

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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January 9, 2019
FEDERAL AID PROJECT NO. 1160(001)
STATE PROJECT NO. 0160-0147

Rehabilitation of Bridge No. 02259 On Route 32 Over S. Branch Roaring Brook

Town of Willington
Federal Aid Project No. 1160(001)

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 January 2018 (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 Rehabilitation of Bridge No. 02259 On Route 32 Over S. Branch Roaring Brook in the Town of Willington.

CONTRACT TIME AND LIQUIDATED DAMAGES

One Hundred Forty (140) calendar days will be allowed for completion of the work on this Contract and the liquidated damages charge to apply will be Two Thousand One Hundred Dollars (\$2,100.00) per calendar day.

**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. Refer to the special provision for Section 12.00 General Clauses For Highway Signing.

NOTICE TO CONTRACTOR – CONFINED SPACE

The work required on this Project will involve construction activities in areas that meet the definition of a "Confined Space." The types of activities as well as materials, products and procedures involved in this work will have the characteristics required to potentially create a hazardous atmosphere, thereby rendering the area a "Permit-Required Confined Space."

The Contractor's attention is directed to the Special Provision for "Item #0101002A—
Confined Space Health and Safety."

NOTICE TO THE CONTRACTOR – RELOCATION AND PROTECTION OF EXISTING UTILITIES

The Contractor is hereby instructed to follow established "Call Before You Dig" procedures. The Contractor shall perform all work in such a manner that will protect each utility companies' facilities from damage. This may include excavation by hand methods as well as modified compaction methods when working close to underground utilities.

This is notice to the Contractor of work to be done by the utility companies. The following list of involvement shall be used in coordinating construction activities with the utility companies. No claim is made that the list is accurate or complete. It is intended for informational purposes only.

Eversource Energy: Relocate four poles to allow for the replacement of bridge No. 02259 Rte 32 over South Branch Roaring Brook in the Town of Willington.

Spectrum: Spectrum will find slack and shift to new poles.

Lightower Fiber Networks: Lightowers work will consist of placing new strand, relocating slack, shifting cable to new strand and removing old strand.

Frontier Communications: This project will require Frontier Communications to shift cables P32364, P32365 & P32366 that were replaced by Eversource. Place new over guy from P32365 to P32365S and new down guy @ P32365S.

AERIAL UTILITIES: To expedite utility relocations, the Contractor shall set as a priority the operation of clearing and grubbing as well as rough grading in the area of the proposed utility relocations. The Contractor shall coordinate with the utility companies to properly identify the location where the utility poles are to be relocated. The Contractor shall place fill or excavate to within 6” of final grade at the areas where the utility poles are to be relocated.

The Contractor shall coordinate the scheduling of his operations with those of the various utility companies to enable them to perform the necessary adjustments to their facilities.

The following companies and representatives shall be contacted by the Contractor to coordinate the relocation of their facilities.

Mr. Curtis Benashski
Eversource Energy
Phone: (860) 871-3447
E-mail: Curtis.benashski@eversource.com

Mr. Eric Anderson
Charter Communications
Phone: (860) 303-4001
E-mail: eric.anderson@charter.com

Mr. Terence J. Shea
Lighttower Fiber Networks
Phone: (203) 649-3905
E-mail: Terence.Shea@crowncastle.com

Marc Sweeney
Frontier Communications
Phone: (860) 725-4226
Marc.w.sweeney@ftr.com

The Contractor shall consider in his bid any inconvenience and work required to meet these conditions. The work to repair or replace any damage caused by the Contractor's operations will be made solely at the Contractor's expense

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.

UTILITY WORK SCHEDULE

CTDOT Project Number:	160-147						
Utility Company:	Eversource Energy						
Prepared By:	Curtis Benashski				Total Calendar Days:	36	

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 calendar 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 (calendar days)
Entire Project	Attend preconstruction meeting		1
Entire Project	Identify trees to be removed (with state and contractor)	Preconstruction meeting	1
Entire Project	Tree trimming and removals	Tree removals identified	4
Entire Project	Finalize detailed design & stake new pole and anchor locations. Locations approved by state	Tree work,surveying,include property lines/curb lines (complete by others)	5
Entire Project	Install poles and anchors, frame poles, install guying	Poles and anchors location approved Final Grade w/in 6"(complete by others)	24
Entire Project	Rmv poles 32364, 32364S,32365,32366	Poles and anchors set	1

UTILITY WORK SCHEDULE Rev 08 02 2016			
CTDOT Project Number:	160-147	Town:	Willington
Project Description:	RT 32 over S Roaring Brook		
CTDOT Utilities Engineer:	Xiuyun Cai		
Phone:	860 594 3269	Email:	xiuyun.cai@ct.gov
Utility Company:	Spectrum		
Prepared By:	Eric Anderson	Date Prepared:	10/17/2017
Phone:	860 303 4001	Email:	eric.anderson@charter.com
Scope of Work			
<p>The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.</p>			
<p>Spectrum will find slack and shift to new poles.</p>			
Special Considerations and Constraints			
<p>The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..</p>			

GENERAL

UTILITY WORK SCHEDULE Rev 3/2015			
CTDOT Project Number:	160-147	Town:	WILLINGTON
Project Description:	RT 32 OVER ROARING BROOK		
CTDOT Utilities Engineer:	XIUYUN CAI		
Phone:	(860)594-3269	Email:	xiuyun.cai@ct.gov
Utility Company:	LIGHTOWER FIBER NETWORKS		
Prepared By:	TERENCE J SHEA	Date Prepared:	10/2/2017
Phone:	(203)649-3905	Email:	tshea@lightower.com
Scope of Work			
<p>The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.</p> <p>Lightowers work will consist of placing new strand, relocating slack, shifting cable to new strand and removing old strand.</p>			
Special Considerations and Constraints			
<p>The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..</p> <p>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>			

GENERAL

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number:	160-147						
Utility Company:	LIGHTOWER FIBER NETWORKS						
Prepared By:	TERENCE J SHEA				Total Working Days:	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)
LIMITS	PLACE STRAND P32363 TO P32366	POLES SET, POWER AND CATV OVER	2
LIMITS	MOVE SLACK AND SHIFT CABLE	STRAND PLACED	2
LIMITS	REMOVE OLD STRAND	CABLE SHIFTED TO NEW STRAND	1

UTILITY WORK SCHEDULE Rev 3/2015			
CTDOT Project Number:	160-147	Town:	WILLINGTON
Project Description:	REHABILITATION OF BRIDGE NO. 02259		
CTDOT Utilities Engineer:	XIUYUN CAI		
Phone:	(860)594-3269	Email:	xiuyun.cai@ct.gov
Utility Company:	FRONTIER COMMUNICATIONS		
Prepared By:	MARC SWEENEY	Date Prepared:	
Phone:	860 725-4226	Email:	marc.w.sweeney@ftr.com
Scope of Work			
<p>The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.</p> <p>This project will require Frontier Communications to shift cables to P32364, P32365 & P32366 that were replaced by Eversource. Place new over guy from P32365 to P32365S and new down guy @ P32365S.</p>			
Special Considerations and Constraints			
<p>The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..</p> <p>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>			

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number:	160-147						
Utility Company:	FRONTIER COMMUNICATIONS						
Prepared By:	MARC SWEENEY				Total Working Days:	4	

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)
10+70	SHIFT CABLES TO NEW POLE 32364	POLES SET BY EVERSOURCE, ALL OTHER UTILITIES SHIFTED TO NEW POLE	1
12+20	SHIFT CABLES TO NEW POLE 32365	POLE SET BY EVERSOURCE, ALL OTHER UTILITIES SHIFTED TO NEW POLE	1
12+20	PLACE OVER HEAD GUY FROM P32365 TO P32365S	POLE SET BY EVERSOURCE, ALL OTHER UTILITIES SHIFTED TO NEW POLE	1
	SHIFT CABLES TO NEW POLE 32366	POLE SET BY EVERSOURCE, ALL OTHER UTILITIES SHIFTED TO NEW POLE	1

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_0103-0273.zip file (0103-0273 is the project number) which is posted with the contract PS&E's on the State Contracting portal.

NOTICE TO CONTRACTOR – EXTENDED SEASON PAVING

The Contractor is advised to refer to Section 4.06 – Bituminous Concrete should any paving activities occur within the Extended-Season (October 15 – April 30).

NOTICE TO CONTRACTOR – PRE-BID 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 9:00 am Monday (i.e. typical Wednesday Bid Opening) the project(s) being bid will be closed for questions, at which time questions can no longer be submitted through the Q and A Website.**

Answers may be provided by the Department up to 12:00 noon, the day before the bid. At this time, the Q and A for those projects will be considered final, unless otherwise stated and/or the bid is postponed to a future date and time to allow for further questions and answers to be posted.

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

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

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

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

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

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

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

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

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

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

NOTICE TO CONTRACTOR – 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 – USE OF STATE POLICE OFFICERS

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

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

NOTICE TO CONTRACTOR – 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.

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

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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 1.07.11 Opening of Section of project to Traffic or Occupancy:

Add the following sentence to the last paragraph:

“In cases in which guiderail is damaged by the traveling public, repair or replacement will be reimbursable as contained elsewhere herein.”

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 allowed to perform any work that will interfere with existing traffic operations on all project roadways as follows:

Route 32 (River Road)

The Contractor will not be allowed to perform any work that will interfere with one lane of traffic in each direction and turning lanes on:

Monday through Friday between 6:00 a.m. and 8:30 a.m. and between 4:00 p.m. and 6:00 p.m.

