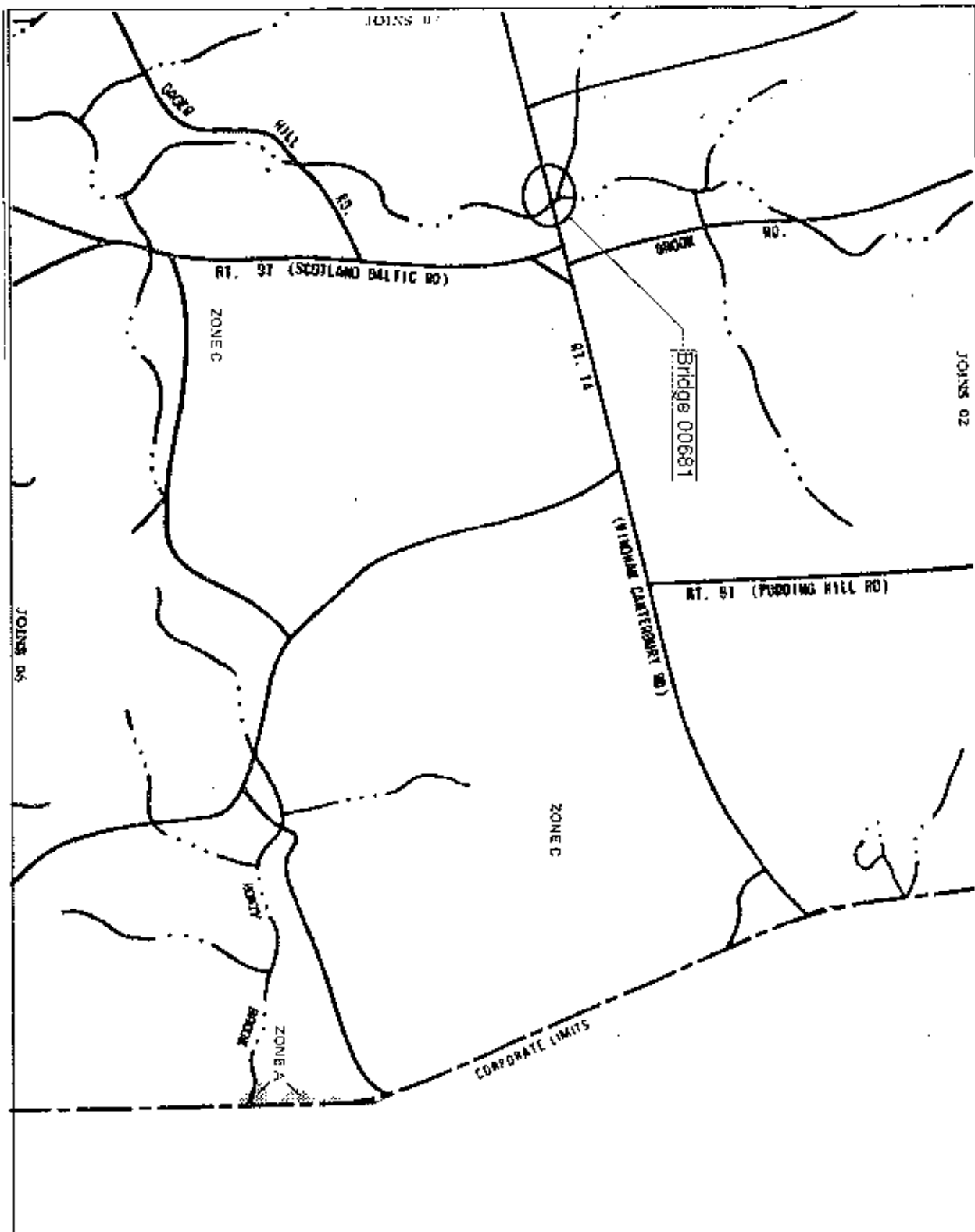
Replacement of Bridge No. 00681 carrying Huntington Road (Route 14) over Merrick Brook

Town of Scotland

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#### **List of Attachments**

- Federal Emergency Management Agency map of Scotland dated December 4, 1985
- Statewide Inland Wetlands & Watercourse Activity Reporting Form
- Correspondence with the State of Connecticut Department of Environmental Protection, Bureau of Natural Resources-Inland Fisheries Division
- Connecticut Department of Transportation Project Managers Meeting Notes dated November 30, 2017
- Site Photos



federal emergency management agency

**TOWN OF SCOTLAND, CT**  
**(WINDHAM CO.)**



This map is a reproduction of a map prepared by the Town of Scotland, Connecticut, and is not a certified map. It is intended for informational purposes only and should not be used for legal or official purposes. The map is based on the most current information available to the Town of Scotland, Connecticut, as of the date of its preparation. The map is subject to change without notice.

EFFECTIVE DATE  
 DECEMBER 4, 1985



**Connecticut Department of  
Energy & Environmental Protection**  
Bureau of Natural Resources  
Fisheries Division  
Habitat Conservation and Enhancement Program  
Eastern District Headquarters  
209 Hebron Road  
Marlborough, CT 06447  
Tel: (860) 295-9523

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**TO:** Michael J. Salter  
**FROM:** Mindy M. Barnett, Fisheries Habitat Biologist  
**DATE:** 03/22/17  
**SUBJECT:** Fisheries Review DOT Project No.: 123-0066

---

**Type of Permit:**

1. DOT Culvert/Bridge Projects      **Project#:**0123-0066    **Bridge#:** 00681  
 2. Diversion  
 3. PGP/Inland Wetland  
 4. Water Quality Certification

**Applicant:** State of CT, DOT

**Permit Application Number:** TBD

**Town:** Town of Scotland

**Waters:** Merrick Brook

**Sub Regional Basin #:** 3803

**Project Scope:** Replacement of Bridge 00681 Huntington Road (Route 14) over Merrick Brook. Replacement includes the removal of existing superstructure and substructure, and construction of a new bridge. Enclosed are my preliminary comments.

**Fisheries Resources:** Stream survey data indicate that Merrick Brook supports a diverse coldwater fish community that includes native brook trout, wild brown trout, blacknose dace, white sucker, fallfish, longnose dace, tessellated darter, slimy sculpin, and American eel. Stream habitats within the footprint of the bridge are generally deeper pool habitats due to backwater from the downstream dam. Substrates are comprised of sand, cobble, and several large boulders. Existing onsite conditions provide for unrestricted upstream fish passage.

**Comments/Recommendations:**

1. Proposed bridge replacement design will ensure existing fish passage conditions.

2. As design proceeds, please provide more detail regarding any further instream work associated with possible substructure rehabilitation and installation of riprap. It is important to minimize the overall footprint and instream placement of riprap that might be required for scour protection.
  
3. It is critical that proper erosion and sedimentation controls be installed and maintained throughout the duration of this project. Care should be exercised so as not to increase turbidity levels. As a best management practice, any unconfined instream work within Merrick Brook should be restricted to the period from June 1 to September 30, inclusive. A June 1 through September 30 timeframe can be utilized as an effective mitigation measure for construction related disturbances due to the following reasons: (1) timeframe will serve to protect the spawning, egg incubation, and fry development of resident fishes, (2) timeframe does not interfere with seasonal migratory behaviors, and (3) timeframe coincides with historic low rainfall levels in Connecticut a period in which instream construction activities such as dewatering, excavation, trenching, and cofferdam placement are most effective.

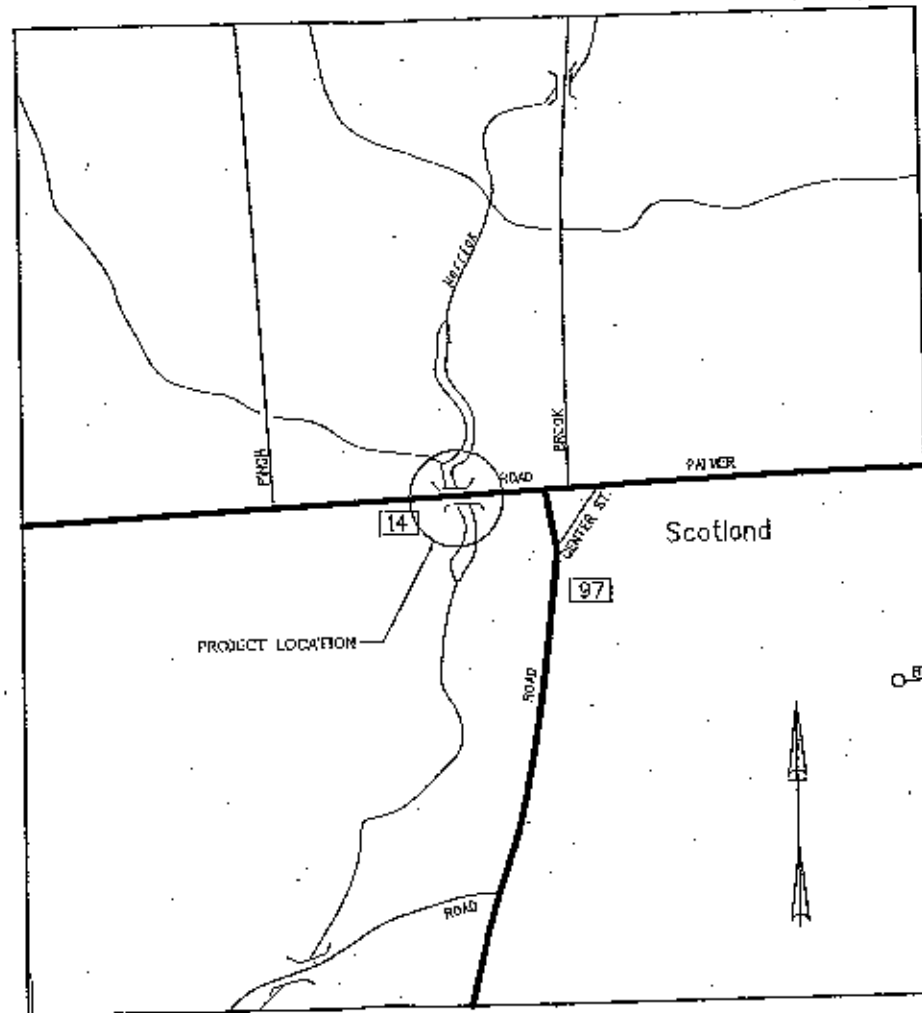
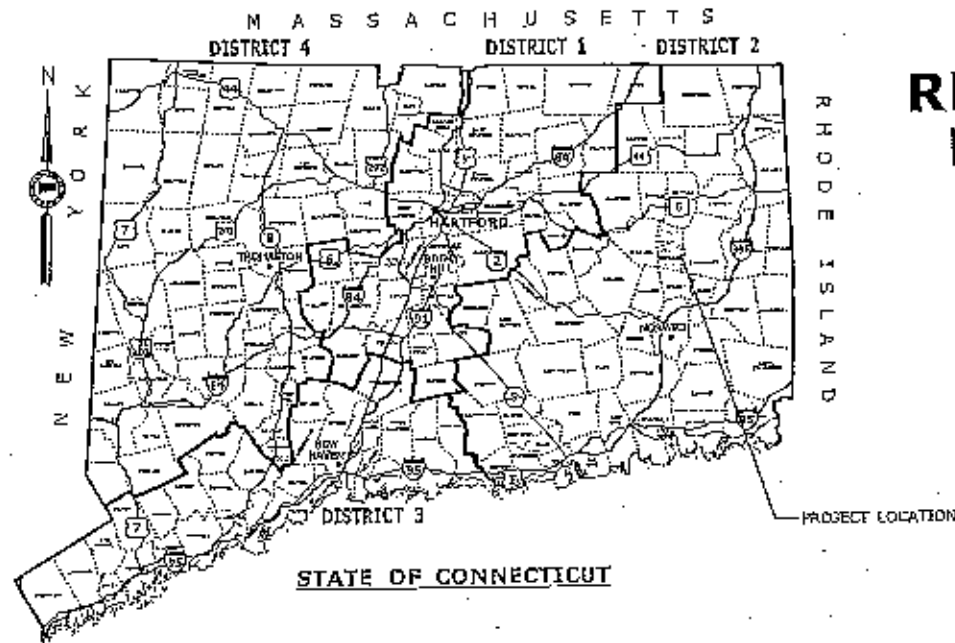




# CONNECTICUT DEPARTMENT OF TRANSPORTATION



## ENVIRONMENTAL PERMIT PLANS STATE PROJECT NO. 123-066 REPLACEMENT OF BRIDGE NO. 00681 ROUTE 14 OVER MERRICK BROOK IN THE TOWN OF SCOTLAND



LOCATION PLAN  
SCALE: 1" = 500'

LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL SITE PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	ELEVATIONS & SECTION
PMT-05	WATER HANDLING PLAN
PMT-06	CONSTRUCTION SEQUENCE 1
PMT-07	CONSTRUCTION SEQUENCE 2
PMT-08	CONSTRUCTION DETAILS
PMT-09	PERMIT PLANTING PLAN

### GENERAL NOTES:

1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USAGE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983 VERTICAL DATUM BASED ON NGVD OF 1988.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION, FORM 817, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

### ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JUNE 05, 2019

DESIGNER: SPM CHECKED BY: RIB SCALE: AS NOTED		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION		OFFICE OF ENGINEERING APPROVED BY:		PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK		TOWN: SCOTLAND		PROJECT NO.: 123-066	
DRAWING NO.: PMT-01		DRAWING TITLE: TITLE SHEET		SHEET NO.: 1 OF 1		SHEET NO.: PMT-01		SHEET NO.: 1 OF 1		SHEET NO.: 1 OF 1	

END STATE  
NO. 123-066  
PROJECT STA. 4+12.46

BEGIN STATE  
PROJECT NO. 123-066  
STA. 0+00.00

N/F  
RICHARD CHARRON, JR.  
ET AL

N/F  
GOV. SAMUEL HUNTINGTON  
TRUST, INC

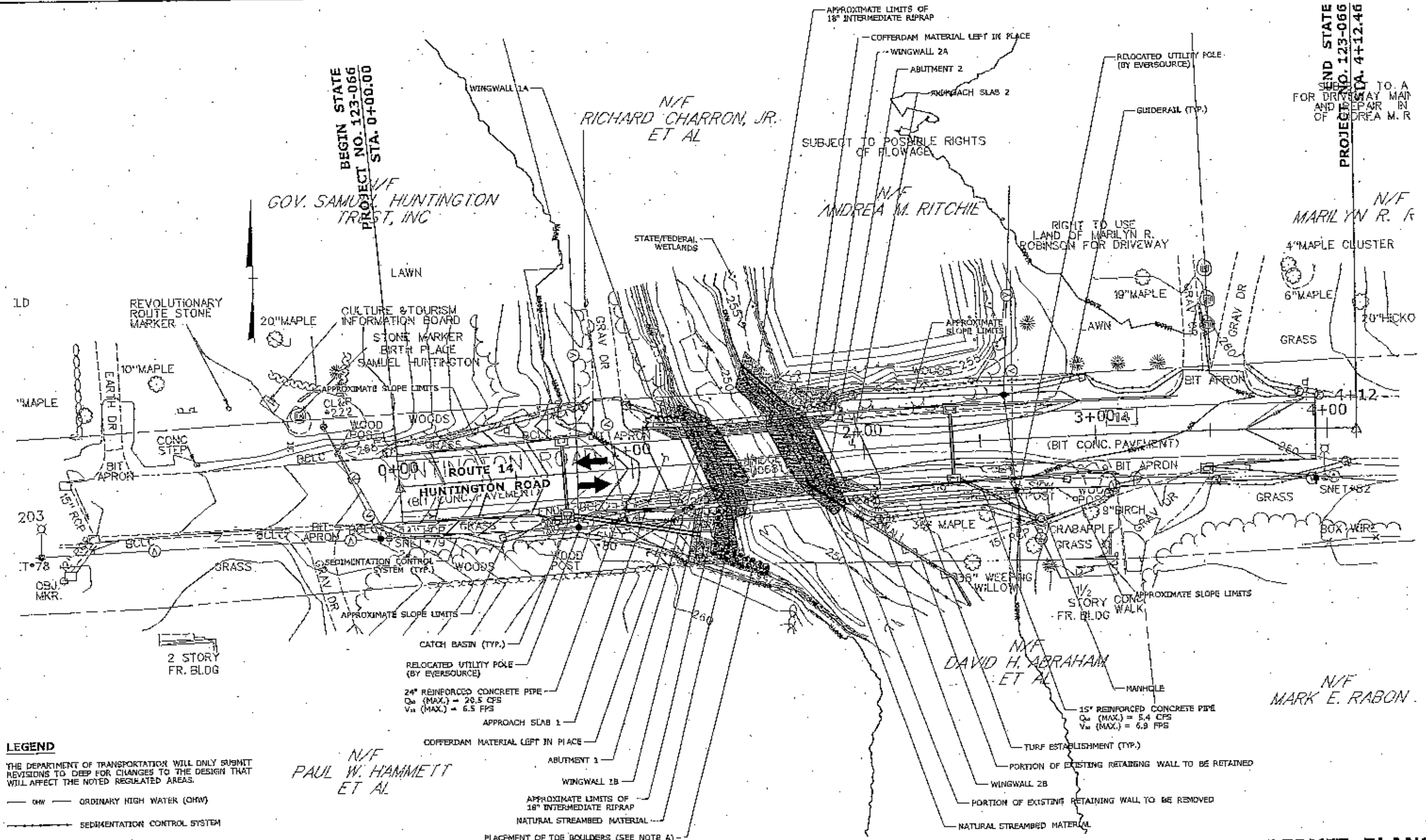
N/F  
ANDREA M. RITCHIE

N/F  
MARILYN R. R.

N/F  
DAVID H. ABRAHAM  
ET AL

N/F  
MARK E. RABON

N/F  
PAUL W. HAMMETT  
ET AL



**LEGEND**  
 THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- OHW — ORDINARY HIGH WATER (OHW)
- SEDIMENTATION CONTROL SYSTEM
- STATE/FEDERAL WETLANDS
- 100YR — EXISTING 100-YR FLOOD (CALCULATED)

**NOTE A**  
 LARGE BOULDERS APPROXIMATELY 3 FEET IN DIAMETER SHALL BE PLACED AS DIRECTED IN THE FIELD BY DEEP FISHGAIERS/DEP STAFF. SEE SPECIAL PROVISION "PLACEMENT OF TOE BOULDERS".

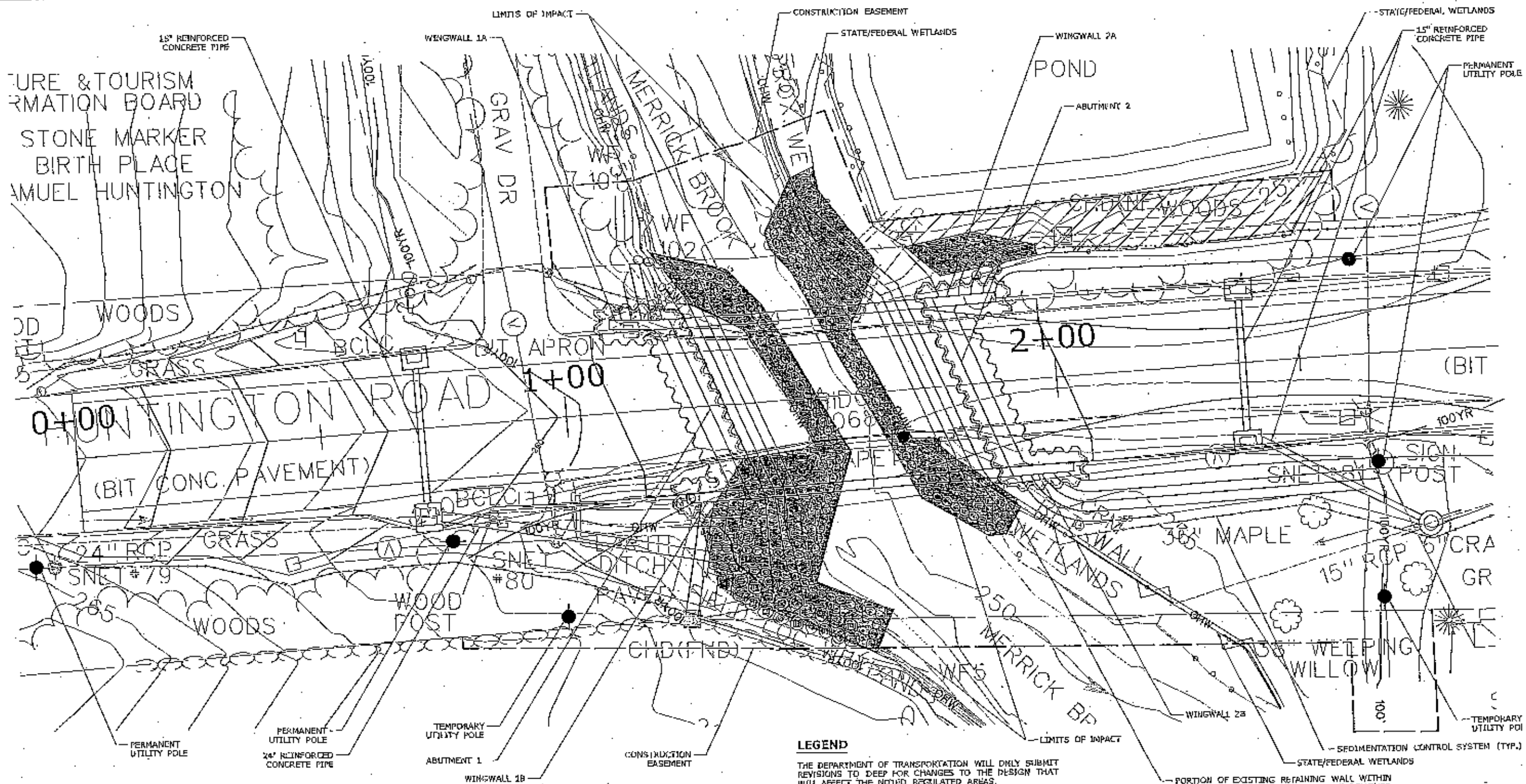
**GENERAL SITE PLAN**

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

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CULTURE & TOURISM  
FORMATION BOARD  
STONE MARKER  
BIRTH PLACE  
SAMUEL HUNTINGTON



**LEGEND**

- THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.
- STREAM
  - SEDIMENTATION CONTROL SYSTEM
  - ORDINARY HIGH WATER (OHW)
  - WETLAND LIMITS
  - FEMA 100-YEAR FLOOD (CALCULATED)
  - COFFERDAM MATERIAL LEFT IN PLACE
  - WATER HANDLING COFFERDAM
  - PERMANENT WETLAND IMPACTS
  - TEMPORARY WETLAND IMPACTS
  - PORTION OF EXISTING RETAINING WALL WITHIN WATER HANDLING COFFERDAM TO BE REMOVED

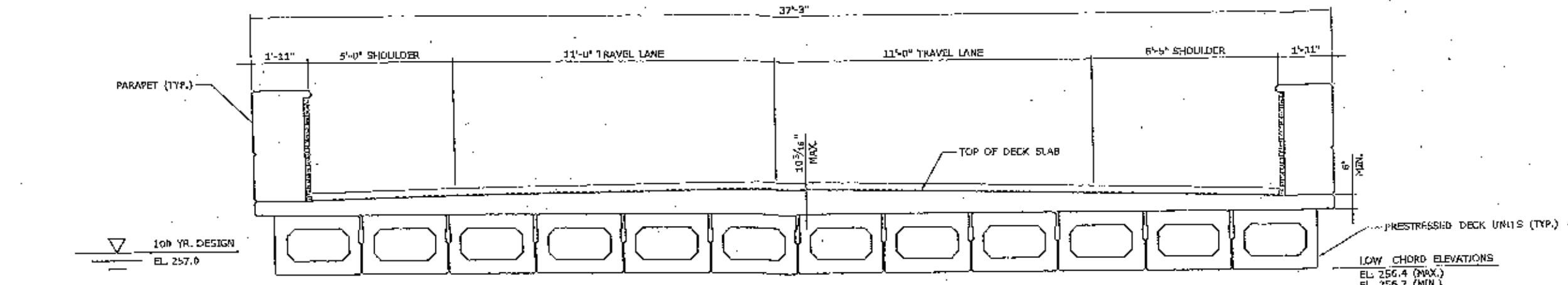
	WETLAND IMPACTS (ABOVE OHW)	WATERWAY IMPACTS (BELOW OHW)	TOTAL
PERMANENT IMPACTS	420 S.F. (0.010 A.C.)	1725 S.F. (0.040 A.C.)	2145 S.F. (0.050 A.C.)
TEMPORARY IMPACTS	791 S.F. (0.020 A.C.)	0 S.F. (0.000 A.C.)	791 S.F. (0.020 A.C.)
<b>TOTAL IMPACTS</b>	<b>1211 S.F. (0.030 A.C.)</b>	<b>1725 S.F. (0.040 A.C.)</b>	<b>2936 S.F. (0.068 A.C.)</b>

NOTE: THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

DESIGNER/GRAPHER: SPM CHECKED BY: RIB SCALE: 1" = 10' PROJECT NO.: 123-066 DRAWING NO.: PMT-03 SHEET NO.:	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING PREPARED BY:	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681          - HUNTINGTON RD. (RTE 14)          OVER MERRICK BROOK</b>	TOWN: <b>SCOTLAND</b>	PROJECT NO.: <b>123-066</b> DRAWING NO.: <b>PMT-03</b> SHEET NO.:
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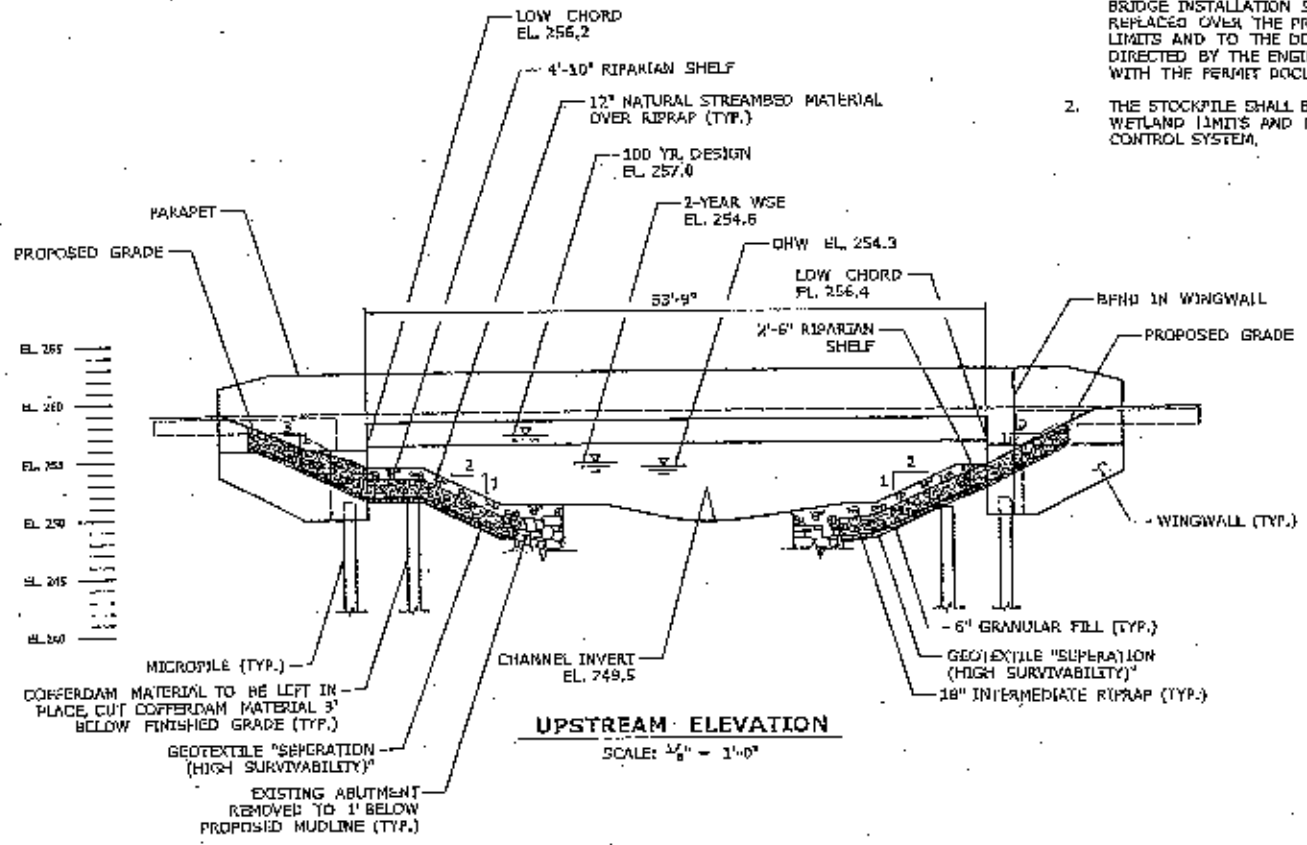


**TYPICAL SECTION**  
SCALE: 1/2" = 1'-0"

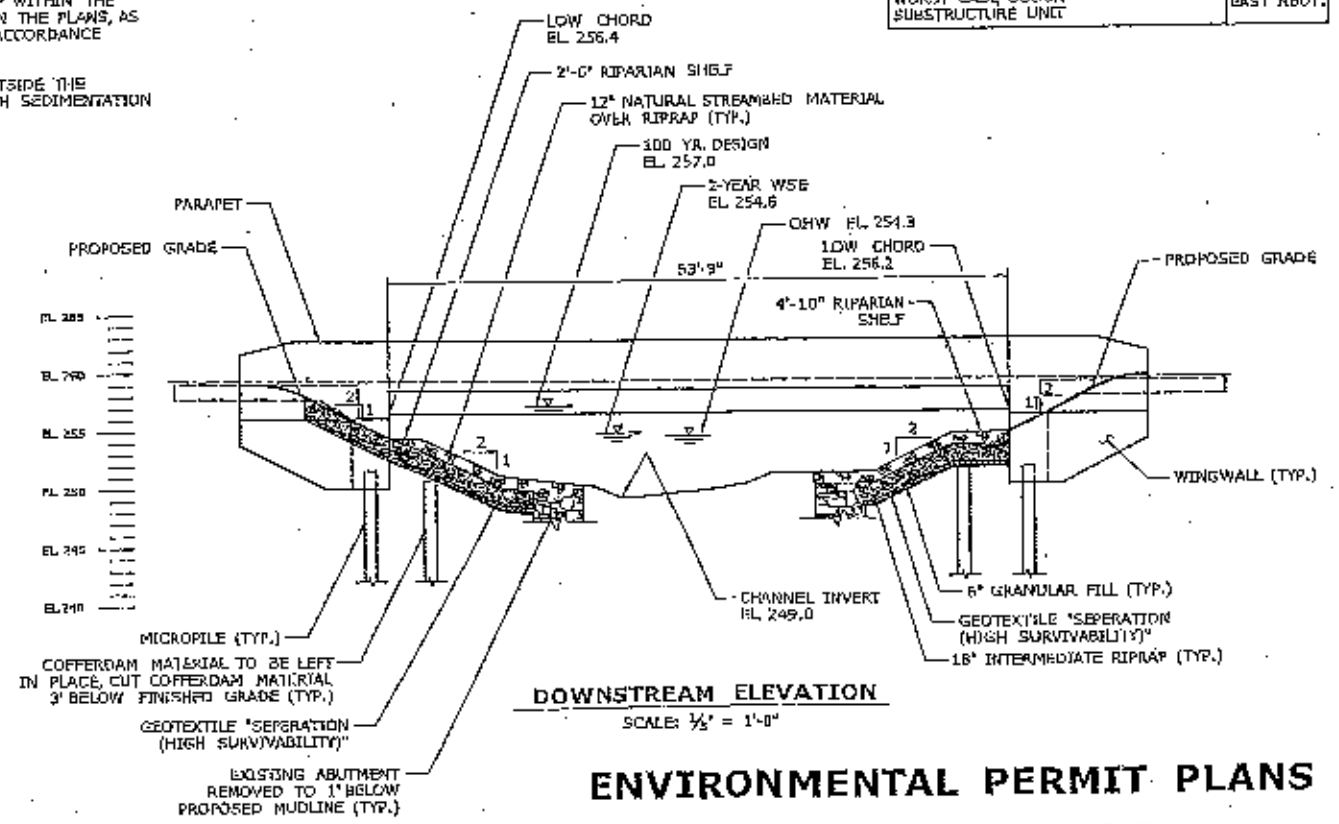
HYDRAULIC DATA	
DRAINAGE AREA (SQ. MI.)	8.4
DESIGN FREQUENCY (-YEAR)	100
DESIGN DISCHARGE (CFS)	1690
AVERAGE DAILY FLOW ELEVATION (FT) (CALCULATED)	252.7
UPSTREAM DESIGN WATER SURFACE ELEVATION (FT)	257.7
DOWNSTREAM DESIGN WATER SURFACE ELEVATION (FT)	257.0
MAXIMUM SCOUR ELEVATION (FT)	248.5
FREQUENCY (-YEAR)	250
DISCHARGE (CFS)	2105
WORST CASE SCOUR SUBSTRUCTURE UNIT	EAST ABUT.

**NATIVE STREAMBED MATERIAL NOTES:**

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE BRIDGE INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED OVER THE PROPOSED RIPRAP WITHIN THE LIMITS AND TO THE DEPTH SHOWN ON THE PLANS, AS DIRECTED BY THE ENGINEER, AND IN ACCORDANCE WITH THE PERMIT DOCUMENTS.
2. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.



**UPSTREAM ELEVATION**  
SCALE: 1/2" = 1'-0"

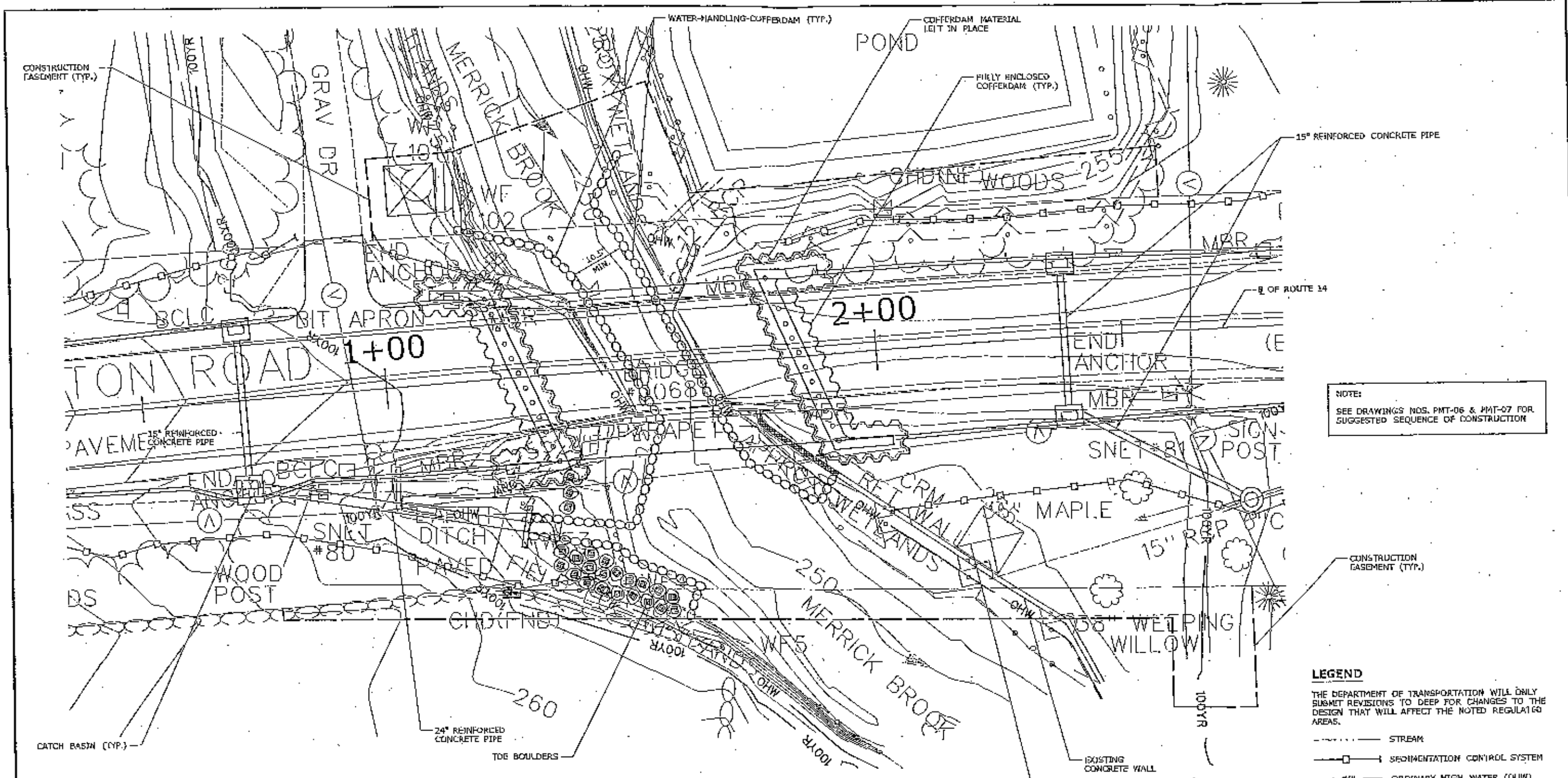


**DOWNSTREAM ELEVATION**  
SCALE: 1/2" = 1'-0"

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

PREPARED BY: SPM CHECKED BY: RFB SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING HUNTINGTON RD. (RTE. 14) HUNTINGTON, CT	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681          - HUNTINGTON RD. (RTE. 14)          OVER MERRICK BROOK</b>	TOWN: <b>SCOTLAND</b>	PROJECT NO.: <b>123-006</b> DRAWING NO.: <b>PMT-04</b> SHEET NO.:
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NOTE:  
SEE DRAWINGS NOS. PMT-06 & PMT-07 FOR SUGGESTED SEQUENCE OF CONSTRUCTION

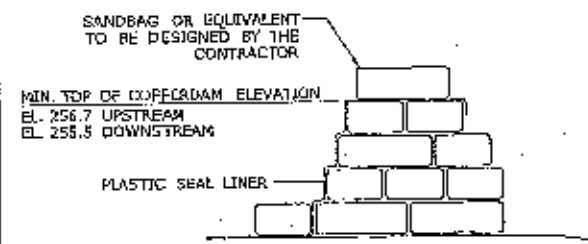
- LEGEND**
- — — — — STREAM
  - — — — — SEDIMENTATION CONTROL SYSTEM
  - — — — — ORDINARY HIGH WATER (OHW)
  - — — — — WETLAND LIMITS
  - — — — — 100YR 100-YEAR FLOOD (CALCULATED)
  - — — — — COFFERDAM
  - — — — — COFFERDAM MATERIAL LEFT IN PLACE
  - ○ ○ ○ ○ WATER HANDLING COFFERDAM

**WATER HANDLING NOTES**

1. TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF PLASTIC LINER, SANDBAGS, OR ANY OTHER APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND EXCAVATION, AND SHALL CONFORM TO PERMITS.
2. NO ADDITIONAL REGULATORY IMPACTS WILL BE ALLOWED BEYOND THE AREAS SHOWN ON THE IMPACT PLANS. ALL DISTURBED AREAS SHALL BE RESTORED.
3. EXISTING DRAINAGE PIPES SHALL BE MAINTAINED AND PROTECTED DURING CONSTRUCTION. THESE DRAINAGE PIPES SHALL REMAIN IN OPERATION THROUGHOUT CONSTRUCTION AND BE PROTECTED FROM DAMAGE, ROTATION, AND DISPLACEMENT BY MEANS AND METHODS OF THE CONTRACTOR.