The Contractor will be allowed to halt Route 32 traffic as approved by the Engineer for a period of time not to exceed ten minutes for installing and removing temporary concrete barrier on:

Monday through Friday between 8:30 a.m. and 4:00 p.m.

At the end of the workday the Contractor shall not store construction equipment in the construction area which will restrict sight lines from intersecting roads and driveways.

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.

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.

GENERAL

(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-weighting 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 25feet 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:

Posted Speed Limit	Permanent Transition Length Required
> 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:

Posted Speed Limit	Temporary Transition Length Required
> 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°F ± 10°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 1/2 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

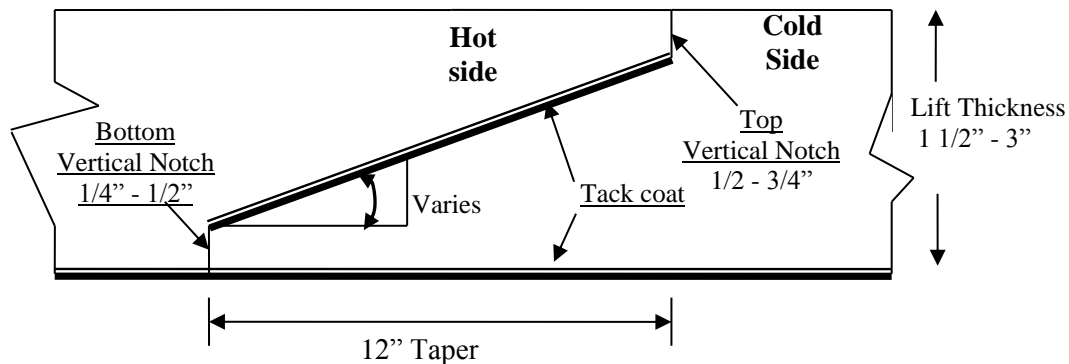
the Engineer.

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.

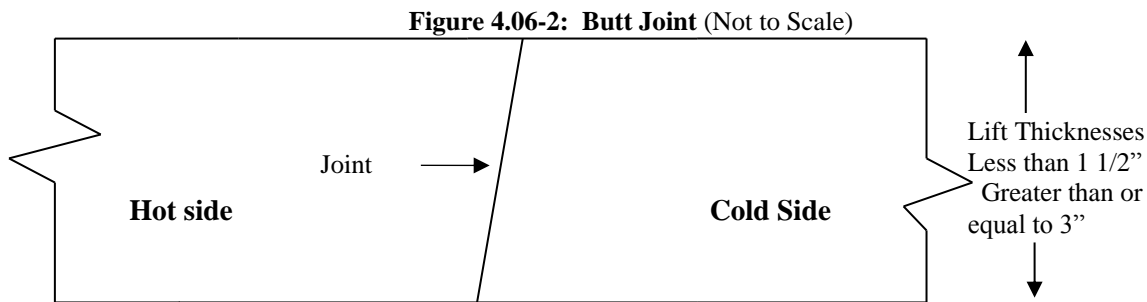
The Engineer reserves the right to define the paving limits when using a wedge joint that will be exposed to traffic.

If Method I cannot be used on those lifts which are 1 ½ 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:

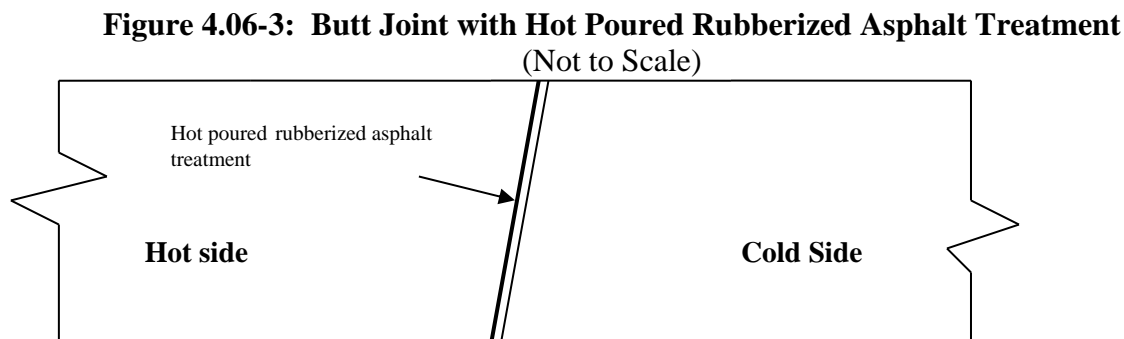
When adjoining passes are placed, the Contractor shall use the end gate to create a near vertical edge (refer to Figure 4.06-2). The completing pass (hot side) shall have sufficient mixture so that the compacted thickness is not less than the previous pass (cold side). During placement of multiple lifts, 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

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.

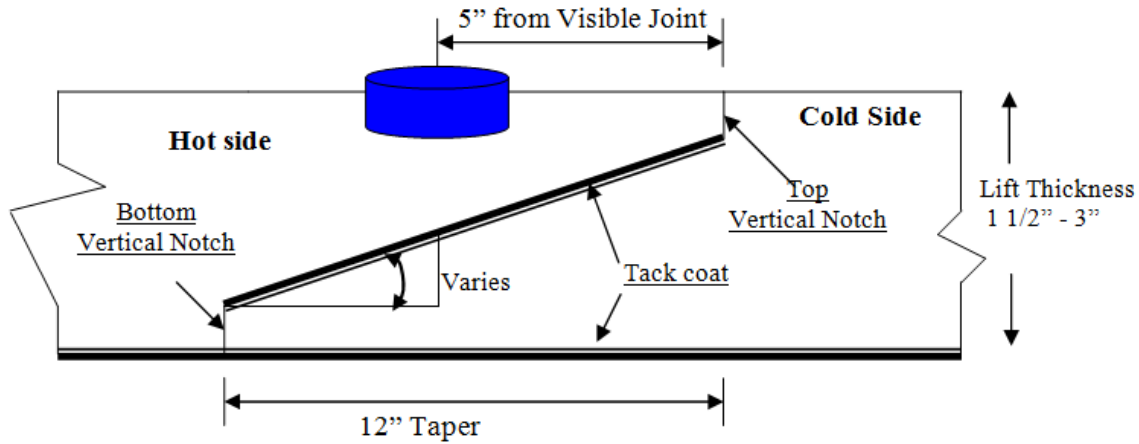
Prior to paving, the type and number of lot(s) will be determined by the Engineer. Noncontiguous areas such as highway ramps may be combined to create one lot.

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).

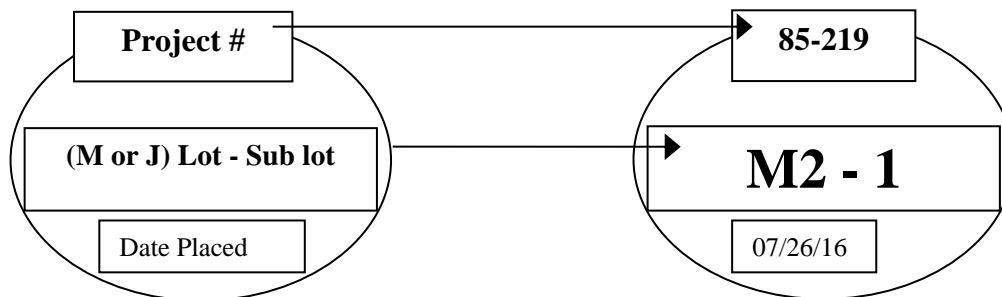
Figure 4.06-4: Notched Wedge Joint Cores (Not to Scale)



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 ⁽¹⁾	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))]/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_A) = [(L x W_{adj})/9] x (t) x 0.0575 Tons/SY/inch = (-) tons

Where: L = Length (ft)

(t) = Actual thickness (inches)

W_{adj} = (Designed width (ft) + tolerance /12) - Measured Width)

- b) Thickness: If the actual 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:

$$\text{Quantity Adjusted for Thickness (T}_T\text{)} = A \times t_{\text{adj}} \times 0.0575 = (-) \text{ tons}$$

Where: A = Area = $\{[L \times (\text{Design width} + \text{tolerance (lift thickness)/12})] / 9\}$
 t_{adj} = Adjusted thickness = $[(Dt + \text{tolerance}) - \text{Actual thickness}]$
 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:

$$\text{Quantity Adjusted for Weight (T}_W\text{)} = \text{GVW} - \text{DGW} = (-) \text{ tons}$$

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:

$$\text{Tons Adjusted for Superpave Design (T}_{SD}\text{)} = [(\text{AdjAV}_t + \text{AdjPB}_t) / 100] \times \text{Tons}$$

Where: AdjAV_t: Percent adjustment for air voids
 AdjPB_t: Percent adjustment for asphalt binder
 Tons: Weight of material (tons) in the lot adjusted by 4.06.4-1

$$\text{Percent Adjustment for Air Voids} = \text{AdjAV}_t = [\text{AdjAV}_1 + \text{AdjAV}_2 + \text{AdjAV}_i + \dots + \text{AdjAV}_n] / n$$

Where: AdjAV_t = Total percent air void adjustment value for the lot
 AdjAV_i = 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 _i) (%)	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 = [(AdjPB₁ + AdjPB₂ + AdjPB_i + ... + 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 _i) (%)	<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 or PB_t or VMA_t) = (55 + 0.5 PWL) - 100

For PWL at and above 90%: Adj(AV_t or PB_t or VMA_t) = (77.5 + 0.25 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] X 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) = $[(P_{AM} \times 0.50) + (P_{AJ} \times 0.50)] / 100 \times \text{Tons}$

Where: T_D = Total tons adjusted for density for each lot

P_{AM} = Mat density percent adjustment from Table 4.06-8

P_{AJ} = 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) ⁽¹⁾⁽²⁾
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:

⁽¹⁾ ACRPD = Average Core Result Percent Density

⁽²⁾ 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) ⁽¹⁾⁽²⁾
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:

⁽¹⁾ ACRPD = Average Core Result Percent Density

⁽²⁾ 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:

Tack Coat (gallons at 60°F) = Measured Weight (pounds) / Weight per gallon at 60°F

Tack Coat (gallons at 60°F) = 0.996 x Measured Weight (pounds) / Weight per gallon at 77°F

- ii. Measured by automated metering system on the delivery vehicle:

Tack Coat (gallons at 60°F) = 0.976 x 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): $\Sigma \text{ Est (DMi)} + \Sigma \text{ (DJi)} = \text{Est. (D)}$

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.