**PLAN - WATER HANDLING**  
SCALE: 1" = 10'

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW (ADF)	15 CFS
AVERAGE DAILY SPRING FLOW (ASDF)	29.5 CFS
2-YEAR FREQUENCY DISCHARGE	380 CFS
TEMPORARY DESIGN DISCHARGE	380 CFS
TEMPORARY DESIGN FREQUENCY	2-YEAR
TEMPORARY WATER SURFACE ELEV.	255.7 FT - UPSTREAM 254.5 FT - DOWNSTREAM



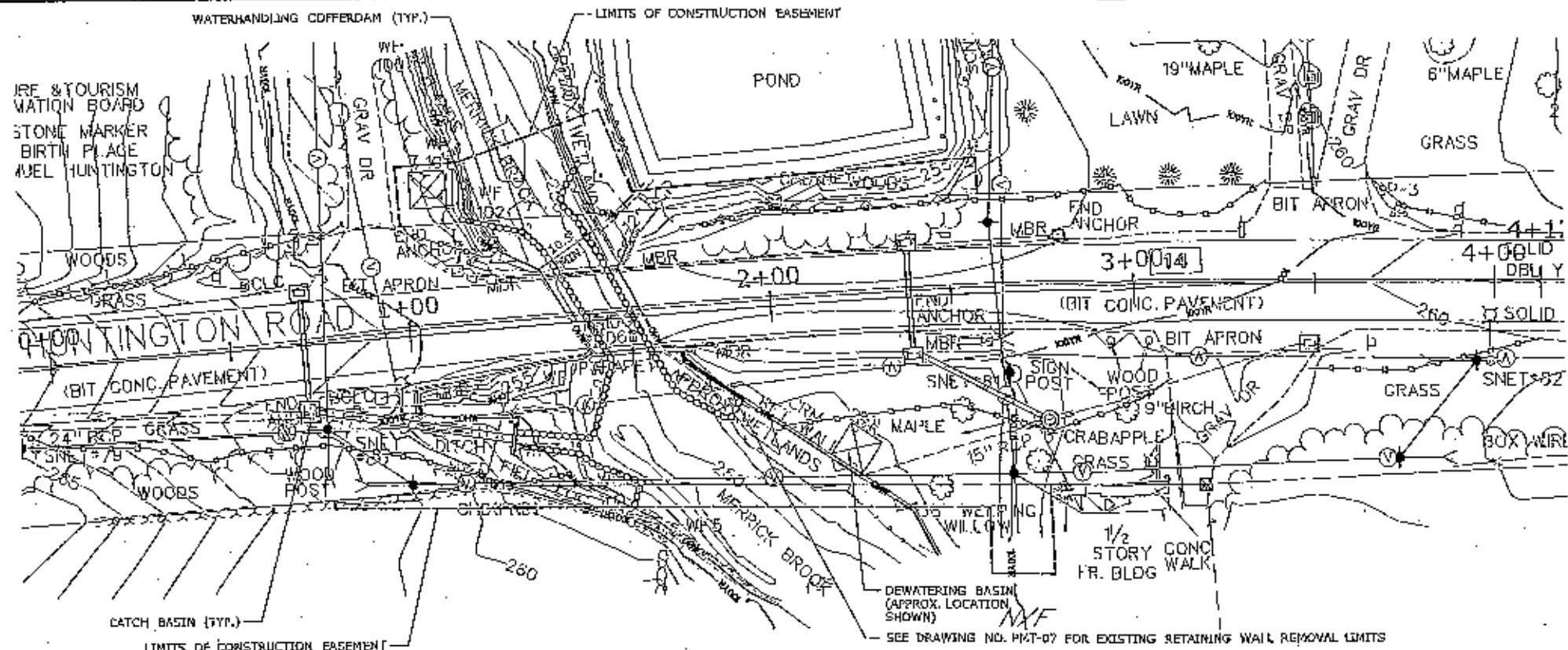
**WATER HANDLING COFFERDAM**  
NOT TO SCALE

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

<p>DESIGNED BY: SPM</p> <p>CHECKED BY: RIB</p> <p>SCALE AS NOTED</p>	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	<p>DESIGNED BY: SPM</p> <p>CHECKED BY: RIB</p> <p>SCALE AS NOTED</p>	<p>OFFICE OF ENGINEERING</p>	<p>PROJECT TITLE:</p> <p><b>REPLACEMENT OF BR. NO. 00681 HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b></p>	<p>TOWN:</p> <p><b>SCOTLAND</b></p>	<p>PROJECT NO.:</p> <p>0323-0008</p> <p>DESIGNED BY:</p> <p><b>PMT-05</b></p> <p>SHEET NO.:</p>
<p>THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF THE STATE OF CONNECTICUT. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE STATE OF CONNECTICUT. THIS INFORMATION IS PROVIDED AS IS AND WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NONINFRINGEMENT. THE USER ASSUMES ALL LIABILITY FOR ANY DAMAGE OR INJURY RESULTING FROM THE USE OF THIS INFORMATION.</p>						





**PLAN - SEQUENCE 1  
DEMOLITION**

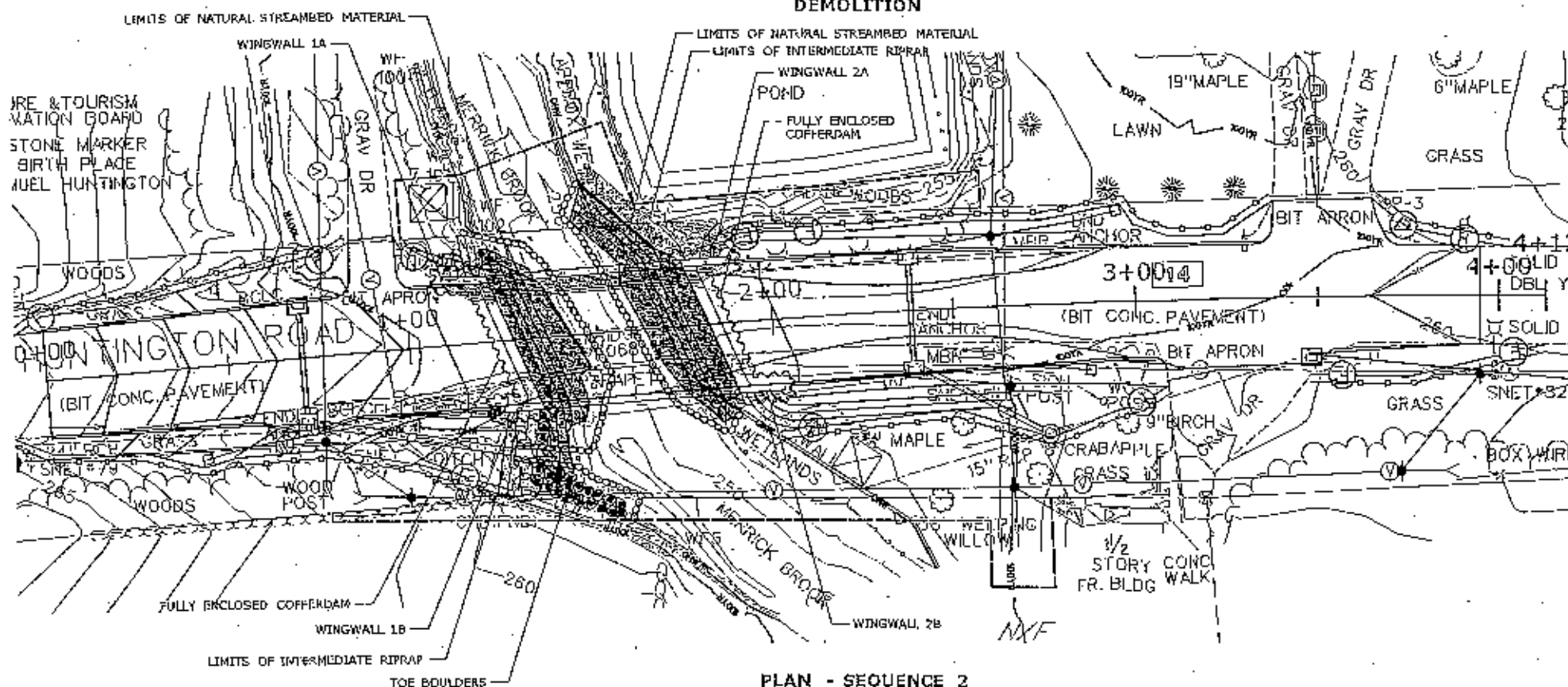
**SEQUENCE 1 - WATER HANDLING AND DEMOLITION**

**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. CLEAR AND GRUB, CONTROL AND REMOVE INVASIVE VEGETATION AND INSTALL SEDIMENTATION CONTROL.
2. RELOCATE UTILITY POLES TO TEMPORARY LOCATIONS (BY OTHERS).
3. INSTALL PILES AND TEST PRODUCTION PILES.
4. CLOSE ROAD AND DETOUR TRAFFIC.
5. INSTALL DECKS SHIELD AND REMOVE EXISTING SUPERSTRUCTURE.
6. INSTALL DRAINAGE PIPES AND CATCH BASINS.
7. INSTALL TEMPORARY WATER HANDLING AND DOWATERING BASINS.
8. REMOVE EXISTING ABUTMENTS AND WINGWALLS TO EL. 240.0. REMOVE PORTION OF EXISTING RETAINING WALL.

**LEGEND**

- THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.
- STREAM
  - SEDIMENTATION CONTROL SYSTEM
  - ORDINARY HIGH WATER (OHW)
  - WETLAND LIMITS
  - FEMA 100-YEAR FLOOD (CALCULATED)



**PLAN - SEQUENCE 2  
CONSTRUCTION**

**SEQUENCE 2 - CONSTRUCTION**

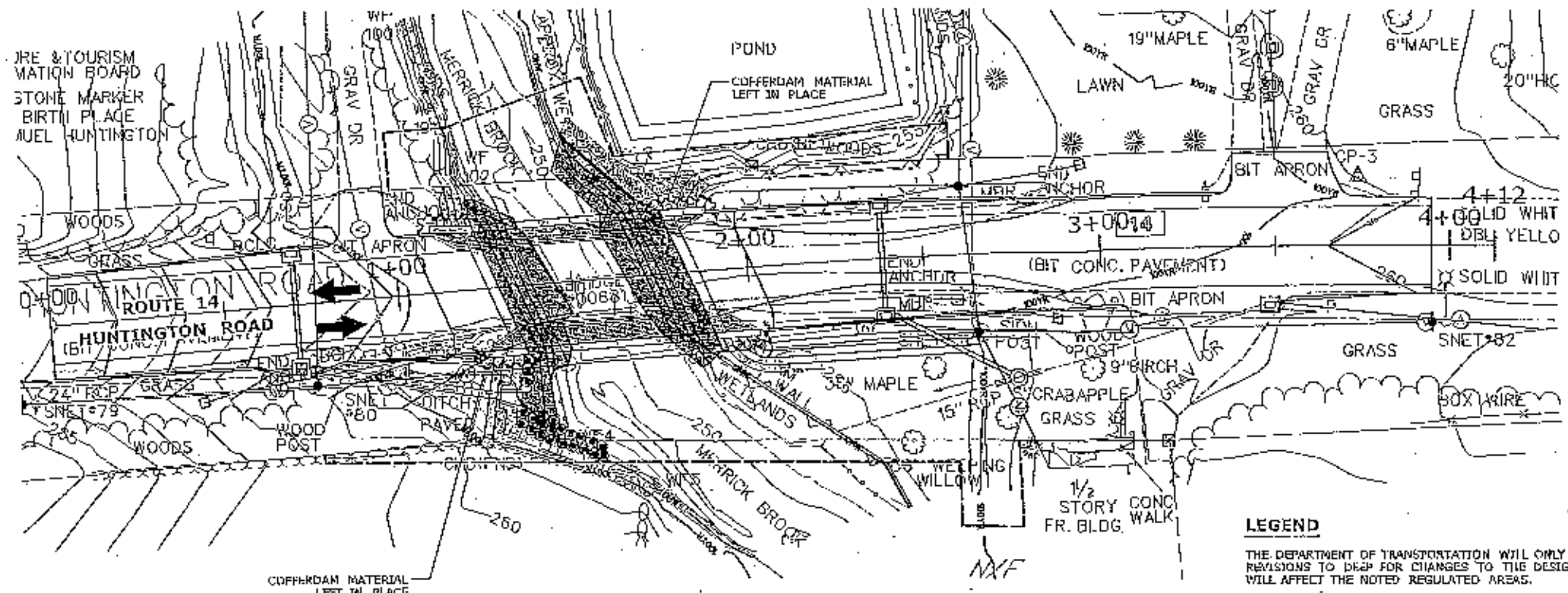
**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. INSTALL FULLY ENCLOSED COFFERDAMS FOR NEW ABUTMENTS AROUND PILES AND EXCAVATE.
2. PLACE GRANULAR FILL WITHIN COFFERDAM AND INSTALL PRECAST ABUTMENTS. BACKFILL AS NEEDED.
3. REMOVE COFFERDAM WITHIN ROADWAY LIMITS AND CUT COFFERDAM MATERIAL LEFT IN PLACE BELOW GRADE.
4. PLACE INTERMEDIATE RIPRAP ALONG EMBANKMENTS AND PLACE TOE BOULDERS. REMOVE TEMPORARY WATER HANDLING.
5. INSTALL PRESTRESSED DECK UNITS AND POST-TENSION.
6. CONSTRUCT CONCRETE DECK SLAB, APPROACH SLABS, AND BRIDGE PARAPETS.
7. APPLY WATERPROOFING MEMBRANE AND INSTALL HMA OVERLAY ON BRIDGE AND APPROACHES. APPLY TEMPORARY PAVEMENT MARKINGS.
8. INSTALL TEMPORARY PROTECTIVE FENCE, INSTALL APPROACH METAL BEAM RAILS.
9. OPEN ROADWAY TO TRAFFIC.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

REVISIONS NO. DATE DESCRIPTION SHEET NO.	DESIGNER: SPN CHECKER: RLB SCALE IN FEET SCALE 1"=20' DRAWING NO. 6197019	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	DESIGNER: RLB CHECKER: RLB OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 006S1          - HUNTINGTON RD. (RTE 14)          OVER MERRICK BROOK</b>	TOWN: <b>SCOTLAND</b>	PROJECT NO. 123-066
					DRAWING TITLE: <b>CONSTRUCTION          SEQUENCE 1</b>	DRAWING NO. <b>PMT-06</b>



**PLAN - SEQUENCE 3  
CONSTRUCTION**

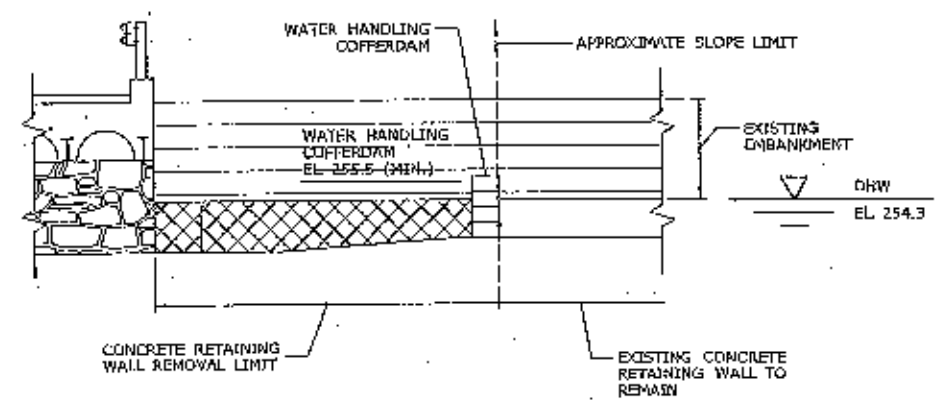
**SEQUENCE 3 - CONSTRUCTION**

**SUGGESTED SEQUENCE OF CONSTRUCTION**

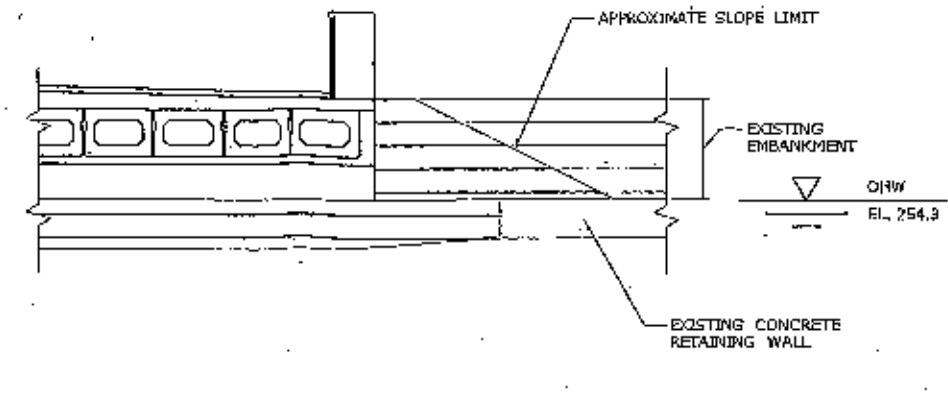
1. RELOCATE UTILITY POLES TO PERMANENT LOCATIONS (BY OTHERS).
2. INSTALL PROTECTIVE FENCE ON PARAPETS.
3. REMOVE ACCESS ROADS.
4. PLACE TOPSOIL, LANDSCAPE, AND ESTABLISH TURF.
5. INSTALL PERMANENT PAVEMENT MARKINGS AND INLAID THERMOPLASTIC PAVEMENT MARKING SYSTEM.
6. REMOVE EROSION AND SEDIMENTATION CONTROL SYSTEM UPON PERMANENT STABILIZATION.

**LEGEND**

- THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DRP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.
- STREAM
  - SEDIMENTATION CONTROL SYSTEM
  - ORDINARY HIGH WATER (OHW)
  - WETLAND LIMITS
  - FEMA 100-YEAR FLOOD (CALCULATED)



**EXISTING RETAINING WALL REMOVAL LIMIT  
NOT TO SCALE**

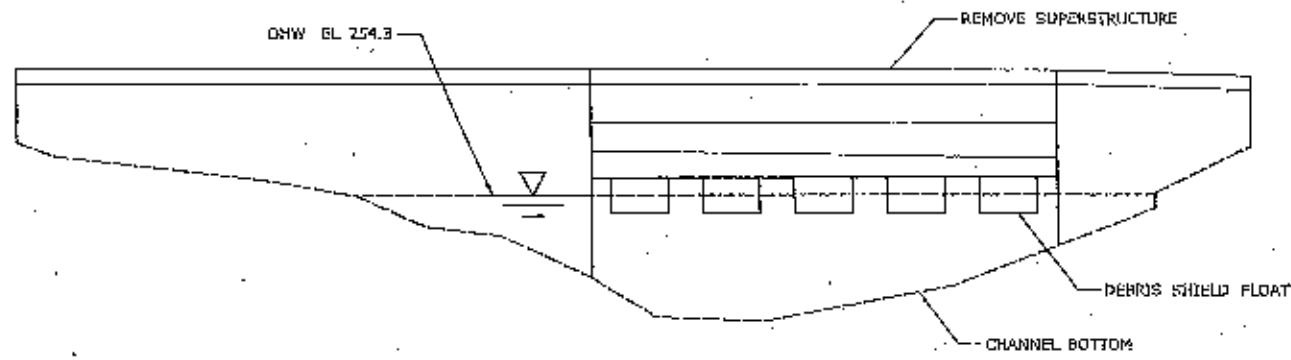


**EXISTING RETAINING WALL FINAL CONDITION  
NOT TO SCALE**

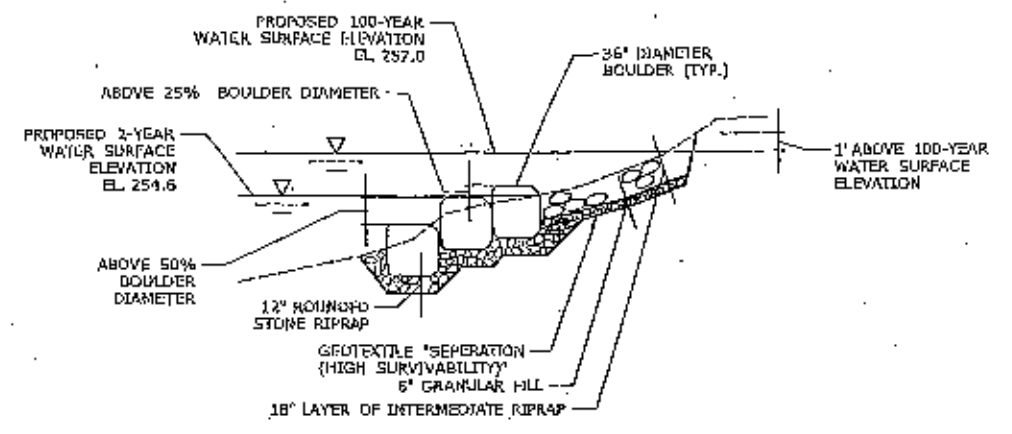
**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF THE STATE OF CONNECTICUT. IT IS TO BE USED ONLY FOR THE PROJECT AND IN ACCORDANCE WITH THE CONDITIONS OF THE PERMIT. ANY REUSE OR DISTRIBUTION OF THIS INFORMATION IS PROHIBITED.	PROJECT NO. 122-066 DRAWING NO. PMT-07 SHEET NO.
	PROJECT TITLE: SCOTLAND DRAWING TITLE: CONSTRUCTION SEQUENCE 2
PROJECT NO. 122-066 DRAWING NO. PMT-07 SHEET NO.	PROJECT TITLE: SCOTLAND DRAWING TITLE: CONSTRUCTION SEQUENCE 2
STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION OFFICE OF ENGINEERING	PROJECT TITLE: REPLACEMENT FO BR. NO. D0681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK



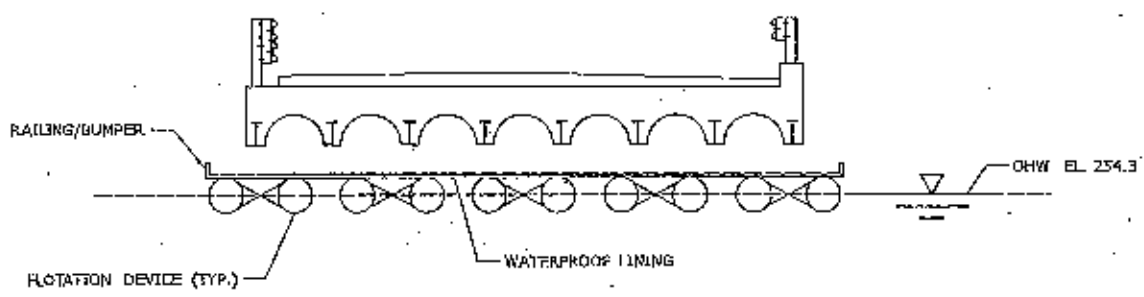
**ELEVATION - DEBRIS SHIELD**  
SCALE: 3/4" = 1'-0"



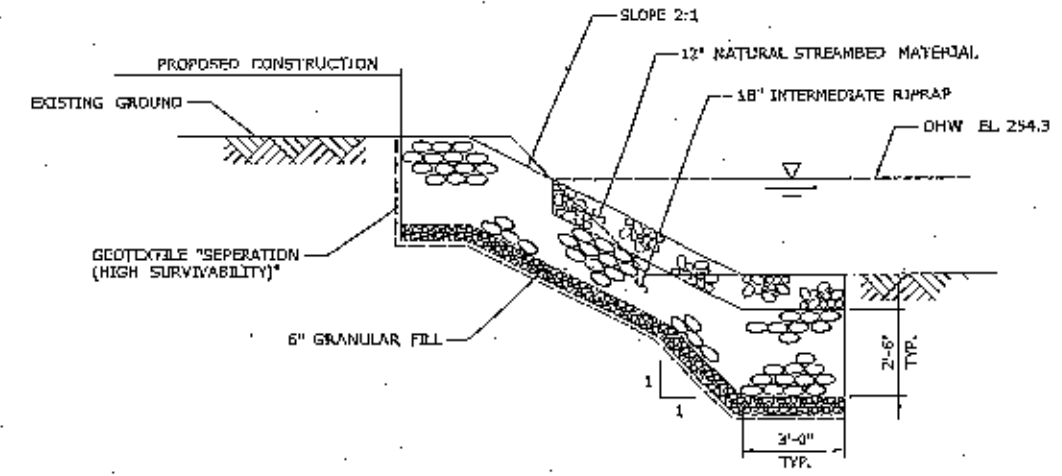
**SECTION - BOULDER PLACEMENT**  
NOT TO SCALE

**DEBRIS SHIELD FLOAT NOTES:**

1. FLOAT SHALL HAVE WATERPROOF LINING AND RAILING/BUMPER SYSTEM TO PREVENT DEBRIS FROM ENTERING THE WATERWAY.
2. FLOAT SHALL BE SUFFICIENTLY BUOYANT SO AS NOT TO BE FOUNDED ON THE SUBSTRATE AT ANY TIME DURING ITS USE. AT NO TIME SHALL THE DEBRIS SHIELD BOTTOM OUT.
3. WHEN NOT IN USE, FLOAT SHALL BE STORED WITHIN THE PROJECT IMPACT AREA.
4. WORKFLOAT SHALL NOT BE STORED WITHIN THE WATERWAY NOR WITHIN UNDISTURBED WETLANDS.



**SECTION - DEBRIS SHIELD**  
SCALE: 3/4" = 1'-0"



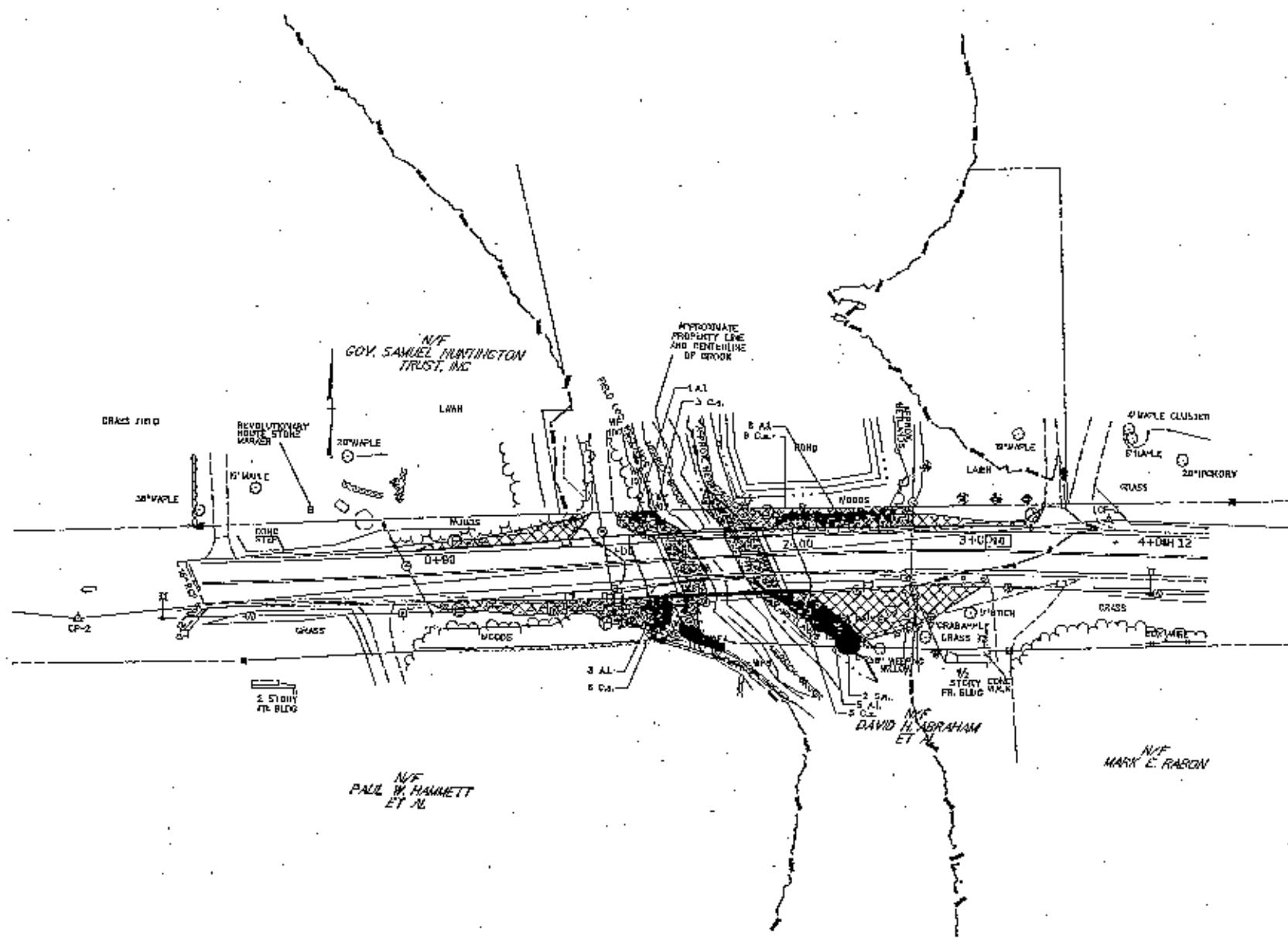
**DETAIL - RIPRAP FOR SLOPE PROTECTION**  
NOT TO SCALE

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

REVISION DATE REVISION DESCRIPTION SHEET NO.	THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF THE STATE OF CONNECTICUT. IT IS TO BE USED ONLY FOR THE PROJECT AND FOR THE PURPOSES SPECIFIED THEREIN. NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE STATE OF CONNECTICUT.	DESIGNER SPM	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	DRAWING NO. OFFICE OF ENGINEERING	PROJECT TITLE REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	TOWN SCOTLAND	PERMIT NO. 123-066
		CHECKER RIB					










**PERMIT PLANT LIST**

NO.	BOTANICAL NAME	COMMON NAME	Size	Quantity	Spacing	Indicator
A1	Kney Sycamo	Spotted Alder	4" - 5" HL B.B.	25	2' On Center	OBL
C.A.	Common aster	Red cedar Unspaced	24" x 36" HL B.B.	35	2' On Center	FACH
S.A.	DOG slye	Black Willow	1 3/4" x 2" Dia. B.B.	2	Field Locals	OBL
Control and Removal of Invasive Vegetation				610 S.Y.		
Conservation Seeding for Slopes				250 S.Y.		
Washed Area Establishment				250 S.Y.		

**LEGEND**



-  CONTROL AND REMOVAL OF INVASIVE VEGETATION
-  CONSERVATION SEEDING FOR SLOPES
-  100-YR FLOOD LIMIT
-  STATE/FEDERAL WETLANDS
-  ORDINARY HIGH WATER LINE

**NOTES**

1. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY CHANGES TO PERMIT PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING.
2. ALL TREES AND SHRUBS MUST CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK FOR DECIDUOUS SHRUBS, CHAPTER THREE AND MEET THE MINIMUM CONTAINER SIZE AND ADDT MASS AND NUMBER OF CANES FOR TYPE AND HEIGHT.
3. ALL PLANTS SHALL BE STRAIGHT SPECIES. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.
4. DISTURBED AREAS BELOW THE WETLAND LINE SHALL BE SPEEDED WITH WETLAND SEED MIX. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE COVERED WITH WOOD CHIP MULCH OR CONSERVATION SEEDING FOR SLOPES UNLESS OTHERWISE NOTED.
5. THE EXACT QUANTITIES AND LIMITS FOR CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE FIELD DETERMINED.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

<p>THE INFORMATION CONTAINED HEREIN IS BASED ON THE INFORMATION PROVIDED BY THE CLIENT AND IS NOT A WARRANTY OF ANY KIND. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONSTRUCTION OF ANY WORK WHICH MAY BE REQUIRED.</p>	<p>DATE: 06/05/19</p> <p>SCALE: 1"=40'</p>	 <p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	 <p>OFFICE OF ENGINEERING</p>	<p>PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. 9 (RTE 14) OVER MERRICK BROOK</b></p>	<p>TOWN: <b>SCOTLAND</b></p>	<p>PROJECT NO. 123-P66</p> <p>DRAWING NO. <b>PMT-09</b></p>
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# Interagency Coordination Meeting Notes

November 30, 2017

DOT Room 2215

## Meeting Minutes:

The meeting notes for October were presented. No comments were made.

### **300-138 New Haven Rail Yard West End Project, New Haven**

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**11/30/2017** – This project involves demolishing an existing Stores building, installation of tracks with utilities and servicing facilities, and construction of a new entrance into the west end yard. The project will also improve access roads and modify the existing drainage system. The site is already highly industrialized and heavily dominated by invasive species. Designers brought the project to the Interagency Meeting to receive input on the Flood Management permit requirements from DEEP.

**Project Impacts:** The project occurs within the coastal boundary. There are 10.2 acres of total disturbance, all of which is within the 100-year floodplain. There will be 10,405 cy of excavation (primarily removal of material underneath the Stores building, which is being demolished) and 17,806 cy of fill (with ballast) to bring the elevation of the tracks up to elevation 11. The consultant explained that considering the ballast fill has 40% voids, the net fill in the floodplain is only 1,089 cy. Additionally, due to removal of existing pavement there is also a reduction in impervious surface area by 1.03 acres.

**Permitting Requirements:** Flood Management General, Internal Coastal Consistency Review, and DEEP Stormwater Permit. The project is within ¼ mile of an NDDB area; the consultant will need to submit an NDDB application to OEP for review and submittal to DEEP associated with the Stormwater Permit. OEP will sign off on an internal CAM.

**Agency Comments:** DEEP and DOT H&D were okay with permitting this under the Flood Management General. Loss of flood storage is not a concern in tidally controlled, coastal floodplains as it is in riverine floodplains and that this is acknowledged in the zoning regulations that were required by towns which specifically exempt floodplains that are tidally influenced from the need to provide compensatory flood storage.

**Action Items:** OEP will complete Part 2 of the PNDP and return to designer with these permitting needs reflected.

### **30-97 Hop River State Park, Columbia and Coventry**

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**11/30/2017** – This project includes upgrades and improvements to a multi-use trail on state DEEP property. The trail follows the existing railroad grade entirely, 10-15' above adjacent areas. Currently the trail is unofficially used by pedestrians, cyclists, etc. The project includes providing an upgraded stone dust surface, widening the trail to 10 foot standard width, cutting back encroaching vegetation, installing fencing where needed for safety concerns, and installation of informational signage. Additionally, the project includes the replacement of an existing abandoned rail bridge over the Hop River to safely accommodate pedestrians. A field meeting with Brian Murphy from DEEP Fisheries was held on 4/28/2017 and Brian provided written comments on 9/14/2017. The consultant wanted to initiate discussion on permitting requirements and any requirements specific to: 1) removal of the existing bridge including: abutments, piers, cut stone within the stream channel, 2) Utilization of a temporary trestle to demolish the existing bridge and erection of the proposed structure, 3) The proposed pedestrian bridge and the construction of its center pier.

**Project Impacts:** There are floodplain wetlands along the Hop River as well as five vernal pools in the vicinity of the project limits. There are no direct impacts to vernal pools but impacts are within the 100

DEEP /USACE/ DOT  
Interagency Coordination Meeting 11-30-17  
Project Meeting Notes

foot buffer. The majority of the wetland and watercourse impacts are due to the replacement of the bridge over the Hop River. The temporary watercourse impacts are 10,000 sf (0.23 acres). The temporary wetland impacts are 12,000 sf (0.28 acres) and permanent impacts are 800 sf (0.18 acres). The temporary floodplain impacts are 50,000 sf (1.15 acres) and permanent floodplain impacts are 90,000 sf (2.07 acres).

**Permitting Requirements:** Individual Flood Management, CT Addendum, USACE PCN, General Stormwater permit, and IW General. Permitting requirements may change once a decision is made on who will be the applicant.

**Agency Comments:** Coordination with DEEP Fisheries is already on-going and there will likely be time of year restrictions for in-water work. Fisheries previously requested that the quarry stones around the abutments be removed as they are trapping debris and sediments. Additionally, a clear-span was request by DEEP Fisheries and Inland Water. DEEP Parks commented that the bridge would need to be able to support trucks and maintenance equipment moving across it. The consultant said they would look at the design since a center pier may be necessary to support such loads. Brian Murphy stated that he would be okay with a center pier. DOT H&D asked if there would be any net fill in the floodplain and consultant said there is not at this point in time. It was agreed that no additional studies would be required for the vernal pools, and Bob Gilmore stated that he wanted to see the project as it develops and it will probably fall in an IW GP if there are no impacts to the vernal pools.

**Action Items:** As design progresses and a decision is made on whether a clear-span or a structure with a center pier is needed, the project will need to return to the Interagency meeting. Consultant must break out the wetland impacts into state and federal impacts. As this is DEEP property, a decision must be made on who will be the applicant / hold the construction permits.

### 108-189 Moosup Valley State Park Trail, Plainfield & Sterling

**11/30/2017** –The present "trail" is located on DEEP property on a former rail bed. It has experienced extensive illicit ATV use and is in poor condition. The repairs and maintenance needed are beyond the capacity of CT DEEP. Additionally, the road crossings and bridges require updates to meet safety and accessibility standards. Rehabilitation activities include clearing/grubbing, stone dust surface restoration to be 10' wide, slope stabilization, culvert cleaning, damaged culvert repair, bridge repair, fencing and minor landscaping. The installation of crosswalks and advance-warning signs are anticipated. A number of vernal pools are in close proximity or within the project area and will be directly impacted. Two of these pools occur on an area of the trail that is extremely compacted and water is not able to drain. These areas do not have wetland soils but they do have obligate wetland species. There are quite a few NDDB species in the project area identified in initial coordination.

**Project Impacts:** 50 sf of permanent watercourse impacts below OHW; 900 sf (0.02 acres) of temporary wetland impacts, and 13,000 sf (0.30 acres) of permanent floodplain impacts. There is also 3,200 sf of direct impact to 2 vernal pools on the trail. The design team stated that there are possible locations for mitigation to relocate impacted vernal pools.

**Permitting Requirements:** Permitting requirements still to be determined. However, Bob Gilmore from DEEP did mention that if the project can work through any NDDB issues, then the Project can probably be submitted as a GP.

**Agency Comments:** Susan Lee from USACE and Bob Gilmore commented they are unsure how vernal pool areas with obligate species but no wetland soils are regulated. DEEP Fisheries asked what other perennial streams or watercourses occur in the vicinity to the trail, and that they would want more information on this as Fisheries coordination is initiated. Bob commented he wouldn't want to see encroachment of slopes into vernal pool areas where it can be avoided and that if all the NDDB issues

**DEEP /USACE/ DOT**

**Interagency Coordination Meeting 11-30-17**

**Project Meeting Notes**

can be cleared, the project could be an IW GP. DEEP Parks/Operations staff reiterated that ATV use is constantly tearing up the trail and disturbing the existing vernal pool areas. They also suggested making the end section of trail that meets up at the RI border paved to meet the already-paved portion in RI. **Action Items:** USACE and DEEP must determine if vernal pool areas with no wetland soils but obligate species are federally regulated. OEP will have their on-call consultant conduct species surveys in spring 2018 based on Initial NDDDB results. This project will need to return to the Interagency Meeting as it progresses.

**123-66 Bridge 00681 Route 14 over Merrick Brook, Scotland**

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**11/30/2017** – This bridge was built in 1914 and is a single span bridge built on stone masonry abutments. This project is a full bridge replacement. A fairly constant water level is maintained in Merrick Brook due to a dam about 350' downstream of the bridge. The bridge is susceptible to scour. The proposed structure will have integral abutments on pile foundations, with permanent sheet piling for scour protection. It is also proposed to have a wildlife shelf along the east abutment. It was mentioned that if the dam is removed in the future, the bridge should still be okay for scour. Fisheries coordination is already underway for this project. They are considering sandbag cofferdams and pumping for water handling and permanent impacts would include slope cuts. For scour and erosion control a few options are being considered. There was discussion about bank undercutting and erosion downstream on private property.

**Project Impacts:** This project has 1708 sf of permanent impacts and 3,250 sf of temporary impacts (total is under 5,000 sf.)

**Permitting Requirements:** SV-GP-19 (if impacts stays under 5,000), IW-General

**Agency Comments:** H&D suggested maybe rounded boulders could be used for scour protection in place of riprap along the channel. Brian from DEEP Fisheries asked if it was possible to lower the water-level in the brook, however the dam is a simple stone dam with no water control features.

**Action Items:**

**65-113 Bridge 05053, Shingle Mill Road over Rock Brook, Harwinton**

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**11/30/2017** – This is a full bridge replacement over Rock Brook in Harwinton, which has about 60 vehicles per day. The proposed structure is a precast concrete arch with concrete abutments and precast concrete wingwalls, with new guide rails and full depth reconstruction of the gravel roadway within the project limits, as well as full depth pavement over the arch. Designers proposed placing temporary cofferdams on both sides of the river at the same time while leaving the center of the stream open for flows during construction. Currently, rounded riprap exists along the channel on the eastern abutment/wingwall for scour protection. Designers propose existing rounded riprap be removed, stockpiled, and reused. DEEP Fisheries coordination is already underway – comments were received 11/18/2016. Unconfined in-stream activities will be restricted to June 1 through September 30. Fisheries recommend that rounded boulders for scour protection, of similar dimension/seize of those along eastern abutment be installed at the base of the western abutment/wingwalls. They added that no broken concrete or angular stones be used. NDDDB screening came back with Eastern Box Turtle.

## DEEP /USACE/ DOT

### Interagency Coordination Meeting 11-30-17

#### Project Meeting Notes

**Project Impacts:** Permanent federal wetland impacts: 167 sf; temporary federal wetland impacts: 37 sf; Permanent state wetland impacts: 267 sf; temporary state wetland impacts: 45 sf. Total temporary impacts to the floodplain (FEMA zone A) are 540 sf and permanent impacts to the floodplain are 1,380 sf. There is 300 cy of excavation and 190 cy of fill proposed in the floodplain.

**Permitting Requirements:** USACE SV-19, FM-MOU, Town IWWC

**Agency Comments:** Bruce Williams (Fisheries) asked if there would be any change to the footprint of the stream channel at all. The designer stated that rounded riprap would be placed on the outside limits of the channel, but the center of the channel would remain the same.

#### Action Items:

### 103-265 Bridge 02589, over Cold Brook, Norwich

**11/30/2017** – This project includes the removal of the existing superstructure and construction of a 3-sided concrete frame on micropiles during a 9-week detour. New abutments will be installed behind the existing abutments. The current bridge structure has wingwalls leaning towards the channel with vertical cracking and the abutments are undermined. The project was previously brought to the April 2017 Interagency Meeting; design alternatives were brought forward, and it was determined that a 3-sided structure was preferred. At that time further investigation was needed into the hydraulic feasibility of cutting off and leaving abutments to avoid impacts to the existing stream channel. The plan presented at this meeting proposed to have sheetpile cofferdams with free flow between down the center of the channel during construction and the existing abutments cut off and capped (at wildlife shelf elevation.)

**Project Impacts:** Permanent floodplain (FEMA Zone A) impact: 6455 sf; temporary floodplain impact: 1583 sf; permanent wetland impact: 2335 sf; temporary wetland impact: 412 sf. Tree trimming is needed in the immediate project vicinity for crane swing.

**Permitting Requirements:** USACE PCN, CT Addendum, FMC, IW General

**Agency Comments:** There was significant discussion regarding whether sheeting was needed in front of existing abutments, its location relative to the abutments, if it would be cut off or left in place, and where the old abutments would be cut off, or possibly removed. DOT H&D commented that even if abutments remain, they should be cut down 1 foot below the streambed with boulders on top, and that the sheeting should be removed. Murphy from DEEP Fisheries stated that they had originally asked the abutments be left in place because they did not want the existing natural channel disturbed. Brian also asked how the transition would occur along the stream bank – maybe boulders could be used. Mike Kelly (DOT-H&D) stated that he felt that the transition would be easy with boulders. There is concern about the loss of instream habitat. The decision was made to remove the abutments 1' below the streambed and recreate existing habitat (working with Brian,) and in addition, place boulders along the streambank. Temporary sheetpiling will be removed.

#### Action Items:

### 100-174 Valley Service Road, North Haven

**11/30/2017** – This project was previously brought to the April 2017 Interagency meeting. This project is to build an extension off Valley Service road to help service a proposed Amazon distribution facility. The proposed road is to allow direct access between the site and I-91 interchange (Exit 11). Since the April 2017 Interagency meeting, the consultant's wetland scientist conducted an updated assessment at the location and is developing a draft report of the findings. This is a follow-up to initial assessments conducted in October 2008 and November 2012. Additionally, a new traffic study was conducted, and a

## DEEP /USACE/ DOT

### Interagency Coordination Meeting 11-30-17

#### Project Meeting Notes

proposal for wetland mitigation was put together. A field walk was conducted on November 2, 2017 and representatives from ACOE, EPA, and DEEP were present. The consultant presented a wetland mitigation proposal that would utilize an area that is currently a cul-de-sac. This plan would create 7,745 sq feet of state wetlands and 20,900 sq feet of federal wetlands. There would be extensive invasive species treatment. This plan is essentially a 1:1 wetlands mitigation. Army Corps said they may request in lieu fee for the difference. Consultant also mentioned an NDDB species – false mermaidweed – which was extensively searched for on the property without specimens found. Additionally, they proposed an animal passage tunnel, a 60" culvert lined with natural soils.