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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 6.86 – 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

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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.

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

GENERAL

#	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.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:

CRCG Grading Requirements	
<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
Grade of PG Binder content %	PG 64S-22 6.5 - 9.0	0.4
Sieve Size		
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		
Additionally, the fraction of material retained between any 2 consecutive sieves shall not be less than 4%.		
Mixture Temperature		
Binder	325°F maximum	
Aggregate	280-350°F	
Mixtures	265-325°F	
Mixture Properties		
Air Voids (VA) %	0 – 4.0 (a)	
Notes: (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

	S0.25		S0.375		S0.5		S1	
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 ⁽¹⁾	Fine Aggregate Angularity AASHTO T 304, Method A Minimum %	Flat and Elongated Particles ⁽²⁾ 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:
⁽¹⁾ 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.
⁽²⁾ 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 _{ini}	N _{des}	N _{max}	N _{ini}	N _{des}	N _{max}	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**

Mix Type	Level	Binder Content Minimum
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:

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. The field 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 containers for potential use in dispute resolution and test the remaining material for acceptance.

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

Protocol	Reference	Description
1	AASHTO T 30(M)	Mechanical Analysis of Extracted Aggregate
2	AASHTO T 168	Sampling of Bituminous Concrete
3	AASHTO T 308	Binder Content by Ignition Oven Method (adjusted for aggregate correction factor)
4	AASHTO T 209(M)⁽²⁾	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
5	AASHTO T 312⁽²⁾	⁽¹⁾ Superpave Gyrotory Molds Compacted to N _{des}
6	AASHTO T 329	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method

Notes: ⁽¹⁾ One (1) set equals 2 each of 6-inch molds. Molds to be compacted to 50 gyrations.
⁽²⁾ 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	⁽¹⁾ Superpave gyratory molds compacted to N_{des}
6	AASHTO T 166	⁽²⁾ Bulk specific gravity of bituminous concrete
7	AASHTO R 35	⁽²⁾ 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: ⁽¹⁾ 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} .

⁽²⁾ 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

	S0.25		S0.375		S0.5		S1		Tolerances
Sieve	Control Points		Control Points		Control Points		Control Points		From JMF Targets ⁽²⁾
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 ⁽³⁾
VMA (%)	16.5		16.0		15.0		13.0		1.0 ⁽⁴⁾
VA (%)	4.0		4.0		4.0		4.0		1.0 ⁽⁵⁾
Gmm	JMF value		JMF value		JMF value		JMF value		0.030
Mix Temp. – HMA ⁽⁶⁾	265-325°F ⁽¹⁾		265-325°F ⁽¹⁾		265-325°F ⁽¹⁾		265-325°F ⁽¹⁾		
Mix Temp. – PMA ⁽⁶⁾	285-335°F ⁽¹⁾		285-335°F ⁽¹⁾		285-335°F ⁽¹⁾		285-335°F ⁽¹⁾		
Prod. TSR	N/A		N/A		≥80%		N/A		
T-283 Stripping	N/A		N/A		Minimal TBD by the Engineer		N/A		

Notes: ⁽¹⁾ 300°F minimum after October 15.

⁽²⁾ JMF tolerances shall be defined as the limits for production compliance.

⁽³⁾ 0.4 for PWL lots

⁽⁴⁾ 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

⁽⁵⁾ 1.2 for PWL lots

⁽⁶⁾ Also applies to placement

**Table M.04.03-5:
Modifications to Standard AASHTO and ASTM Test Specifications and Procedures**

AASHTO Standard Method of Test	
Reference	Modification
T 30	Section 7.2 through 7.4 Samples are not routinely washed for production testing
T 209	Section 7.2 The average of 2 bowls is used proportionally in order to satisfy minimum mass requirements. 8.3 Omit Pycnometer method.
T 283	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.
AASHTO Standard Recommended Practices	
Reference	Modification
R 26	<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.</p> <p>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).

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

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

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

Measurement and Payment

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

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

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

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

www.ct.gov/dot

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

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

January 2013

I. ABBREVIATIONS AND DEFINITIONS AS USED IN THIS SPECIAL PROVISION

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

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

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

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

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

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

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

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

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

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

GENERAL

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

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

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

II. ADMINISTRATIVE REQUIREMENTS

A. General Requirements

A DBE goal percentage equaling **12** percent (%) of the Contract value has been established for this Contract. This DBE goal percentage will be applied to the final Contract value to ultimately determine the required DBE goal. If additional work is required, DBE firms should be provided the appropriate opportunities to achieve the required DBE goal.

In order to receive credit toward the Contract DBE goal, the firms utilized as DBE subcontractors or suppliers must be certified as DBEs in the type of work to be counted for credit by CTDOT’s Office of Contract Compliance prior to the date of the execution of the subcontract. Neither CTDOT nor the State of Connecticut’s Unified Certification Program (UCP) makes any representation as to any DBE’s technical or financial ability to perform the work. Prime contractors are solely responsible for performing due diligence in hiring DBE subcontractors.

All DBEs shall perform a CUF for the work that is assigned to them. The Contractor shall monitor and ensure that the DBE is in compliance with this requirement. The Connecticut DBE UPC Directory of certified firms can be found on the CTDOT website <http://www.ct.gov/dot>. The directory lists certified DBE firms with a description of

services that they are certified to perform. Only work identified in this listing may be counted towards the project's DBE goal. A DBE firm may request to have services added at any time by contacting CTDOT's Office of Contract Compliance. No credit shall be counted for any DBE firm found not to be performing a CUF.

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

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

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

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

In addition, the report shall include:

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

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

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

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

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

B. Subcontract Requirements

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

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

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

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

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

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

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

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

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

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

C. Modification to Pre-Award Commitment

Contractors may not terminate for convenience any DBE subcontractor or supplier that was listed on the pre-award DBE commitment without prior written approval of the OOC. This includes, but is not limited to, instances in which a Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of

an affiliate, a non-DBE firm, or with another DBE firm. Prior to approval, the Contractor must demonstrate to the satisfaction of the OOC, that it has good cause, as found in 49CFR Part 26.53 (f)(3), for termination of the DBE firm.

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

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

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

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

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

If the Contractor is unable to find a DBE replacement:

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

III. GOOD FAITH EFFORTS

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

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

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

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

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

- Written notice provided to a reasonable number of specific DBE firms in sufficient time to allow effective participation.
- Those portions of work that could be performed by readily available DBE firms.

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

IV. PROJECT COMPLETION

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

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

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

V. SHORTFALLS

A. Failure to meet DBE goals

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

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

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

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

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

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

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

B. Administrative Remedies for Non-Compliance:

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

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

VI. CLASSIFICATIONS OTHER THAN SUBCONTRACTORS

A. Material Manufacturers

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

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

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

B. Material Suppliers (Dealers)

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

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

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

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

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

C. Brokering

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

D. Non-Manufacturing or Non-Supplier DBE Credit

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

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

E. Trucking

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

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

VII. Suspected DBE Fraud

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

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

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

State Contract No.

Federal Aid Project No.

Description of Project

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

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

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

I further certify and affirm that _____ will assume the actual and
(DBE person, firm, association or Corporation)

for the provision of the materials and/or supplies sought by _____.

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

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

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

(Name of Corporation or Firm)

(Signature & Title of Official making the Affidavit)

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

Notary Public (Commissioner of the Superior Court)

My Commission Expires _____

CERTIFICATE OF CORPORATION

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

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

(Signature of Person Certifying)

(Date)

GENERAL

ITEM #0020801A – ASBESTOS ABATEMENT

Description:

Work under this item shall include the abatement of asbestos containing materials (ACM) and associated work by persons who are knowledgeable, qualified, trained and licensed in the removal, treatment, handling, and disposal of ACM and the subsequent cleaning of the affected environment. ACM shall include material composed of any type of asbestos in amounts greater than one percent (1%) by weight. The Contractor performing this work shall possess a valid Asbestos Abatement Contractor license issued by the Connecticut Department of Public Health (CTDPH).

These Specifications govern all work activities that disturb asbestos containing materials. All activities shall be performed in accordance with, but not limited to, the current revision of the OSHA General Industry Standard for Asbestos (29 CFR 1926.1001), the OSHA Asbestos in Construction Regulations (29 CFR 1926.1101), the USEPA Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) Regulations (40 CFR Part 61 Subpart M), the CTDPH Standards for Asbestos Abatement, Licensure and Training (19a-332a-1 through 16, 20-440-1 through 9 & 20-441), and the CTDEEP Special Waste Disposal Regulations (22a-209-8(i)).

The asbestos abatement work shall include the removal and disposal of all ACM as identified on the Contract Plans and Specifications prior to the planned renovation/demolition project.

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

Materials:

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

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

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

Six (6) mil polyethylene disposable bags shall have pre-printed OSHA/EPA/DOT labels and shall be transparent.

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

Surfactant is a chemical wetting agent added to water to improve penetration and shall consist of fifty (50) percent polyoxyethylene ether and fifty (50) percent polyoxyethylene ester, or equivalent. The surfactant shall be mixed with water to provide a concentration one (1) ounce surfactant to five (5) gallons of water, or as directed by the manufacturer.

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

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

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

Labels and warning signs shall conform to OSHA 29 CFR 1926.1101, USEPA 40 CFR Part 61.152, and USDOT 49 CFR Part 172 as appropriate.

Encapsulant, a material used to chemically entrap asbestos fibers to prevent these fibers from becoming airborne, shall be of the type which has been approved by the Engineer. Use shall be in accordance with manufacturer's printed technical data. The encapsulant shall be clear and must be compatible with new materials being installed, if any.

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

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

Construction Methods:

(1) Pre-Abatement Submittals and Notices

- (a) The scope of work for this project includes the removal of exterior non-friable ACM, which is not defined as "Asbestos Abatement" under the CTDPH Asbestos Abatement Standards (19a-332a-1). Therefore, the Contractor is **not required to submit an Asbestos Abatement Notification to CTDPH, prior to the commencement of work, so long as work practices will not render more than 25 square feet (SF) of the exterior non-friable ACM into a friable state.**
- (b) Fifteen (15) working days prior to the commencement of asbestos abatement work, the Contractor shall submit to the Engineer for review and acceptance and/or acknowledgment of the following:
 - 1. Permits and licenses for the removal of asbestos-containing or contaminated materials, including a CTDPH valid asbestos removal contractor's license.

2. Documentation dated within the previous twelve (12) months, certifying that all employees have received USEPA Model Accreditation Plan approved asbestos worker/supervisor training in the proper handling of materials that contain asbestos; understand the health implications and risks involved, including the illnesses possible from exposure to airborne asbestos fibers; understands the use and limits of respiratory equipment to be used; and understands the results of monitoring of airborne quantities of asbestos as related to health and respiratory equipment as indicated in 29 CFR 1926.1101 on an initial and annual basis, and copies of all employees CTDPH asbestos worker and/or supervisor licenses.
 3. Documentation from the Contractor, typed on company letterhead and signed by the Contractor, certifying that all employees listed therein have received the following:
 - a. medical monitoring within the previous twelve (12) months, as required in 29 CFR 1926.1101;
 - b. respirator fit testing within the previous twelve (12) months as detailed in 29 CFR 1910.134 (for all employees who must also don a tight-fitting face piece respirator).
 4. Copies of the EPA/State-approved certificates for the proposed asbestos landfill.
- (c) No abatement shall commence until a copy of all required submittals have been received and found acceptable to the Engineer. Those employees added to the Contractor's original list will be allowed to perform work only upon submittal to, and receipt of, all required paperwork by the Engineer.

(2) Asbestos Abatement Provisions:

(a) General Requirements

The Abatement Contractor/Subcontractor shall possess a valid State of Connecticut Asbestos Contractor License. Should any portion of the work be subcontracted, the subcontractor must also possess a valid State of Connecticut Asbestos Contractor License. The Asbestos Abatement Site Supervisor employed by the Contractor shall be in control on the job site at all times during asbestos abatement work. All employees of the Contractor who shall perform work (i.e. Asbestos Abatement Site Supervisor, Asbestos Abatement Worker) shall be properly certified/licensed by the State of Connecticut to perform such duties.

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

Prior to beginning work, the Engineer and Contractor shall perform a visual survey of each work area and review conditions at the site for safety reasons. In addition, the Contractor shall instruct

all workers in all aspects of personnel protection, work procedures, emergency evacuation procedures and use of equipment including procedures unique to this project.

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

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

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

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

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

Data provided regarding asbestos sampling conducted throughout the structure(s) is for informational purposes only. Under no circumstances shall this information be the sole means used by the Contractor for determining the presence, location and/or quantity of all asbestos containing materials. The Contractor shall verify all field conditions affecting performance of the work as described in these Specifications in accordance with OSHA, USEPA, USDOT, DEEP standards. Compliance with the applicable requirements is solely the responsibility of the Contractor.

The Engineer will provide a Project Monitor to oversee the activities of the Contractor. No asbestos work shall be performed until the Project Monitor is on-site. Pre-abatement, during abatement and post-abatement air sampling will be conducted as deemed necessary by the Project Monitor. Waste stream testing will be performed, as necessary, by the Project Monitor prior to waste disposal.

(b) Set-Up

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

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

Access between rooms in the Worker Decontamination Enclosure System shall be through airlocks. Other effective designs are permissible. The Clean Room, Shower Room and Equipment Room located within the Worker Decontamination Enclosure, shall be contiguously connected with taped airtight edges.

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

The Shower Room shall be of sufficient capacity to accommodate the number of workers. One shower stall shall be provided for each eight (8) workers. Showers shall be equipped with hot and cold or warm running water through the use of electric hot water heaters supplied by the Contractor. No worker or other person shall leave a Regulated Area without showering. Shower water shall be collected and filtered using best available technology and disposed of in an approved sanitary drain. Shower stalls and plumbing shall include sufficient hose length and drain system or an acceptable alternate.

The Contractor shall ensure that no personnel or equipment be permitted to leave the Regulated Area until proper decontamination procedures (including HEPA vacuuming, wet wiping and showering) to remove all asbestos debris have occurred.

Post warning signs meeting the specifications of OSHA 29 CFR 1910.1001 and 29 CFR 1926.1101 at each Regulated Area. In addition, signs shall be posted at all approaches to Regulated Areas so that an employee may read the sign and take the necessary protective steps before entering the area. Additional signs may require posting following construction of workplace enclosure barriers.

Alternate set up requirements for exterior non-friable asbestos abatement procedures

In lieu of the establishment of a negative pressure enclosure (NPE) system as described by CTDPH Sections 19a-332a-5(c), 5(d), 5(e), and 5(h), non-friable ACM will be removed from exterior work areas within an outdoor Regulated Area(s). The regulated work area will be established by the use of appropriately labeled barrier tape and postings in compliance with CTDPH 19a-332a-5(a) as well as OSHA 29 CFR 1926.1101. A remote personnel decontamination unit as specified in Section 19a-332a-6 will be required. This method shall only be utilized provided exposure assessment air sampling data collected during the removal of the exterior non-friable materials indicates that the exposure levels during removal of such materials do not exceed 0.1 asbestos f/cc. Should exposure assessment air sampling data exceed this level, and engineering efforts to reduce the airborne fiber levels not be successful in reducing the levels to less than 0.1 f/cc, removal shall occur within these areas under full containment conditions.

(c) Personnel Protection

The Contractor shall utilize all appropriate engineering controls and safety and protective equipment while performing the work in accordance with OSHA, USEPA, USDOT, CTDEEP and CTDPH regulations.

The Contractor shall provide and require all workers to wear protective clothing in the Regulated Areas where asbestos fiber concentrations may reasonably be expected to exceed the OSHA established Permissible Exposure Limits (PEL) or where asbestos contamination exists. Protective clothing shall include impervious coveralls with elastic wrists and ankles, head covering, gloves and foot coverings.

Respiratory protection shall be provided and shall meet the requirements of OSHA as required in 29 CFR 1910.134, and 29 CFR 1926.1101 as well as the requirements of the CTDPH regulations. A formal respiratory protection program must be implemented in accordance with 29 CFR 1926.1101 and 29 CFR 1910.134. The Contractor shall provide respirators from among those approved as being acceptable for protection by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

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

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

(d) Asbestos Abatement Procedures

The Asbestos Abatement Site Supervisor, as the OSHA Competent Person shall be at the site at all times.

The Contractor shall not begin abatement work until authorized by the Project Monitor, following a pre-abatement visual inspection.

All workers and authorized persons shall enter and leave the Regulated Area through the Worker Decontamination Enclosure System, leaving contaminated protective clothing in the Equipment Room for reuse or disposal of as asbestos contaminated waste. No one shall eat, drink, smoke, chew gum or tobacco, or apply cosmetics while in a Regulated Area.

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

Bridge No. 02259, Route 32 over South Branch Roaring Brook, Willington, CT

A regulated area(s) shall be established at the perimeter of the work area(s), and access shall be controlled by the Contractor. A remote personnel decontamination unit shall be utilized. Removal shall be undertaken in accordance with OSHA Class II and USEPA Asbestos NESHAP requirements.

During removal, the Contractor shall spray asbestos materials with amended water using airless spray equipment capable of providing a "mist" application to reduce the release of airborne fibers. Spray equipment shall be capable of mixing wetting agent with water and capable of generating sufficient pressure and volume. Hose length shall be sufficient to reach all of the Regulated Area. Do not "flood" the area with hose type water supply equipment with the potential to create water releases and/or run-off from the regulated area.