**Project Impacts:** 25,534 sf of state wetlands; 19,233 sf of federal wetlands. There will be fill in the wetlands.

**Permitting Requirements:** FM-MOU through DOT (Individual FMC from DEEP may be required), State permitting will be CT Addendum and USACE PCN. The project will receive local IWWC approval.

**Agency Comments:** Susan Lee from Army Corps said consultant needs to develop a more formal mitigation proposal and send it over to Army Corps as soon as possible. They may additionally require in lieu fee for mitigation. Mike Hogan of DOT H&D asked how much net fill in the floodplain – consultant said 0.5% will be permanently lost. The Designers will need to compile these numbers in cubic yards. Mr. Hogan also asked if this project will promote any additional floodplain development (an FMC Exemption may be required if the project is checked off on the permit as "promotes additional floodplain development.") Town engineer commented there is no power or utilities along that road and it wouldn't promote additional development. It was noted that this will need to be explained/justified in permit narratives. Mike Hogan mentioned that the Town might also need to provide an exemption from the town's floodplain regulations (which are more restrictive). Bob said it would likely be a CT Addendum.

**Action Items:** Consultant stated they are aiming for a February 1 submittal to DEEP and USACE. It was noted the FM MOU and NDDB have to be completed prior to submission of permits to DEEP and Army Corps.



Downstream channel



Outlet side





Outlet side



Drainage Outlet on Downstream Side





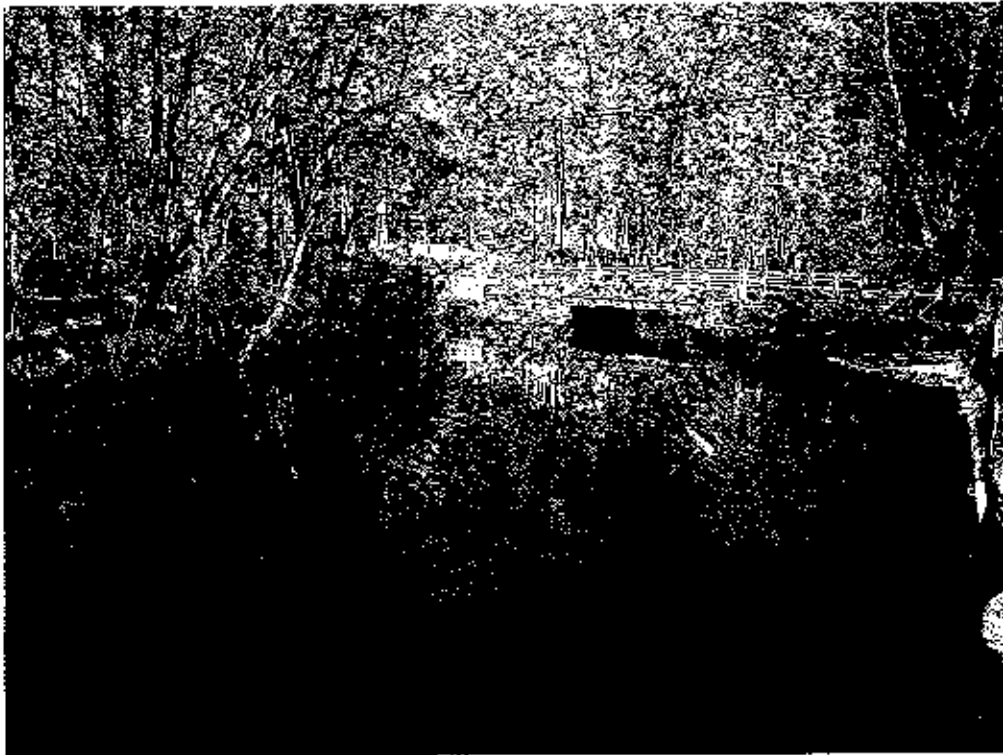
Upstream Side



Upstream Impoundment adjacent to Merrick Brook



Upstream Channel, looking from Dike



Downstream Channel, looking Upstream

## **Attachment F: ACOE Category 1 Certification Form**

### **General Permit for Water Resource Construction Activities**

Applicant: State of Connecticut, Department of Transportation

Project No.: 123-066

Replacement of Bridge No. 00681 carrying Huntington Road (Route 14) over Merrick  
Brook

Town of Scotland

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#### **List of Attachments**

- Appendix E: Category 1 Self-Verification Notification Form and attachments will be filed with the US Army Corp of Engineers



**US Army Corps  
of Engineers**  
New England District

**Appendix E: Self-Verification Notification Form**

This form is required for all non-tidal projects in Connecticut, but not required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. Before work commences, complete all fields (write "none" if applicable); attach project plans (not required for projects involving the installation of construction mats only); and any state or local approval(s); and send to:

Permits & Enforcement Branch B  
U.S. Army Corps of Engineers  
696 Virginia Road  
Concord, MA 01742-2751  
or cenac-r@usace.army.mil

and

CT DEEP  
Inland Water Resources Division  
79 Elm Street  
Hartford, CT 06106-5127

\*\*\*\*\*

State or local Permit Number: TBD  
Date of State or local Permit: TBD  
State/local Project Manager: Bao K. Chuong

Permittee: Kimberly C. Lesay  
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06131  
Phone(s) and Email: 800-594-2331, kimberly.lesay@ct.gov

Contractor: TBD by low bid process  
Address, City, State & Zip: \_\_\_\_\_  
Phone(s) and Email: \_\_\_\_\_

Consultant/Engineer/Designer: Raymond I. Besar  
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06131  
Phone(s) and Email: 850-594-8813, raymond.i.besar@ct.gov

Wetland/Soil Scientist Consultant: Department of Transportation Office of Environmental Planning  
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06131  
Phone(s) and Email: 860-594-2157, andrew.h.davie@ct.gov

Project Location (provide detailed description & locus map): On Huntington Road (Route 14), about 500 feet west of the intersection of Huntington Road (Route 14) and Devotion Road (Route 97).  
Address, City, State & Zip: CT DOT Bridge No. 00681, Huntington Road (Route 14), Scotland, CT, 06284  
Latitude/Longitude Coordinates: Latitude: 41°41'54.6" Longitude: 72°05'03.3"

Waterway Name: Merrick Brook  
Project Purpose (include all aspects of the project including those not within Corps jurisdiction):  
The purpose of this project is to replace the existing bridge carrying Route 14 over Merrick Brook, which is structurally deficient, to provide sufficient structural load carrying capacity.

Work Description: Work includes replacement of the existing structure elements and superstructure with an integral bridge loaded on piles. Install permanent sheet piling in front of the proposed abutments for scour protection and in front of existing abutments for water handling. Reduce sheet piling used for water handling to one foot below the midline. Install a concrete riprap shelf at both abutments and install riprap slope protection and boulders to prevent scour. Install approach slabs and regrade approaches. Extend roadway water drainage pipe at southwest corner of bridge. Temporarily relocate overhead utilities.

Work will be done under the following GP(s) (check all that have associated impacts):

\_\_\_\_\_ GP. 2 - Repair or maintenance of authorized or grandfathered structures/fills  
Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ GP. 5 - Boat ramps/marine railways  
Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ GP. 6 - Utility line activities (include calculations for each single & complete crossing  
-- attach additional sheet if necessary)

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ GP. 9 - Shoreline and bank stabilization projects  
Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ GP. 10 - Aquatic habitat restoration, establishment and enhancement activities  
Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ GP. 11 - Fish & wildlife harvesting, enhancement and attraction devices and activities  
Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ GP. 12 - Oil Spill and Hazardous material cleanup  
Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ GP. 13 - Cleanup of hazardous and toxic waste  
Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ GP. 14 - Scientific measurements devices  
Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ GP. 15 - Survey activities  
Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ GP. 17 - New/expanded developments & recreational facilities  
Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

GP. 18 - Linear transportation projects- wetland crossings only (include calculations for each single & complete crossing - attach additional sheet if necessary)

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

  x   GP. 19 - Stream, river & brook crossings – not including wetland crossings (include calculations for each single & complete crossing – attach additional sheet if necessary)

Area of total wetland impacts: temporary 791 SF permanent 490 SF  
Area of total waterway impacts: temporary 0 SF permanent 1725 SF

       GP. 21 - Temporary fill not associated with any other GP activities

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Does your project include any secondary effects? Yes \_\_\_\_\_ No   x  

(Secondary effects include, but are not limited to non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Proposed Work Dates: Start: Spring 2020 Finish: Fall 2020

Your name/signature below, as permittee, confirms that your project meets the self-verification criteria and that you accept and agree to comply with the applicable terms and conditions in the Connecticut General Permits.

Michael Bell, Director for Thomas Mazurk  
Signature of Permittee

6/25/2019  
Date





06/05/2019

**PROJECT 0123-0066  
RT. 14 OVER MERRICK BROOK  
SCOTLAND  
BRIDGE 00681  
PROJECT DESCRIPTION**

Bridge 00681 carries Route 14, also called Huntington Road, over Merrick Brook in the Town of Scotland. It is located approximately 1.8 miles north of the junction with Route 82 (East Haddam Rd.). The existing structure is a single span concrete encased steel stringer bridge, approximately 21' long with a 24.6' out to out width. The concrete encased steel stringers sit on stone masonry abutments. R-B 350 metal beam rail extends from the approaches over the bridge beyond the wingwalls on both sides of the roadway on Route 14. The average daily traffic (ADT) is approximately 4,400 vehicles per day according to the most recent inspection report.

The structure was inspected by Bridge Safety and Evaluation and the superstructure was rated in serious condition due to spalled concrete of the encased steel beams and severe section losses due to corrosion of the exposed beams. Due to the extent of the deterioration of the existing bridge, Bridge Safety and Evaluation recommended the structure be replaced.

The proposed rehabilitation for Bridge No.00681 consists of the replacement of the existing structure with an integral abutment bridge with a length of 60' and an out-to-out width of 37.25'. The existing natural streambed material will be reused.

The design will require a full road closure of Route 14 within the project limits during the bridge replacement. Route 14 will be detoured for a period of no more than eight weeks. A water-handling-cofferdam will be installed around existing abutments to allow the demolition of the existing structure and installation of riprap, natural streambed material, and toe boulders. Fully enclosed cofferdams will be installed around proposed abutments for ground water handling and supporting the roadway and embankments. The design will utilize the Accelerated Bridge Construction (ABC) method, which entails the bridge components, including abutments and wingwalls are prefabricated and supported by a deep foundation, which will be installed during a road closure. Additionally, the deck, parapets, and approach slabs will be cast during the road closure. No construction activity will be performed within the watercourse outside of the allowable timeframe for instream work required by DEEP Fisheries.

Based on the recommendation from the ConnDOT Hydraulics and Drainage Unit, the integral abutment bridge structure type was chosen. The proposed bridge will improve hydraulic conveyance capacity, reduce the potential for future scour, and ensure the safety of the structure while undergoing pressure flow in a major storm event. The drainage area of this wetland is 8.4 square miles. As a result of this project, there will be no adverse impacts hydraulic wise to the existing floodplain.



This project has been presented in front of DEEP and USACE at an Interagency Coordination Meeting dated November 30, 2017, and concurrence with the structure type has been given. Coordination with DEEP fisheries has been completed, and their comments have been incorporated into the project documents. There will be temporary and permanent wetland impact required for the structure construction totaling 2936 square feet. Permits will be obtained from DEEP and USACE prior to the start of construction.

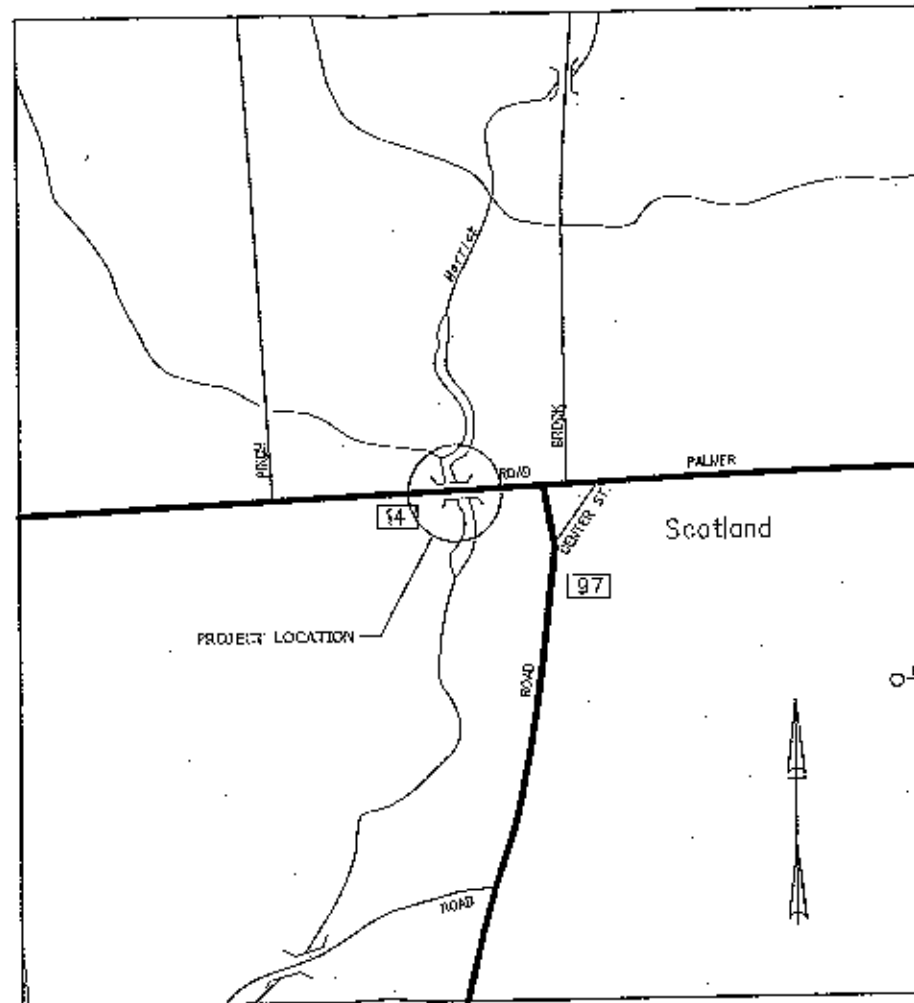
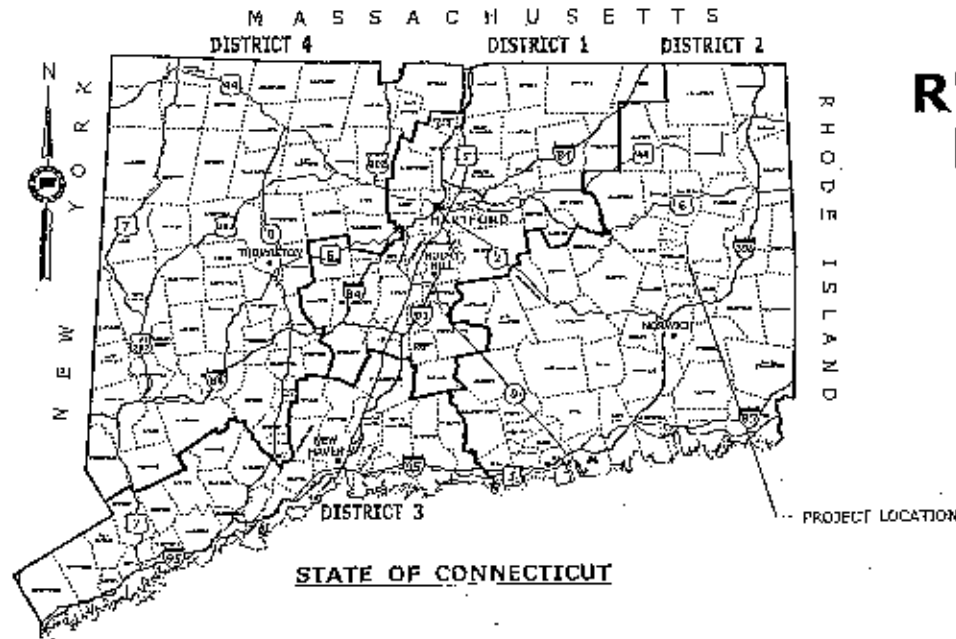
**Permits:** An Inland Wetland General Permit and USACE Self-Verification Form are anticipated to be needed prior to construction.



# CONNECTICUT DEPARTMENT OF TRANSPORTATION



## ENVIRONMENTAL PERMIT PLANS STATE PROJECT NO. 123-066 REPLACEMENT OF BRIDGE NO. 00681 ROUTE 14 OVER MERRICK BROOK IN THE TOWN OF SCOTLAND



LOCATION PLAN  
SCALE: 2" = 500'

LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL SITE PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	ELEVATIONS & SECTION
PMT-05	WATER HANDLING PLAN
PMT-06	CONSTRUCTION SEQUENCE 1
PMT-07	CONSTRUCTION SEQUENCE 2
PMT-08	CONSTRUCTION DETAILS
PMT-09	THREAT PLANTING PLAN

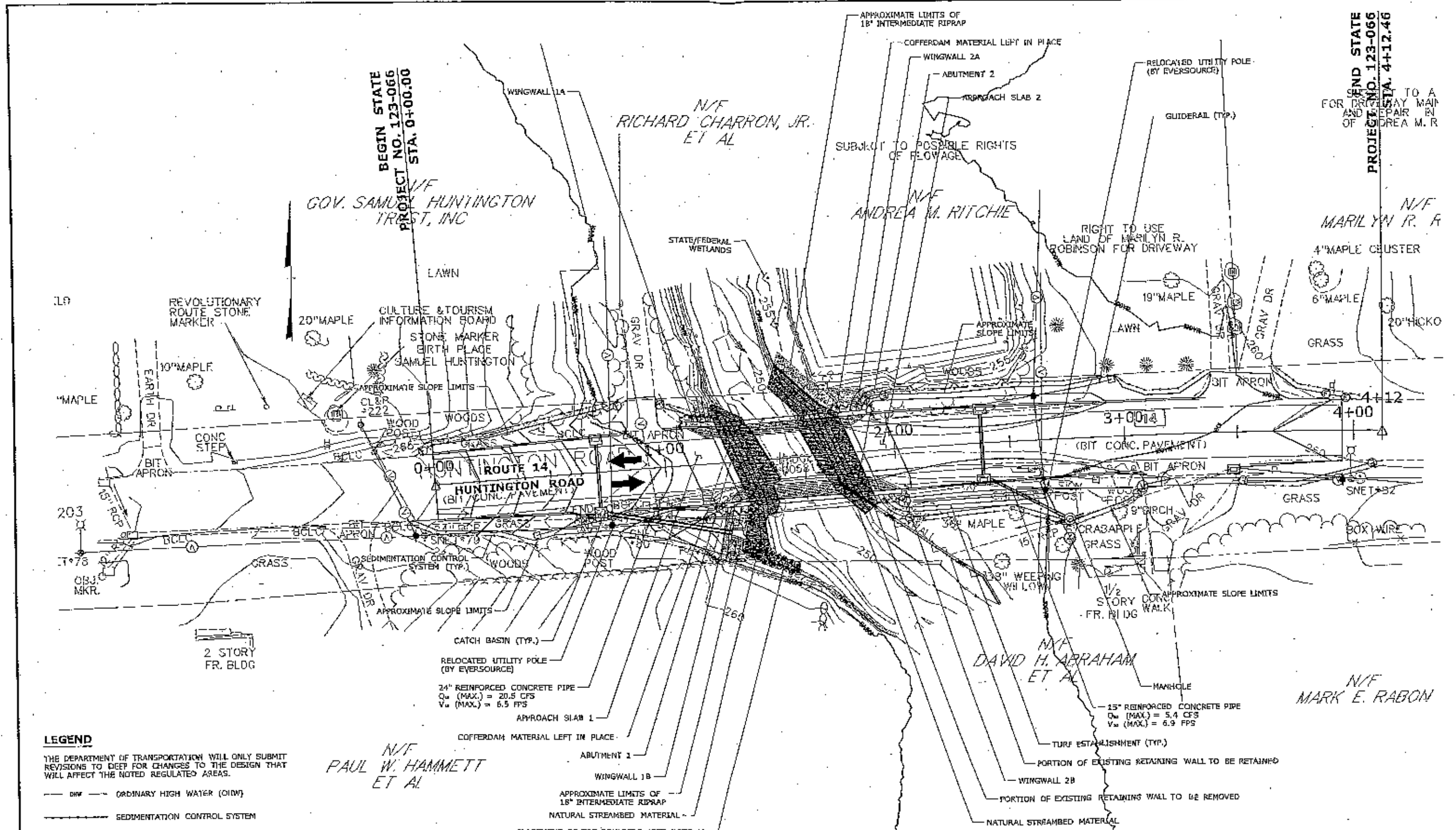
### GENERAL NOTES:

1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USEFUL FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 100 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983 VERTICAL DATUM BASED ON MVD OF 1988.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION, FORM 817, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

### ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JUNE 05, 2019

REV. DATE	REVISION DESCRIPTION	SHEET NO.	SHEET TOTAL 6/50015	PROJECT/CHAPTER SPM DESIGNED BY RLB SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	DRAWING NO. 123-066 OFFICE OF ENGINEERING APPROVAL:	PROJECT TITLE REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	TOWN SCOTLAND	DRAWING TITLE TITLE SHEET	PROJECT NO. 123-066
										DRAWING NO. PMT-01



BEGIN STATE  
PROJECT NO. 123-066  
STA. 0+00.00

N/F  
GOV. SAMUEL HUNTINGTON  
TRUST, INC

N/F  
RICHARD CHARRON, JR.  
ET AL

N/F  
ANDREA M. RITCHIE

END STATE  
PROJECT NO. 123-066  
STA. 4+12.46

N/F  
MARILYN R. R

N/F  
DAVID H. ABRAHAM  
ET AL

N/F  
MARK E. RABON

N/F  
PAUL W. HAMMETT  
ET AL

**GENERAL SITE PLAN**

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

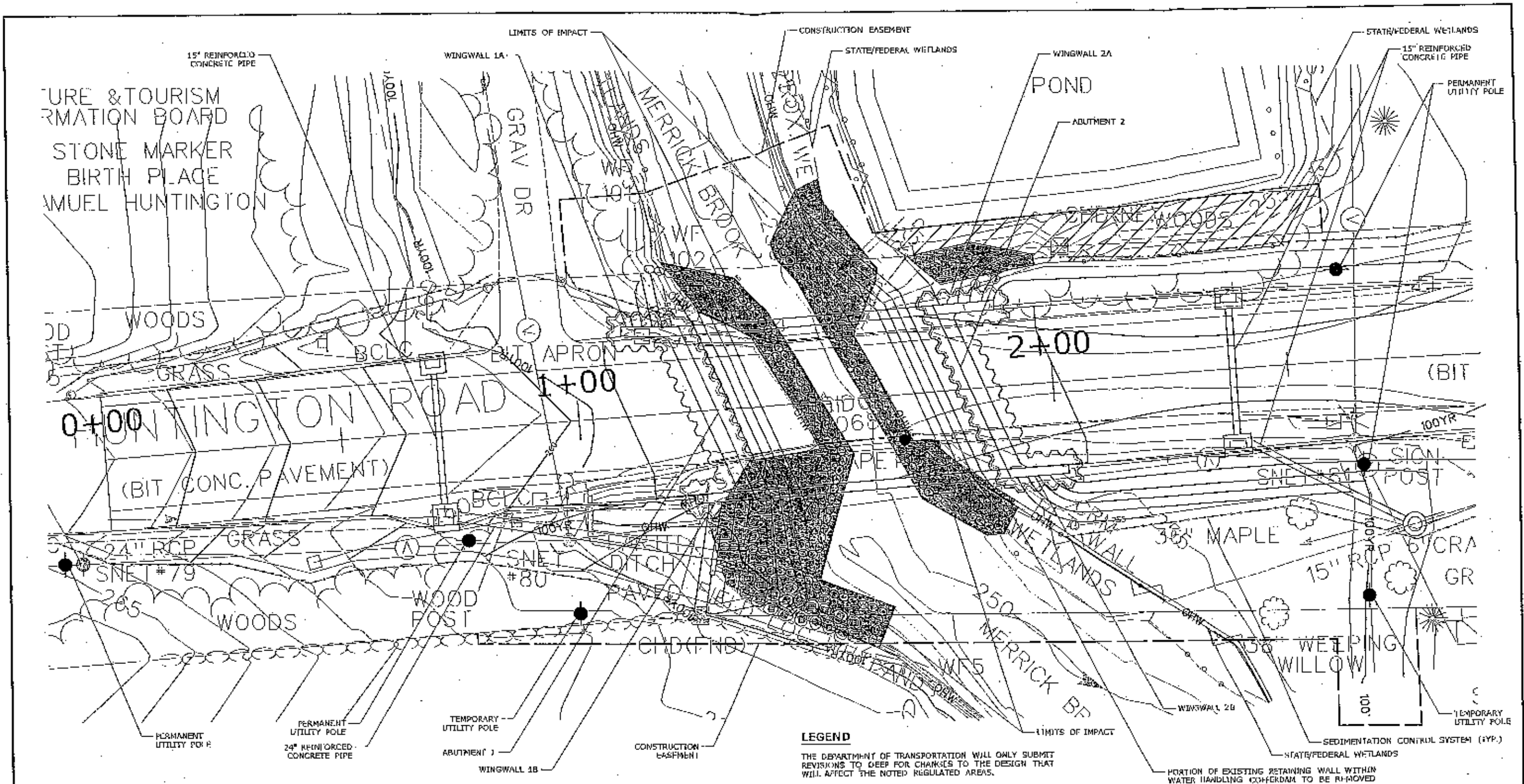
**LEGEND**

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- OHW — ORDINARY HIGH WATER (OHW)
- SEDIMENTATION CONTROL SYSTEM
- STATE/FEDERAL WETLANDS
- 100YR — EXISTING 100-YR FLOOD (CALCULATED)

NOTE A  
LARGE BOULDERS APPROXIMATELY 3 FEET IN DIAMETER SHALL BE PLACED AS DIRECTED IN THE FIELD BY DEEP FISHERIES/DEEP STAFF. SEE SPECIAL PROVISION "PLACEMENT OF TOE BOULDERS".

THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF THE STATE OF CONNECTICUT. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE STATE OF CONNECTICUT.		PROJECT NO. 123-066 DRAWING NO. PMT-02 SHEET NO.
DESIGNER/BRAYER: SPM CHECKED BY: RIB SCALE IN FEET 0 20 40 SCALE 1"=20' STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/NO. OF: OFFICE OF ENGINEERING PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	FOUNTAIN: SCOTLAND DRAWING TITLE: GENERAL SITE PLAN



**LEGEND**

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- STREAM
- SEDIMENTATION CONTROL SYSTEM
- ORDINARY HIGH WATER (OHW)
- WETLAND LIMITS
- FEMA 100-YEAR FLOOD (CALCULATED)
- COFFERDAM MATERIAL LEFT IN PLACE
- WATER HANDLING COFFERDAM
- PERMANENT WETLAND IMPACTS
- TEMPORARY WETLAND IMPACTS

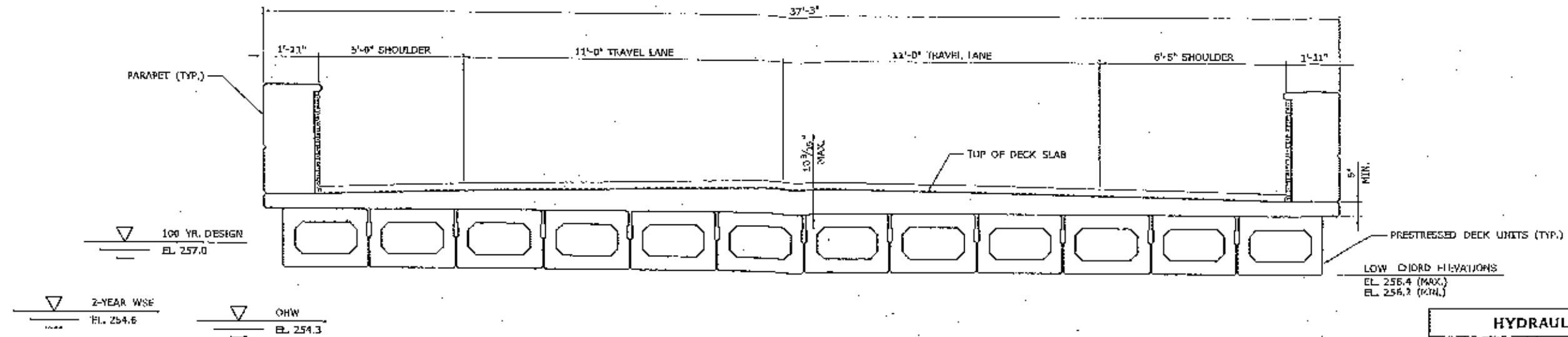
**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

	WETLAND IMPACTS (ABOVE OHW)	WATERWAY IMPACTS (BELOW OHW)	TOTAL
PERMANENT IMPACTS	420 S.F. (0.030 A.C.)	1725 S.F. (0.040 A.C.)	2145 S.F. (0.069 A.C.)
TEMPORARY IMPACTS	791 S.F. (0.018 A.C.)	0 S.F. (0.000 A.C.)	791 S.F. (0.018 A.C.)
<b>TOTAL IMPACTS</b>	<b>1211 S.F. (0.028 A.C.)</b>	<b>1725 S.F. (0.040 A.C.)</b>	<b>2936 S.F. (0.068 A.C.)</b>

NOTE: THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

PROJECT NO. 1.23-086 DRAWING NO. PMT-03 SHEET NO.	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	DRAWING TITLE: <b>WETLAND/WATERCOURSE IMPACT PLAN</b>	PROJECT NO. 1.23-086 DRAWING NO. PMT-03 SHEET NO.
STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING	SCOTLAND	PROJECT NO. 1.23-086 DRAWING NO. PMT-03 SHEET NO.

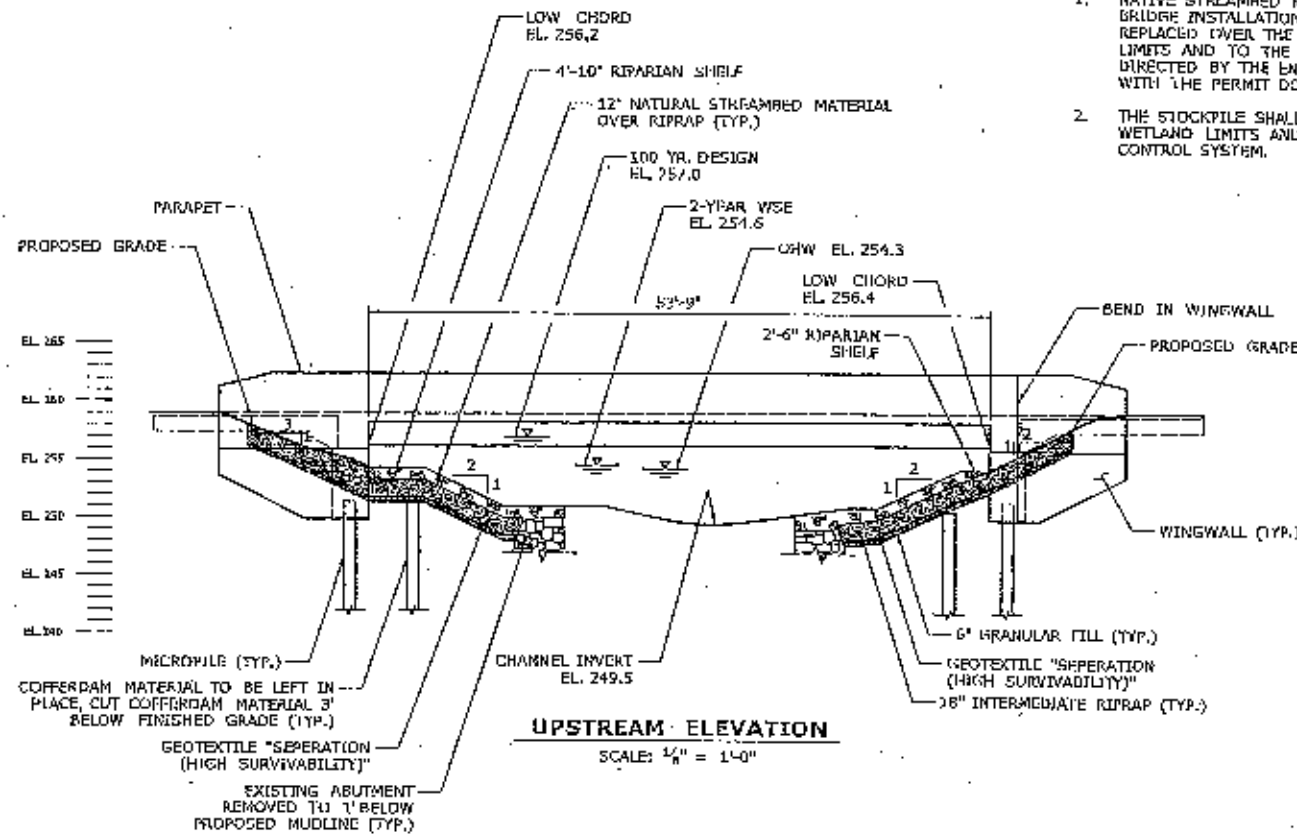


**TYPICAL SECTION**  
SCALE: 1/4" = 1'-0"

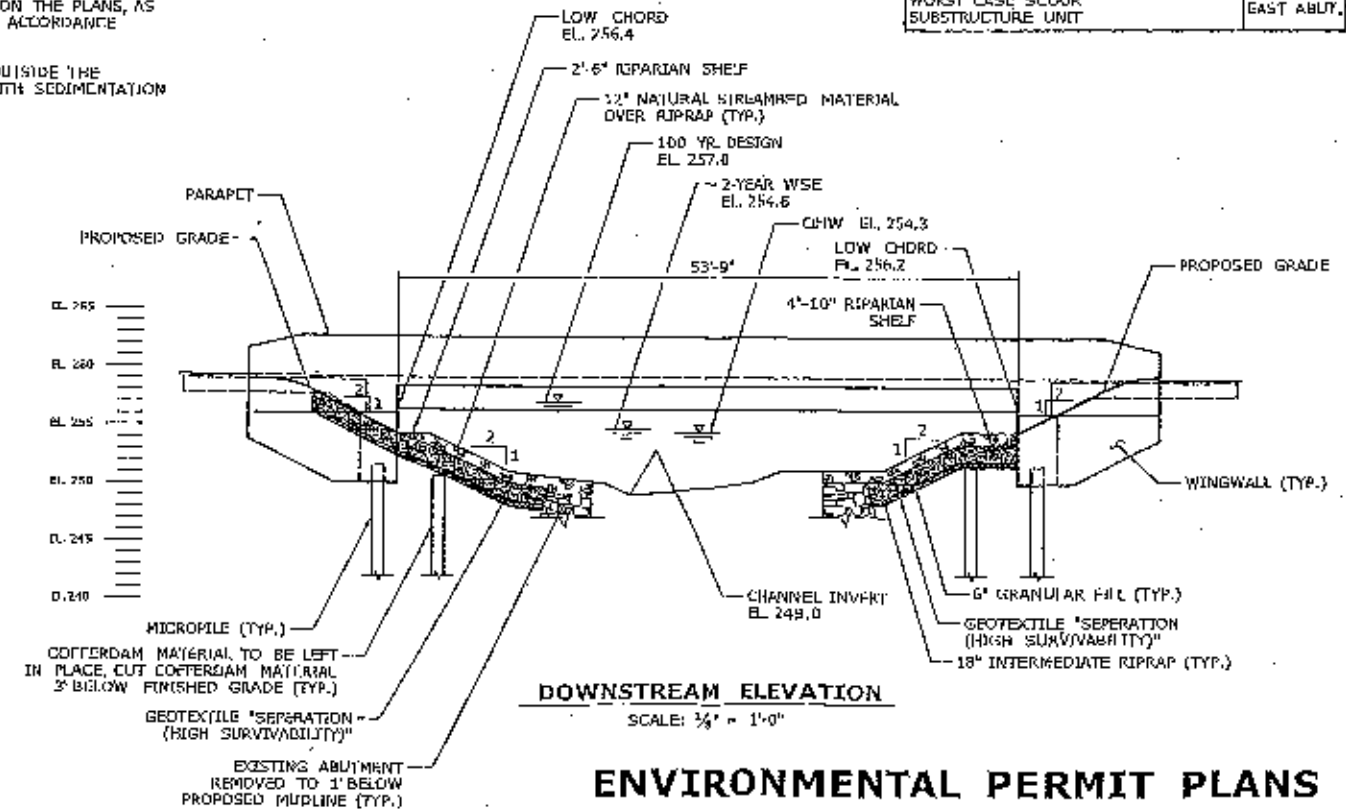
HYDRAULIC DATA	
DRAINAGE AREA (SQ. MI.)	8.4
DESIGN FREQUENCY (-YEAR)	100
DESIGN DISCHARGE (CFS)	1690
AVERAGE DAILY FLOW ELEVATION (FT) (CALCULATED)	252.7
UPSTREAM DESIGN WATER SURFACE ELEVATION (FT)	257.7
DOWNSTREAM DESIGN WATER SURFACE ELEVATION (FT)	257.0
MAXIMUM SCOUR ELEVATION (FT)	238.5
FREQUENCY (-YEAR)	230
DISCHARGE (CFS)	2105
WORST CASE SCOUR SUBSTRUCTURE UNIT	EAST ABUT.

**NATIVE STREAMBED MATERIAL NOTES:**

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE BRIDGE INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED OVER THE PROPOSED RIPRAP WITHIN THE LIMITS AND TO THE DEPTH SHOWN ON THE PLANS, AS DIRECTED BY THE ENGINEER, AND IN ACCORDANCE WITH THE PERMIT DOCUMENTS.
2. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.



**UPSTREAM ELEVATION**  
SCALE: 1/4" = 1'-0"

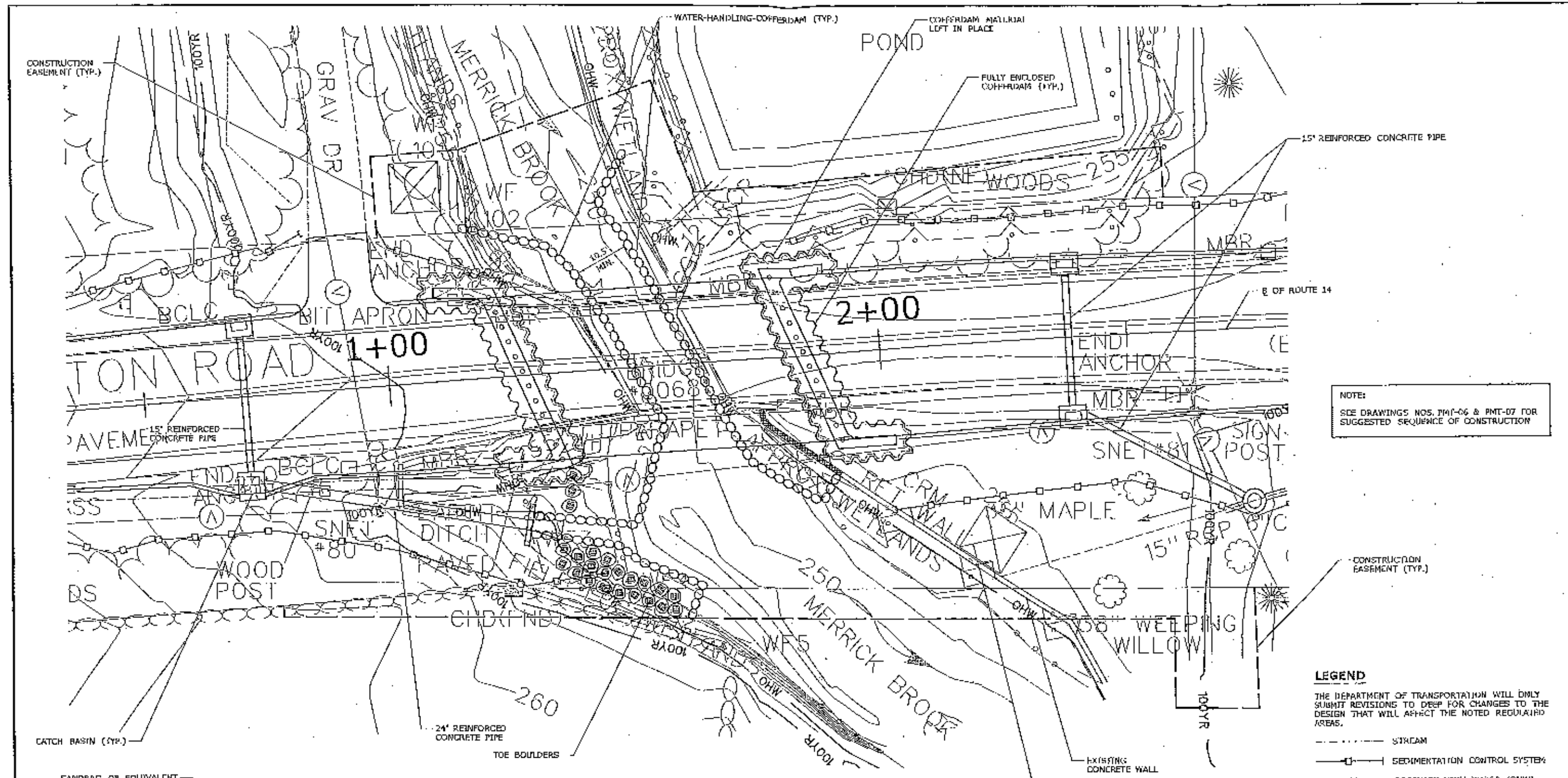


**DOWNSTREAM ELEVATION**  
SCALE: 1/4" = 1'-0"

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION INCLUDING, BUT NOT LIMITED TO, THE NUMBER OF WORK SHEETS ON THIS SET IS BASED ON LIMITED INFORMATION AT THE TIME AND IS IN NO WAY WARRANTED TO INDICATE THE COMPLETION OF ANY PORTION OF WORK WHICH WILL BE REQUIRED.	DESIGN/DRAWN BY: SPM CHECKED BY: RJR SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE: [Blank] OFFICE OF ENGINEERING APPROVED BY: [Blank]	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE. 14) OVER MERRICK BROOK</b>	TOWN: <b>SCOTLAND</b>	PROJECT NO.: 123-066 DRAWING NO.: <b>PMT-04</b> SHEET NO.: [Blank]
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NOTE:  
SEE DRAWINGS NOS. PMT-06 & PMT-07 FOR SUGGESTED SEQUENCE OF CONSTRUCTION

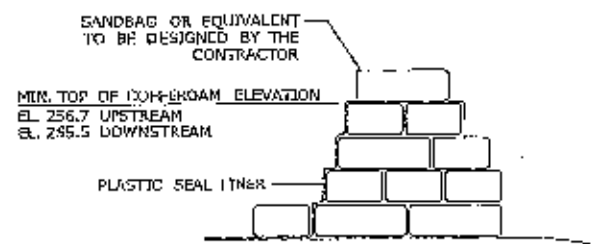
- LEGEND**
- STREAM
  - SEDIMENTATION CONTROL SYSTEM
  - ORDINARY HIGH WATER (OHW)
  - WETLAND LIMITS
  - 100YR 100-YEAR FLOOD (CALCULATED)
  - COFFERDAM
  - COFFERDAM MATERIAL LEFT IN PLACE
  - WATER HANDLING COFFERDAM

**WATER HANDLING NOTES**

1. TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF PLASTIC LINER, SANDBAGS, OR ANY OTHER APPROVED SYSTEM THAT THE CONTRACTOR DECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND EXCAVATION, AND SHALL CONFORM TO PERMITS.
2. NO ADDITIONAL REGULATORY IMPACTS WILL BE ALLOWED BEYOND THE AREAS SHOWN ON THE IMPACT PLANS. ALL DISTURBED AREAS SHALL BE RESTORED.
3. EXISTING DRAINAGE PIPES SHALL BE MAINTAINED AND PROTECTED DURING CONSTRUCTION. THESE DRAINAGE PIPES SHALL REMAIN IN OPERATION THROUGHOUT CONSTRUCTION AND BE PROTECTED FROM DAMAGE, ROTATION, AND DISPLACEMENT BY MEANS AND METHODS OF THE CONTRACTOR.