The Contractor shall continue to spray the asbestos materials with amended water, as necessary, throughout removal activities to ensure the asbestos materials remain adequately wet. The asbestos materials shall not be allowed to dry out.

In order to minimize airborne asbestos concentrations inside the Regulated Area, the Contractor shall remove the adequately wetted asbestos in manageable sections. In addition, asbestos materials removed from any elevated level shall be carefully lowered to the floor.

The Contractor shall promptly place the adequately wet asbestos material in disposal containers (six (6) mil polyethylene bags/fiber drum/poly-lined dumpsters, etc.) as it is removed. Large components removed intact may be wrapped in two (2) layers of six (6) mil polyethylene sheeting secured with tape. As the disposal containers are filled, the Contractor shall promptly seal the containers, apply caution labels and clean the containers before transportation from the regulated area. Bags shall be securely sealed to prevent accidental opening and leakage by taping in gooseneck fashion. Small components and asbestos-containing waste with sharp-edged components (e.g. nails, screws, metal lath, tin sheeting) which could tear polyethylene bags and sheeting shall be placed in clean drums and sealed with locking ring tops. All waste containers shall be leak-tight, (typically consisting of two layers of 6 mil poly (or bags)), and shall be properly labeled and placarded with OSHA Danger labels, DOT shipping labels, markings and placards and USEPA NESHAP generators labels. Containers shall be decontaminated by wet cleaning and HEPA vacuuming prior to exiting the regulated area.

If at any time during asbestos removal, the Project Monitor should suspect contamination of areas outside the Regulated Area, the Contractor shall immediately stop all abatement work and take steps to decontaminate these areas and eliminate causes of such contamination. Unprotected individuals shall be prohibited from entering contaminated areas until air sampling and/or visual inspections determine decontamination.

After completion of abatement work, all surfaces from which asbestos has been removed shall be wet brushed, using a nylon brush, wet wiped and sponged or cleaned by an equivalent method to remove all visible material (wire brushes are not permitted). During this work the surfaces being

cleaned shall be kept wet. Cleaning shall also include the use of HEPA filtered vacuum equipment.

The Contractor shall also remove and containerize all visible accumulations of asbestos-containing and/or asbestos-contaminated debris which may have splattered or collected on the polyethylene engineering controls/barriers.

The Contractor shall remove contamination from the exteriors of the scaffolding, ladders, extension cords, hoses and other equipment inside the Regulated Area. Cleaning may be accomplished by brushing, HEPA vacuuming and/or wet cleaning. The Contractor shall wet wipe the Regulated Area using cotton rags or lint free paper towels. Rags and towels shall be disposed of after each use. Workers should avoid the use of dirty rags to insure proper cleaning of surfaces. Waste water shall be filtered using best available technology into leak-proof containers prior to being transported to a sanitary sewer for discharge.

Once the Regulated Area surfaces have dried, the Project Monitor shall perform a thorough post abatement visual inspection utilizing protocols from the ASTM Standard E1368-90 *Standard Practice for Visual Inspection of Asbestos Abatement Projects*. All surfaces within the Regulated Area, including but not limited to ledges, beams, and hidden locations shall be inspected for visible residue. Evidence of asbestos contamination identified during this inspection will necessitate further cleaning as heretofore specified. The area shall be re-cleaned at the Contractor's expense, until the standard of cleaning is achieved.

Once the area has received a satisfactory post-abatement visual inspection, any equipment, tools or materials not required for completion of the work, shall be removed by the Contractor from the Regulated Area.

(e) Air Monitoring Requirements

1. The Contractor shall:

- a. Provide air monitoring equipment including sample filter cassettes of the type and quantity required to properly monitor operations and personnel exposure surveillance throughout the duration of the project.
- b. Conduct personnel exposure assessment air sampling, as necessary, to assure that workers are using appropriate respiratory protection in accordance with OSHA Standard 1926.1101. Documentation of air sampling results must be recorded at the work site within twenty-four (24) hours and shall be available for review until the job is complete.

2. The Project Monitor, acting as the representative of the Engineer during abatement activities, will:

- a. Collect air samples in accordance with the current revision of the NIOSH 7400 Method of Air Sampling for Airborne Asbestos Fibers while

overseeing the activities of the Abatement Contractor. Frequency and duration of the air sampling during abatement will be representative of the actual conditions at the abatement site. The size and configuration of the asbestos project will be a factor in the number of samples required to monitor the abatement activities and shall be determined by the Project Monitor. The following schedule of samples may be collected by the Project Monitor:

1. Pre-Abatement (Optional)
 - a. Background areas
 - b. Area(s) adjacent to Work Area(s)
 - c. Work Area(s)

2. During Abatement (Optional)
 - a. Within Regulated Area(s)
 - b. Area(s) adjacent to Regulated Areas(s)
(exterior to critical barriers)
 - c. At the Decontamination Enclosure System

Abatement Activity	Pre-Abatement	During Abatement	Post-Abatement
Exterior Friable/Non-Friable	---	PCM	---

If air samples collected outside of the Regulated Area during abatement activities indicate airborne fiber concentrations greater than original background levels, or greater than 0.1 f/cc, as determined by Phase Contrast Microscopy, whichever is larger, an examination of the Regulated Area perimeter shall be conducted and the integrity of barriers shall be restored. Cleanup of surfaces outside the Regulated Area using HEPA vacuum equipment or wet cleaning techniques shall be done prior to resuming abatement activities.

(f) Post Abatement Work Area Deregulation

The Contractor shall remove all remaining polyethylene, including critical barriers, drop-cloths, and Decontamination Enclosure Systems. HEPA vacuum and/or wet wipe any visible residue which is uncovered during this process. All waste generated during this disassembly process shall be discarded as ACM waste.

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

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

(g) Waste Disposal

Unless otherwise specified, all removed materials and debris resulting from execution of this project shall become the responsibility of the Contractor and removed from the premises. Materials not scheduled for reuse shall be removed from the site and disposed of in accordance with all applicable Federal, State and Local requirements.

Waste removal dumpsters and cargo areas of transport vehicles shall be lined with a layer of six (6) mil polyethylene sheeting to prevent contamination from leaking or spilled containers. Floor sheeting shall be installed first, and shall be extended up sidewalls 12-inches. Wall sheeting shall overlap floor sheeting 24-inches and shall be taped into place.

OSHA "Danger" signs must be attached to vehicles used to transport asbestos-containing waste prior to loading ACM waste. The signs must be posted so that they are plainly visible.

Ensure all waste containers (bags, drums, etc.) are properly packed, sealed and labeled with USEPA NESHAP generator labels, OSHA danger labels and DOT shipping labels. For each shipment of ACM waste, the Contractor shall complete an EPA-approved asbestos waste shipment record.

Authorized representatives signing waste shipment records on behalf of the generator must have USDOT Shipper Certification training in accordance with HMR 49 CFR Parts 171-180.

Transport vehicles hauling ACM waste shall have appropriate USDOT placards visible on all four (4) sides of the vehicle.

The Contractor shall dispose of asbestos-containing and/or asbestos contaminated material at an EPA authorized site and must be in compliance with the requirements of the Special Waste Provisions of the Office of Solid Waste Management, Department of Energy & Environmental Protection, State of Connecticut, or other designated agency having jurisdiction over solid waste disposal.

Any asbestos-containing and/or asbestos-contaminated waste materials which also contain other hazardous contaminants shall be disposed of in accordance with the EPA's Resource Conservation and Recovery Act (RCRA), CTDEEP and ConnDOT requirements. Materials may be required to be stored on-site and tested by the Project Monitor to determine proper waste disposal requirements.

(h) Project Closeout Data:

1. Provide the Engineer, within 30 days of completion of asbestos abatement, a compliance package; which shall include, but not be limited to, the following:
 - a. Asbestos Abatement Site Supervisor job log;
 - b. OSHA personnel air sampling data;
 - c. Completed waste shipment records.

The Contractor shall submit the original completed waste shipment records to the Engineer.

Method of Measurement:

No measurement will be made for the work in this Section. The completed work shall be paid as a lump sum.

Basis of Payment:

The lump sum bid price for this item shall include the specialty services of the Asbestos Removal Contractor including: labor, materials, equipment, insurance, permits, notifications, submittals, personal air sampling, personal protection equipment, temporary enclosures, utility costs, incidentals, fees and labor incidental to the removal, transport and disposal of ACM, including close out documentation.

Final payment for asbestos abatement will not be made until all the project closeout data submittals have been completed (including waste shipment record(s) signed by an authorized disposal facility representative) and provided to the Engineer. Once the completed package has been received in its entirety, the Engineer will make the final payment to the Contractor.

Pay Item

Pay Unit

Asbestos Abatement

Lump Sum

ITEM #0020903A – LEAD COMPLIANCE FOR MISCELLANEOUS EXTERIOR TASKS

Description:

Work under this item shall include the special handling measures and work practices required for miscellaneous exterior tasks that impact materials containing or covered by lead paint. Lead paint includes paint found to contain **any** detectable amount of lead by Atomic Absorption Spectrophotometry (AAS) or X-Ray Fluorescence (XRF). Examples of typical miscellaneous exterior tasks includes; work impacting signs, guiderails, minor bridge rehabilitation, catenary structures, canopy structures, spot/localized paint removal, etc.