**PLAN - WATER HANDLING**  
SCALE: 1" = 10'

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW (ADF)	15 CFS
AVERAGE DAILY SPRING FLOW (ASF)	29.5 CFS
2-YEAR FREQUENCY DISCHARGE	380 CFS
TEMPORARY DESIGN DISCHARGE	380 CFS
TEMPORARY DESIGN FREQUENCY	2-YEAR
TEMPORARY WATER SURFACE ELEV.	255.7 FT - UPSTREAM 254.5 FT - DOWNSTREAM

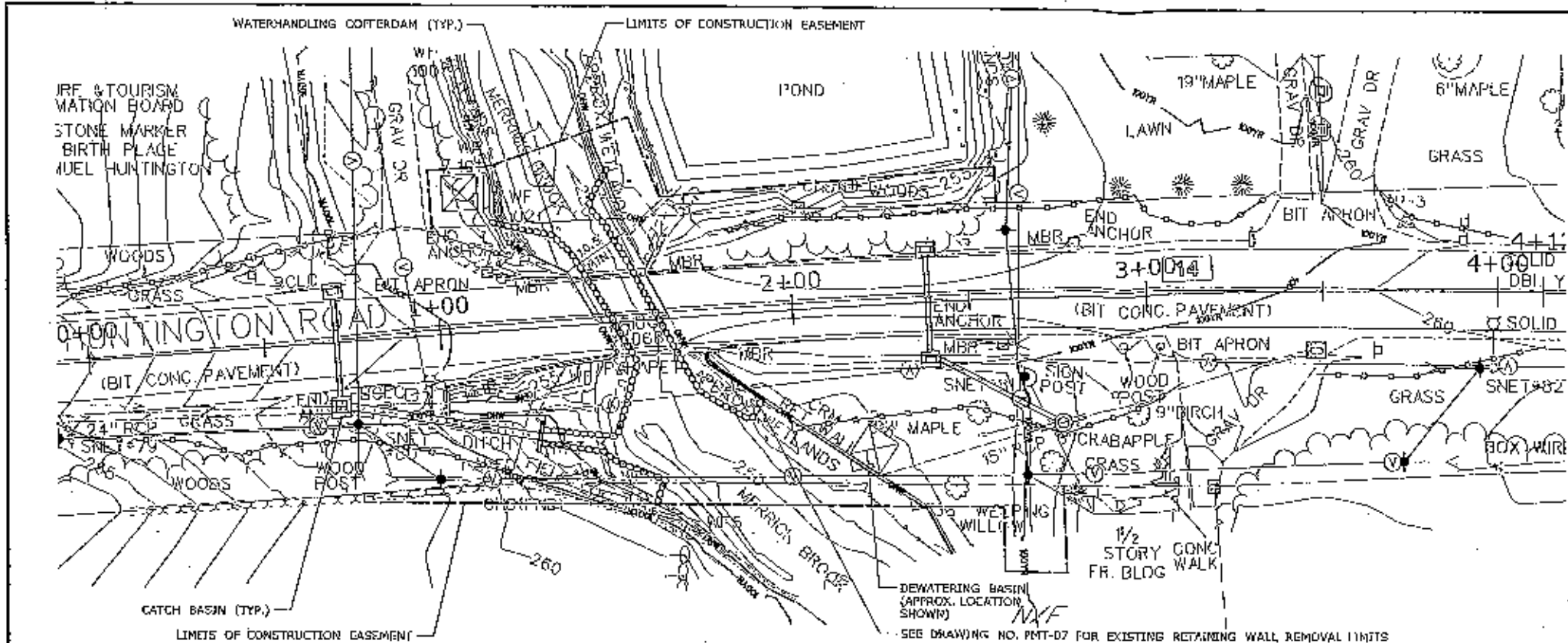


**WATER HANDLING COFFERDAM**  
NOT TO SCALE

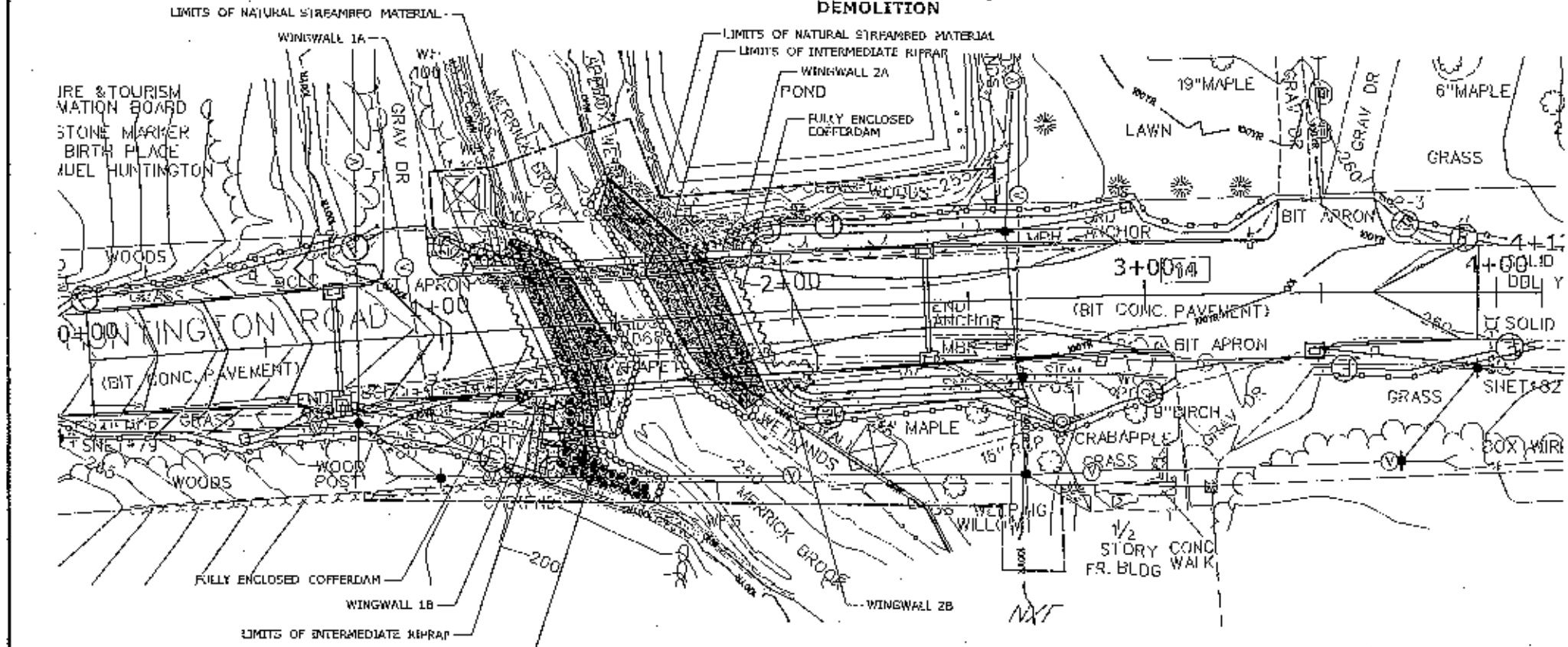
**ENVIRONMENTAL PERMIT PLANS**  
PLAN DATE: JUNE 05, 2019

DESIGNER: SPM CHECKED BY: RLB SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	STRUCTURAL ENGINEER: [Signature] OFFICE OF ENGINEERING APPROVED BY: [Signature]	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	TOWN: <b>SCOTLAND</b>	PROJECT NO.: 0123-0066 DRAWING NO.: <b>PMT-05</b> SHEET NO.:
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**PLAN - SEQUENCE 1  
DEMOLITION**



**PLAN - SEQUENCE 2  
CONSTRUCTION**

**SEQUENCE 1 - WATER HANDLING AND DEMOLITION**

**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. CLEAR AND GRUB, CONTROL AND REMOVE INVASIVE VEGETATION AND INSTALL SEDIMENTATION CONTROL.
2. RELOCATE UTILITY POLES TO TEMPORARY LOCATIONS (BY OTHERS).
3. INSTALL PIPES AND TEST PRODUCTION FILES.
4. CLOSE ROAD AND DETOUR TRAFFIC.
5. INSTALL DEBRIS SHIELD AND REMOVE EXISTING SUPERSTRUCTURE.
6. INSTALL DRAINAGE PIPES AND CATCH BASINS.
7. INSTALL TEMPORARY WATER HANDLING AND DEWATERING BASINS.
8. REMOVE EXISTING ABUTMENTS AND WINGWALLS TO EL. 249.0. REMOVE PORTION OF EXISTING RETAINING WALL.

**LEGEND**

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- · · · — STREAM
- + + + — SEDIMENTATION CONTROL SYSTEM
- — — — ORDINARY HIGH WATER (OHW)
- · · · · WETLAND LIMITS
- — — — FEMA 100-YEAR FLOOD (CALCULATED)

**SEQUENCE 2 - CONSTRUCTION**

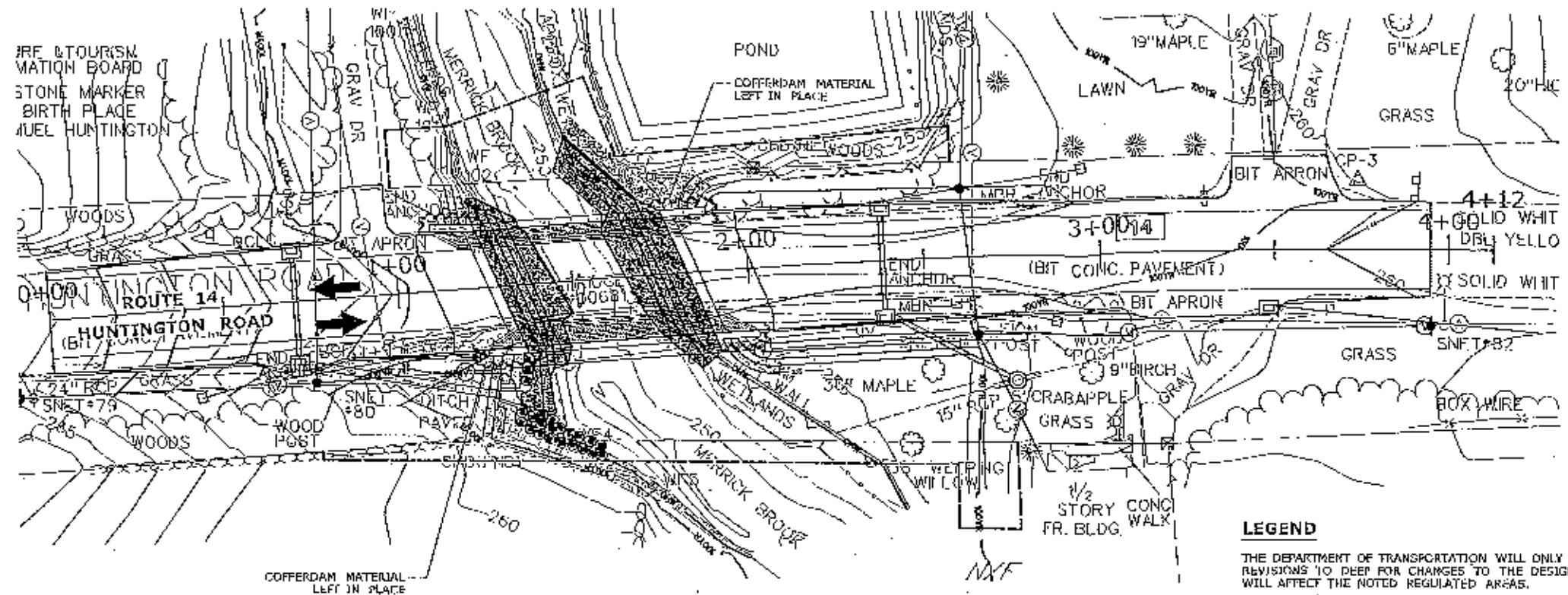
**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. INSTALL FULLY ENCLOSED COFFERDAMS FOR NEW ABUTMENTS AROUND PILES AND EXCAVATE.
2. PLACE GRANULAR FILL WITHIN COFFERDAM AND INSTALL PRECAST ABUTMENTS, BACKFILL AS NEEDED.
3. REMOVE COFFERDAM WITHIN ROADWAY LIMITS AND CUT COFFERDAM MATERIAL LEFT IN PLACE BELOW GRADE.
4. PLACE INTERMEDIATE RIPRAP ALONG EMBANKMENTS AND PLACE TOE BOULDERS, REMOVE TEMPORARY WATER HANDLING.
5. INSTALL PRESTRESSED DECK UNITS AND POST-TENSION.
6. CONSTRUCT CONCRETE DECK SLAB, APPROACH SLABS, AND BRIDGE PARAPETS.
7. APPLY WATERPROOFING MEMBRANE AND INSTALL DIMA OVERLAY ON BRIDGE AND APPROACHES, APPLY TEMPORARY PAVEMENT MARKINGS.
8. INSTALL TEMPORARY PROTECTIVE FENCE, INSTALL APPROACH METAL BEAM RAILS.
9. OPEN ROADWAY TO TRAFFIC.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF THE STATE OF CONNECTICUT AND IS LOANED TO YOU UNDER THE CONDITION THAT IT BE USED ONLY FOR THE PROJECT AND NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.	DESIGNER/DATE: SPM	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	AUTHORITY: OFFICE OF ENGINEERING	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681          - HUNTINGTON RD. (RTE 14)          OVER MERRICK BROOK</b>	PROJECT NO.: <b>SCOTLAND</b>	PROJECT NO.: 123-068
	DRAWN BY: AID SCALE IN FEET: 1" = 20'		APPROVED BY:			DRAWING TITLE: <b>CONSTRUCTION          SEQUENCE 1</b>



PLAN - SEQUENCE 3  
CONSTRUCTION

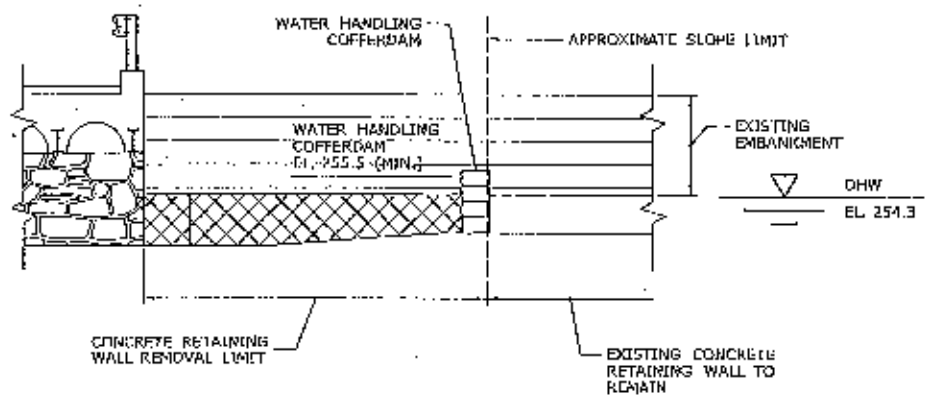
**SEQUENCE 3 - CONSTRUCTION**  
**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. RELOCATE UTILITY POLES TO PERMANENT LOCATIONS (BY OTHERS).
2. INSTALL PROTECTIVE FENCE ON PARAPETS.
3. REMOVE ACCESS ROADS.
4. PLACE TOPSOIL, LANDSCAPE, AND ESTABLISH TURF.
5. INSTALL PERMANENT PAVEMENT MARKINGS AND INLaid THERMOPLASTIC PAVEMENT MARKING SYSTEM.
6. REMOVE EROSION AND SEDIMENTATION CONTROL SYSTEM UPON PERMANENT STABILIZATION.

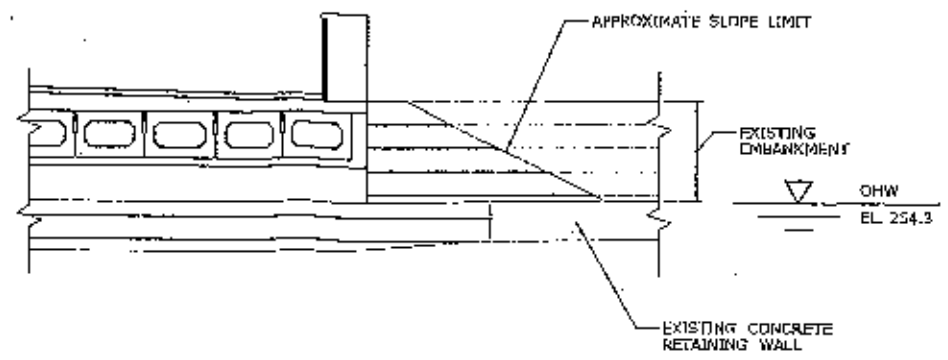
**LEGEND**

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- STREAM
- SEDIMENTATION CONTROL SYSTEM
- ORDINARY HIGH WATER (OHW)
- WETLAND LIMITS
- FEMA 100-YEAR FLOOD (CALCULATED)



EXISTING RETAINING WALL REMOVAL LIMIT  
NOT TO SCALE



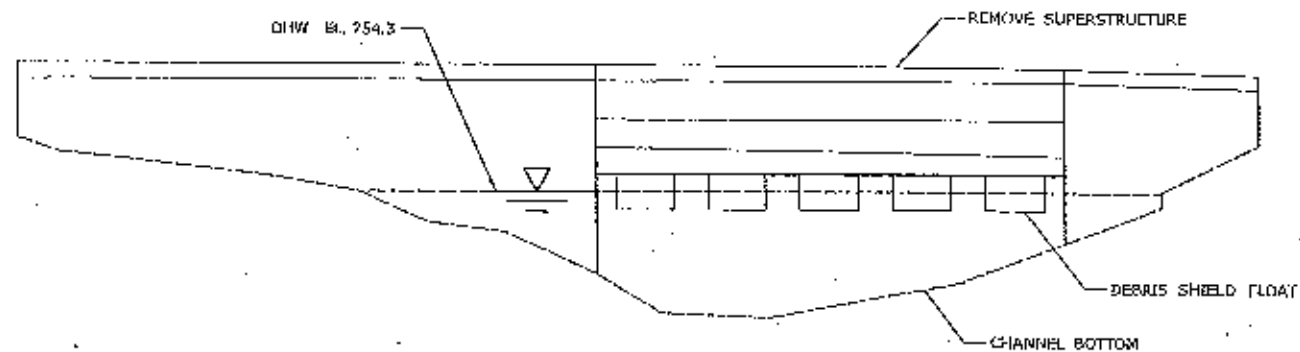
EXISTING RETAINING WALL FINAL CONDITION  
NOT TO SCALE

**ENVIRONMENTAL PERMIT PLANS**

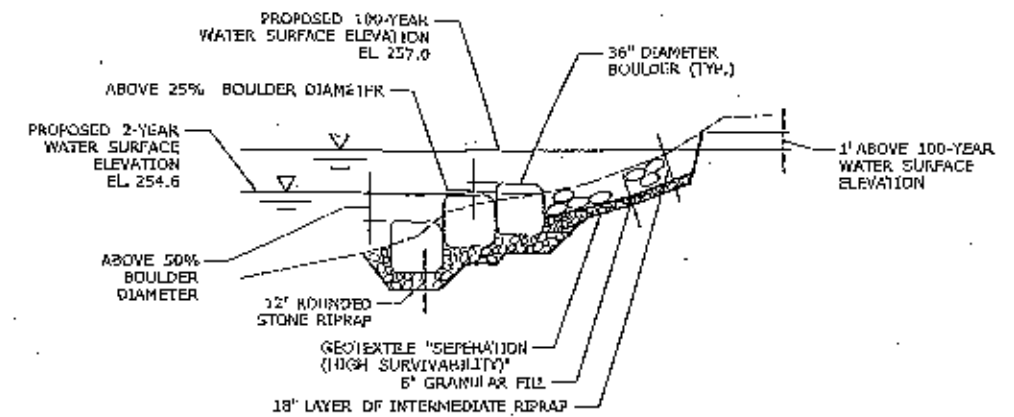
PLAN DATE: JUNE 05, 2019

DESIGN/DATE: SPH CHECKED BY: KTB SCALE IN FEET: 1"=20' SCALE: 1"=20'		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION OFFICE OF ENGINEERING		PROJECT TITLE: <b>REPLACEMENT FO BR. NO. 00681          - HUNTINGTON RD. (RTE 14)          OVER MERRICK BROOK</b>		TOWN: <b>SCOTLAND</b>		PROJECT NO.: <b>123-066</b>	
THE 2400-10000, INCLUDES ESTIMATED QUANTITIES OF WORK SHOWN ON THIS SHEET IS BASED ON THEED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE LIMITATIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		PROJECT NO.: 10122-0164 5mg Construction 2.dwg		DRAWING NO.: <b>PMT-07</b>		SHEET NO.: <b>CONSTRUCTION          SEQUENCE 2</b>		SHEET NO.:	





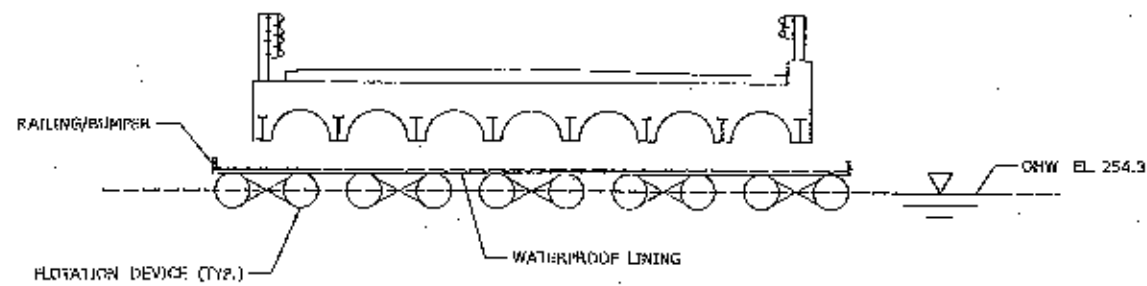
**ELEVATION - DEBRIS SHIELD**  
SCALE: 3/4" = 1'-0"



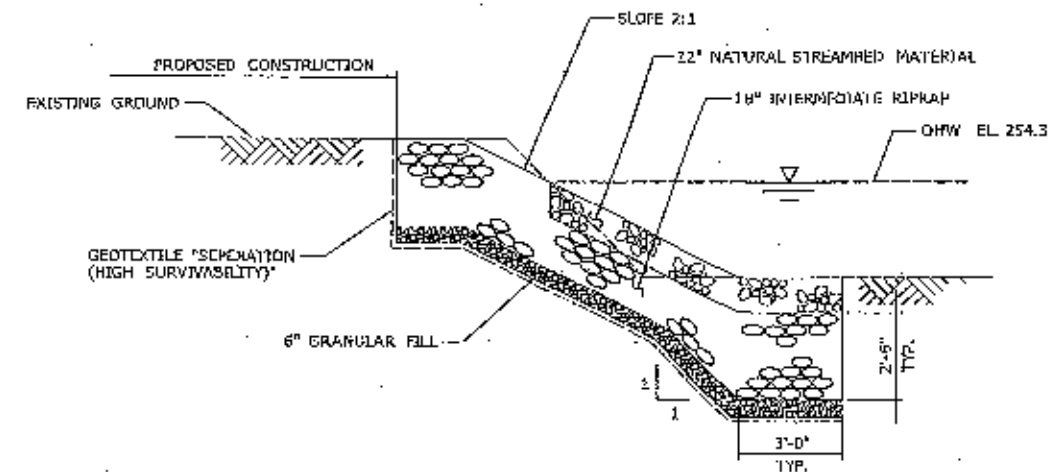
**SECTION - BOULDER PLACEMENT**  
NOT TO SCALE

**DEBRIS SHIELD FLOAT NOTES:**

1. FLOAT SHALL HAVE WATERPROOF LINING AND RAILING/BUMPER SYSTEM TO PREVENT DEBRIS FROM ENTERING THE WATERWAY.
2. FLOAT SHALL BE SUFFICIENTLY BUOYANT SO AS NOT TO BE FOUNDER ON THE SUBSTRATE AT ANY TIME DURING ITS USE. AT NO TIME SHALL THE DEBRIS SHIELD BOTTOM OUT.
3. WHEN NOT IN USE, FLOAT SHALL BE STORED WITHIN THE PROJECT IMPACT AREA.
4. WORKFLOAT SHALL NOT BE STORED WITHIN THE WATERWAY NOR WITHIN UNDISTURBED WETLANDS.



**SECTION - DEBRIS SHIELD**  
SCALE: 3/8" = 1'-0"

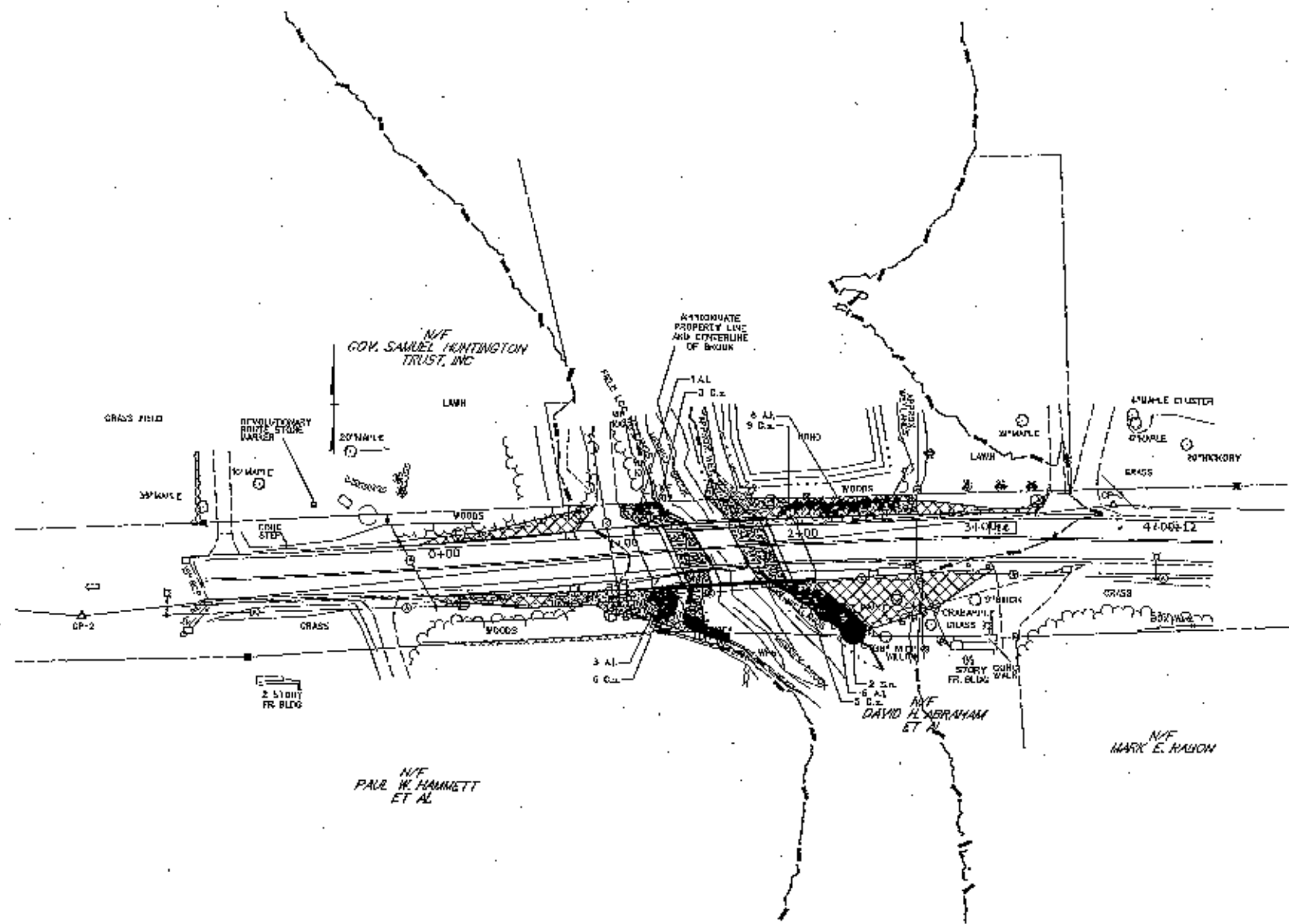


**DETAIL - RIPRAP FOR SLOPE PROTECTION**  
NOT TO SCALE

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019






THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE. IT IS THE PROPERTY OF THE STATE OF CONNECTICUT AND IS LOANED TO YOU. IT IS TO BE USED ONLY FOR THE PROJECT AND NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.		DESIGN/CREATOR: SM	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE: BLOCK	PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	PLAN: SCOTLAND	PROJECT NO.: 123-066
CHECKED BY: RLD	SCALE AS NOTED	APPROVED BY:		DRAWING TITLE: CONSTRUCTION DETAILS		DRAWING NO.: PMT-08	



**PERMIT PLANT LIST**

KEY	BOTANICAL NAME	COMMON NAME	Size	Quantity	Spacing	Labeling
AA	Aster sp.	Spotted Aster	4" - 8" H. D.B.	10	7' On Center	DEL.
CA	Cornus americana	Red osier Dogwood	24" - 30" H. D.B.	35	5' On Center	FACE
SA	Saxifraga	Black Wren	1 3/4" - 2" H. D.B.	2	Field Located	DEL.
Controlled Removal of Invasive Vegetation					640 S.Y.	
Conservation Seeding for Slopes					980 S.Y.	
Wetland Cross Containment					980 S.Y.	

**LEGEND**


-  CONTROL AND REMOVAL OF INVASIVE VEGETATION
-  CONSERVATION SEEDING FOR SLOPES
-  100-YR FLOOD LIMIT
-  STATE/FEDERAL WETLANDS
-  ORDINARY HIGH WATER LINE

**NOTES**

1. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING, ANY CHANGES TO PERMIT PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING.
2. ALL TREES AND SHRUBS MUST CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK FOR DECIDUOUS SHRUBS, CHAPTER THREE AND MEET THE MINIMUM CONTAINER SIZE AND ROOT MASS AND NUMBER OF CANES FOR TYPE AND HEIGHT.
3. ALL PLANTS SHALL BE STRAIGHT SPECIES, NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.
4. DISTURBED AREAS BELOW THE WETLAND LINE SHALL BE SEEDED WITH WETLAND SEED MIX. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE COVERED WITH WOOD CHIP MULCH OR CONSERVATION SEEDING FOR SLOPES UNLESS OTHERWISE NOTED.
5. THE EXACT QUANTITIES AND LIMITS FOR CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE FIELD DETERMINED.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

<p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV.</th> <th>DATE</th> <th>REVISION DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REV.	DATE	REVISION DESCRIPTION										<p>THIS INFORMATION INCLUDING PERTINENT QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE ENGINEER AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL CONDITIONS OF WORK WHICH WILL BE REQUIRED.</p>	<p>DESIGNED BY: SF</p> <p>SCALE IN FEET</p> <p>0 40 80</p> <p>SCALE 1" = 40'</p>	 <p><b>STATE OF CONNECTICUT</b> DEPARTMENT OF TRANSPORTATION</p>	<p>ENGINEER: [Signature]</p> <p>OFFICE OF ENGINEERING</p> <p>APPROVED BY: [Signature]</p>	<p>PROJECT TITLE</p> <p><b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. 9 (RTE 14) OVER MERRICK BROOK</b></p>	<p>TOWN</p> <p><b>SCOTLAND</b></p> <p>DRAWING TITLE</p> <p><b>PERMIT PLANTING PLAN</b></p>	<p>PROJECT NO.</p> <p>123-068</p> <p>DRAWING NO.</p> <p><b>PMT-09</b></p> <p>SHEET NO.</p>
REV.	DATE	REVISION DESCRIPTION																	

## Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

Information to Determine 4(d) Rule Compliance:	YES	NO
1. Does the project occur wholly outside of the WNS Zone <sup>1</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency <sup>2</sup> to determine if your project is near known hibernacula or maternity roost trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Could the project alter the entrance or interior environment of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You are eligible to use this form if you have answered yes to question #1 or yes to question #2 and no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

**Agency:** FHWA - Connecticut Division

**Applicant<sup>3</sup>** (Name, Email, Phone No.):

Connecticut Department of Transportation  
 Amanda M. Saul, Office of Environmental Planning  
 DOT.NLEB@ct.gov, (860)594-2939

**Project Name:** CTDOTD123-0066

**Project Location** (include coordinates if known): Huntington Rd. (RTE.14) over Merrick Brook, Town of Scotland; 41.698488, -72.084252

**Basic Project Description** (provide narrative below or attach additional information):

This project involves the full replacement of Bridge 00681 carrying Huntington Rd. (RTE.14) over Merrick Brook in the Town of Scotland. Proposed work includes:

- Install permanent steel sheet piling in front of proposed abutments for scour protection
- Remove existing superstructure
- Remove existing abutments and wingwalls
- Install integral abutments and superstructure
- Install concrete and/or riprap slope protection

<sup>1</sup> <http://www.fws.gov/midwest/ndangered/mammals/nleb/pdf/WNSZone.pdf>

<sup>2</sup> See <http://www.fws.gov/midwest/ndangered/mammals/nleb/nhisites.html>

<sup>3</sup> If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

General Project Information	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project occur within 150 feet of a known maternity roost tree?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project include forest conversion <sup>4</sup> ? (if yes, report acreage below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estimated total acres of forest conversion	<0.1 ac	
If known, estimated acres <sup>5</sup> of forest conversion from April 1 to October 31		
If known, estimated acres of forest conversion from June 1 to July 31 <sup>6</sup>		
Does the project include timber harvest? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of timber harvest		
If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated wind capacity (MW)		

**Agency Determination:**

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Digitally signed by Amanda M. Saul  
 DN: cn=Amanda M. Saul, o=Connecticut  
 Department of Transportation, ou=Office of  
 Environmental Planning,  
 email=amanda.saul@dot.gov, c=US  
 Date: 2019.06.20 13:52:18 -0400

Signature: Amanda M. Saul

Date Submitted: 6/20/2019

<sup>4</sup> Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).

<sup>5</sup> If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.

<sup>6</sup> If the activity includes tree clearing in June and July, also include those acreage in April to October.



STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION



2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860) 594-2931

June 25, 2019

Ms. Susan Lee  
U.S. Army Corps of Engineers  
New England District  
696 Virginia Road  
Concord, MA 01742-2751

Subject: Replacement of Bridge No. 00681  
Project No. 123-66  
Bridge No. 00681, Route 14 over Merrick Brook, Town of Scotland

Dear Ms. Lee:

Enclosed please find one copy of the USACE Appendix E: Self-Verification Notification Form for GP 19 with attachments for your files. A copy has also been submitted to the Connecticut Department of Energy and Environmental Protection. The project has been submitted to the United States Fish & Wildlife Service by DOT's Office of Environmental Planning under the Final 4(d) Rule using the Northern Long-Eared Bat Streamlined Consultation Form on behalf of FHWA. Any questions pertaining to this application may be directed to Mr. Andrew H. Davis, Transportation Supervising Planner of my staff, at 860-594-2157.

Very truly yours,

Kimberly C. Lesay  
Transportation Assistant Planning Director  
Bureau of Policy and Planning

Marilyn R. Gould/mrg

Attachments

cc: Nathan Margason – USEPA

bcc: Kevin F. Carifa · Andrew Piranco  
Andrew Davis – Christopher Samorajczyk -- Marilyn R. Gould  
Mary B. Baker – Bao K. Chuong · Raymond J. Basar – Susan P. Morrison  
Robert E. Obey, District 2



**US Army Corps  
of Engineers** \*  
New England District

**Appendix E: Self-Verification Notification Form**

This form is required for all non-tidal projects in Connecticut, but not required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. Before work commences, complete all fields (write "none" if applicable); attach project plans (not required for projects involving the installation of construction mats only); and any state or local approval(s); and send to:

Permits & Enforcement Branch B  
U.S. Army Corps of Engineers  
696 Virginia Road  
Concord, MA 01742-2751  
or cenac-1@usace.army.mil

and

CT DEEP  
Inland Water Resources Division  
79 Elm Street  
Hartford, CT 06106-5127

\*\*\*\*\*

State or local Permit Number: TBD  
Date of State or local Permit: TBD  
State/local Project Manager: Boo K. Chuong

Permittee: Kimberly C. Leasy  
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06131  
Phone(s) and Email: 860-594-2931, kimberly.leasy@ct.gov

Contractor: TBD by low bid process  
Address, City, State & Zip: \_\_\_\_\_  
Phone(s) and Email: \_\_\_\_\_

Consultant/Engineer/Designer: Raymond L. Basar  
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06131  
Phone(s) and Email: 860-594-2931, raymond.basar@ct.gov

Wetland/Soil Scientist Consultant: Department of Transportation Office of Environmental Planning  
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06131  
Phone(s) and Email: 860-594-2157, andrew.h.davis@ct.gov

Project Location (provide detailed description & locus map): On Huntington Road (Route 14), about 500 feet west of the intersection of Huntington Road (Route 14), and Devotion Road (Route 97).

Address, City, State & Zip: CT DOT Bridge No. 00681, Huntington Road (Route 14), Scotland, CT, 06284

Latitude/Longitude Coordinates: Latitude: 41°41'54.6" Longitude: 72°05'03.3"

Waterway Name: Merrick Brook

Project Purpose (include all aspects of the project including those not within Corps jurisdiction):  
The purpose of this project is to replace the existing bridge carrying Route 14 over Merrick Brook, which is structurally deficient, to provide sufficient structural load carrying capacity.

Work Description: Work includes replacement of the existing substructure elements and superstructure with an integral bridge founded on piles. Install permanent sheet piling in front of the proposed abutments for scour protection and in front of existing abutments for water handling. Reduce sheet piling used for water handling to one foot below the mudline. Install a concrete riprap shell at both abutments and install riprap slope protection and boulders to prevent scour. Install approach slabs and regrade approaches. Extend roadway water drainage pipe at southwest corner of bridge. Temporarily relocate overhead utilities.

Work will be done under the following GP(s) (check all that have associated impacts):

\_\_\_\_\_ **GP. 2 - Repair or maintenance of authorized or grandfathered structures/fills**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ **GP. 5 - Boat ramps/marine railways**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ **GP. 6 - Utility line activities (include calculations for each single & complete crossing – attach additional sheet if necessary)**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ **GP. 9 - Shoreline and bank stabilization projects**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ **GP. 10 - Aquatic habitat restoration, establishment and enhancement activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ **GP. 11 - Fish & wildlife harvesting, enhancement and attraction devices and activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ **GP. 12 - Oil Spill and Hazardous material cleanup**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ **GP. 13 - Cleanup of hazardous and toxic waste**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ **GP. 14 - Scientific measurements devices**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ **GP. 15 - Survey activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

\_\_\_\_\_ **GP. 17 - New/expanded developments & recreational facilities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF



GP. 18 - Linear transportation projects- wetland crossings only (include calculations for each single & complete crossing - attach additional sheet if necessary)

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

GP. 19 - Stream, river & brook crossings – not including wetland crossings (include calculations for each single & complete crossing – attach additional sheet if necessary)

Area of total wetland impacts: temporary 791 SF permanent 420 SF  
Area of total waterway impacts: temporary 0 SF permanent 1725 SF

         GP. 21 - Temporary fill not associated with any other GP activities

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Does your project include any secondary effects? Yes \_\_\_\_\_ No

(Secondary effects include, but are not limited to non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Proposed Work Dates: Start: Spring 2020 Finish: Fall 2020

**Your name/signature below, as permittee, confirms that your project meets the self-verification criteria and that you accept and agree to comply with the applicable terms and conditions in the Connecticut General Permits.**

Neil Bell, Director for Thomas Mazzotta  
Signature of Permittee

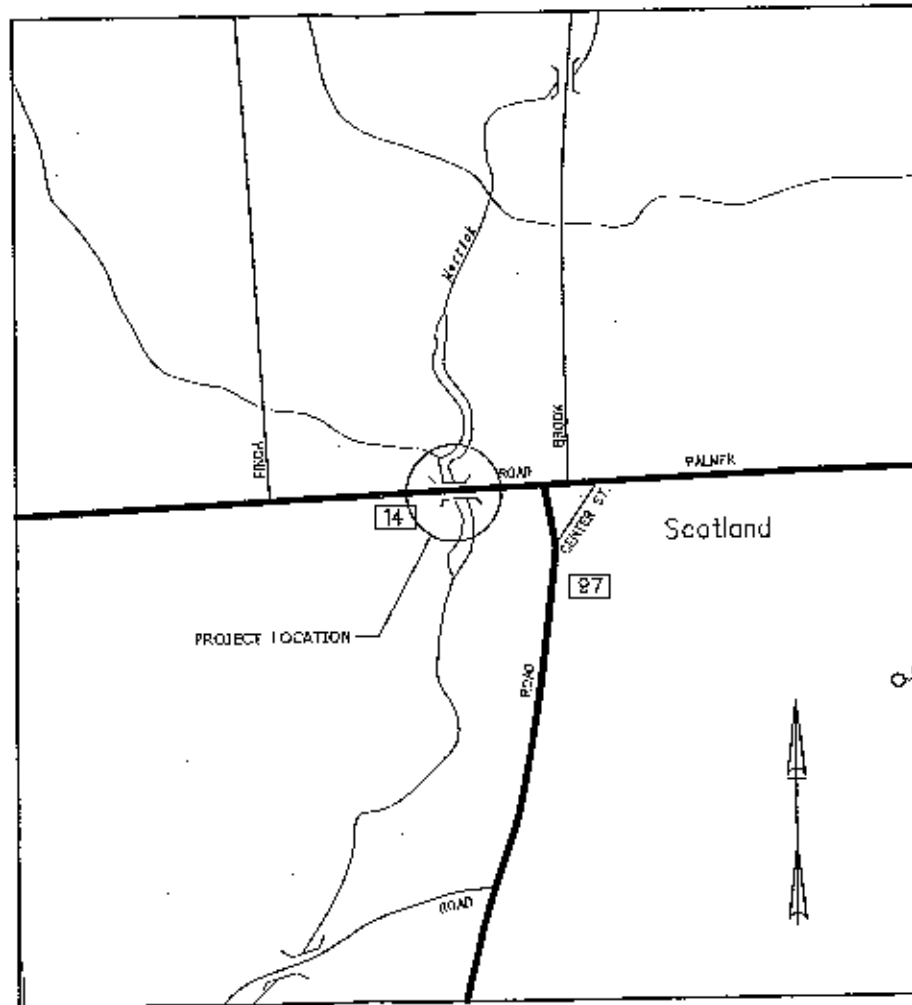
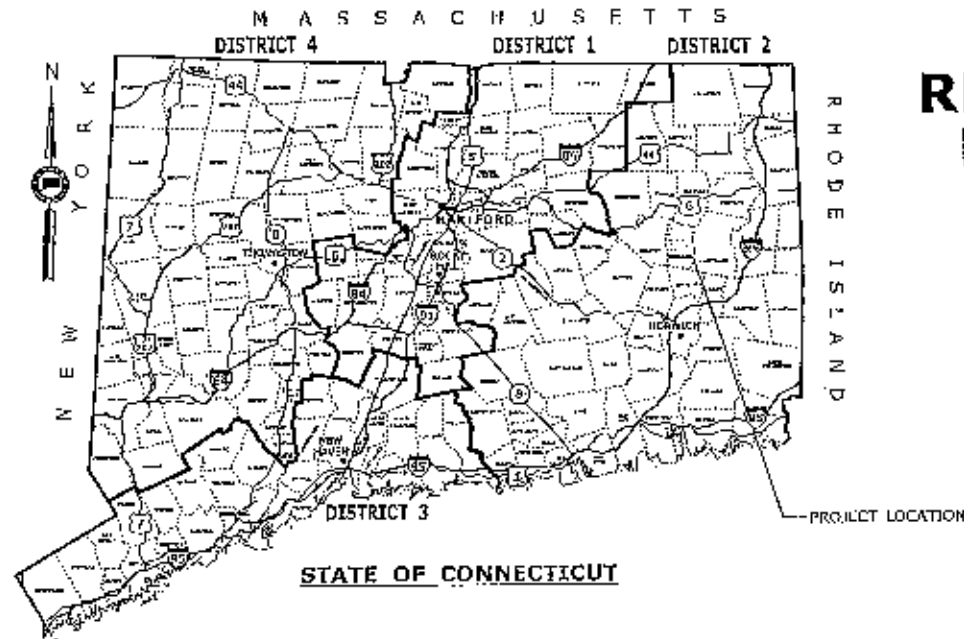
6/25/2019  
Date



# CONNECTICUT DEPARTMENT OF TRANSPORTATION



## ENVIRONMENTAL PERMIT PLANS STATE PROJECT NO. 123-066 REPLACEMENT OF BRIDGE NO. 00681 ROUTE 14 OVER MERRICK BROOK IN THE TOWN OF SCOTLAND



LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL SITE PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	ELEVATIONS & SECTION
PMT-05	WATER HANDLING PLAN
PMT-06	CONSTRUCTION SEQUENCE 1
PMT-07	CONSTRUCTION SEQUENCE 2
PMT-08	CONSTRUCTION DETAILS
PMT-09	PERMIT PLANTING PLAN

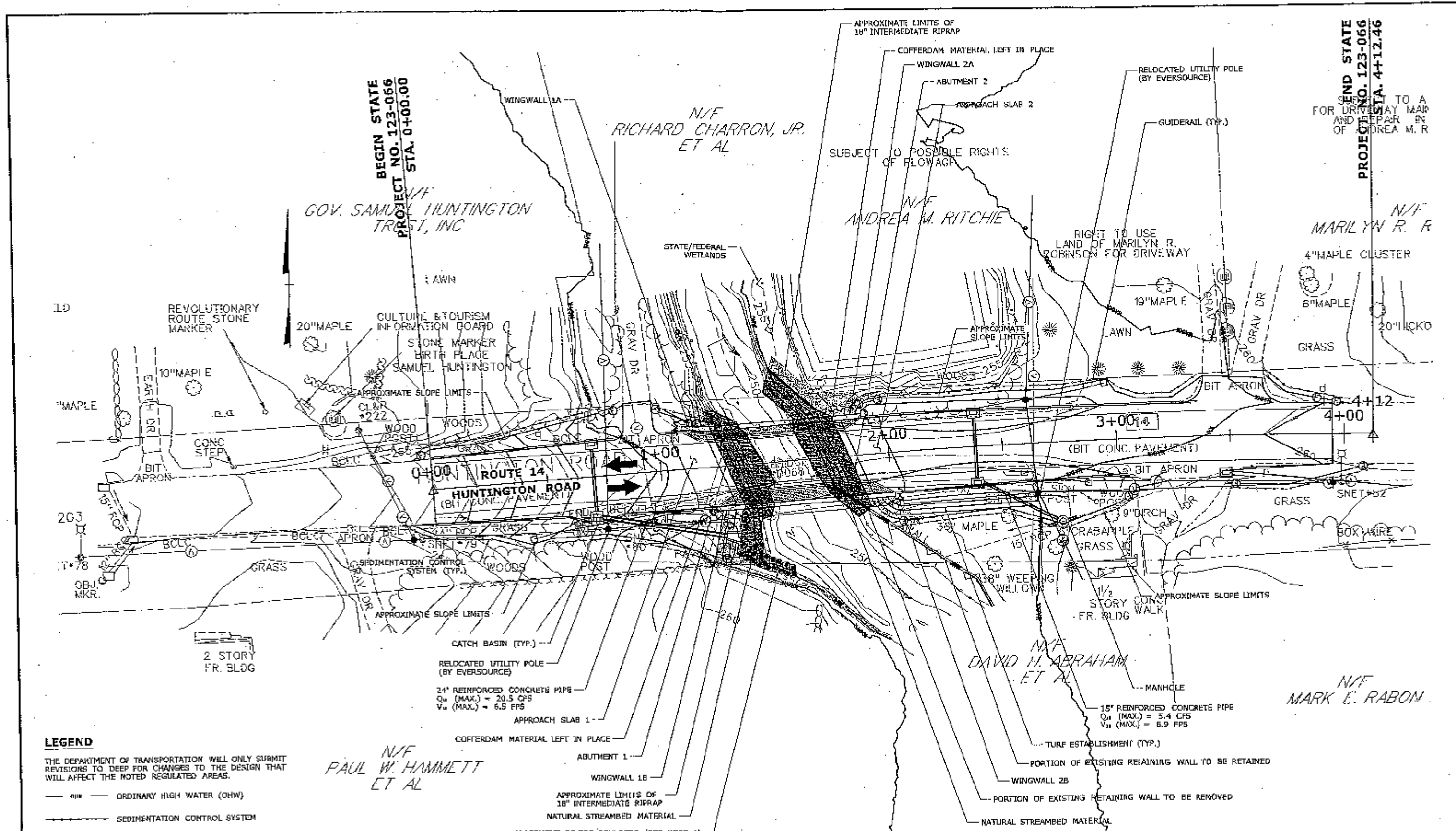
### GENERAL NOTES:

1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DESIGN AND USAGE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983 VERTICAL DATUM BASED ON NGVD OF 1988.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION, FORM 617, SECTION 1.1D AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

### ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JUNE 05, 2019

DESIGNER/DATE: SPM	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	TOWN: SCOTLAND	PROJECT NO. 123-066
CHECKED BY: RIR	OFFICE OF ENGINEERING	DRAWING TITLE: TITLE SHEET		BRIDGE NO. PMT-01
SCALE AS NOTED	APPROVED BY:			CHECK DATE:
REV. DATE REVISION DESCRIPTION SHEET NO. REVISION DATE	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION			

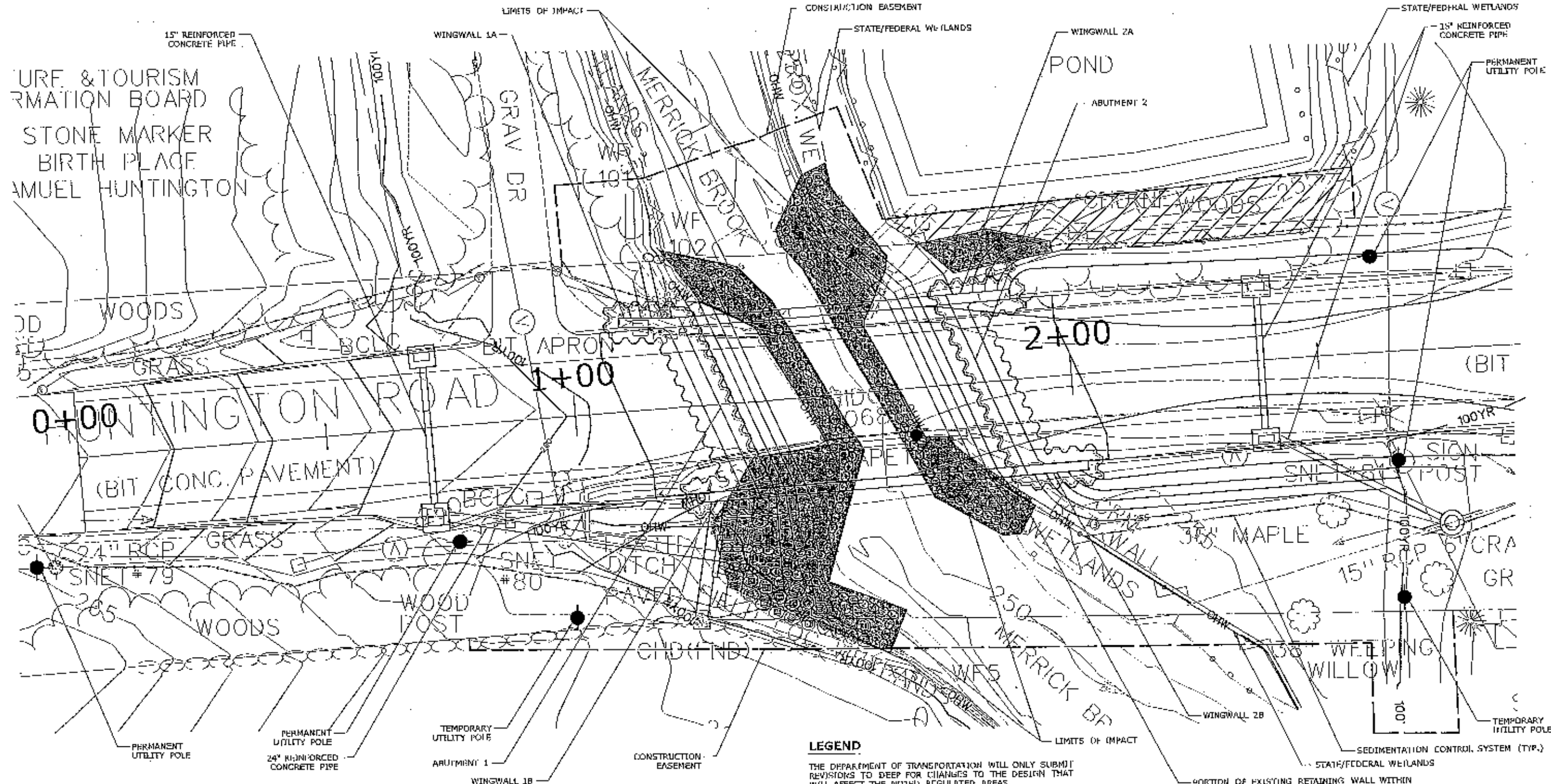


GENERAL SITE PLAN

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JUNE 05, 2019

REVISIONS REV. DATE REVISION DESCRIPTION SHEET NO.		PROJECT NO. 123-066 DRAWING NO. PMT-02 SHEET NO.	
THE INFORMATION HEREON IS BASED ON THE INFORMATION PROVIDED BY THE CLIENT AND IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.		PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	
DRAWN BY: RJB SCALE IN FEET: 1" = 20' SCALE: 1" = 20'		TOWN: SCOTLAND	
STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION		OFFICE OF ENGINEERING	
PROJECT NO. 123-066 DRAWING NO. PMT-02 SHEET NO.		PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	



	WETLAND IMPACTS (ABOVE OHW)	WATERWAY IMPACTS (BELOW OHW)	TOTAL
PERMANENT IMPACTS	470 S.F. (0.010 A.C.)	1725 S.F. (0.040 A.C.)	2195 S.F. (0.050 A.C.)
TEMPORARY IMPACTS	792 S.F. (0.018 A.C.)	0 S.F. (0.000 A.C.)	792 S.F. (0.018 A.C.)
TOTAL IMPACTS	1262 S.F. (0.028 A.C.)	1725 S.F. (0.040 A.C.)	2987 S.F. (0.068 A.C.)

NOTE:  
THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

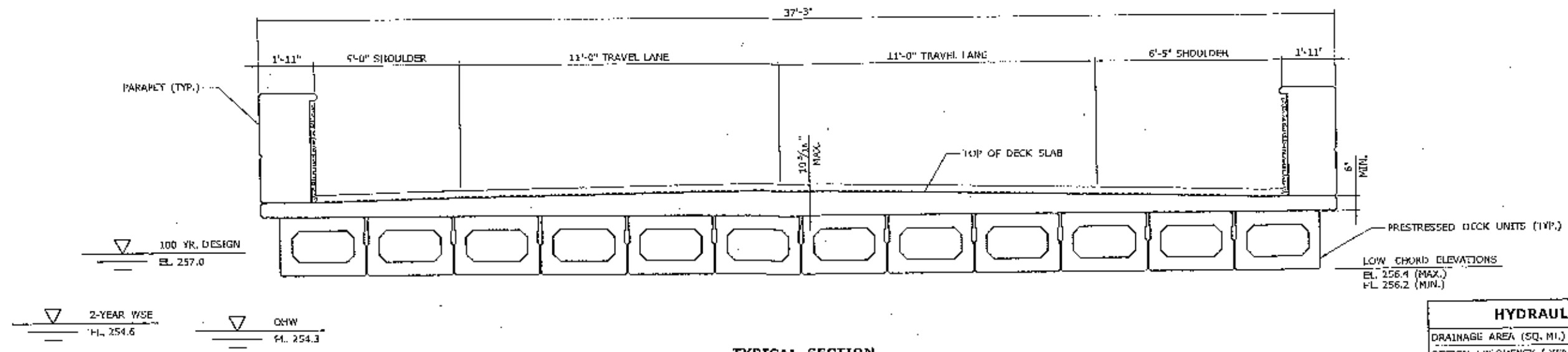
**LEGEND**

- SIFRAM
- SEDIMENTATION CONTROL SYSTEM
- ORDINARY HIGH WATER (OHW)
- WETLAND LIMITS
- FEMA 100-YEAR FLOOD (CALCULATED)
- COFFERDAM MATERIAL LEFT IN PLACE
- WATER HANDLING COFFERDAM
- PERMANENT WETLAND IMPACTS
- TEMPORARY WETLAND IMPACTS

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF THE STATE OF CONNECTICUT. IT IS LOANED TO YOU FOR YOUR OFFICIAL USE ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE STATE OF CONNECTICUT.		PROJECT NO. 123-066 DRAWING NO. PMT-03 SHEET NO.
PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	OFFICE OF ENGINEERING DEPARTMENT OF TRANSPORTATION	DRAWING TITLE: <b>WETLAND/WATERCOURSE IMPACT PLAN</b>

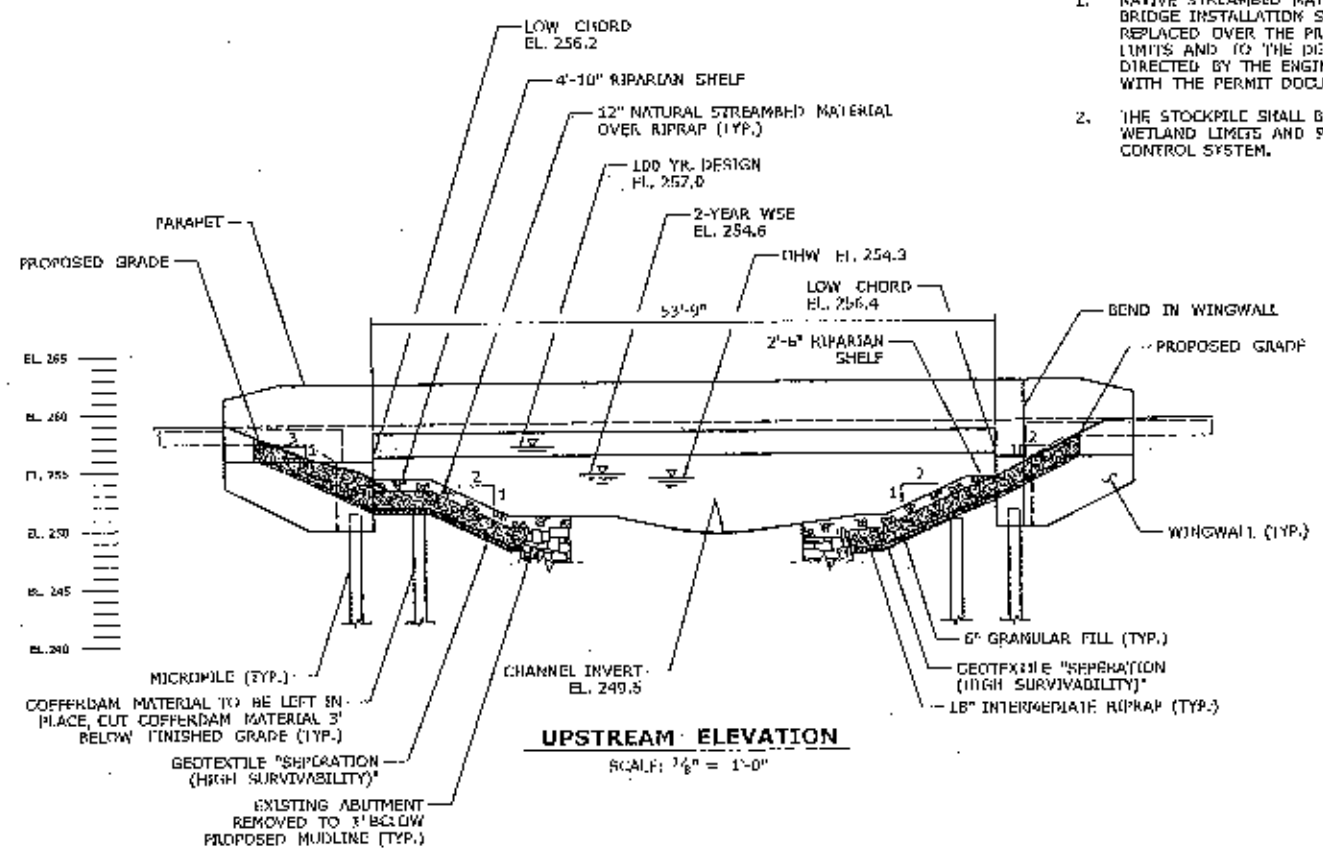


**TYPICAL SECTION**  
SCALE: 1/2" = 1'-0"

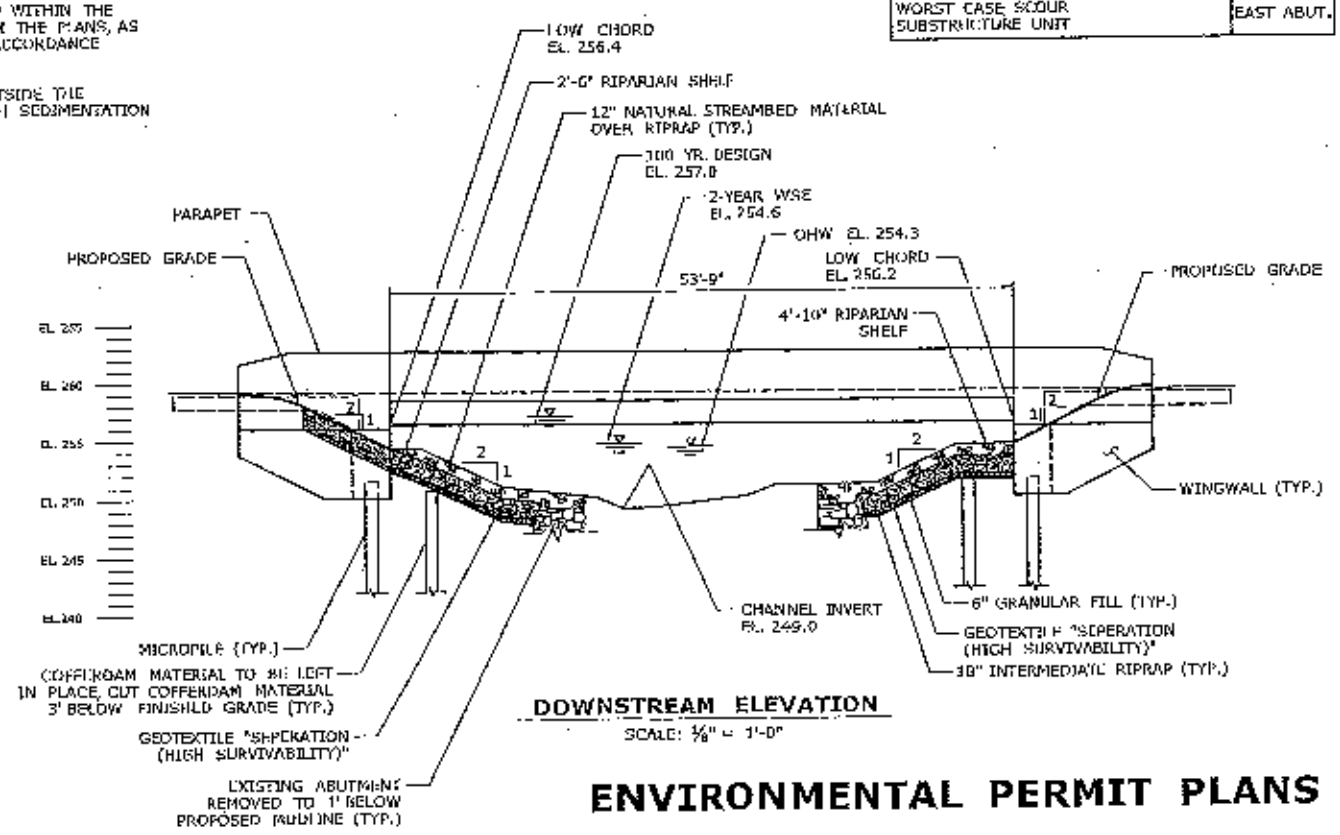
HYDRAULIC DATA	
DRAINAGE AREA (SQ. MI.)	8.1
DESIGN FREQUENCY (-YEAR)	100
DESIGN DISCHARGE (CFS)	1690
AVERAGE DAILY FLOW ELEVATION (FT) (CALCULATED)	252.7
UPSTREAM DESIGN WATER SURFACE ELEVATION (FT)	257.7
DOWNSTREAM DESIGN WATER SURFACE ELEVATION (FT)	257.0
MAXIMUM SCOUR ELEVATION (FT)	238.5
FREQUENCY (-YEAR)	230
DISCHARGE (CFS)	7105
WORST CASE SCOUR SUBSTRUCTURE UNIT	EAST ABUT.

**NATIVE STREAMBED MATERIAL NOTES:**

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE BRIDGE INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED OVER THE PROPOSED RIPRAP WITHIN THE LIMITS AND TO THE DEPTH SHOWN ON THE PLANS, AS DIRECTED BY THE ENGINEER, AND IN ACCORDANCE WITH THE PERMIT DOCUMENTS.
2. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.



**UPSTREAM ELEVATION**  
SCALE: 1/4" = 1'-0"

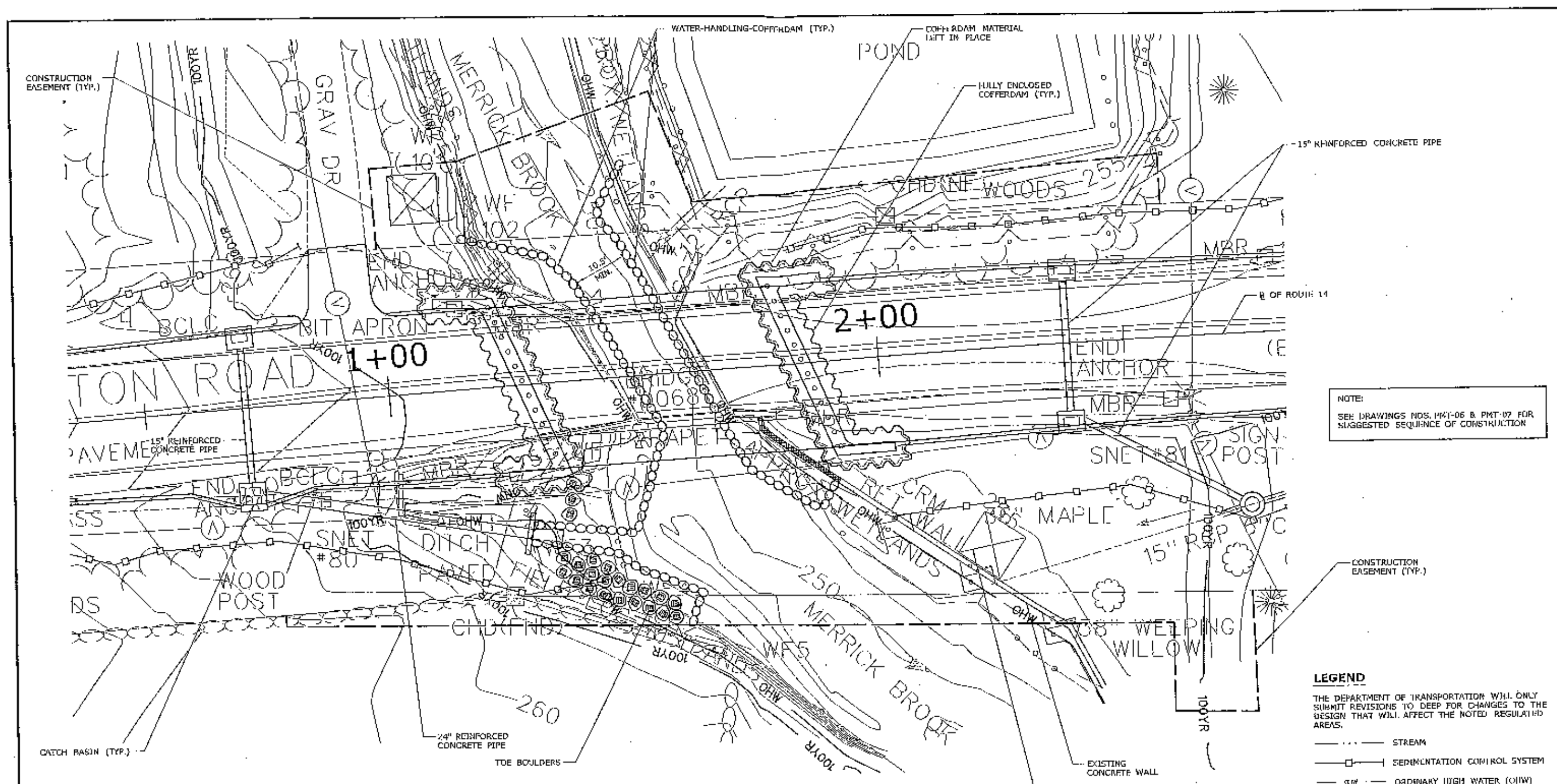


**DOWNSTREAM ELEVATION**  
SCALE: 1/4" = 1'-0"

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

<p>THE INFORMATION INCLUDING EXISTING CONDITIONS OF WORK, SHOWN ON THESE SHEETS IS BASED ON LATEST AVAILABLE INFORMATION BY THE STATE AND IS NOT TO BE GUARANTEED TO INDICATE THE EXACT NATURE OF ACTUAL CONDITIONS OF WORK WHICH WILL BE REQUIRED.</p>	<p>DESIGNED BY: SIPM CHECKED BY: RLB SCALE AS NOTED</p>	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	<p>OFFICE OF ENGINEERING</p>	<p>PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE. 14) OVER MERRICK BROOK</p>	<p>PROJECT NO.: 123-066 DRAWING NO.: PMT-04 SHEET NO.:</p>
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NOTE:  
SEE DRAWINGS NOS. H41-06 & PMT-07 FOR SUGGESTED SEQUENCE OF CONSTRUCTION

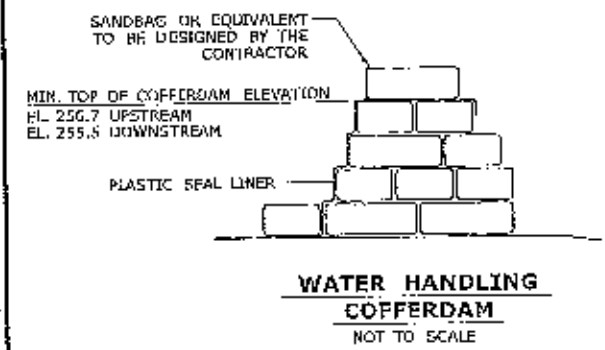
- LEGEND**
- THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.
- — — — — STREAM
  - [ ] — — — — — SEDIMENTATION CONTROL SYSTEM
  - OHW — — — — — ORDINARY HIGH WATER (OHW)
  - - - - - WETLAND LIMITS
  - 100YR — — — — — 100-YEAR FLOOD (CALCULATED)
  - [ ] — — — — — COFFERDAM
  - [ ] — — — — — COFFERDAM MATERIAL LEFT IN PLACE
  - [ ] — — — — — WATER HANDLING COFFERDAM

**WATER HANDLING NOTES**

- TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF PLASTIC LINER, SANDBAGS, OR ANY OTHER APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND EXCAVATION, AND SHALL CONFORM TO PERMITS.
- NO ADDITIONAL REGULATORY IMPACTS WILL BE ALLOWED BEYOND THE AREAS SHOWN ON THE IMPACT PLANS, ALL DISTURBED AREAS SHALL BE RESTORED.
- EXISTING DRAINAGE PIPES SHALL BE MAINTAINED AND PROTECTED DURING CONSTRUCTION, THESE DRAINAGE PIPES SHALL REMAIN IN OPERATION THROUGHOUT CONSTRUCTION AND BE PROTECTED FROM DAMAGE, ROTATION, AND DISPLACEMENT BY MEANS AND METHODS OF THE CONTRACTOR.

**PLAN - WATER HANDLING**  
SCALE: 1" = 10'

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW (ADF)	15 CFS
AVERAGE DAILY SPRING FLOW (ADSF)	29.5 CFS
2-YEAR FREQUENCY DISCHARGE	380 CFS
TEMPORARY DESIGN DISCHARGE	380 CFS
TEMPORARY DESIGN FREQUENCY	2-YEAR
TEMPORARY WATER SURFACE ELEV.	255.7 FT - UPSTREAM 251.5 FT - DOWNSTREAM

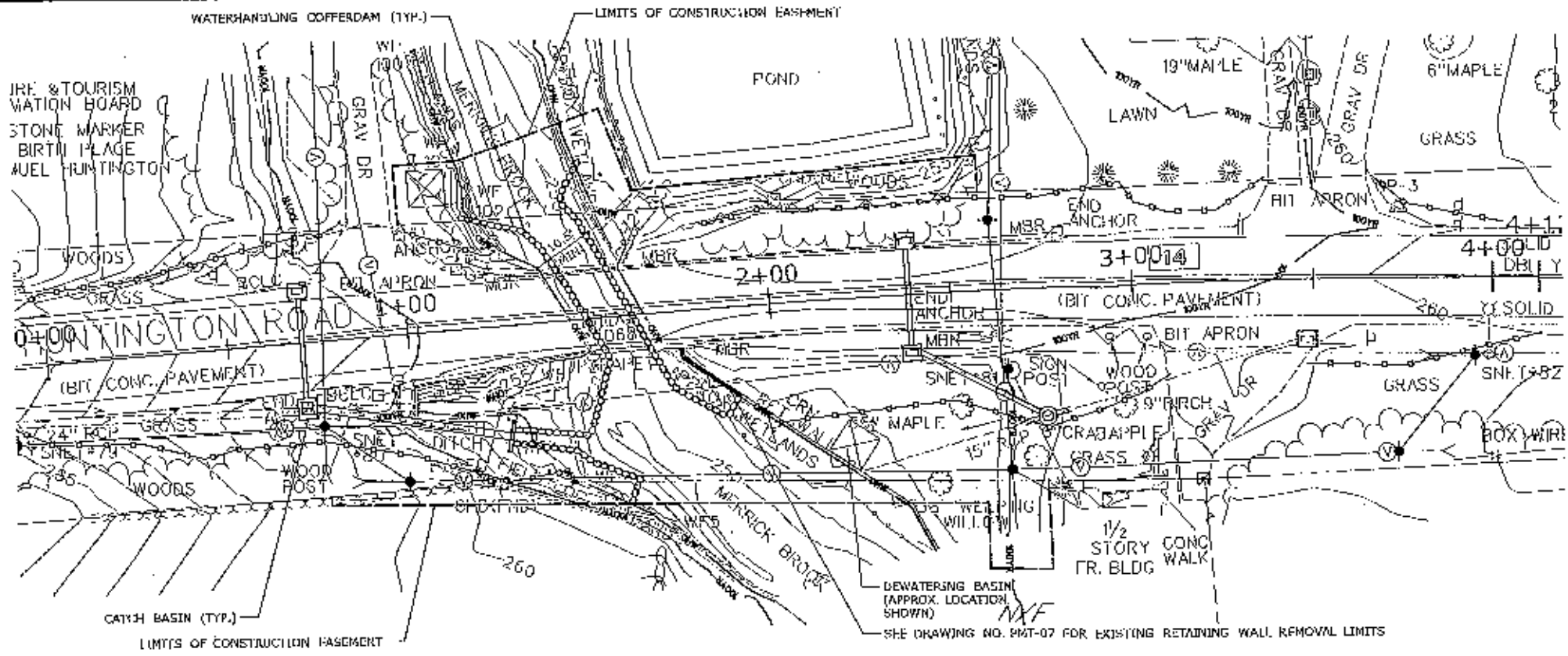


**ENVIRONMENTAL PERMIT PLANS**

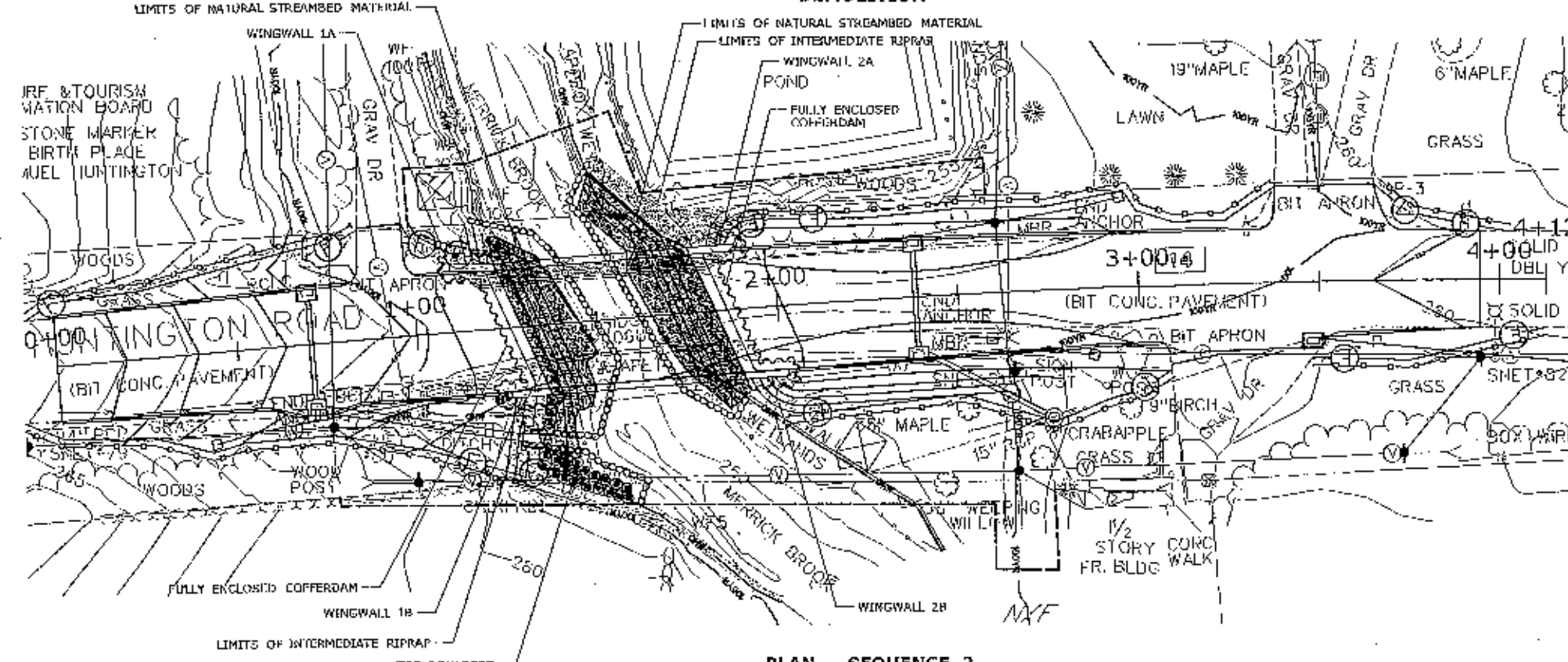
PLAN DATE: JUNE 05, 2019

PROJECT NO. 0123-0066 DRAWING NO. PMT-05 SHEET NO.	DRAWING TITLE: WATER HANDLING PLAN	PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	OFFICE OF ENGINEERING DEPARTMENT OF TRANSPORTATION	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	DESIGNATION: SIMM CHECKED BY: RUB SCALE: AS NOTED	THE INFORMATION INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THIS SHEET IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO GUARANTEE THE ACCURACY OF ANY QUANTITIES OF WORK WHICH WILL BE REQUIRED.	SHEET NO. 01/2019 FILED DATE: 01/2019
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**PLAN - SEQUENCE 1  
DEMOLITION**



**PLAN - SEQUENCE 2  
CONSTRUCTION**

**SEQUENCE 1 - WATER HANDLING AND DEMOLITION**

**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. CLEAR AND GRUB, CONTROL AND REMOVE INVASIVE VEGETATION AND INSTALL SEDIMENTATION CONTROL.
2. RELOCATE UTILITY POLES TO TEMPORARY LOCATIONS (BY OTHERS).
3. INSTALL PILES AND TEST PRODUCTION PILES.
4. CLOSE ROAD AND DETOUR TRAFFIC.
5. INSTALL D-BRIS SHIELD AND REMOVE EXISTING SUPERSTRUCTURE.
6. INSTALL DRAINAGE PIPES AND CATCH BASINS.
7. INSTALL TEMPORARY WATER HANDLING AND DEWATERING BASINS.
8. REMOVE EXISTING ABUTMENTS AND WINGWALLS TO EL. 249.0. REMOVE PORTION OF EXISTING RETAINING WALL.