All activities shall be performed in accordance with the OSHA Lead in Construction Regulations (29 CFR 1926.62), the USEPA RCRA Hazardous Waste Regulations (40 CFR Parts 260 through 274), and the CTDEEP Hazardous Waste Regulations (RCSA 22a-209-1 and 22a-449(c)).

All activities shall be performed by individuals with appropriate levels of OSHA lead awareness and hazard communication training and shall supervised by the Contractors Competent Person on the job site at all times. The Contractors Competent Person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

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

Materials:

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

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

The following material requirements are to be met if to be used during the work:

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

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

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

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

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

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

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

Construction Methods:

(1) Pre-Abatement Submittals and Notices

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

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

1. Work plan for work impacting lead paint including engineering controls, methods of containment of debris and work practices to be employed, as needed, to minimize employee exposure and prevent the spread of lead contamination outside the Regulated Area.
2. Copies of all employee certificates, dated within the previous twelve (12) months, relating to OSHA lead awareness and hazard communication training and training in the use of lead-safe work practices. SSPC training programs may be accepted as meeting these requirements if it can be demonstrated that such training addressed all required topics.

This information shall be updated and resubmitted annually, or as information changes, for the duration of the activities impacting lead to verify continued compliance.

3. Name and qualifications of Contractor's OSHA Competent Person under 29 CFR 1926.62.
4. Documentation from the Contractor, typed on company letterhead and signed by the Contractor, certifying that all employees listed therein have received the following:
 - a. medical monitoring within the previous twelve (12) months, as required in 29 CFR 1926.62;
 - b. biological monitoring within the previous six (6) months, as required in 29 CFR 1926.62;
 - c. respirator fit testing within the previous twelve (12) months, as required in 29 CFR 1910.134 (for those who don a tight-fitting face piece respirator)

This information shall be updated and resubmitted annually, or as information changes, for the duration of the activities impacting lead to verify continued compliance.

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

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

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

(2) Lead Abatement Provisions

A. General Requirements:

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

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

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

As necessary, the Contractor shall:

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

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

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

The Engineer may provide a Project Monitor to monitor compliance of the Contractor and protect the interests of the Department. In such cases, no activity impacting lead paint shall be performed until the Project Monitor is on-site. Where no Project Monitor will be provided, Contractor shall proceed at the direction of the Engineer. Environmental sampling, including ambient air sampling, TCLP waste stream sampling, and dust wipe sampling, will be conducted by the State as it deems necessary throughout the project. Air monitoring to comply with the Contractor's obligations under OSHA remains solely responsibility of the Contractor.

If at any time, procedures for engineering, work practice, administrative controls or other topics are anticipated to deviate from those documented in the submitted and accepted Lead Work Plan,

the Contractor shall submit a modification of its existing plan for review and acceptance by the Engineer prior to implementing the change.

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

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

B. Regulated Area

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

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

The Contractor shall implement appropriate engineering controls such as poly drop cloths, local exhaust ventilation, wet dust suppression methods, etc. as necessary, and as approved by the Engineer, to prevent the spread of lead contamination beyond the Regulated Area in accordance with the Contractor's approved work plan. Should the previously submitted work plan prove to be insufficient to contain the contamination, the Contractor shall modify its plan and submit it for review by the Engineer.

C. Wash Facilities:

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

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

D. Personal Protection:

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

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

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

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

E. Air Monitoring Requirements

The Contractor shall:

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

F. Lead Abatement Procedures

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

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

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

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

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

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

No one shall eat, drink, smoke, chew gum or tobacco, or apply cosmetics while in the Regulated Area.

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

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

Bridge No. 02259, Route 32 over South Branch Roaring Brook, Willington, CT

- **Detectable amounts of lead were identified on the painted metal surfaces of Bridge No. 02259.**

Girders, Cross Beams, Beam Ends, Bearings, Rockers, Diaphragms, Connection plates, Railings, etc	Metal	Silver	2.5-11.9 mg/cm²
Corrugated Decking	Metal	Silver	0.24 mg/cm²

- **TCLP waste stream sampling/analysis of the paint associated with the structural steel/metal bridge components characterized the paint waste as RCRA/CTDEEP hazardous waste.**

Paint debris (structural/metal bridge components)	81 mg/l
Paint debris (corrugated metal decking)	25 mg/l

While conducting work to the bridges, where it is necessary to impact the lead painted surfaces, the Contractor shall either:

- a. **Remove the paint to be impacted prior to impacting the substrate in accordance with OSHA Lead in Construction Standard 29CFR 1926.62, or**
- b. **Impact the substrate using mechanical means with the paint in place in accordance with OSHA Lead in Construction Standard 29CFR 1926.62.**

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

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

airborne lead. All wastes containing lead paint shall be properly contained and secured for storage, transportation and disposal.

The Engineer has characterized the paint waste streams associated with the structural steel/metal bridge components and metal railing system at Bridge No. 02259 as RCRA/CTDEEP hazardous waste. If the paint is removed from the metal bridge surfaces, the paint shall be handled and disposed of in accordance with USEPA/CTDEEP Hazardous Waste Regulations as described under this Item 0020903A.

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

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

Special Requirements:

1. Demolition/Renovation:
 - a. Demolish/renovate in a manner which minimizes the spread of lead contamination and generation of lead dust.
 - b. Implement dust suppression controls, such as misters, local exhaust ventilation, etc. to minimize the generation of airborne lead dust.
 - c. Segregate work areas from non-work areas through the use of barrier tape, drop cloths, etc.
 - d. Clean up immediately after renovation/demolition has been completed
2. Chemical Removal:
 - a. Apply chemical stripper in quantities and for durations specified by manufacturer.
 - b. Where necessary, scrape lead paint from surface down to required level of removal (i.e. stabilized surface, bare substrate with no trace of residual pigment, etc.). Use sanding, hand scraping, and dental picks to supplement chemical methods as necessary.
 - c. Apply neutralizer compatible with substrate and chemical agent to substrate following removal in accordance with manufacturer's instructions.
 - d. Protect adjacent surfaces from damage from chemical removal.

- e. Maintain a portable eyewash station in the work area.
 - f. Wear respirators that will protect workers from chemical vapors.
 - g. Do not apply caustic agents to aluminum surfaces.
3. Mechanical Paint Removal:
- a. Provide sanders, grinders, rotary wire brushes, or needle gun removers equipped with a HEPA filtered vacuum dust collection system. Cowling on the dust collection system for orbital-type tools must be capable of maintaining a continuous tight seal with the surface being abated. Cowling on the dust collection system for reciprocating-type tools shall promote an effective vacuum flow of loosened dust and debris. Inflexible cowlings may be used on flat surfaces only. Flexible contoured cowlings are required for curved or irregular surfaces.
 - b. Provide HEPA vacuums that are high performance designed to provide maximum static lift and maximum vacuum system flow at the actual operating vacuum condition with the shroud in use. The HEPA vacuum shall be equipped with a pivoting vacuum head.
 - c. Remove lead paint from surface down to required level of removal (i.e. stabilized surface, bare substrate with no trace of residual pigment, etc.). Use chemical methods, hand scraping, and dental picks to supplement abrasive removal methods as necessary.
 - d. Protect adjacent surfaces from damage from abrasive removal techniques.
 - e. “Sandblasting” type removal techniques shall not be allowed.
4. Component Removal/Replacement:
- a. Wet down components which are to be removed to reduce the amount of dust generated during the removal process.
 - b. Remove components utilizing hand tools, and follow appropriate safety procedures during removal. Remove the components by approved methods which will provide the least disturbance to the substrate material. Do not damage adjacent surfaces.
 - c. Clean up immediately after component removals have been completed. Remove any dust located behind the component removed.

G. Prohibited Removal Methods:

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

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

Power/pressure washing shall not be used to remove lead paint.

Compressed air shall not be utilized to remove lead paint.

Chemical strippers containing Methylene Chloride are prohibited. Any chemical stripping may be prohibited on a project by project basis.

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

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

Chemical stripping of coatings from bridge components is generally prohibited unless specifically allowed on a project by project basis.

H. Clean-up and Visual Inspection:

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

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

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

I. Post-Work Regulated Area Deregulation:

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

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

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

J. Waste Disposal/Recycling:

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

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

Hazardous lead debris shall be disposed of as described under this Item 0020903A.

The Contractor shall comply with the latest requirements of the USEPA RCRA Hazardous Waste Regulations 40 CFR 260-274 and the DEEP Hazardous/Solid Waste Management Standards 22a-449(c).

Hazardous lead debris shall be transported from the Project by a licensed hazardous waste transporter approved by the Department and disposed of at an EPA-permitted and Department-approved hazardous waste landfill within 90 days from the date of generation.