**LEGEND**

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- · · · · · STREAM
- ○ — ○ — SEDIMENTATION CONTROL SYSTEM
- 3M — ORDINARY HIGH WATER (OHW)
- · · · · · WETLAND LIMITS
- 100YR — FEMA 100-YEAR FLOOD (CALCULATED)

**SEQUENCE 2 - CONSTRUCTION**

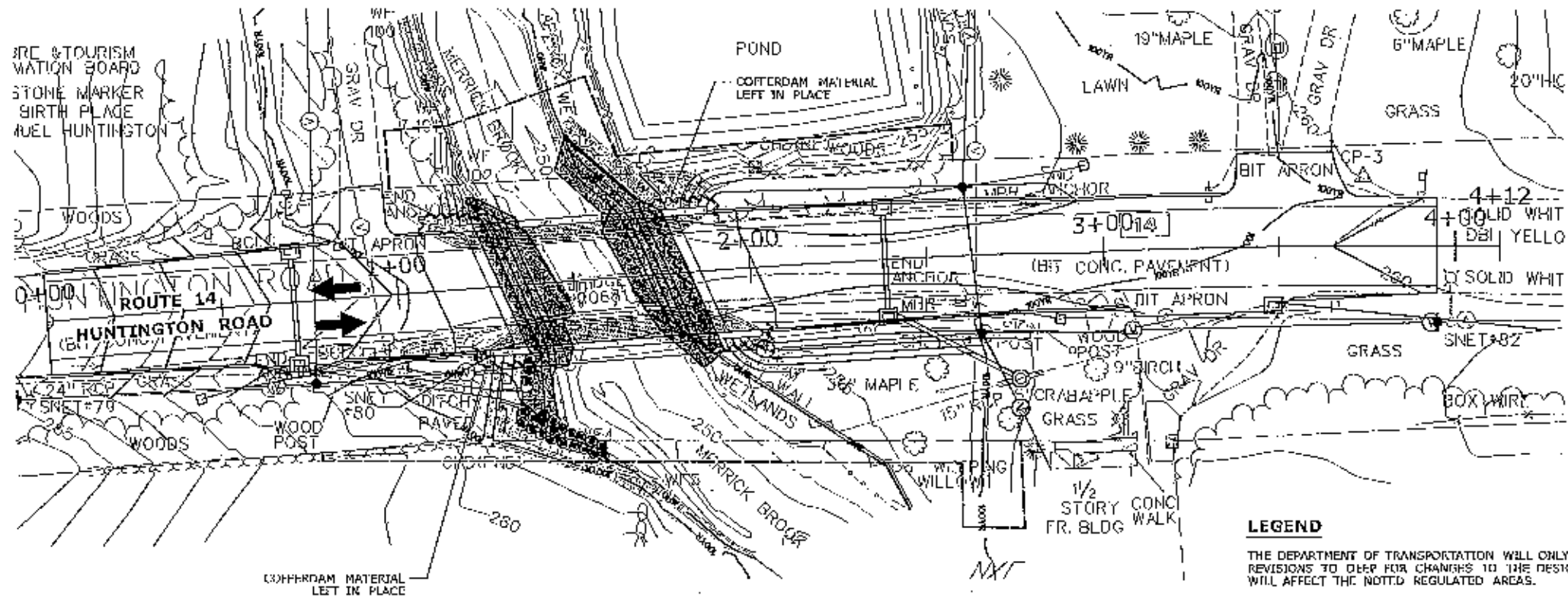
**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. INSTALL FULLY ENCLOSED COFFERDAMS FOR NEW ABUTMENTS AROUND PILES AND EXCAVATE.
2. PLACE GRANULAR FILL WITHIN COFFERDAM AND INSTALL PRECAST ABUTMENTS, BACKFILL AS NOTED.
3. REMOVE COFFERDAM WITHIN ROADWAY LIMITS AND CUT COFFERDAM MATERIAL LEFT IN PLACE BELOW GRADE.
4. PLACE INTERMEDIATE RIPRAP ALONG EMBANKMENTS AND PLACE TOE BOULDERS. REMOVE TEMPORARY WATER HANDLING.
5. INSTALL PRESTRESSED DECK UNITS AND POST-TENSION.
6. CONSTRUCT CONCRETE DECK SLAB, APPROACH SLABS, AND BRIDGE PARAPETS.
7. APPLY WATERPROOFING MEMBRANE AND INSTALL HMA OVERLAY ON BRIDGE AND APPROACHES. APPLY TEMPORARY PAVEMENT MARKINGS.
8. INSTALL TEMPORARY PROTECTIVE FENCE, INSTALL APPROACH METAL BEAM RAILS.
9. OPEN ROADWAY TO TRAFFIC.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, IS BASED ON TRAFFIC INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO ENSURE THE COMPLETION OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		CHECKED BY: <b>RLH</b> SCALE IN FEET: 1" = 20' DATE: 5/21/2019	<b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	PROJECT NO.: <b>1,23-060</b> DRAWING NO.: <b>PMT-06</b> SHEET NO.:
PROJECT NO.: <b>1,23-060</b> DRAWING TITLE: <b>CONSTRUCTION SEQUENCE 1</b>	TOWN: <b>SCOTLAND</b>	PROJECT NO.: <b>1,23-060</b> DRAWING NO.: <b>PMT-06</b> SHEET NO.:			



**SEQUENCE 3 - CONSTRUCTION**

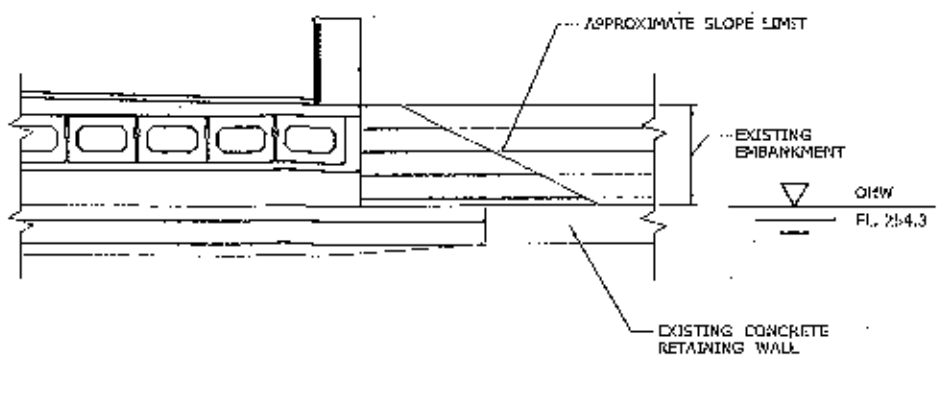
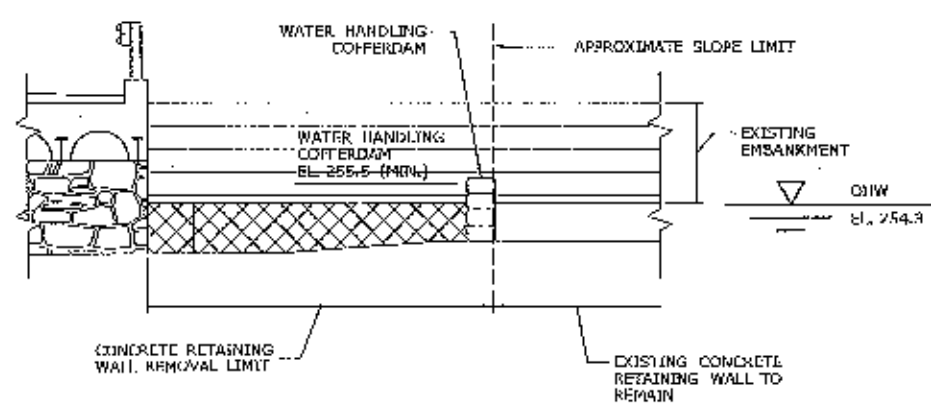
**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. RELOCATE UTILITY POLES TO PERMANENT LOCATIONS (BY OTHERS).
2. INSTALL PROTECTIVE FENCE ON PARAPETS.
3. REMOVE ACCESS ROADS.
4. PLACE TOPSOIL, LANDSCAPE, AND ESTABLISH TURF.
5. INSTALL PERMANENT PAVEMENT MARKINGS AND INLAID THERMOPLASTIC PAVEMENT MARKING SYSTEM.
6. REMOVE EROSION AND SEDIMENTATION CONTROL SYSTEM UPON PERMANENT STABILIZATION.

**LEGEND**

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- STREAM
- SEDIMENTATION CONTROL SYSTEM
- OHW --- ORDINARY HIGH WATER (OHW)
- WETLAND LIMITS
- FEMA 100-YEAR FLOOD (CALCULATED)

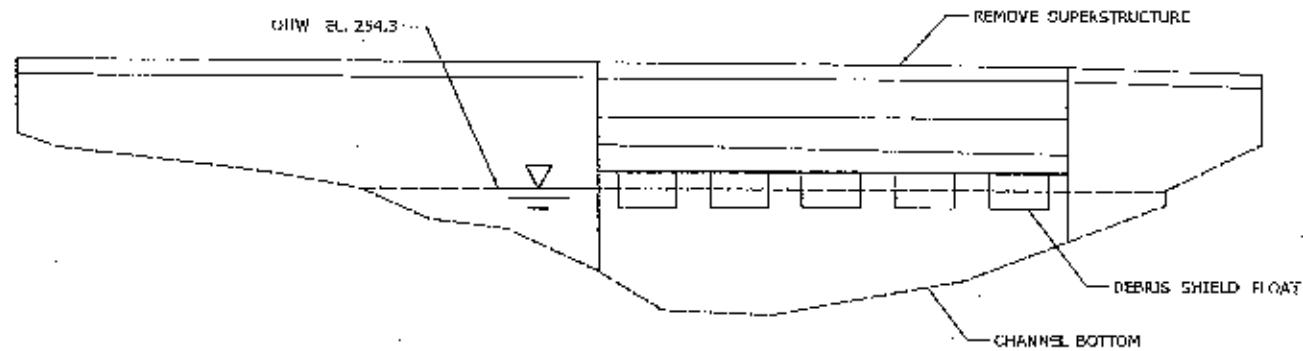


**ENVIRONMENTAL PERMIT PLANS**

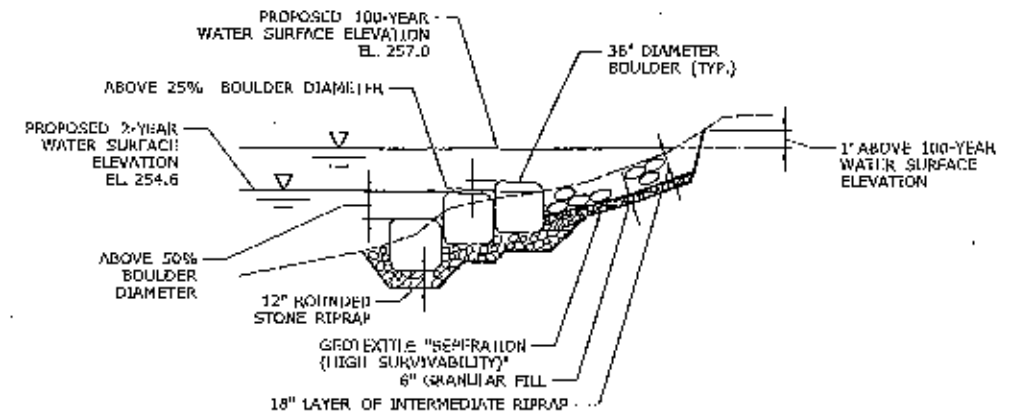
PLAN DATE: JUNE 05, 2019

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATION BY THE STATE AND IS BY NO MEANS WARRANTED TO INDICATE THE CONDITIONS OF ALL SUBSIDIARIES OF WORK WHICH WILL BE REQUIRED.		SCALE IN FEET 0 20 40 SCALE 1" = 20'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING DEPARTMENT OF TRANSPORTATION	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	TOWN: <b>SCOTLAND</b>	DRAWING TITLE: <b>CONSTRUCTION SEQUENCE 2</b>	SHEET NO.: <b>123-066</b> <b>PMT-07</b>
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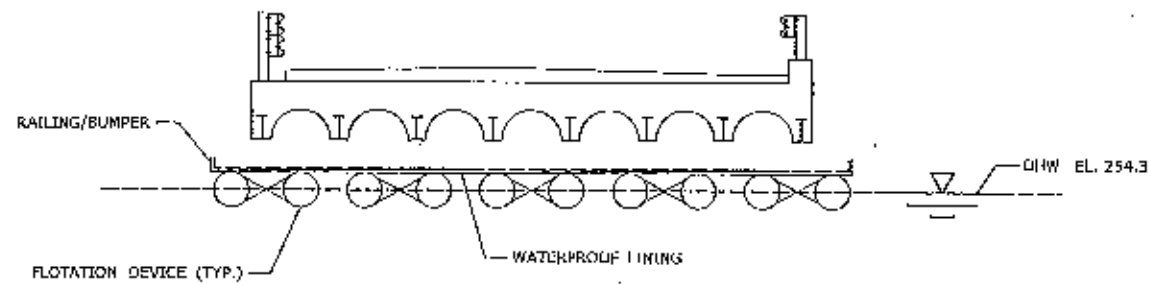
**ELEVATION - DEBRIS SHIELD**  
SCALE: 1/4" = 1'-0"



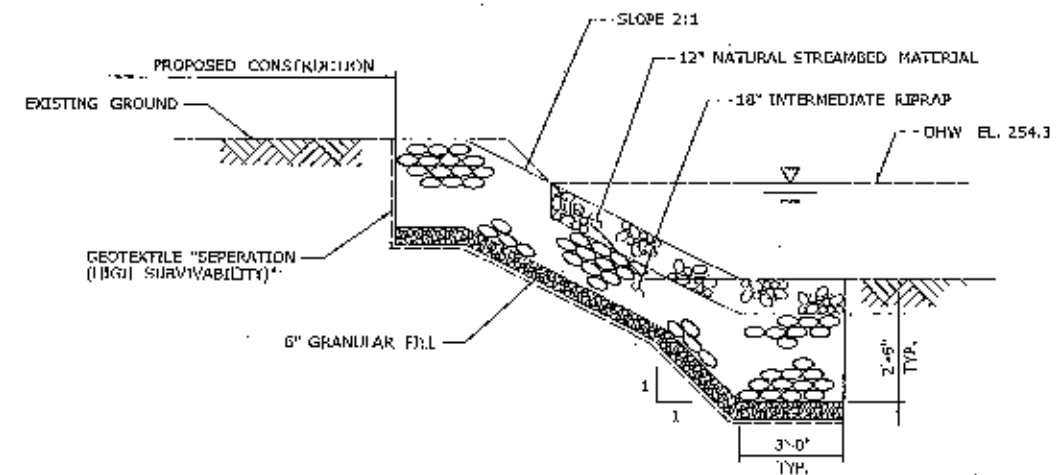
**SECTION - BOULDER PLACEMENT**  
NOT TO SCALE

**DEBRIS SHIELD FLOAT NOTES:**

1. FLOAT SHALL HAVE WATERPROOF LINING AND RAILING/BUMPER SYSTEM TO PREVENT DEBRIS FROM ENTERING THE WATERWAY.
2. FLOAT SHALL BE SUFFICIENTLY BUOYANT SO AS NOT TO BE FOUNDED ON THE SUBSTRATE AT ANY TIME DURING ITS USE. AT NO TIME SHALL THE DEBRIS SHIELD BOTTOM OUT.
3. WHEN NOT IN USE, FLOAT SHALL BE STORED WITHIN THE PROJECT IMPACT AREA.
4. WORKFLOAT SHALL NOT BE STORED WITHIN THE WATERWAY NOR WITHIN UNDISTURBED WETLANDS.



**SECTION - DEBRIS SHIELD**  
SCALE: 3/16" = 1'-0"

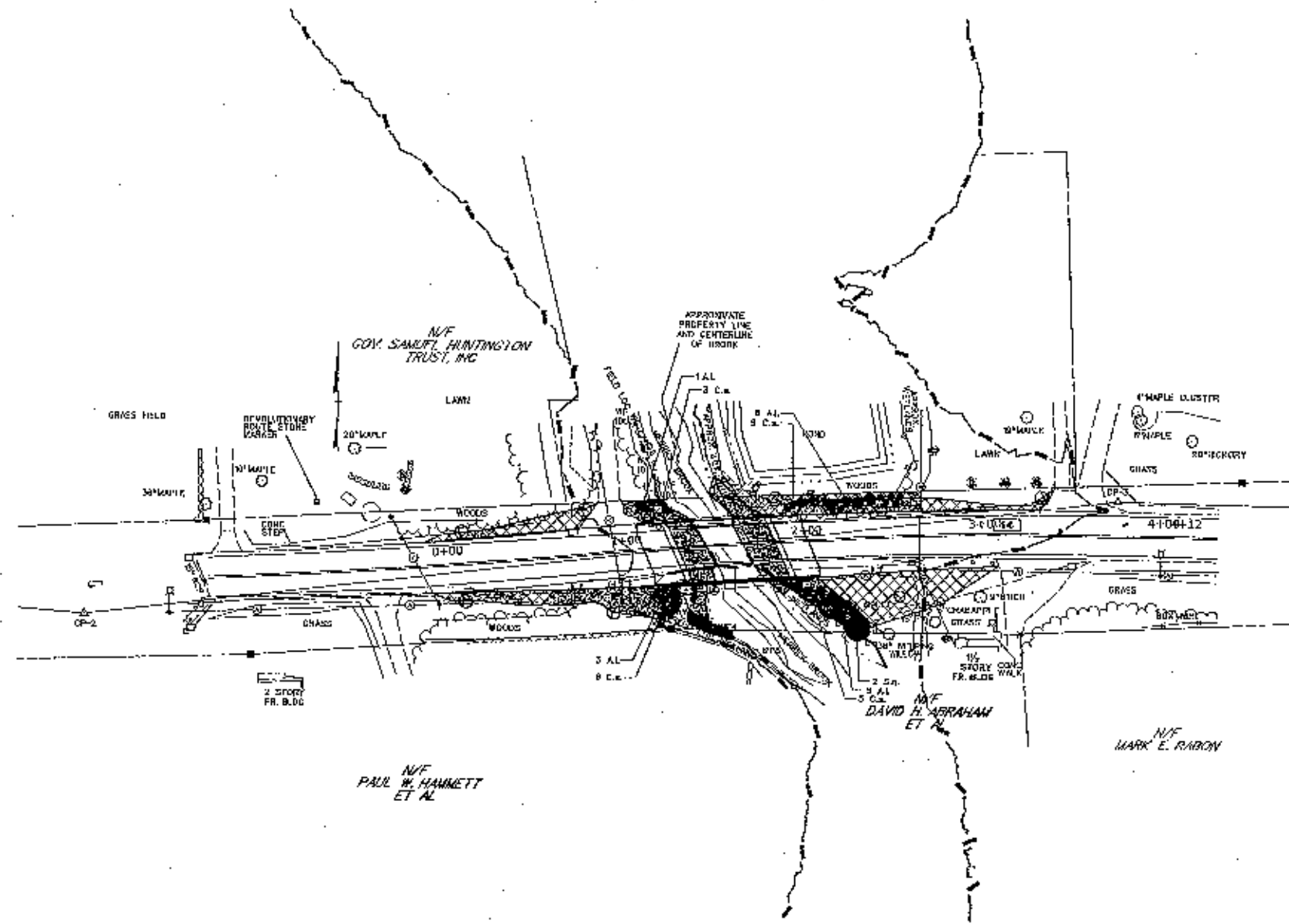


**DETAIL - RIPRAP FOR SLOPE PROTECTION**  
NOT TO SCALE

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019






THE DESIGNER INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS OF THE SITE AND IS IN NO WAY INTENDED TO INDICATE THE COMPLETION OF NECESSARY SURVEYS OR WORK WHICH WILL BE REQUIRED.		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	SHEET NO.: <b>CONSTRUCTION DETAILS</b>	PROJECT NO.: 123-000 DRAWING NO.: <b>PMT-08</b> SHEET NO.:
REVISION DESCRIPTION DATE	SHEET NO. SHEET DATE: 06/05/19	SCALE: AS NOTED	DRAWING TITLE:	SHEET NO.:	PROJECT NO.:	DRAWING NO.:



**PERMIT PLANT LIST**

NO.	BOTANICAL NAME	COMMON NAME	Size	Quantity	Spacing	Installer
1.	Amelanchier	Spicebush	4" - 6" H. B.B.	15	7' On Center	UBL
2.	Cornus americana	Red osier Dogwood	2 1/2" - 3 1/2" H. B.B.	25	6' On Center	FACW
3.	Salic alba	White Willow	2 1/2" - 3 1/2" H. B.B.	1	Field Income	CG
Control and Removal of Invasive Vegetation				200 S.Y.		
Conservation Seeding for Slopes				200 S.Y.		
Meadow Grass Establishment				200 S.Y.		

**LEGEND**

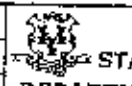
-  CONTROL AND REMOVAL OF INVASIVE VEGETATION
-  CONSERVATION SEEDING FOR SLOPES
-  100-YR FLOOD LIMIT
-  STATE/FEDERAL WETLANDS
-  ORDINARY HIGH WATER LINE

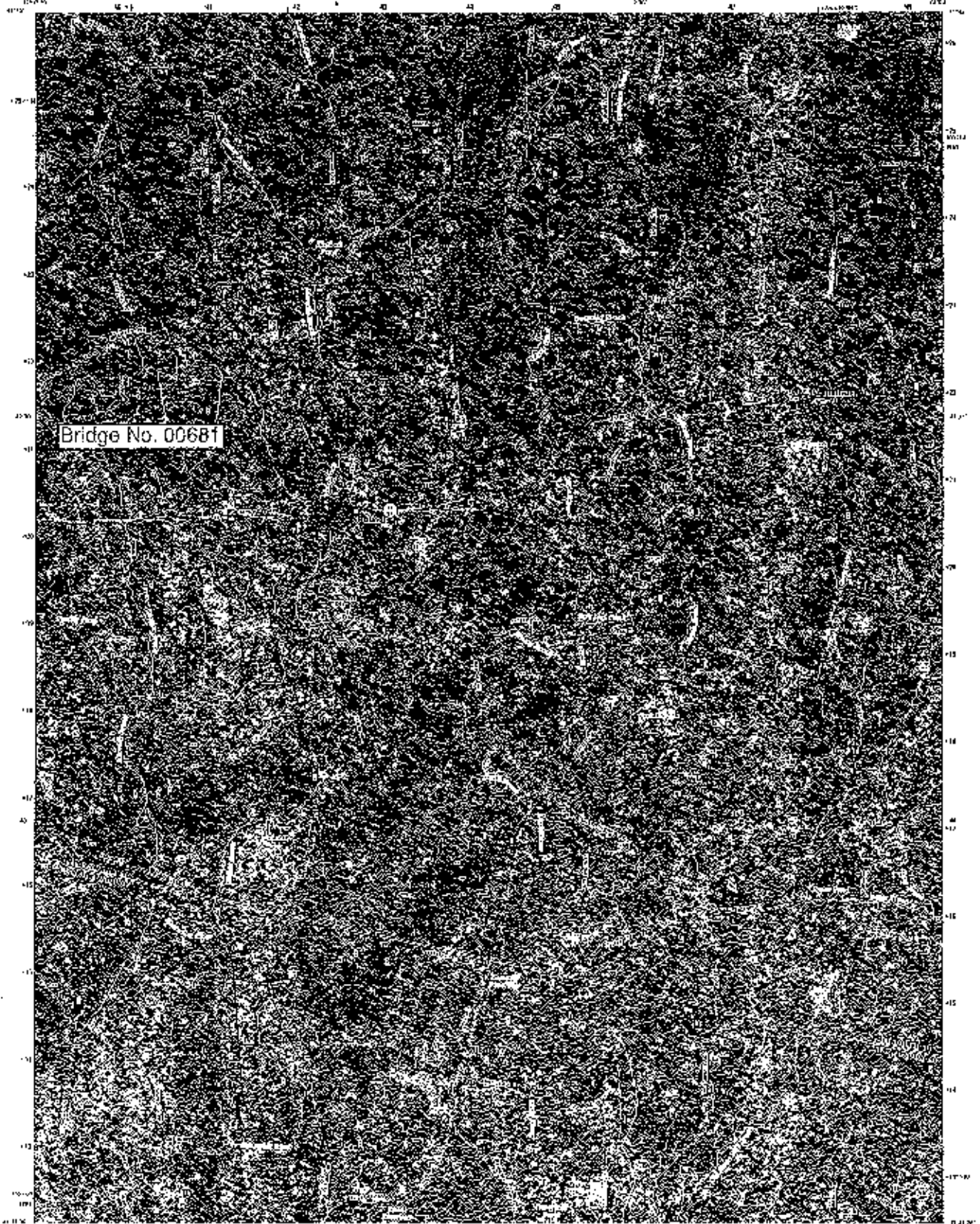
**NOTES**

1. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY CHANGES TO PERMIT PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING.
2. ALL TREES AND SHRUBS MUST CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK FOR DECIDUOUS SHRUBS, CHAPTER THREE AND MEET THE MINIMUM CONTAINER SIZE AND ROOT MASS AND NUMBER OF CANES FOR TYPE AND HEIGHT.
3. ALL PLANTS SHALL BE STRAIGHT SPECIES. NO VARIETALS OR CULTIVARS WILL BE ACCEPTED.
4. DISTURBED AREAS BELOW THE WETLAND LINE SHALL BE SEEDED WITH WETLAND SEED MIX. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE COVERED WITH WOOD CHIP MULCH OR CONSERVATION SEEDING FOR SLOPES UNLESS OTHERWISE NOTED.
5. THE EXACT QUANTITIES AND LIMITS FOR CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE FIELD DETERMINED.

**ENVIRONMENTAL PERMIT PLANS**

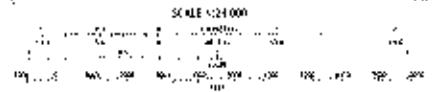
PLAN DATE: JUNE 05, 2019

THE INFORMATION CONTAINED ON THESE PLANS IS BASED ON THE INFORMATION PROVIDED BY THE CLIENT AND IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.			SCALE IN FEET 0 10 20 30 40 50 60 70 80 SCALE 1"=40'		 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>		DRAWING NO. 123-066 PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. 9 (RTE 14) OVER MERRICK BROOK</b>		SHEET NO. <b>PMT-09</b>	
REV.	DATE	DESCRIPTION	SHEET NO.	PROJECT NO.	DATE	SCALE	PROJECT TITLE	SHEET NO.	PROJECT NO.	DATE



Bridge No. 00681

Produced by the United States Geological Survey  
Scale 1:24,000  
Data from 1999-2000  
Map Date 2000  
Map Scale 1:24,000  
Map Projection UTM  
Map Datum NAD 83  
Map Contour Interval 10 feet  
Map Contour Elevation 100 feet  
Map Contour Interval 10 feet  
Map Contour Elevation 100 feet



1	1	2
1	1	2
1	1	2

SCOTLAND, CT  
2015



06/05/2019

**PROJECT 0123-0066  
RT. 14 OVER MERRICK BROOK  
SCOTLAND  
BRIDGE 00681  
PROJECT DESCRIPTION**

Bridge 00681 carries Route 14, also called Huntington Road, over Merrick Brook in the Town of Scotland. It is located approximately 1.8 miles north of the junction with Route 82 (East Haddam Rd.). The existing structure is a single span concrete encased steel stringer bridge, approximately 21' long with a 24.6' out to out width. The concrete encased steel stringers sit on stone masonry abutments. R-B 350 metal beam rail extends from the approaches over the bridge beyond the wingwalls on both sides of the roadway on Route 14. The average daily traffic (ADT) is approximately 4,400 vehicles per day according to the most recent inspection report.

The structure was inspected by Bridge Safety and Evaluation and the superstructure was rated in serious condition due to spalled concrete of the encased steel beams and severe section losses due to corrosion of the exposed beams. Due to the extent of the deterioration of the existing bridge, Bridge Safety and Evaluation recommended the structure be replaced.

The proposed rehabilitation for Bridge No.00681 consists of the replacement of the existing structure with an integral abutment bridge with a length of 60' and an out-to-out width of 37.25'. The existing natural streambed material will be reused.

The design will require a full road closure of Route 14 within the project limits during the bridge replacement. Route 14 will be detoured for a period of no more than eight weeks. A water-handling-cofferdam will be installed around existing abutments to allow the demolition of the existing structure and installation of riprap, natural streambed material, and toe boulders. Fully enclosed cofferdams will be installed around proposed abutments for ground water handling and supporting the roadway and embankments. The design will utilize the Accelerated Bridge Construction (ABC) method, which entails the bridge components, including abutments and wingwalls are prefabricated and supported by a deep foundation, which will be installed during a road closure. Additionally, the deck, parapets, and approach slabs will be cast during the road closure. No construction activity will be performed within the watercourse outside of the allowable timeframe for instream work required by DEEP Fisheries.

Based on the recommendation from the ConnDOT Hydraulics and Drainage Unit, the integral abutment bridge structure type was chosen. The proposed bridge will improve hydraulic conveyance capacity, reduce the potential for future scour, and ensure the safety of the structure while undergoing pressure flow in a major storm event. The drainage area of this wetland is 8.4 square miles. As a result of this project, there will be no adverse impacts hydraulic wise to the existing floodplain.

This project has been presented in front of DEEP and USACE at an Interagency Coordination Meeting dated November 30, 2017, and concurrence with the structure type has been given. Coordination with DEEP fisheries has been completed, and their comments have been incorporated into the project documents. There will be temporary and permanent wetland impact required for the structure construction totaling 2936 square feet. Permits will be obtained from DEEP and USACE prior to the start of construction.

**Permits:** An Inland Wetland General Permit and USACE Self-Verification Form are anticipated to be needed prior to construction.

## Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, Intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

### Information to Determine 4(d) Rule Compliance:

	YES	NO
1. Does the project occur wholly outside of the WNS Zone <sup>1</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency <sup>2</sup> to determine if your project is near known hibernacula or maternity roost trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Could the project alter the entrance or interior environment of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You are eligible to use this form if you have answered yes to question #1 or yes to question #2 and no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency: FHWA - Connecticut Division

Applicant<sup>3</sup> (Name, Email, Phone No.):

Connecticut Department of Transportation  
Amanda M. Saul, Office of Environmental Planning  
DOT.NLEB@ct.gov, (860)594-2939

Project Name: CTDO/0123-0066

Project Location (include coordinates if known): Huntington Rd. (RTE.14) over Merrick Brook, Town of Scotland; 41.898488, -72.084252

Basic Project Description (provide narrative below or attach additional information):

This project involves the full replacement of Bridge 00681 carrying Huntington Rd. (RTE.14) over Merrick Brook in the Town of Scotland. Proposed work includes:

- Install permanent steel sheet piling in front of proposed abutments for scour protection
- Remove existing superstructure
- Remove existing abutments and wingwalls
- Install integral abutments and superstructure
- Install concrete and/or riprap slope protection

<sup>1</sup> <http://www.fws.gov/midwest/endangered/mammals/nleeb/pdf/WNSZone.pdf>

<sup>2</sup> See <http://www.fws.gov/midwest/endangered/mammals/nleeb/ahisites.html>

<sup>3</sup> If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

**General Project Information**

	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project occur within 150 feet of a known maternity roost tree?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project include forest conversion <sup>4</sup> ? (if yes, report acreage below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estimated total acres of forest conversion	<0.1 ac	
If known, estimated acres <sup>5</sup> of forest conversion from April 1 to October 31		
If known, estimated acres of forest conversion from June 1 to July 31 <sup>6</sup>		
Does the project include timber harvest? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of timber harvest		
If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLRB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 3, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLRB.

Amanda M. Saul

Digitally signed by Amanda M. Saul  
DN: cn=Amanda M. Saul, o=Connecticut  
Department of Transportation, ou=Office of  
Environmental Planning,  
email=amsaul@dot.state.ct.us,  
c=US  
Date: 2019.06.20 14:55:28 -04'00'

Signature: \_\_\_\_\_

Date Submitted: 6/20/2019

<sup>4</sup> Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 18 of the BO).

<sup>5</sup> If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.

<sup>6</sup> If the activity includes tree clearing in June and July, also include those acreage in April to October.



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS  
696 VIRGINIA ROAD  
CONCORD, MASSACHUSETTS 01742-2751

1 July 2019

Regulatory Division  
File Number: NAE-2019-01737

Kimberly Lesay  
CT DOT  
2800 Berlin Turnpike  
Newington, CT 06131

Dear Ms. Lesay:

PROPOSED WORK/LOCATION: Replace the existing bridge carrying Route 14 over Merrick Brook, Scotland, CT.

We have reviewed your proposal to perform work within Corps of Engineers jurisdiction. We have assigned this file number NAE-2019-01737. Please reference this number in any future correspondence with us.

Since your project may have only minimal individual and cumulative impacts on waters and wetlands of the United States, it is authorized by the Corps of Engineers under the Connecticut General Permits (GPs). This authorization does not obviate the need to obtain other federal, state, or local approvals. You are responsible for ensuring that the work meets the terms and conditions of the CT GPs. We have recorded this project as permittee self-verification of the CT GPs in our database.

Please contact Susan Lee at (978) 318-8494 if you have any questions.

Sincerely,

Kevin R. Kotelly, P.E.  
Chief, Permits & Enforcement Branch  
Regulatory Division

Enclosure (plans)

cc:

CT DEEP, Chief, Land & Water Resources Division – via email





STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION



2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860) 594-2931

June 25, 2019

Ms. Susan Lee  
U.S. Army Corps of Engineers  
New England District  
696 Virginia Road  
Concord, MA 01742-2751

Subject: Replacement of Bridge No. 00681  
Project No. 123-66  
Bridge No. 00681, Route 14 over Merrick Brook, Town of Scotland

Dear Ms. Lee:

Enclosed please find one copy of the USACE Appendix E: Self-Verification Notification Form for GP 19 with attachments for your files. A copy has also been submitted to the Connecticut Department of Energy and Environmental Protection. The project has been submitted to the United States Fish & Wildlife Service by DOT's Office of Environmental Planning under the Final 4(d) Rule using the Northern Long-Eared Bat Streamlined Consultation Form on behalf of FHWA. Any questions pertaining to this application may be directed to Mr. Andrew H. Davis, Transportation Supervising Planner of my staff, at 860-594-2157.

Very truly yours,

Kimberly C. Lesay  
Transportation Assistant Planning Director  
Bureau of Policy and Planning

Marilyn R. Gould/mrg

Attachments

cc: Nathan Margason – USEPA

bcc: Kevin F. Carifa · Andrew Piranco  
Andrew Davis – Christopher Samorajczyk -- Marilyn R. Gould  
Mary B. Baker – Bao K. Chuong · Raymond J. Basar – Susan P. Morrison  
Robert E. Obey, District 2



**US Army Corps  
of Engineers** \*  
New England District

**Appendix E: Self-Verification Notification Form**

This form is required for all non-tidal projects in Connecticut, but not required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. Before work commences, complete all fields (write "none" if applicable); attach project plans (not required for projects involving the installation of construction mats only); and any state or local approval(s); and send to:

Permits & Enforcement Branch B  
U.S. Army Corps of Engineers  
696 Virginia Road  
Concord, MA 01742-2751  
or cenac-1@usace.army.mil

and

CT DEEP  
Inland Water Resources Division  
79 Elm Street  
Hartford, CT 06106-5127

\*\*\*\*\*

State or local Permit Number: TBD  
Date of State or local Permit: TBD  
State/local Project Manager: Boo K. Chuong

Permittee: Kimberly C. Leasy  
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06131  
Phone(s) and Email: 860-594-2931, kimberly.leasy@ct.gov

Contractor: TBD by low bid process  
Address, City, State & Zip: \_\_\_\_\_  
Phone(s) and Email: \_\_\_\_\_

Consultant/Engineer/Designer: Raymond L. Basar  
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06131  
Phone(s) and Email: 860-594-2931, raymond.basar@ct.gov

Wetland/Soil Scientist Consultant: Department of Transportation Office of Environmental Planning  
Address, City, State & Zip: 2800 Berlin Turnpike, Newington, CT 06131  
Phone(s) and Email: 860-594-2157, andrew.h.davis@ct.gov

Project Location (provide detailed description & locus map): On Huntington Road (Route 14), about 500 feet west of the intersection of Huntington Road (Route 14), and Devotion Road (Route 97).

Address, City, State & Zip: CT DOT Bridge No. 00681, Huntington Road (Route 14), Scotland, CT, 06284  
Latitude/Longitude Coordinates: Latitude: 41°41'54.6" Longitude: 72°05'03.3"

Waterway Name: Merrick Brook  
Project Purpose (include all aspects of the project including those not within Corps jurisdiction):  
The purpose of this project is to replace the existing bridge carrying Route 14 over Merrick Brook, which is structurally deficient, to provide sufficient structural load carrying capacity.

Work Description: Work includes replacement of the existing substructure elements and superstructure with an integral bridge founded on piles. Install permanent sheet piling in front of the proposed abutments for scour protection and in front of existing abutments for water handling. Reduce sheet piling used for water handling to one foot below the mudline. Install a concrete riprap shell at both abutments and install riprap slope protection and boulders to prevent scour. Install approach slabs and regrade approaches. Extend roadway water drainage pipe at southwest corner of bridge. Temporarily relocate overhead utilities.

Work will be done under the following GP(s) (check all that have associated impacts):

         **GP. 2 - Repair or maintenance of authorized or grandfathered structures/fills**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

         **GP. 5 - Boat ramps/marine railways**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

         **GP. 6 - Utility line activities (include calculations for each single & complete crossing  
- attach additional sheet if necessary)**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

         **GP. 9 - Shoreline and bank stabilization projects**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

         **GP. 10 - Aquatic habitat restoration, establishment and enhancement activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

         **GP. 11 - Fish & wildlife harvesting, enhancement and attraction devices and activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

         **GP. 12 - Oil Spill and Hazardous material cleanup**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

         **GP. 13 - Cleanup of hazardous and toxic waste**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

         **GP. 14 - Scientific measurements devices**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

         **GP. 15 - Survey activities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

         **GP. 17 - New/expanded developments & recreational facilities**

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

GP. 18 - Linear transportation projects- wetland crossings only (include calculations for each single & complete crossing - attach additional sheet if necessary)

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

GP. 19 - Stream, river & brook crossings – not including wetland crossings (include calculations for each single & complete crossing – attach additional sheet if necessary)

Area of total wetland impacts: temporary 791 SF permanent 420 SF  
Area of total waterway impacts: temporary 0 SF permanent 1725 SF

         GP. 21 - Temporary fill not associated with any other GP activities

Area of total wetland impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF  
Area of total waterway impacts: temporary \_\_\_\_\_ SF permanent \_\_\_\_\_ SF

Does your project include any secondary effects? Yes \_\_\_\_\_ No

(Secondary effects include, but are not limited to non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Proposed Work Dates: Start: Spring 2020 Finish: Fall 2020

**Your name/signature below, as permittee, confirms that your project meets the self-verification criteria and that you accept and agree to comply with the applicable terms and conditions in the Connecticut General Permits.**

Neil Bell, Director for Thomas Mazzotta  
Signature of Permittee

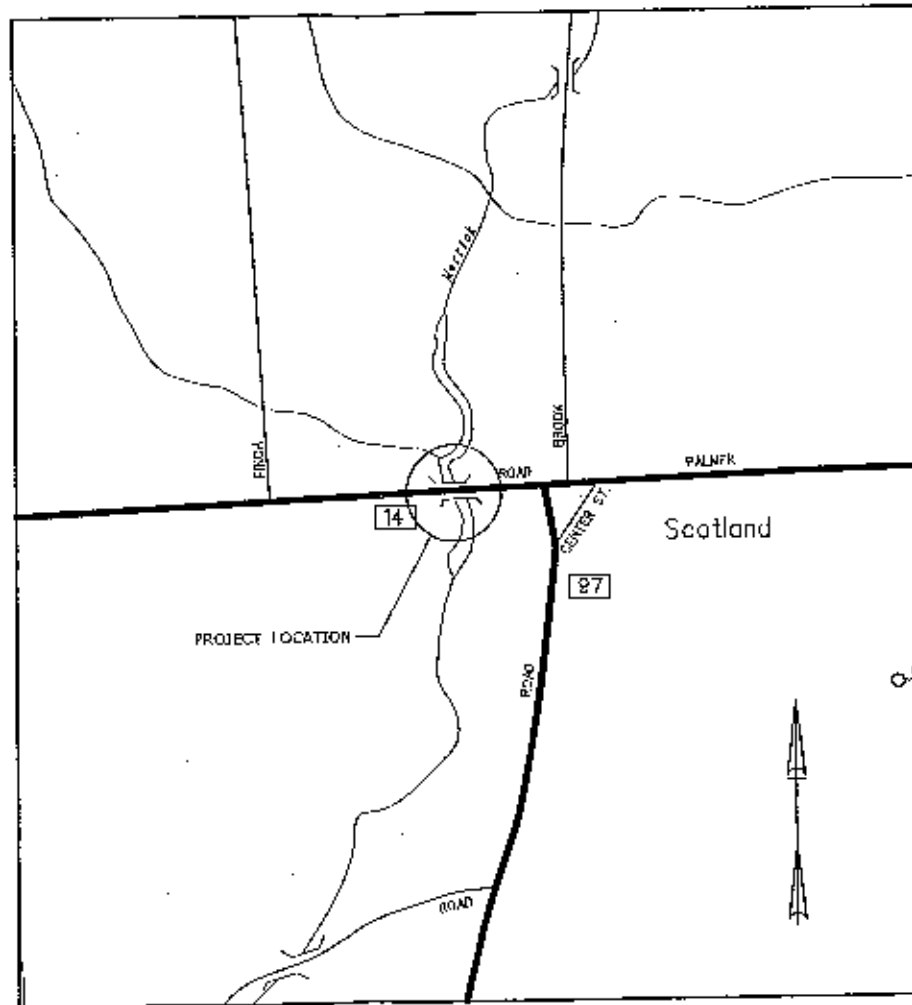
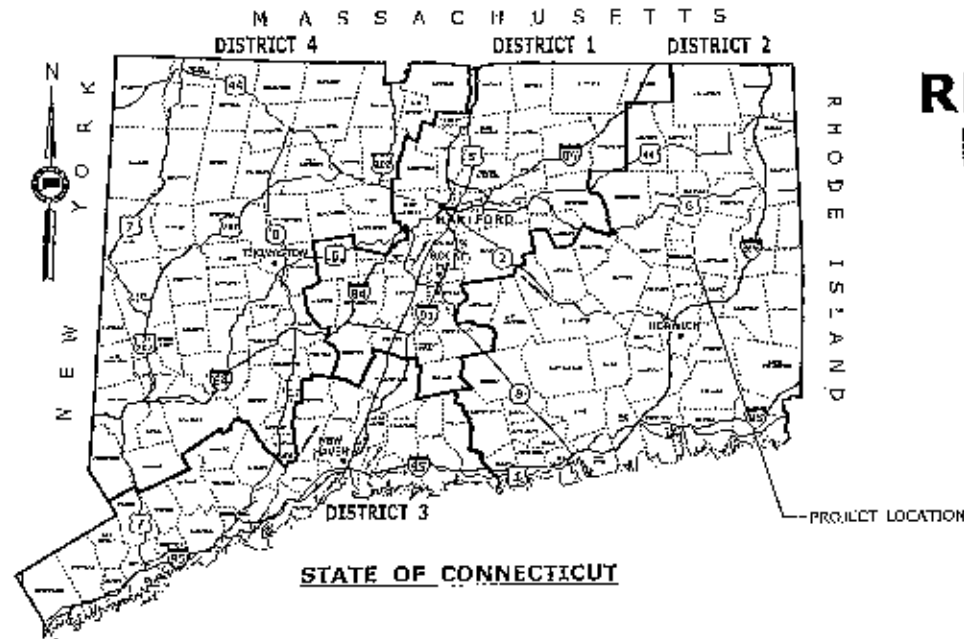
6/25/2019  
Date



# CONNECTICUT DEPARTMENT OF TRANSPORTATION



## ENVIRONMENTAL PERMIT PLANS STATE PROJECT NO. 123-066 REPLACEMENT OF BRIDGE NO. 00681 ROUTE 14 OVER MERRICK BROOK IN THE TOWN OF SCOTLAND



LOCATION PLAN  
SCALE: 1" = 500'

LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL SITE PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	ELEVATIONS & SECTION
PMT-05	WATER HANDLING PLAN
PMT-06	CONSTRUCTION SEQUENCE 1
PMT-07	CONSTRUCTION SEQUENCE 2
PMT-08	CONSTRUCTION DETAILS
PMT-09	PERMIT PLANTING PLAN

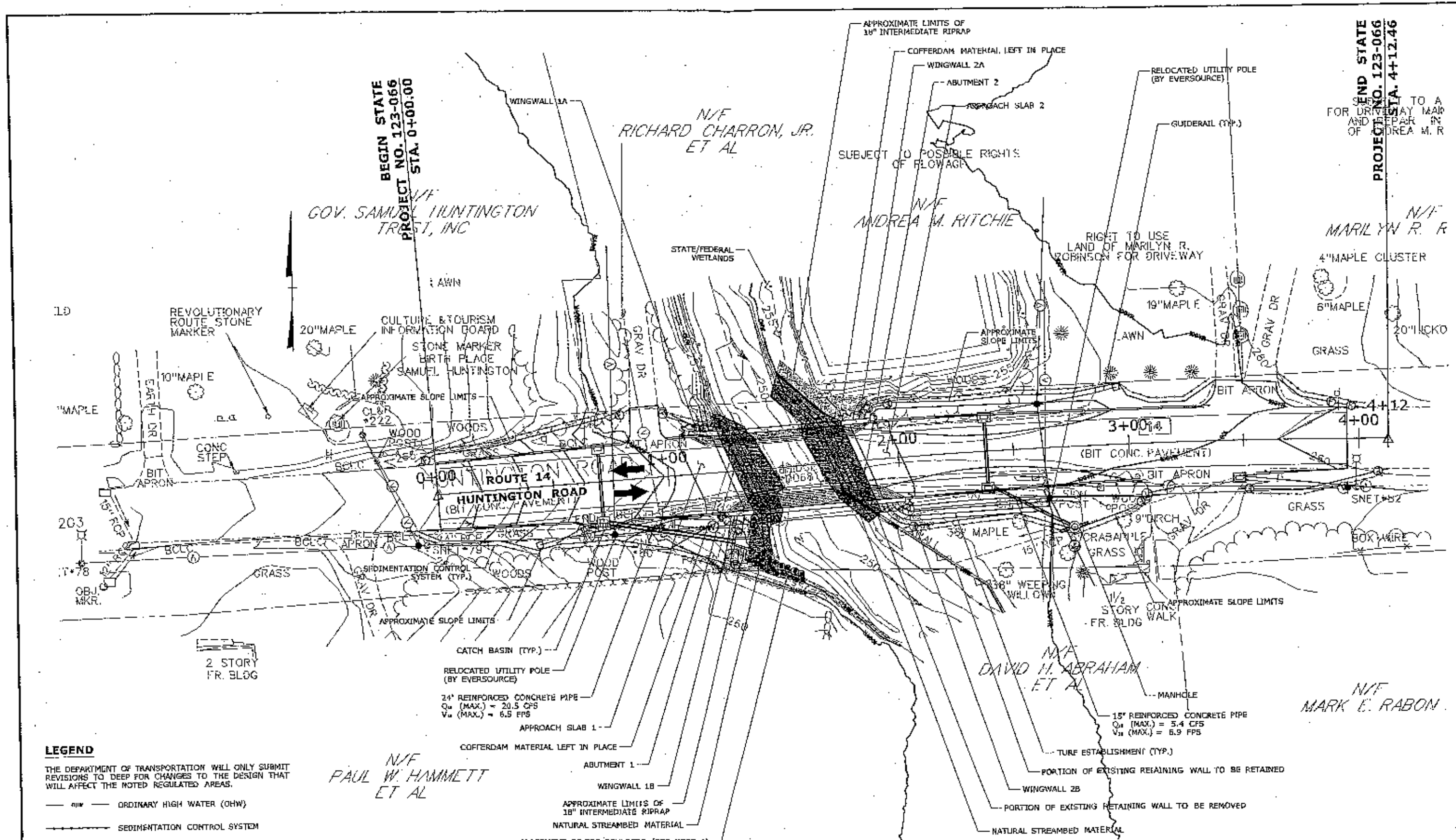
**GENERAL NOTES:**

1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DESIGN AND USAGE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983 VERTICAL DATUM BASED ON NGVD OF 1988.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION, FORM 617, SECTION 1.1D AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2002 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2004 STORMWATER QUALITY MANUAL.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

REV. DATE	REVISION DESCRIPTION	SHEET NO.	PROJECT NO. 123-066	TOWN SCOTLAND	DRAWING TITLE TITLE SHEET	PROJECT TITLE REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	DESIGNED BY SPM	CHECKED BY RJR	SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE BLOCK OFFICE OF ENGINEERING	APPROVED BY	PROJECT NO. 123-066	DRAWING NO. PMT-01	SHEET NO.



GENERAL SITE PLAN

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: JUNE 05, 2019

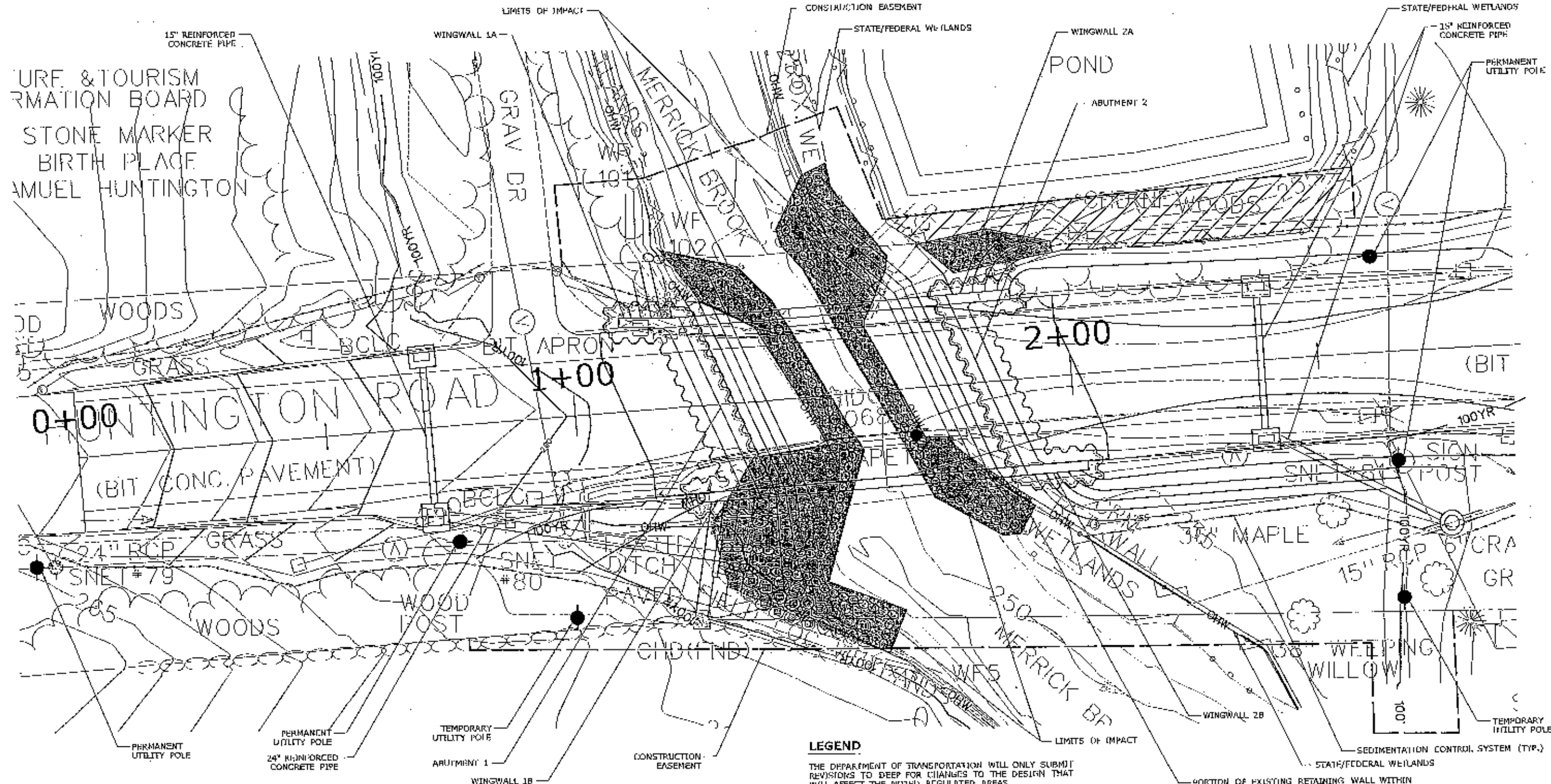
**LEGEND**  
 THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- OHW — ORDINARY HIGH WATER (OHW)
- SC — SEDIMENTATION CONTROL SYSTEM
- SFW — STATE/FEDERAL WETLANDS
- 100YR — EXISTING 100-YR FLOOD (CALCULATED)

**NOTE A**  
 LARGE BOULDERS APPROXIMATELY 3 FEET IN DIAMETER SHALL BE PLACED AS DIRECTED IN THE FIELD BY DEEP FISHERIES/OEP STAFF, SEE SPECIAL PROVISION "PLACEMENT OF TOE BOULDERS".

PLACEMENT OF TOE BOULDERS (SEE NOTE A)

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	DATE	SCALE	SCALE IN FEET	SCALE 1" = 20'	PROJECT TITLE	TOWN	PROJECT NO.	DRAWING NO.	SHEET NO.			
				6/23/2019				REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	SCOTLAND	123-066	PMT-02				
THE INFORMATION HEREON IS PREPARED BY THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION. IT IS PROVIDED AS IS AND IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION.								STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION OFFICE OF ENGINEERING		PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK		TOWN: SCOTLAND		PROJECT NO. 123-066	
DRAWING TITLE: GENERAL SITE PLAN								DRAWING NO.: PMT-02		SHEET NO.: 02					



	WETLAND IMPACTS (ABOVE OHW)	WATERWAY IMPACTS (BELOW OHW)	TOTAL
PERMANENT IMPACTS	470 S.F. (0.010 A.C.)	1725 S.F. (0.040 A.C.)	2195 S.F. (0.050 A.C.)
TEMPORARY IMPACTS	792 S.F. (0.018 A.C.)	0 S.F. (0.000 A.C.)	792 S.F. (0.018 A.C.)
TOTAL IMPACTS	1262 S.F. (0.028 A.C.)	1725 S.F. (0.040 A.C.)	2987 S.F. (0.068 A.C.)

NOTE:  
THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

**LEGEND**

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NTHD REGULATED AREAS.

- S/STREAM
- SEDIMENTATION CONTROL SYSTEM
- ORDINARY HIGH WATER (OHW)
- WETLAND LIMITS
- FEMA 100-YEAR FLOOD (CALCULATED)
- COFFERDAM MATERIAL LEFT IN PLACE
- WATER HANDLING: COFFERDAM
- PERMANENT WETLAND IMPACTS
- TEMPORARY WETLAND IMPACTS

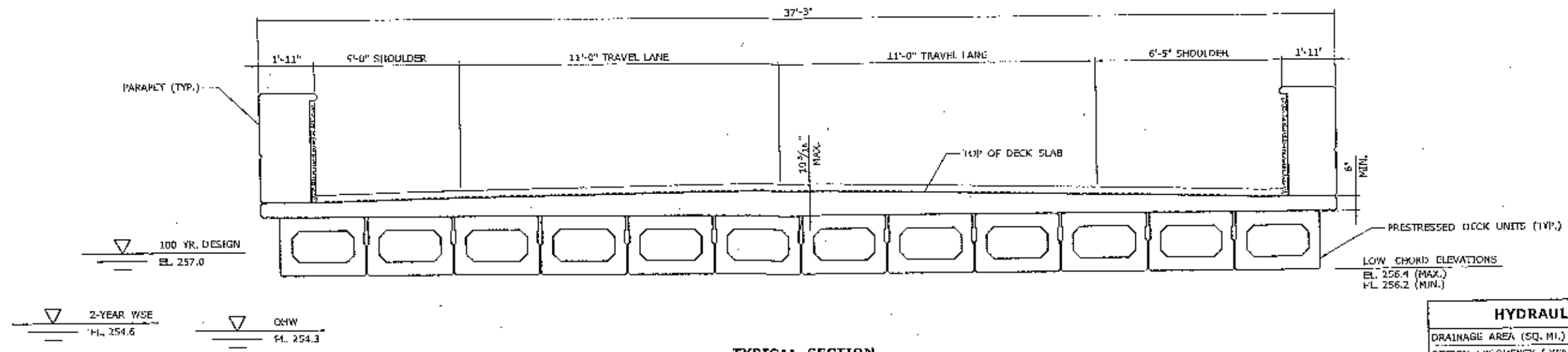
PORTION OF EXISTING RETAINING WALL WITHIN WATER HANDLING COFFERDAM TO BE REMOVED

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF THE STATE OF CONNECTICUT. IT IS TO BE USED ONLY FOR THE PROJECT AND PURPOSE SPECIFIED HEREIN. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE STATE OF CONNECTICUT.	PROJECT NO. 123-066 DRAWING NO. PMT-03 SHEET NO.	PROJECT TITLE: SCOTLAND DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN	PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK	OFFICE OF ENGINEERING DEPARTMENT OF TRANSPORTATION	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION
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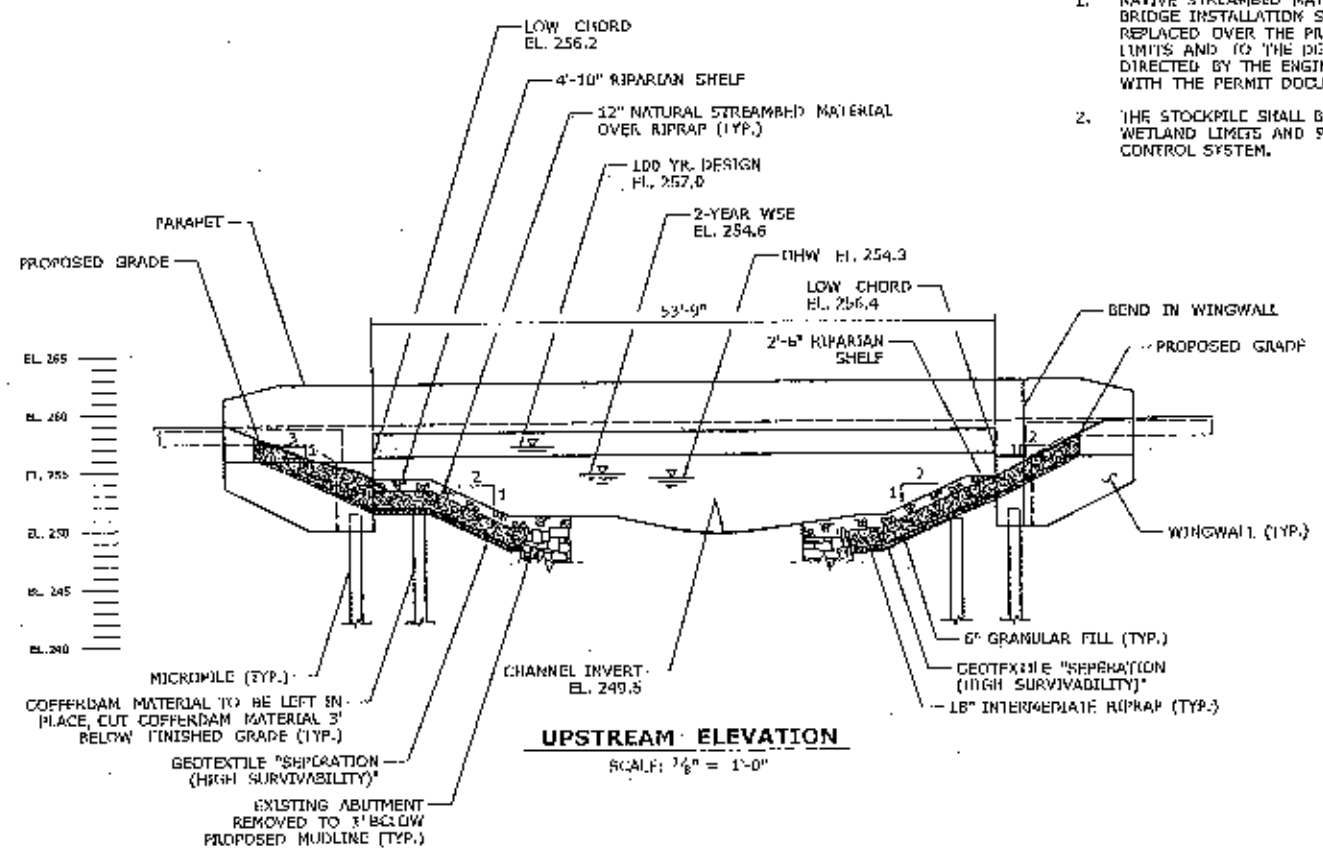


**TYPICAL SECTION**  
SCALE: 1/2" = 1'-0"

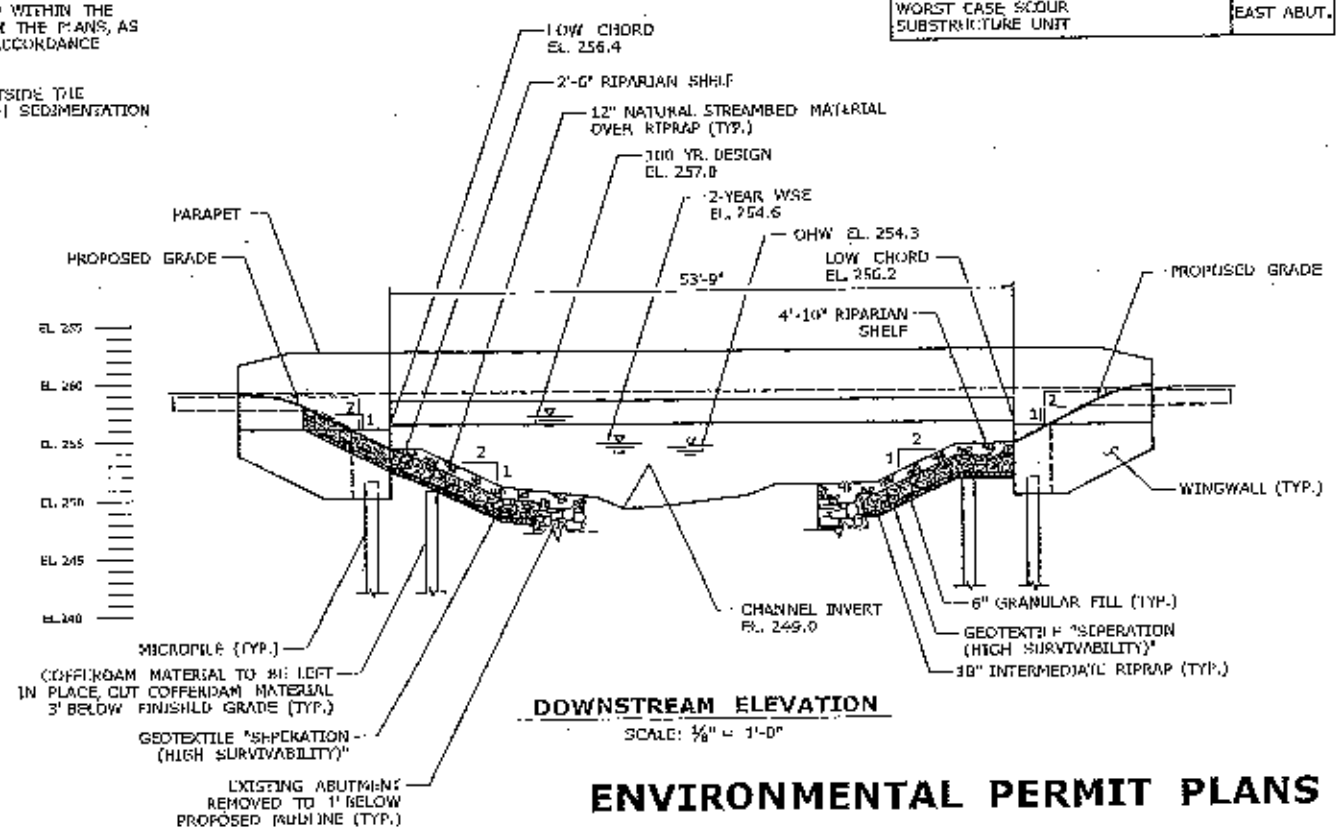
HYDRAULIC DATA	
DRAINAGE AREA (SQ. MI.)	8.1
DESIGN FREQUENCY (-YEAR)	100
DESIGN DISCHARGE (CFS)	1690
AVERAGE DAILY FLOW ELEVATION (FT) (CALCULATED)	252.7
UPSTREAM DESIGN WATER SURFACE ELEVATION (FT)	257.7
DOWNSTREAM DESIGN WATER SURFACE ELEVATION (FT)	257.0
MAXIMUM SCOUR ELEVATION (FT)	238.5
FREQUENCY (-YEAR)	230
DISCHARGE (CFS)	7105
WORST CASE SCOUR SUBSTRUCTURE UNIT	EAST ABUT.

**NATIVE STREAMBED MATERIAL NOTES:**

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE BRIDGE INSTALLATION SHALL BE STOCKPILED AND THEN REPLACED OVER THE PROPOSED RIPRAP WITHIN THE LIMITS AND TO THE DEPTH SHOWN ON THE PLANS, AS DIRECTED BY THE ENGINEER, AND IN ACCORDANCE WITH THE PERMIT DOCUMENTS.
2. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.



**UPSTREAM ELEVATION**  
SCALE: 1/4" = 1'-0"

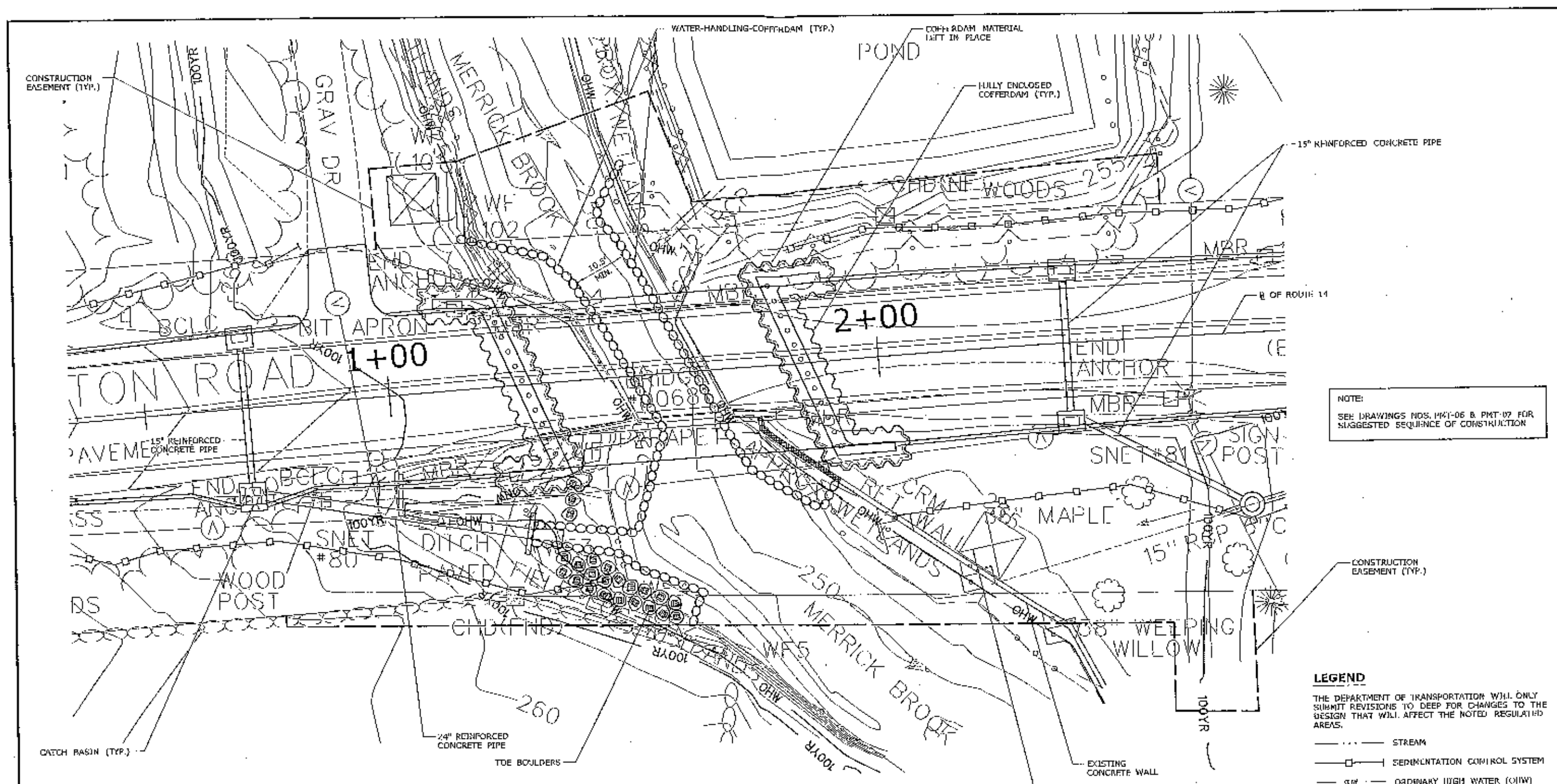


**DOWNSTREAM ELEVATION**  
SCALE: 1/4" = 1'-0"

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION INCLUDING EXISTING CONDITIONS OF WORK, SHOWN ON THESE SHEETS IS BASED ON LATEST AVAILABLE INFORMATION BY THE STATE AND IS NOT TO BE GUARANTEED TO INDICATE THE EXACT NATURE OF ACTUAL CONDITIONS OF WORK WHICH WILL BE REQUIRED.	DESIGNED BY: SPIM CHECKED BY: RLB SCALE: AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE BLOCK: OFFICE OF ENGINEERING APPROVAL:	PROJECT TITLE: REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE. 14) OVER MERRICK BROOK	DRAWING NO.: 123-066 SHEET NO.: PMT-04
	PROJECT NO.: SCOTLAND DRAWING TITLE: ELEVATION AND SECTION				



NOTE:  
SEE DRAWINGS NOS. H41-06 & PMT-07 FOR SUGGESTED SEQUENCE OF CONSTRUCTION

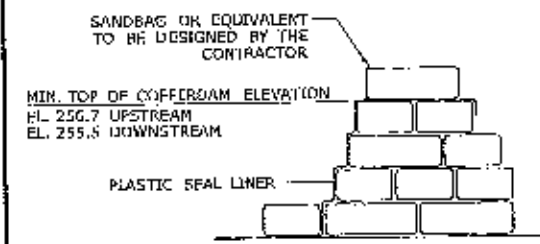
- LEGEND**
- THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.
- — — — — STREAM
  - [ ] — — — — — SEDIMENTATION CONTROL SYSTEM
  - OHW — — — — — ORDINARY HIGH WATER (OHW)
  - - - - - WETLAND LIMITS
  - 100YR — — — — — 100-YEAR FLOOD (CALCULATED)
  - [ ] — — — — — COFFERDAM
  - [ ] — — — — — COFFERDAM MATERIAL LEFT IN PLACE
  - ○ ○ ○ ○ WATER HANDLING COFFERDAM

**WATER HANDLING NOTES**

- TEMPORARY WATER-HANDLING-COFFERDAM SHALL CONSIST OF PLASTIC LINER, SANDBAGS, OR ANY OTHER APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND EXCAVATION, AND SHALL CONFORM TO PERMITS.
- NO ADDITIONAL REGULATORY IMPACTS WILL BE ALLOWED BEYOND THE AREAS SHOWN ON THE IMPACT PLANS. ALL DISTURBED AREAS SHALL BE RESTORED.
- EXISTING DRAINAGE PIPES SHALL BE MAINTAINED AND PROTECTED DURING CONSTRUCTION. THESE DRAINAGE PIPES SHALL REMAIN IN OPERATION THROUGHOUT CONSTRUCTION AND BE PROTECTED FROM DAMAGE, ROTATION, AND DISPLACEMENT BY MEANS AND METHODS OF THE CONTRACTOR.

**PLAN - WATER HANDLING**  
SCALE: 1" = 10'

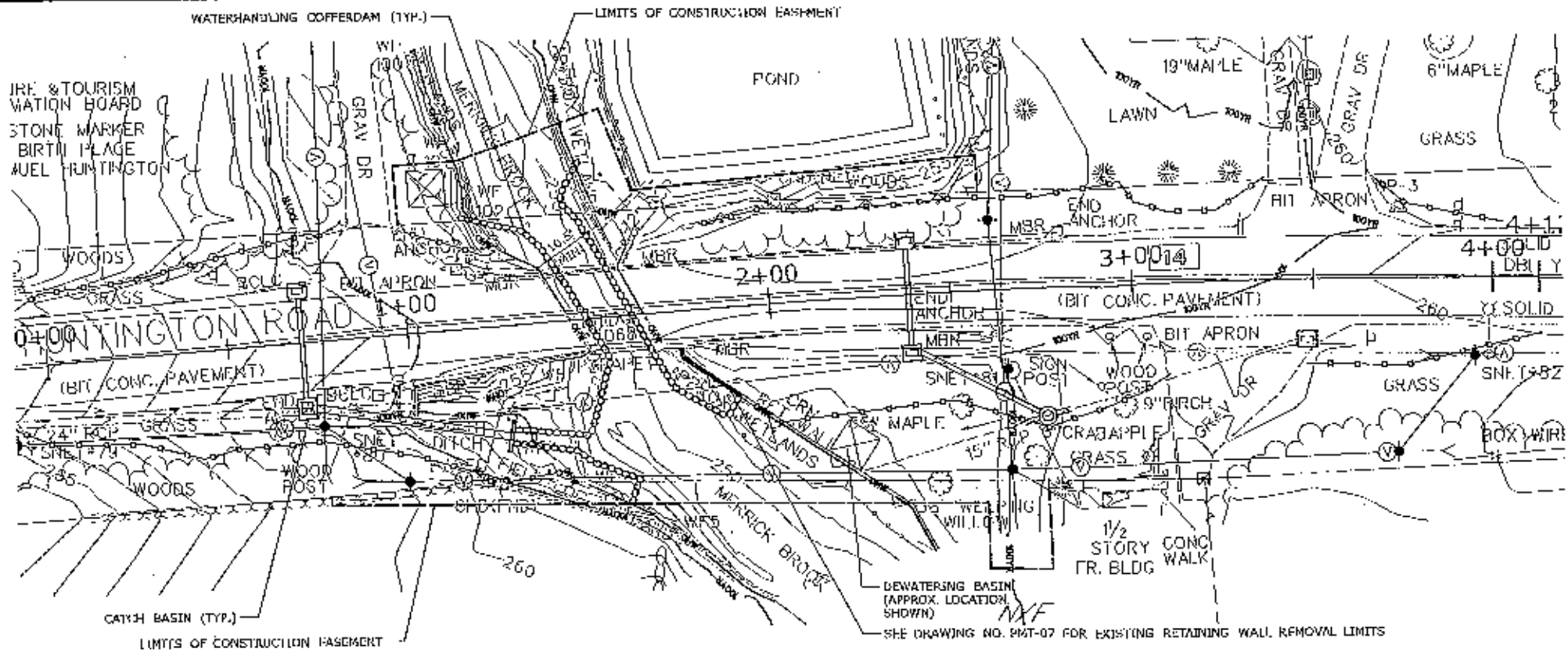
TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW (ADF)	15 CFS
AVERAGE DAILY SPRING FLOW (ADSF)	29.5 CFS
2-YEAR FREQUENCY DISCHARGE	380 CFS
TEMPORARY DESIGN DISCHARGE	380 CFS
TEMPORARY DESIGN FREQUENCY	2-YEAR
TEMPORARY WATER SURFACE ELEV.	255.7 FT - UPSTREAM 251.5 FT - DOWNSTREAM



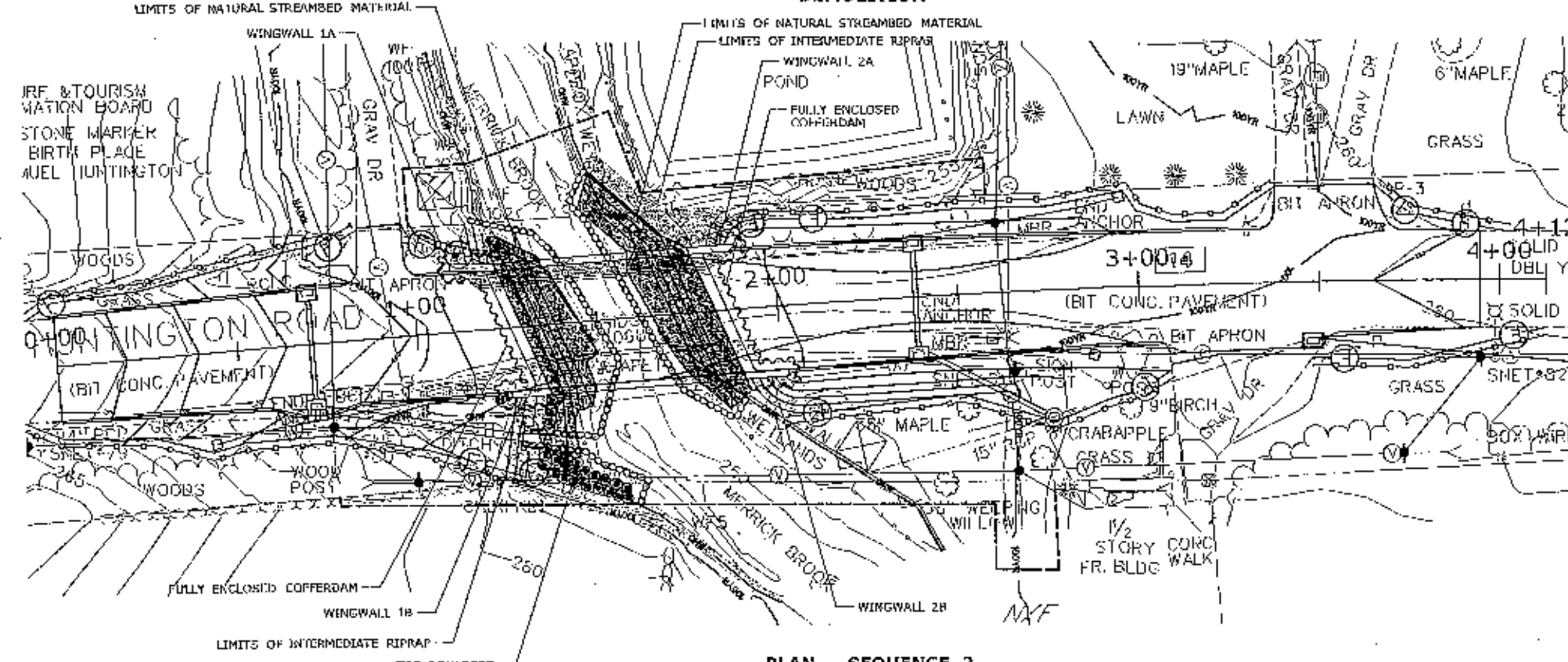
**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

PROJECT NO. 0123-0068 DRAWING NO. PMT-05 SHEET NO.	DRAWING TITLE: <b>WATER HANDLING PLAN</b>	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	OFFICE OF ENGINEERING DEPARTMENT OF TRANSPORTATION	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	DESIGNATION: SIPM CHECKED BY: RUB SCALE: AS NOTED	THE INFORMATION INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THIS SHEET IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS NOT TO BE GUARANTEED TO INSURE THE COMPLETION OF ANY CONTRACTS OF WORK WHICH WILL BE REQUIRED.	SHEET NO. SHEET DATE: 01/20/19
--	--	--	---	--	---	--	-----------------------------------



**PLAN - SEQUENCE 1  
DEMOLITION**



**PLAN - SEQUENCE 2  
CONSTRUCTION**

**SEQUENCE 1 - WATER HANDLING AND DEMOLITION**

**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. CLEAR AND GRUB, CONTROL AND REMOVE INVASIVE VEGETATION AND INSTALL SEDIMENTATION CONTROL.
2. RELOCATE UTILITY POLES TO TEMPORARY LOCATIONS (BY OTHERS).
3. INSTALL PILES AND TEST PRODUCTION PILES.
4. CLOSE ROAD AND DETOUR TRAFFIC.
5. INSTALL D-BRIS SHIELD AND REMOVE EXISTING SUPERSTRUCTURE.
6. INSTALL DRAINAGE PIPES AND CATCH BASINS.
7. INSTALL TEMPORARY WATER HANDLING AND DEWATERING BASINS.
8. REMOVE EXISTING ABUTMENTS AND WINGWALLS TO EL. 249.0. REMOVE PORTION OF EXISTING RETAINING WALL.

**LEGEND**

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

- · · · · · STREAM
- ○ — ○ — SEDIMENTATION CONTROL SYSTEM
- — — — — ORDINARY HIGH WATER (OHW)
- · · · · · WETLAND LIMITS
- — — — — FEMA 100-YEAR FLOOD (CALCULATED)

**SEQUENCE 2 - CONSTRUCTION**

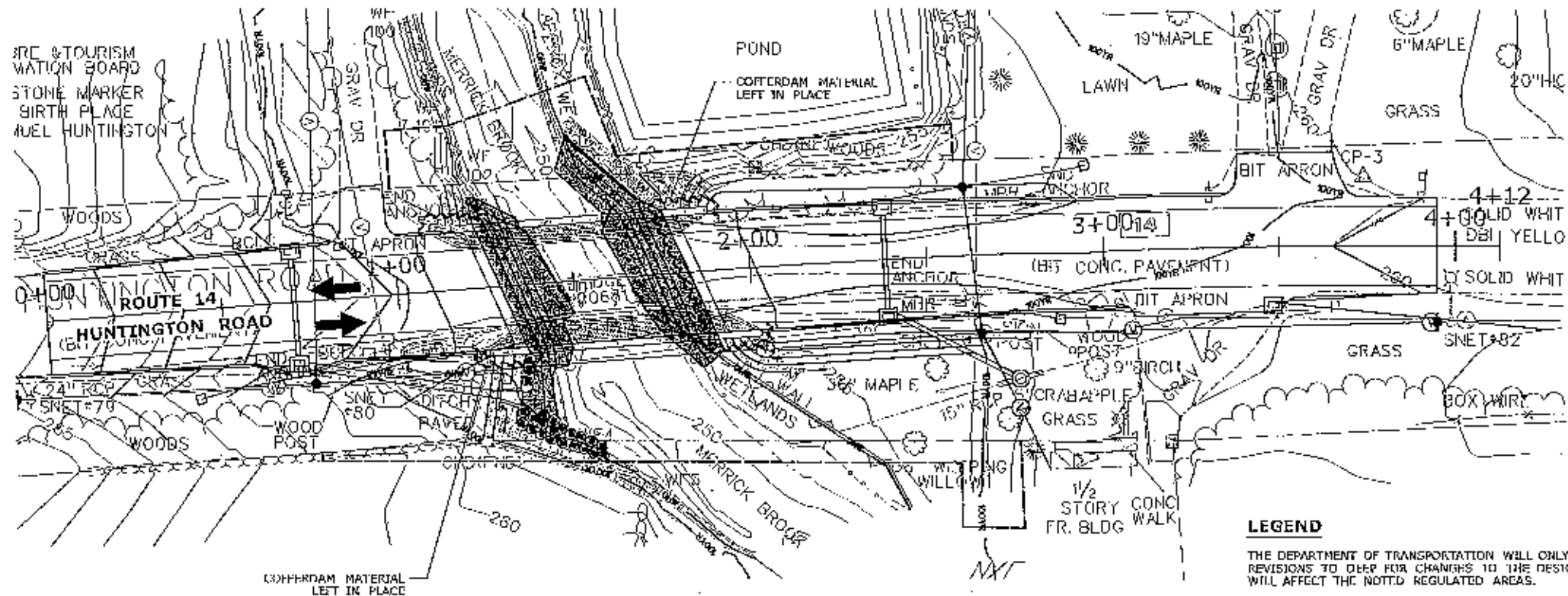
**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. INSTALL FULLY ENCLOSED COFFERDAMS FOR NEW ABUTMENTS AROUND PILES AND EXCAVATE.
2. PLACE GRANULAR FILL WITHIN COFFERDAM AND INSTALL PRECAST ABUTMENTS, BACKFILL AS NOTED.
3. REMOVE COFFERDAM WITHIN ROADWAY LIMITS AND CUT COFFERDAM MATERIAL LEFT IN PLACE BELOW GRADE.
4. PLACE INTERMEDIATE RIPRAP ALONG EMBANKMENTS AND PLACE TOE BOULDERS. REMOVE TEMPORARY WATER HANDLING.
5. INSTALL PRESTRESSED DRK UNITS AND POST-TENSION.
6. CONSTRUCT CONCRETE DECK SLAB, APPROACH SLABS, AND BRIDGE PARAPETS.
7. APPLY WATERPROOFING MEMBRANE AND INSTALL HMA OVERLAY ON BRIDGE AND APPROACHES. APPLY TEMPORARY PAVEMENT MARKINGS.
8. INSTALL TEMPORARY PROTECTIVE FENCE, INSTALL APPROACH METAL BEAM RAILS.
9. OPEN ROADWAY TO TRAFFIC.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, IS BASED ON TRAFFIC INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO ENSURE THE COMPLETION OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		CHECKED BY: <b>RLH</b> SCALE IN FEET: 1" = 20' DATE: 5/21/2019	<b>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</b>	ENGINEER: <b>OFFICE OF ENGINEERING</b> PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	TOWN: <b>SCOTLAND</b> PROJECT NO.: <b>123-060</b> DRAWING NO.: <b>PMT-06</b> SHEET NO.: <b>CONSTRUCTION SEQUENCE 1</b>
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**SEQUENCE 3 - CONSTRUCTION**

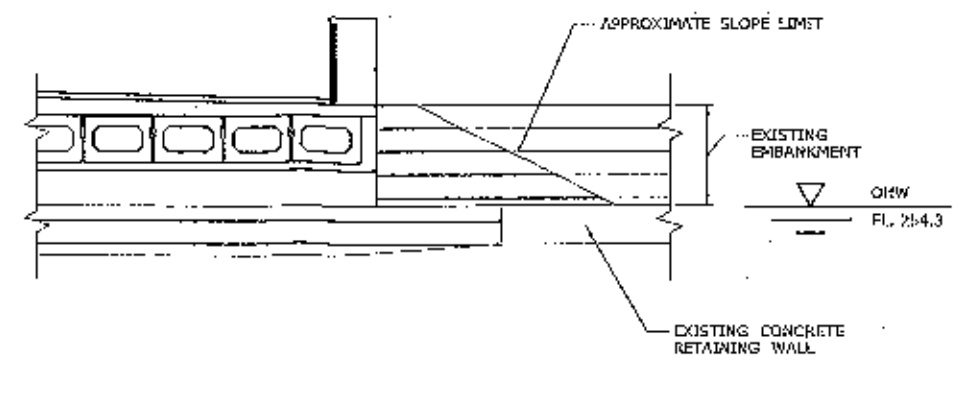
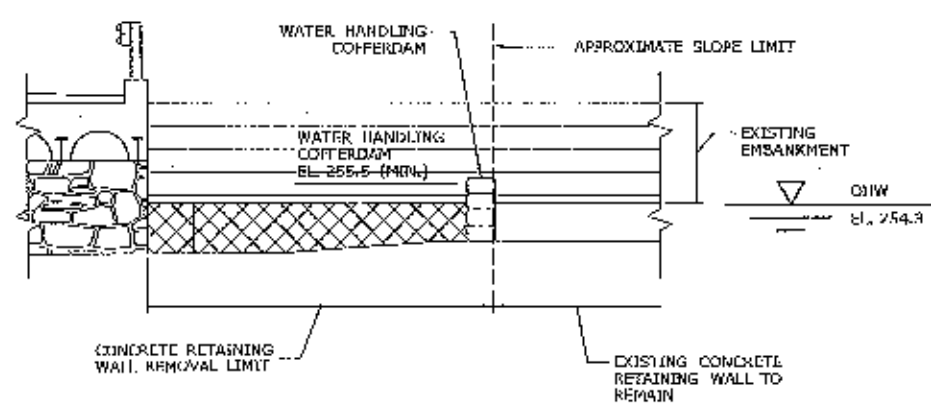
**SUGGESTED SEQUENCE OF CONSTRUCTION**

1. RELOCATE UTILITY POLES TO PERMANENT LOCATIONS (BY OTHERS).
2. INSTALL PROTECTIVE FENCE ON PARAPETS.
3. REMOVE ACCESS ROADS.
4. PLACE TOPSOIL, LANDSCAPE, AND ESTABLISH TURF.
5. INSTALL PERMANENT PAVEMENT MARKINGS AND INLAID THERMOPLASTIC PAVEMENT MARKING SYSTEM.
6. REMOVE EROSION AND SEDIMENTATION CONTROL SYSTEM UPON PERMANENT STABILIZATION.