The Contractor must use one or more of the following Department-approved disposal facilities for the disposal of hazardous waste:

Clean Earth of North Jersey, Inc., (CENJ) 115 Jacobus Avenue, South Kearny, NJ 07105 Phone: (973) 344-4004; Fax: (973) 344-8652	Clean Harbors Environmental Services, Inc. 2247 South Highway 71, Kimball, NE 69145 Phone: (308) 235-8212; Fax: (308) 235-4307
Clean Harbors of Braintree, Inc. 1 Hill Avenue, Braintree, MA 02184 Phone: (781) 380-7134; Fax: (781) 380-7193	Cycle Chem (General Chemical Corp.) 217 South First Street, Elizabeth, NJ 07206 Phone: (908) 355-5800; Fax (908) 355-0562

EnviroSafe Corporation Northeast (former Jones Environmental Services (NE), Inc.) 263 Howard Street, Lowell, MA 01852 Phone: (978) 453-7772; Fax: (978) 453-7775	Environmental Quality Detroit, Inc. 1923 Frederick Street, Detroit, MI 48211 Phone: (800) 495-6059; Fax: (313) 923-3375
Republic Environmental Systems 2869 Sandstone Drive, Hatfield, PA 19440 Phone: (215) 822-8995; Fax: (215) 997-1293	Northland Environmental, Inc. (PSC Environmental Systems) 275 Allens Avenue, Providence, RI 02905 Phone: (401) 781-6340; Fax: (401) 781-9710
Environmental Quality Company: Wayne Disposal Facility 49350 North I-94 Service Drive Belleville, MI 48111 Phone: (800) 592-5489; Fax: (800) 592-5329	

No facility may be substituted for the one(s) designated in the Contractor's submittal without the Engineer's prior approval. If the material cannot be accepted by any of the Contractor's designated facilities, the Department will supply the Contractor with the name(s) of other acceptable facilities.

Prior to the generation of any hazardous waste, the Contractor shall notify the Engineer of its selected hazardous waste transporter and disposal facility. The Contractor must submit to the Engineer (1) the transporter's current US DOT Certificate of Registration and (2) the transporter's current Hazardous Waste Transporter Permits for the State of Connecticut, the hazardous waste destination state and any other applicable states. The Engineer will then obtain on a contiguous per site basis a temporary EPA Generators ID number for the site that he will forward to the Contractor. Any changes in transporter or facility shall be immediately forwarded to the Engineer for review.

Handling, storage, transportation and disposal of hazardous waste materials generated as a result of execution of this project shall comply with all Federal, State and Local regulations including the USEPA RCRA Hazardous Waste Regulations (40 CFR Parts 260-271), the CTDEEP Hazardous Waste Regulations (22a-209 and 22a-449(c)), and the USDOT Hazardous Materials Regulations (49 CFR Part 171-180).

All debris shall be contained and collected daily or more frequently as directed by the Engineer, due to debris buildup. Debris shall be removed by HEPA vacuum collection. Such debris and paint chips shall be stored in leak-proof storage containers in the secured storage site, or as directed by the Engineer. The storage containers and storage locations shall be reviewed by the Engineer and shall be located in areas not subject to ponding. Storage containers shall be placed on pallets and closed and covered with tarps at all times except during placement, sampling and disposal of the debris.

Hazardous waste materials are to be properly packed and labeled for transport by the Contractor in accordance with EPA, CTDEEP and USDOT regulations. The disposal of debris characterized as hazardous waste shall be completed within 90 calendar days of the date on

which it began to be accumulated in the lined containers. Storage of containers shall be in accordance with current DEEP/EPA procedures.

The Contractor shall label hazardous waste storage containers with a 6-inch square, yellow, weatherproof, Hazardous Waste sticker in accordance with USDOT regulations.

Materials other than direct paint related debris which are incidental to the paint removal work activities (tarps, poly, plywood, PPE, gloves, decontamination materials, etc.) which may be contaminated with lead, shall be stored separately from the direct paint debris, and shall be sampled by the Engineer for waste disposal characterization testing. Such materials characterized as hazardous shall be handled/disposed of as described herein.

Direct paint related debris materials not previously sampled and characterized for disposal, which may be originally presumed to be hazardous waste, shall also be stored separately and sampled by the Engineer for ultimate waste disposal characterization testing and handled/disposed of based on that testing.

Project construction waste materials unrelated to the paint removal operations shall NOT be combined/stored with paint debris waste and/or incidental paint removal materials as they are not lead contaminated and shall NOT be disposed of as hazardous waste. The Engineer's on-site Inspectors shall conduct inspections to verify materials remain segregated.

The Contractor shall obtain and complete all paperwork necessary to arrange for material disposal, including disposal facility waste profile sheets. It is solely the Contractor's responsibility to co-ordinate the disposal of hazardous materials with its selected treatment/recycling/disposal facility(s). Upon receipt of the final approval from the facility, the Contractor shall arrange for the loading, transport and treatment/recycling/disposal of the materials in accordance with all Federal and State regulations. **No claim will be considered based on the failure of the Contractor's disposal facility(s) to meet the Contractor's production rate or for the Contractor's failure to select sufficient facilities to meet its production rate.**

The Contractor shall process the hazardous waste such that the material conforms with the requirements of the selected treatment/disposal facility, including but not limited to specified size and dimension. Refusal on the part of the treatment/disposal facility to accept said material solely on the basis of non-conformance of the material to the facility's physical requirements is the responsibility of the Contractor and no claim for extra work shall be accepted for reprocessing of said materials to meet these requirements.

All DOT shipping documents, including the Uniform Hazardous Waste Manifests utilized to accompany the transportation of the hazardous waste material shall be prepared by the Contractor and reviewed/signed by an authorized agent representing ConnDOT, as Generator, for each load of hazardous material that is packed to leave the site. The Contractor shall not sign manifests on behalf of the State as Generator. The Contractor shall forward the appropriate original copies of all manifests to the Engineer the same day the material leaves the Project site.

Materials not related to lead paint removal and/or characterized as non-hazardous waste shall NOT be shipped for hazardous waste disposal in accordance with USEPA RCRA hazardous waste minimization requirements.

A load-specific certificate of disposal, signed by the authorized agent representing the waste disposal facility, shall be obtained by the Contractor and promptly delivered to the Engineer for each load.

In addition to all pertinent Federal, State and local laws or regulatory agency polices, the Contractor shall adhere to the following precautions during the transport of hazardous materials off-site:

- All vehicles departing the site are to be properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume, and contents of materials carried. Vehicles shall display the proper USDOT placards for the type and quantity of waste;
- No materials shall leave the site unless a disposal facility willing to accept all of the material being transported has agreed to accept the type and quantity of waste;
- Documentation must be maintained indicating that all applicable laws have been satisfied and that the materials have been successfully transported and received at the disposal facility; and,
- The Contractor shall segregate the waste streams (i.e. concrete, wood, etc.) as directed by the receiving disposal facility.

Any spillage of debris during disposal operations during loading, transport and unloading shall be cleaned up in accordance with EPA 40 CFR 265 Subparts C & D, at the Contractor's expense.

The Contractor is liable for any fines, costs or remediation costs incurred as a result of their failure to be in compliance with this Item and all Federal, State and Local laws.

K. Project Closeout Data:

Provide the Engineer, within thirty (30) days of completion of the project site work, a compliance package; which shall include, but not be limited to, the following:

1. Competent persons (supervisor) job log;
2. OSHA-compliant personnel air sampling data;
3. Completed waste shipment papers for scrap metal recycling.
4. Copies of completed Hazardous Waste Manifests (signed by authorized disposal facility representative).

Method of Measurement:

The completed work shall be paid as a lump sum. This item will include all noted services, equipment, facilities, testing and other associated work for up to three (3) ConnDOT project representatives. Services provided to any ConnDOT project representatives in excess of three (3) representatives will be measured for payment in accordance with Article 1.09.04 – “Extra and Cost-Plus Work.”

Basis of Payment:

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

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

<u>Pay Item</u>	<u>Pay Unit</u>
Lead Compliance for Miscellaneous Exterior Tasks	Lump Sum

END OF SECTION

ITEM #0101002A – CONFINED SPACE HEALTH AND SAFETY

Description: The work required on Bridge No. 02259, Route 32 over S. Branch Roaring Brook, in Willington, Connecticut, will involve construction activities in areas that meet the definition of a "Confined Space" (CS) as defined in 29 CFR 1910.146. The types of activities, materials, products and procedures involved in this work have the potential to create a hazardous atmosphere within CS, thereby rendering the area a "Permit-Required Confined Space" (PRCS) work area as defined in 29 CFR 1910.146.

The Contractor shall prepare and administer a written program that protects the safety of its employees, subcontractors, the Engineer, and all other persons who may enter the PRCS work area during the execution of the work. This program includes monitoring of air spaces in all PRCS work areas; providing proper training of all with access to the PRCS work area; and all required record keeping. The Contractor shall also furnish all required respiratory and other personal protective equipment (PPE) needed for its own employees and subcontractors including medical surveillance, testing, fit testing and training of all individuals in its safe and proper usage.

The PRCS entry program that is developed and administered by the Contractor under this Item shall apply to ALL personnel who may have a need to access the PRCS work area as part of this Project. This includes all personnel directly or indirectly employed by the Contractor and the Engineer. The Contractor shall furnish all training required to safely and effectively implement the entry program.