**LEGEND**

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP FOR CHANGES TO THE DESIGN THAT WILL AFFECT THE NOTED REGULATED AREAS.

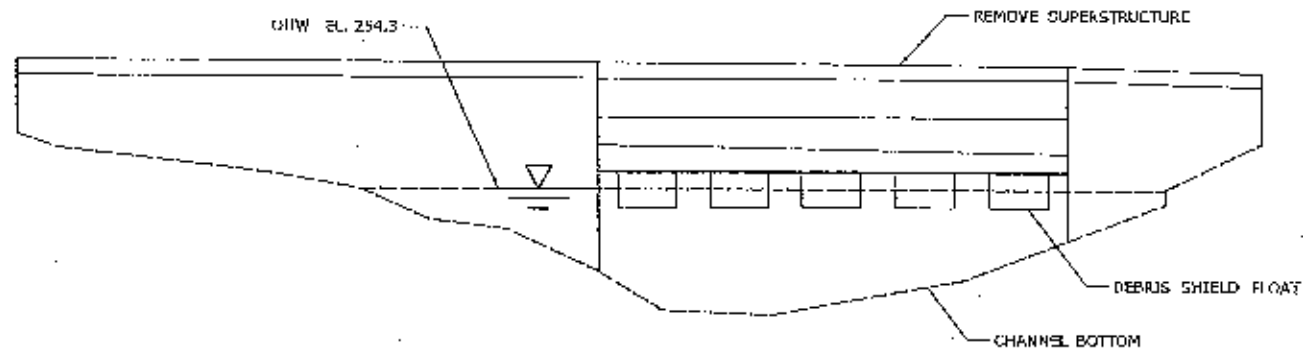
- STREAM
- SEDIMENTATION CONTROL SYSTEM
- OHW --- ORDINARY HIGH WATER (OHW)
- WETLAND LIMITS
- FEMA 100-YEAR FLOOD (CALCULATED)



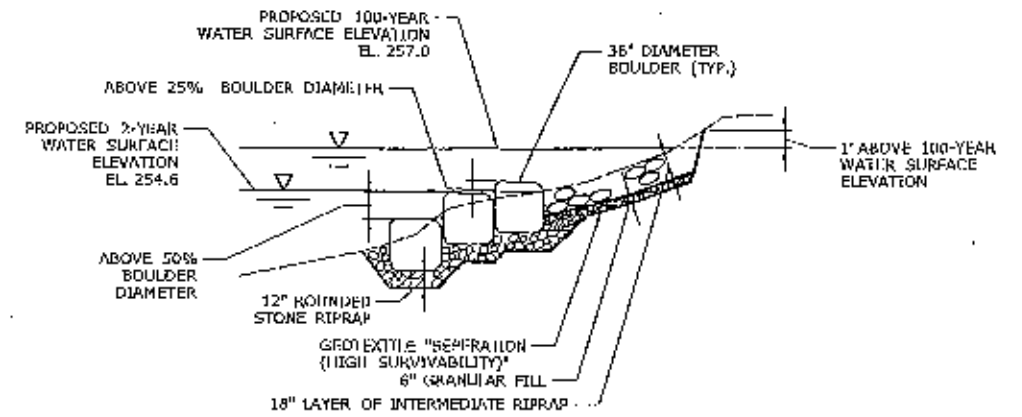
**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATION BY THE STATE AND IS BY NO MEANS WARRANTED TO INDICATE THE CONDITIONS OF ALL SUBSIDIARIES OF WORK WHICH WILL BE REQUIRED.		SCALE IN FEET 0 20 40 SCALE 1" = 20'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	TOWN: <b>SCOTLAND</b>	DRAWING TITLE: <b>CONSTRUCTION SEQUENCE 2</b>	SHEET NO.: <b>PMT-07</b>
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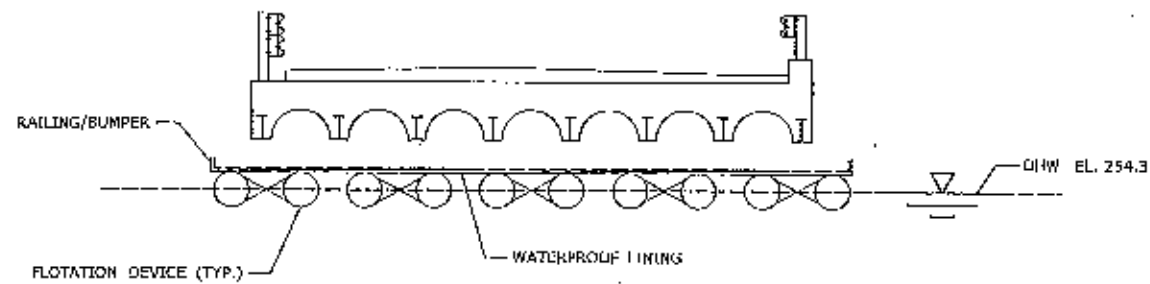
**ELEVATION - DEBRIS SHIELD**  
SCALE: 1/4" = 1'-0"



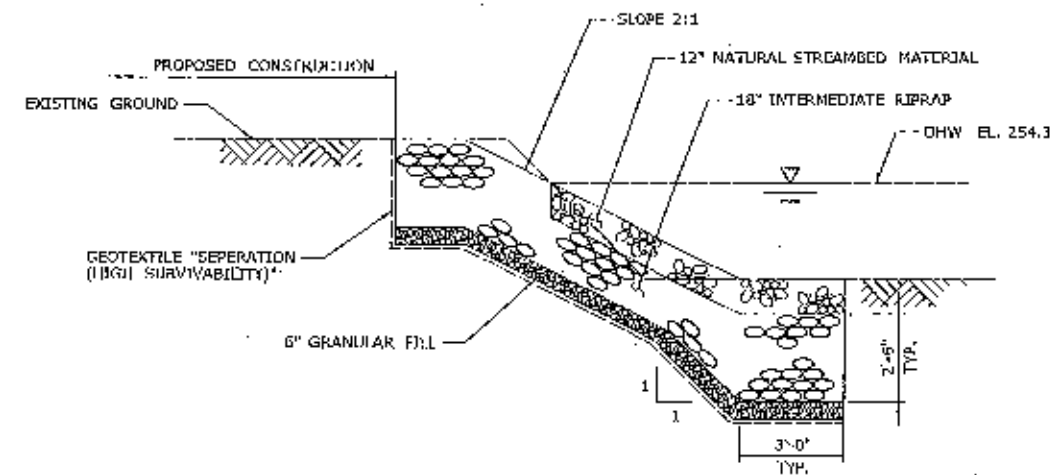
**SECTION - BOULDER PLACEMENT**  
NOT TO SCALE

**DEBRIS SHIELD FLOAT NOTES:**

1. FLOAT SHALL HAVE WATERPROOF LINING AND RAILING/BUMPER SYSTEM TO PREVENT DEBRIS FROM ENTERING THE WATERWAY.
2. FLOAT SHALL BE SUFFICIENTLY BUOYANT SO AS NOT TO BE FOUNDED ON THE SUBSTRATE AT ANY TIME DURING ITS USE. AT NO TIME SHALL THE DEBRIS SHIELD BOTTOM OUT.
3. WHEN NOT IN USE, FLOAT SHALL BE STORED WITHIN THE PROJECT IMPACT AREA.
4. WORKFLOAT SHALL NOT BE STORED WITHIN THE WATERWAY NOR WITHIN UNDISTURBED WETLANDS.



**SECTION - DEBRIS SHIELD**  
SCALE: 3/16" = 1'-0"

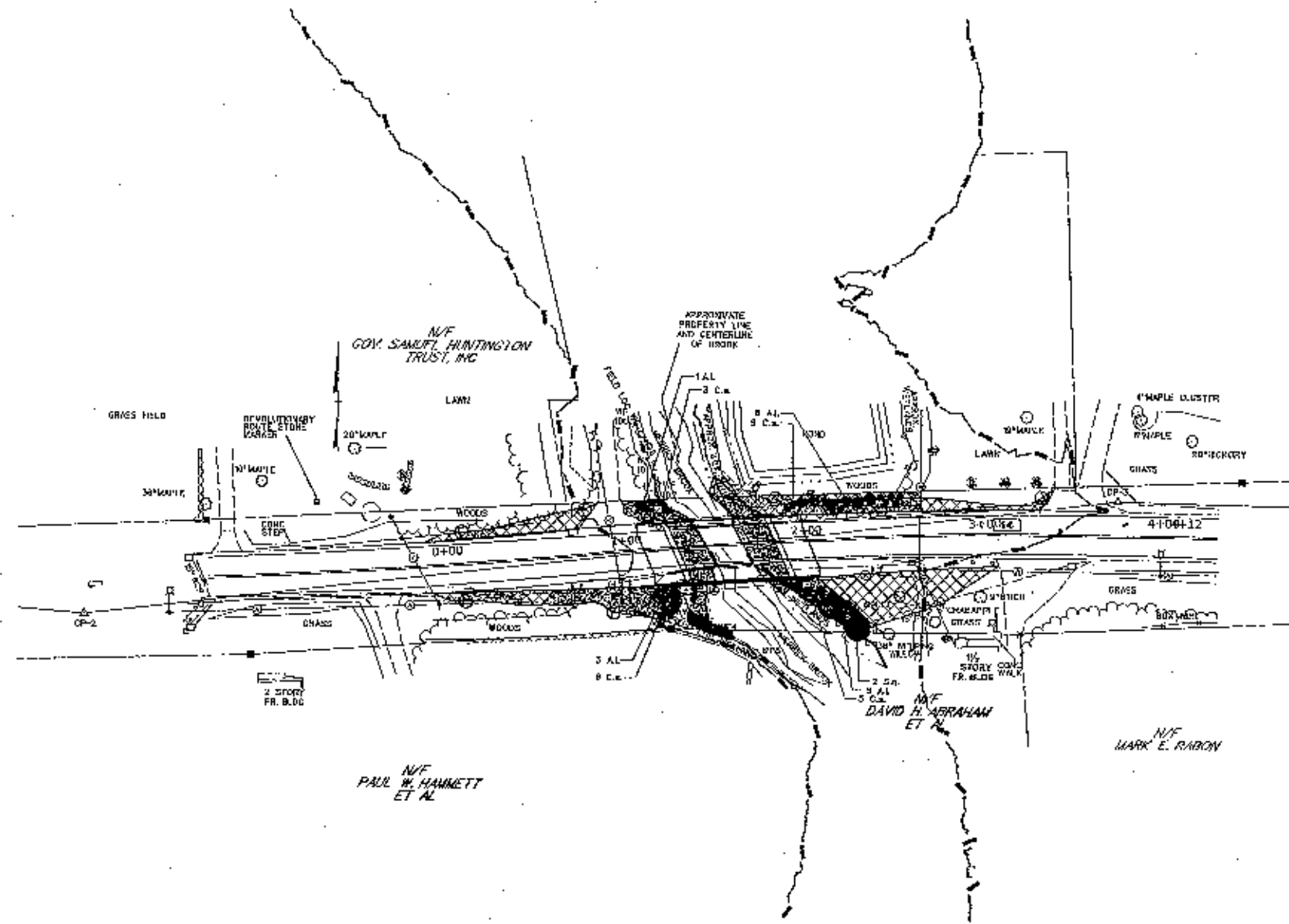


**DETAIL - RIPRAP FOR SLOPE PROTECTION**  
NOT TO SCALE

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019






THE DESIGNER, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS OF THE SITE AND IS IN NO WAY INTENDED TO INDICATE THE COMPLETION OF NECESSARY SURVEYS OR WORK WHICH WILL BE REQUIRED.		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	SHEET NO.: <b>123-006</b> DRAWING NO.: <b>PMT-08</b> SHEET NO.:
REVISION DESCRIPTION SHEET NO. SHEET DATE: 06/05/19	DESIGNER: RLB SCALE: AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. (RTE 14) OVER MERRICK BROOK</b>	SHEET NO.: <b>123-006</b> DRAWING NO.: <b>PMT-08</b> SHEET NO.:



**PERMIT PLANT LIST**

NO.	BOTANICAL NAME	COMMON NAME	Size	Quantity	Spacing	Installer
1.	Amelanchier	Spicebush	4" - 6" H. B.B.	15	7' On Center	UBL
2.	Cornus americana	Red osier Dogwood	2 1/2" - 3 1/2" H. B.B.	25	6' On Center	FCW
3.	Salic alba	White Willow	2 1/2" - 3 1/2" H. B.B.	1	Field Income	CG
Control and Removal of Invasive Vegetation				BAR S.Y.		
Conservation Seeding for Slopes				250 S.Y.		
Meadow Grass Establishment				250 S.Y.		

**LEGEND**

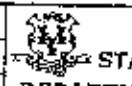
-  CONTROL AND REMOVAL OF INVASIVE VEGETATION
-  CONSERVATION SEEDING FOR SLOPES
-  100-YR FLOOD LIMIT
-  STATE/FEDERAL WETLANDS
-  ORDINARY HIGH WATER LINE

**NOTES**

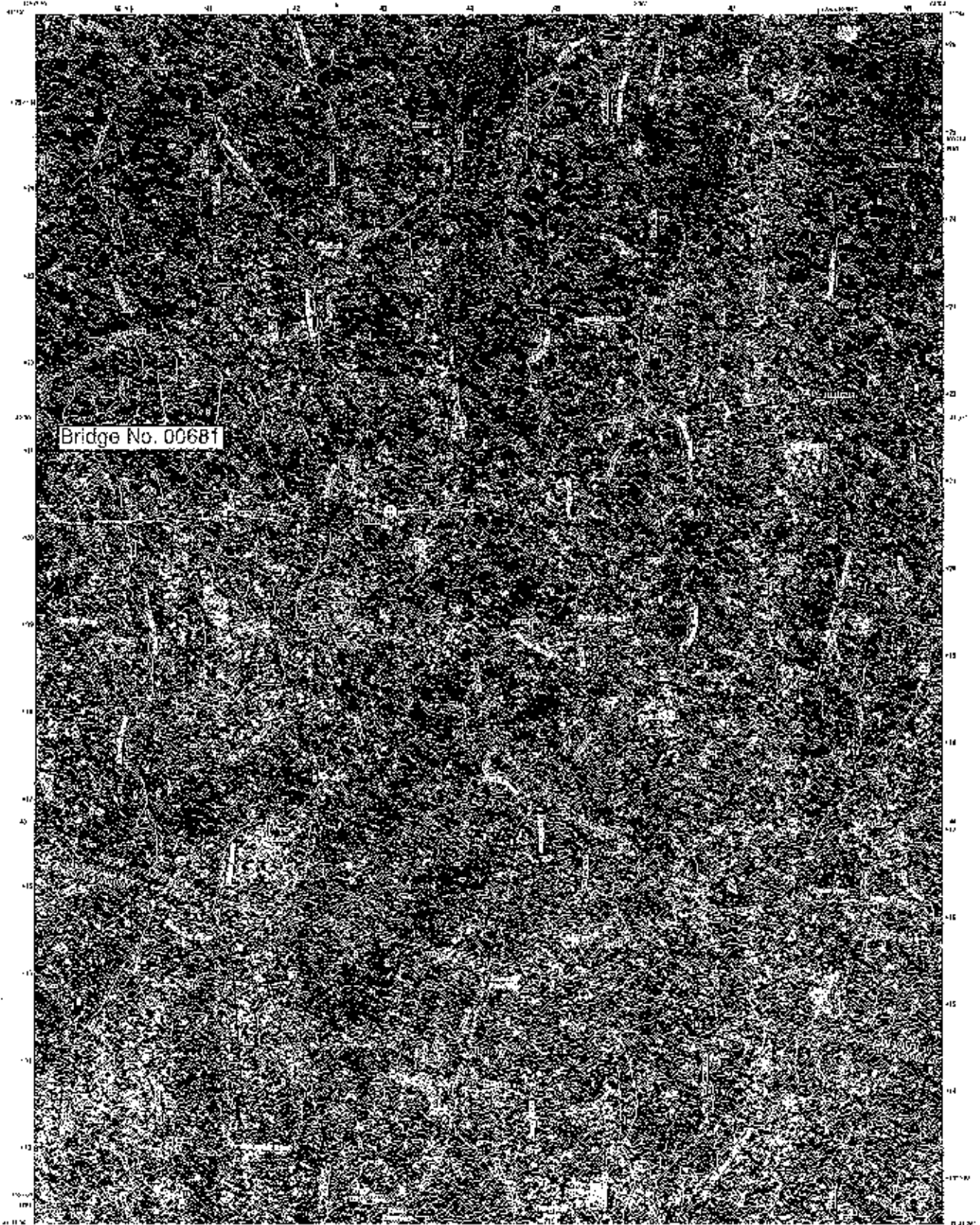
1. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY CHANGES TO PERMIT PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING.
2. ALL TREES AND SHRUBS MUST CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK FOR DECIDUOUS SHRUBS, CHAPTER THREE AND MEET THE MINIMUM CONTAINER SIZE AND ROOT MASS AND NUMBER OF CANES FOR TYPE AND HEIGHT.
3. ALL PLANTS SHALL BE STRAIGHT SPECIES. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.
4. DISTURBED AREAS BELOW THE WETLAND LINE SHALL BE SEEDED WITH WETLAND SEED MIX. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE COVERED WITH WOOD CHIP MULCH OR CONSERVATION SEEDING FOR SLOPES UNLESS OTHERWISE NOTED.
5. THE EXACT QUANTITIES AND LIMITS FOR CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE FIELD DETERMINED.

**ENVIRONMENTAL PERMIT PLANS**

PLAN DATE: JUNE 05, 2019

THE INFORMATION CONTAINED ON THESE PLANS IS BASED ON THE INFORMATION PROVIDED BY THE CLIENT AND IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.			SCALE IN FEET 0 10 20 30 40 50 60 70 80 SCALE 1"=40'		 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>		DRAWING NO. 123-066 PROJECT TITLE: <b>REPLACEMENT OF BR. NO. 00681 - HUNTINGTON RD. 9 (RTE 14) OVER MERRICK BROOK</b>		SHEET NO. <b>PMT-09</b>	
REV.	DATE	DESCRIPTION	SHEET NO.	PROJECT NO.	DATE	SCALE	PROJECT TITLE	PROJECT NO.	SHEET NO.	





Bridge No. 00681

Produced by the United States Geological Survey  
Scale 1:24,000  
Data from 1999-2000  
Map Date 2000  
Map Scale 1:24,000  
Map Projection NAD 83  
Map Datum NAD 83  
Map Contour Interval 10 feet  
Map Contour Elevation 100 feet  
Map Contour Interval 10 feet  
Map Contour Elevation 100 feet



SCALE 1:24,000  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20  
100 200 300 400 500 600 700 800 900 1000

1	1	2
3	3	3
4	4	4

SCOTLAND, CT  
2015



06/05/2019

**PROJECT 0123-0066  
RT. 14 OVER MERRICK BROOK  
SCOTLAND  
BRIDGE 00681  
PROJECT DESCRIPTION**

Bridge 00681 carries Route 14, also called Huntington Road, over Merrick Brook in the Town of Scotland. It is located approximately 1.8 miles north of the junction with Route 82 (East Haddam Rd.). The existing structure is a single span concrete encased steel stringer bridge, approximately 21' long with a 24.6' out to out width. The concrete encased steel stringers sit on stone masonry abutments. R-13 350 metal beam rail extends from the approaches over the bridge beyond the wingwalls on both sides of the roadway on Route 14. The average daily traffic (ADT) is approximately 4,400 vehicles per day according to the most recent inspection report.

The structure was inspected by Bridge Safety and Evaluation and the superstructure was rated in serious condition due to spalled concrete of the encased steel beams and severe section losses due to corrosion of the exposed beams. Due to the extent of the deterioration of the existing bridge, Bridge Safety and Evaluation recommended the structure be replaced.

The proposed rehabilitation for Bridge No.00681 consists of the replacement of the existing structure with an integral abutment bridge with a length of 60' and an out-to-out width of 37.25'. The existing natural streambed material will be reused.

The design will require a full road closure of Route 14 within the project limits during the bridge replacement. Route 14 will be detoured for a period of no more than eight weeks. A water-handling-cofferdam will be installed around existing abutments to allow the demolition of the existing structure and installation of riprap, natural streambed material, and toe boulders. Fully enclosed cofferdams will be installed around proposed abutments for ground water handling and supporting the roadway and embankments. The design will utilize the Accelerated Bridge Construction (ABC) method, which entails the bridge components, including abutments and wingwalls are prefabricated and supported by a deep foundation, which will be installed during a road closure. Additionally, the deck, parapets, and approach slabs will be cast during the road closure. No construction activity will be performed within the watercourse outside of the allowable timeframe for instream work required by DEEP Fisheries.

Based on the recommendation from the ConnDOT Hydraulics and Drainage Unit, the integral abutment bridge structure type was chosen. The proposed bridge will improve hydraulic conveyance capacity, reduce the potential for future scour, and ensure the safety of the structure while undergoing pressure flow in a major storm event. The drainage area of this wetland is 8.4 square miles. As a result of this project, there will be no adverse impacts hydraulic wise to the existing floodplain.



This project has been presented in front of DEEP and USACE at an Interagency Coordination Meeting dated November 30, 2017, and concurrence with the structure type has been given. Coordination with DEEP fisheries has been completed, and their comments have been incorporated into the project documents. There will be temporary and permanent wetland impact required for the structure construction totaling 2936 square feet. Permits will be obtained from DEEP and USACE prior to the start of construction.

**Permits:** An Inland Wetland General Permit and USACE Self-Verification Form are anticipated to be needed prior to construction.

## Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, Intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

### Information to Determine 4(d) Rule Compliance:

	YES	NO
1. Does the project occur wholly outside of the WNS Zone <sup>1</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency <sup>2</sup> to determine if your project is near known hibernacula or maternity roost trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Could the project disturb hibernating NLEBs in a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Could the project alter the entrance or interior environment of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

You are eligible to use this form if you have answered yes to question #1 or yes to question #2 and no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

Agency: FHWA - Connecticut Division

Applicant<sup>3</sup> (Name, Email, Phone No.):

Connecticut Department of Transportation  
Amanda M. Saul, Office of Environmental Planning  
DOT.NLEB@ct.gov, (860)594-2939

Project Name: CTDO/0123-0066

Project Location (include coordinates if known): Huntington Rd. (RTE.14) over Merrick Brook, Town of Scotland; 41.898488, -72.084252

Basic Project Description (provide narrative below or attach additional information):

This project involves the full replacement of Bridge 00681 carrying Huntington Rd. (RTE.14) over Merrick Brook in the Town of Scotland. Proposed work includes:

- Install permanent steel sheet piling in front of proposed abutments for scour protection
- Remove existing superstructure
- Remove existing abutments and wingwalls
- Install integral abutments and superstructure
- Install concrete and/or riprap slope protection

<sup>1</sup> <http://www.fws.gov/midwest/endangered/mammals/nleeb/pdf/WNSZone.pdf>

<sup>2</sup> See <http://www.fws.gov/midwest/endangered/mammals/nleeb/ahisites.html>

<sup>3</sup> If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

**General Project Information**

	YES	NO
Does the project occur within 0.25 miles of a known hibernaculum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project occur within 150 feet of a known maternity roost tree?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the project include forest conversion <sup>4</sup> ? (if yes, report acreage below)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Estimated total acres of forest conversion	<0.1 ac	
If known, estimated acres <sup>5</sup> of forest conversion from April 1 to October 31		
If known, estimated acres of forest conversion from June 1 to July 31 <sup>6</sup>		
Does the project include timber harvest? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of timber harvest		
If known, estimated acres of timber harvest from April 1 to October 31		
If known, estimated acres of timber harvest from June 1 to July 31		
Does the project include prescribed fire? (if yes, report acreage below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated total acres of prescribed fire		
If known, estimated acres of prescribed fire from April 1 to October 31		
If known, estimated acres of prescribed fire from June 1 to July 31		
Does the project install new wind turbines? (if yes, report capacity in MW below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Estimated wind capacity (MW)		

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLRB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 3, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLRB.

Amanda M. Saul

Digitally signed by Amanda M. Saul  
DN: cn=Amanda M. Saul, o=Connecticut  
Department of Transportation, ou=Office of  
Environmental Planning,  
email=amsaul@dot.state.ct.us,  
c=US  
Date: 2019.06.20 14:55:28 -04'00'

Signature: \_\_\_\_\_

Date Submitted: 6/20/2019

<sup>4</sup> Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 18 of the BO).

<sup>5</sup> If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.

<sup>6</sup> If the activity includes tree clearing in June and July, also include those acreage in April to October.

**Construction Contracts - Required Contract Provisions  
(State Funded Only Contracts)**

**Index**

1. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements
2. Contractor Work Force Utilization / Specific Equal Employment Opportunity
3. Contract Wage Rates
4. Americans with Disabilities Act of 1990, as Amended
5. 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)
6. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)
7. Executive Orders (State of CT)
8. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised)
9. Whistleblower Provision
10. Connecticut Freedom of Information Act
  - a. Disclosure of Records
  - b. Confidential Information
11. Service of Process
12. Substitution of Securities for Retainages on State Contracts and Subcontracts
13. Health Insurance Portability and Accountability Act of 1996 (HIPAA)
14. Forum and Choice of Law
15. Summary of State Ethics Laws
16. Audit and Inspection of Plants, Places of Business and Records
17. Campaign Contribution Restriction

18. Tangible Personal Property
19. Bid Rigging and/or Fraud – Notice to Contractor
20. Consulting Agreement Affidavit

**Index of Exhibits**

- EXHIBIT A – Title VI Contractor Assurances (page 13)
- EXHIBIT B – Contractor Work Force Utilization / Equal Employment Opportunity (page 14)
- EXHIBIT C – Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 17)
- EXHIBIT D - Campaign Contribution Restriction (page 25)
- EXHIBIT E - State Wage Rates (Attached at the end)

## **1. 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 A, all of which are hereby made a part of this Contract.

## **2. Contractor Work Force Utilization / Equal Employment Opportunity**

- (a) The Contractor shall comply with the Contractor Work Force Utilization / Equal Employment Opportunity requirements attached at Exhibit B 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.

## **3. Contract Wage Rates**

The Contractor shall comply with:

The State wage rate requirements indicated in Exhibit E hereof are hereby made part of this Contract.

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 816), 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.

## **4. 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.

## 5. 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

## 6. 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](http://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).

## 7. 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.

## 8. 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>

## 9. 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.

## 10. 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.

#### **11. 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.

#### **12. 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.

#### **13. 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 C, and hereby made part of this Contract.

#### **14. 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.

## **15. 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.

## **16. 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.

## **17. 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 D.

## **18. 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.

## **19. 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.

## **20. 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.

**EXHIBIT A****TITLE VI CONTRACTOR ASSURANCES**

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 shall comply with the regulations relative to nondiscrimination in federally assisted programs of the United States Department of Transportation (hereinafter, "USDOT"), Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the "Regulations"), 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, shall not discriminate on the grounds of race, color, national origin, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by Subsection 5 of the Regulations, including employment practices when the Contract covers a program set forth in Appendix B of the Regulations.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:**

In all solicitations either by competitive 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 shall be notified by the Contractor of the Contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, national origin, sex, age, or disability.

4. **Information and Reports:** The Contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Connecticut Department of Transportation (ConnDOT) or the Funding Agency (FHWA, FTA and FAA) to be pertinent to ascertain compliance with such Regulations, orders, 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 shall so certify to ConnDOT or the Funding Agency, as appropriate, and shall set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, the ConnDOT shall impose such sanctions as it or the Funding Agency may determine to be appropriate, including, but not limited to:

- A. Withholding contract payments until the Contractor is in-compliance; and/or
- B. Cancellation, termination, or suspension of the Contract, in whole or in part.

6. **Incorporation of Provisions:** The Contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Contractor shall take such action with respect to any subcontract or procurement as the ConnDOT or the Funding Agency may -direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the ConnDOT to enter into such litigation to protect the interests of the Funding Agency, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States



**EXHIBIT B****CONTRACTOR WORKFORCE UTILIZATION / EQUAL EMPLOYMENT OPPORTUNITY****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 Appendix A below.

**STATE FUNDED PROJECTS (only)**  
**APPENDIX A**  
**(Labor Market Goals)**

<b><u>LABOR MARKET AREA GOAL</u></b>	<b><u>Minority</u></b>
<b><u>Female</u></b>	
<b>Bridgeport</b>	<b>22.7%</b>
1.4%	
Ansonia	Beacon Falls
Easton	Fairfield
Oxford	Seymour
Trumbull	
	Bridgeport
	Milford
	Shelton
	Derby
	Monroe
	Stratford
<b>Danbury</b>	<b>10.7%</b>
3.8%	
Bethel	Bridgewater
Kent	New Fairfield
Redding	Ridgefield
Washington	
	Brookfield
	New Milford
	Roxbury
	Danbury
	Newtown
	Sherman
<b>Danielson</b>	<b>4.3%</b>
1.8%	
Brooklyn	Eastford
Pomfret	Putnam
Thompson	Voluntown
	Hampton
	Scotland
	Union
	Killingly
	Sterling
	Woodstock
<b>Hartford</b>	<b>13.7%</b>
2.1%	
Andover	Ashford
	Avon
	Barkhamsted

Belin	Bloomfield	Bolton	Bristol
Burlington	Canton	Chaplin	Colchester
Columbia	Coventry	Cromwell	Durham
East Granby	East Haddam	East Hampton	East Hartford
East Windsor	Ellington	Enfield	Farmington
Glastonbury	Granby	Haddam	Hartford
Harwinton	Hebron	Lebanon	Manchester
Mansfield	Marlborough	Middlefield	Middletown
Newington	Plainville	Plymouth	Portland
Rocky Hill	Simsbury	Somers	South Windsor
Southington	Stafford	Suffield	Tolland
Vernon	West Hartford	Wethersfield	Willington
Winchester	Windham	Windsor	Windsor Locks

<b>Lower River</b>				<b>4.3%</b>
<b>1.8%</b>				
Chester	Deep River	Essex	Old Lyme	
Westbrook				

**LABOR MARKET AREA GOAL**

**Minority**

**Female**

<b>New Haven</b>				<b>17.9%</b>
<b>3.1%</b>				
Bethany	Branford	Cheshire	Clinton	
East Haven	Guilford	Hamden	Killingworth	
Madison	Meriden	New Haven	North Branford	
North Haven	Orange	Wallingford	West Haven	
Woodbridge				

<b>New London</b>				<b>7.4%</b>
<b>3.1%</b>				
Bozrah	Canterbury	East Lyme	Franklin	
Griswold	Groton	Ledyard	Lisbon	
Montville	New London	North Stonington	Norwich	
Old Lyme	Old Saybrook	Plainfield	Preston	
Salem	Sprague	Stonington	Waterford	
Hopkinton	RI – Westerly Rhode Island			

<b>Stamford</b>				<b>33.2%</b>
<b>2.1%</b>				
Darien	Greenwich	New Canaan	Norwalk	
Stamford	Weston	Westport	Wilton	

<b>Torrington</b>				<b>4.3%</b>
<b>1.8%</b>				
Canaan	Colebrook	Cornwall	Goshen	
Hartland	Kent	Litchfield	Morris	
Norfolk	North Canaan	Salisbury	Sharon	

Torrington

Warren

<b>Waterbury</b>				<b>12.4%</b>
<b>1.6%</b>				

Bethlehem  
Southbury  
Wolcott

Middlebury  
Thomaston  
Woodbury

Naugatuck  
Waterbury

Prospect  
Watertown

Rev. 4/24/2019

**EXHIBIT C****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 (l)(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

August 2019

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/seec](http://www.ct.gov/seec). 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 E**

(state wages will be inserted here)

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

**Minimum Rates and Classifications  
for Heavy/Highway Construction**

**Connecticut Department of Labor  
Wage and Workplace Standards Division**

ID#: H 26562

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: 123-0066

Project Town: Windham

FAP Number:

State Number:

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

<b>CLASSIFICATION</b>	<b>Hourly Rate</b>	<b>Benefits</b>
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	34.72	32.15
2) Carpenters, Piledrivermen	33.53	25.66
2a) Diver Tenders	33.53	25.66

**As of:** Friday, September 20, 2019

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

3) Divers	41.99	25.66
03a) Millwrights	34.04	26.09
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	51.00	21.80
4a) Painters: Brush and Roller	34.62	21.80
4d) Painters: Blast and Spray	37.62	21.80
4e) Painters: Tanks, Tower and Swing	36.62	21.80
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)	40.00	27.67+3% of gross wage

**As of:** Friday, September 20, 2019



Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	36.67	35.77 + a
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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)	43.62	32.06
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----LABORERS-----

8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	30.75	20.84
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9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	31.00	20.84
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10) Group 3: Pipelayers	31.25	20.84
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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	31.25	20.84
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*As of:* Friday, September 20, 2019

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

12) Group 5: Toxic waste removal (non-mechanical systems) 32.75 20.84

13) Group 6: Blasters 32.50 20.84

Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe) 31.75 20.84

Group 8: Traffic control signalmen 18.00 20.84

Group 9: Hydraulic Drills 29.30 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 32.98 20.84 + a

*As of:* Friday, September 20, 2019

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

13b) Brakemen, Trackmen	32.01	20.84 + a
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---CLEANING, CONCRETE AND CAULKING TUNNEL---

14) Concrete Workers, Form Movers, and Strippers	32.01	20.84 + a
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15) Form Erectors	32.34	20.84 + a
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---ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL  
IN FREE AIR:---

16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	32.01	20.84 + a
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17) Laborers Topside, Cage Tenders, Bellman	31.90	20.84 + a
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*As of:* Friday, September 20, 2019

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

18) Miners	32.98	20.84 + a
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---TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR:

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18a) Blaster	39.47	20.84 + a
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19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	39.27	20.84 + a
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20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	37.29	20.84 + a
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21) Mucking Machine Operator	40.06	20.84 + a
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---TRUCK DRIVERS---(\*see note below)

*As of:* Friday, September 20, 2019

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

Two axle trucks	29.51	24.52 + a
Three axle trucks; two axle ready mix	29.62	24.52 + a
Three axle ready mix	29.67	24.52 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	29.72	24.52 + a
Four axle ready-mix	29.77	24.52 + a
Heavy duty trailer (40 tons and over)	29.98	24.52 + a
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	29.77	24.52 + a

*As of:* Friday, September 20, 2019

----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)	40.97	24.80 + 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)	40.64	24.80 + 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)	39.88	24.80 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	39.48	24.80 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	38.87	24.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	38.87	24.80 + a

Project:	State Project No 123-066; Replacement Of Bridge No. 00681	Scotland		
Group 6:	Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).		38.55	24.80 + a
Group 7:	Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).		38.20	24.80 + a
Group 8:	Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.		37.79	24.80 + 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).		37.34	24.80 + a
Group 10:	Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.		35.24	24.80 + a
Group 11:	Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.		35.24	24.80 + a
Group 12:	Wellpoint Operator.		35.18	24.80 + a

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

Group 13: Compressor Battery Operator.	34.58	24.80 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	33.41	24.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	32.99	24.80 + a
Group 16: Maintenance Engineer/Oiler	32.32	24.80 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	36.76	24.80 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	34.26	24.80 + a

\*\*NOTE: SEE BELOW



Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----

20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
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21) Heavy Equipment Operator	42.26	6.5% + 19.88
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22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
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23) Driver Groundmen	26.50	6.5% + 9.00
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23a) Truck Driver	40.96	6.5% + 17.76
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----LINE CONSTRUCTION----

*As of:* Friday, September 20, 2019

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

24) Driver Groundmen 30.92 6.5% + 9.70

26) Heavy Equipment Operators 37.10 6.5% + 10.70

27) Linemen, Cable Splicers, Dynamite Men 41.22 6.5% + 12.20

28) Material Men, Tractor Trailer Drivers, Equipment Operators 35.04 6.5% + 10.45

01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. \*\*See Laborers Group 5 and 7\*\*

*As of:* Friday, September 20, 2019

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

*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***

***3) Cranes (under 100 ton rated capacity)***

*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 state work ~~*

*The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.*

*Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.*

*It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.*

*The annual adjustments will be posted on the Department of Labor's Web page: [www.ct.gov/dol](http://www.ct.gov/dol).*

*The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.*

*All subsequent annual adjustments will be posted on our Web Site for contractor access.*

*Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.*

**As of:** Friday, September 20, 2019

Project: State Project No 123-066; Replacement Of Bridge No. 00681 Scotland

*Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage*

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

**~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).**

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

*As of:* Friday, September 20, 2019

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 4<sup>th</sup>, 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.

## **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 J-1,2,3,4 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 required 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.*

# Statute 31-55a

Last Updated: June 02, 2008

You are here: [DOL Web Site](#) ▶ [Wage and Workplace Issues](#) ▶ Statute 31-55a

## - Special Notice -

To All State and Political Subdivisions, Their Agents, and Contractors

**Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.**

*Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.*

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the *contractor's* responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: [www.ctdol.state.ct.us](http://www.ctdol.state.ct.us). For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

**Any questions should be directed to the Contract Compliance Unit, Wage and Workplace**

Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd.,  
Wethersfield, CT 06109 at (860)263-6790.

[Workplace Laws](#)

Published by the Connecticut Department of Labor, Project Management Office

November 29, 2006

**Notice**  
**To All Mason Contractors and Interested Parties**  
**Regarding Construction Pursuant to Section 31-53 of the**  
**Connecticut General Statutes (Prevailing Wage)**

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

**Forklift Operator:**

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.
- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

*Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.*

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

# **Informational Bulletin**

## **THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE**

(applicable to public building contracts entered into *on or after July 1, 2007*, where the total cost of all work to be performed is at least \$100,000)

- (1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);
- (2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;
- (3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least \$100,000;
- (4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;
- (5) The internet website for the federal OSHA Training Institute is [http://www.osha.gov/fso/ote/training/edcenters/fact\\_sheet.html](http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html);
- (6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;
- (7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;
- (8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;
- (9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;



- (10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;
- (11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;
- (12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;
- (13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;
- (14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and
- (15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.
- (16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of <http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm>; or by telephone at (860)263-6790.

**THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTIMATELY ARISE CONCERNING THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.**

**Sec. 31-53b. Construction safety and health course. Proof of completion required for employees on public building projects. Enforcement. Regulations.** (a) Each contract entered into on or after July 1, 2007, for the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public building project by the state or any of its agents, or by an political subdivision of the state or any of its agents, where the total cost of all work to be performed by all contractors and subcontractors in connection with the contract is at least one hundred thousand dollars, shall contain a provision requiring that, not later than thirty days after the date such contract is awarded, each contractor furnish proof to the Labor Commissioner that all employees performing manual labor on or in such public building, pursuant to such contract, have 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, in the case of telecommunications employees, have completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any employee required to complete a construction safety and health course required under subsection (a) of this section who has not completed the course shall be subject to removal from the worksite if the employee does not provide documentation of having completed such course by the fifteenth day after the date the employee is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2007, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) For the purposes of this section, "public building" means a structure, paid for in whole or in part with state funds, within a roof and within exterior walls or fire walls, designed for the housing, shelter, enclosure and support or employment of people, animals or property of any kind, including, but not limited to, sewage treatment plants and water treatment plants, "Public building" does not include site work, roads or bridges, rail lines, parking lots or underground water, sewer or drainage systems including pump houses or other utility systems.

CONNECTICUT DEPARTMENT OF LABOR  
WAGE AND WORKPLACE STANDARDS DIVISION

**CONTRACTORS WAGE CERTIFICATION FORM**

I, \_\_\_\_\_ of \_\_\_\_\_  
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the \_\_\_\_\_  
Company Name  
\_\_\_\_\_  
Street  
\_\_\_\_\_  
City

and all of its subcontractors will pay all workers on the

\_\_\_\_\_  
Project Name and Number  
\_\_\_\_\_  
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

\_\_\_\_\_  
Signed

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 2004.

\_\_\_\_\_  
Notary Public

 Return to:

Connecticut Department of Labor  
Wage & Workplace Standards Division  
200 Folly Brook Blvd.  
Wethersfield, CT 06109