Applicable Regulations

At a minimum, the Contractor's work under this Item shall comply with the following Federal Regulations:

- | | |
|--------------------------------|---|
| 1. 29 CFR Part 1910.1020 | Access to Employee Exposure and Medical Records |
| 2. 29 CFR Part 1910.134 | Respiratory Protection |
| 3. 29 CFR Part 1910.146 | Permit-Required Confined Spaces |
| 4. 29 CFR Part 1910.1000 | Air Contaminants |
| 5. 29 CFR Part 1926 | Safety and Health Regulations for Construction |
| 6. 29 CFR Part 1926.24 | Fire Protection and Prevention |
| 7. 29 CFR Part 1910, Subpart Q | Welding, Cutting and Brazing |

Construction Methods: Within 30 calendar days of the award of this Contract, the Contractor shall submit to the Engineer a written Confined Space Health and Safety Plan (CS HASP) prepared by a Certified Industrial Hygienist (CIH) that fully describes the Contractor's proposed PRCS entry program required under 29 CFR Part 1910.146. This document shall describe in detail all elements of the proposed entry program including, but not limited to, the following:

1. Identification of potential hazards;

2. Measures to provide safe entrance and egress by authorized entrants;
3. Measures to prevent unauthorized entry;
4. Acceptable entry conditions;
5. Measures to isolate/restrict permit space;
6. Measures to provide ventilation required to eliminate or control atmospheric hazards;
7. Measures to monitor atmospheric conditions within the work space throughout construction;
8. Measures to monitor for flooding conditions within the culvert;
9. Measures to communicate with personnel working in the PRCS work area; provide description of how communication procedures will interface with hearing protection measures;
10. Description of method of work and equipment to be used for removal of soil/sediment and all other work inside the confined space, maintenance records of equipment shall also be furnished;
11. Required personal protective equipment;
12. Rescue and emergency equipment to be furnished;
13. Any other equipment to be furnished for safe entry into and rescue from PRCS work areas;
14. A description of how attendant(s) and entry supervisors will be deployed and their responsibilities, including a list of names and qualifications of all persons who are to have active roles as attendants, entry supervisors and air monitors;
15. Lighting equipment, including methods of grounding, to be furnished;
16. Measures for fire protection and prevention within the PRCS;
17. A description of any "Hot Work," i.e. welding, cutting or brazing to be performed within the PRCS, Hot Work Permit Requirements and safety measures to be taken;
18. Detailed procedures for:

- a. Furnishing or summoning rescue and emergency services, including the location of telephone number and directions to the nearest hospital,
 - i. Contacting the local fire department and EMS service to determine their rescue capabilities that are available during those time periods when work in the PRCS will be taking place. Provide a written description of capabilities of outside rescue/emergency services that would be summoned in an emergency. Provide written concurrence from such fire department/EMS/outside rescue/emergency services that they will support any rescue operation in the PRCS.
 - ii. In the event the local fire and EMS services are not equipped/trained to provide CS rescue, provide a description of the measures which will be used to perform CS rescue.
 - b. Rescuing entrants from PRCS, including non-entry rescue, retrieval systems or methods,
 - c. Providing necessary emergency services to rescued entrants,
 - d. Preventing unauthorized personnel from attempting a rescue.
19. Procedures for coordinating entry operations of all individuals who have reason to enter PRCS work areas, including employees of the Contractor, his subcontractor(s), the Engineer, and employees and agents of the Department;
20. Procedures for concluding the entry after entry operations are completed;
21. Procedures for reviewing the entry program and making revisions to correct deficiencies;
22. Proposed training programs(s) to be conducted by the Contractor that conform to 29 CFR Parts 1910.146(g) and 1910.134(k), provide current applicable certificates of training;
23. Proposed record keeping system.
24. The name and qualifications of the individual proposed to serve as Confined Space Health and Safety Officer (CSHSO). The CSHSO shall have full authority to carry out and ensure compliance with the CS HASP. The Contractor shall provide a competent CSHSO on-site who is capable of identifying existing and potential hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate or control them. The qualifications of the CSHSO shall include completion of OSHA 40-hour HAZWOPER training and 8-hour HAZWOPER supervisory training, completion of a Confined Space Entry Operations Program, a minimum of one year of working experience as a confined space entry supervisor, a working knowledge of Federal and State safety regulations; specialized training or documented experience (one year minimum) in personal and respiratory protective equipment program implementation; the

proper use of air monitoring instruments, air sampling methods and procedures; and certification training in first aid and CPR by a recognized, approved organization such as the American Red Cross. Provide current certificates of training.

The primary duties of the CSHSO shall be those associated with worker health and safety in a confined space. The Contractor's CSHSO responsibilities shall be detailed in the written CS HASP and shall include, but not be limited to the following:

- a. Directing and implementing the CS HASP;
- b. Ensuring that all project personnel have been adequately trained in the recognition and avoidance of unsafe conditions and the regulations applicable to the work environment to control or eliminate any hazards or other exposure to illness or injury. All personnel shall be adequately trained in procedures outlined in the Contractor's written CS HASP;
- c. Authorizing Stop Work Orders, which shall be executed upon the determination of an imminent health and safety concern;
- d. Contacting the Contractor's CIH and the Engineer immediately upon the issuance of a Stop Work order when the CSHSO has made the determination of an imminent health and safety concern;
- e. Authorizing work to resume, upon approval from the Contractor's CIH;
- f. Directing activities, as defined in the Contractor's written CS HASP, during emergency situations; and
- g. Providing personal monitoring where applicable, as identified in the CS HASP.

The Engineer will review the Contractor's submittal within four weeks. If the Engineer requires any changes, the entire document shall be resubmitted with changes. All training shall be completed prior to commencing work within the PRCS work area.

No work shall be allowed within any area deemed by the Engineer to be a confined space until the Engineer has accepted the Contractor's written CS HASP.

Training:

The Contractor shall be required to train all individuals who may have reason to enter a PRCS work area in all aspects of the permit entry program in a manner that complies with 29 CFR Part 1929.146 (g). At a minimum, the training shall include:

1. The duties and responsibilities of each individual;

2. Procedures to be followed when working in PRCS work areas, including anticipated hazards;
3. Air monitoring programs;
4. Proper communication procedures;
5. Early warning signs and symptoms;
6. Emergency rescue procedures, including basic first aid and cardiopulmonary resuscitation (CPR); and
7. Proper use of respiratory equipment (if required) including fit testing and medical surveillance, in accordance with the requirements of 29 CFR Part 1910.134.

The Contractor shall keep records of the date of each training session, the purpose of the session and a list of attendees.

Medical Monitoring:

If in the event respirators are required, the Contractor shall have medical evaluations completed for all of its employees, including subcontractors, who may have reason to enter a PRCS work area in accordance with 1910.134(e) and any other applicable regulations prior to starting work in the PRCS.

Storage of Materials:

The Contractor shall not store any raw materials, combustible materials or waste products within any confined space areas.

Method of Measurement: Within thirty (30) calendar days of the award of the Contract, the Contractor shall submit to the Engineer for acceptance, a breakdown of the lump sum bid price for this item detailing:

1. The development costs associated with preparing the CS HASP in accordance with these Specifications;
2. The lump sum cost for employee training, including all Contractor employees, subcontractor employees, and up to ten (10) Department employees; and
3. The cost per month for the duration of the project to implement and maintain the CS HASP and provide services for the CIH and the CSHSO.

If the lump sum bid price breakdown is unacceptable to the Engineer, substantiation showing that the submitted costs are reasonable shall be required.

Upon acceptance of the payment schedule by the Engineer, payments for work performed will be made as follows:

1. The lump sum development cost will be certified for payment.
2. The lump sum cost for training will be certified for payment.
3. The Contractor shall demonstrate to the Engineer monthly that the CS HASP has been kept current and is being implemented and the monthly cost will be certified for payment.

Failure of the Contractor to implement the CS HASP in accordance with this Specification will result in the withholding of all Contract payments.

The Contractor shall submit a schedule of values for payment to the Department for review and comment.

Basis of Payment: This work will be paid for at the lump sum price for "Confined Space Health and Safety" which shall include all materials, tools, equipment and labor incidental to the completion of this item for the duration of the project to develop, revise, monitor and implement the CS HASP. Such costs shall also include providing the services of the CIH and CSHSO; training; record keeping; atmospheric testing and monitoring; PPE and personal respiratory equipment; disposal of PPE; communication equipment; emergency medical and rescue equipment and personnel; medical surveillance; engineering controls; furnishing, operating and maintaining ventilation system; and implementing all other CS HASP protocols and procedures established to protect the health and safety of on-site workers when working in the confined space.

Pay Item

Confined Space Health and Safety

Pay Unit

LS

ITEM #0202574A – RESET MONUMENT

Description: Work done under this item consists of removing existing survey boundary monuments in their entirety and setting a new survey boundary markers (monuments, disks in ledge or concrete structures, or capped rebar) along Right-of-Way lines in the same horizontal position as the removed monument and/or as directed by the Engineer.

Materials: CTDOT concrete boundary monuments, CTDOT boundary disks, and CTDOT capped reinforcing bars (rebar) will be provided by the Department. All other materials shall be the responsibility of the Contractor.

Construction Methods: The Contractor shall remove the existing monument called out on the plans in its entirety and as field verified to be in conflict with the proposed sidewalk ramp construction. All materials from excavated monument shall be removed and disposed of by the Contractor. The Contractor shall be responsible for all computations, location, staking, and setting of highway boundary markers at defined Right-of-Way Lines as shown on the plans and details or as directed by the Engineer.

The standard boundary marker will be the CTDOT concrete boundary monument. Boundary disks set in ledge or other structures and capped rebar will be used if, or when the Engineer determines that it is impractical to set a concrete boundary monument.

The setting of boundary markers shall not begin until all excavation, filling operations, grading and drainage has been completed and approval has been granted by the Engineer. To prevent a tripping hazard, the top surface of the monument including the CTDOT Boundary disk must be installed level with the surrounding concrete sidewalk surface.

The Contractor shall retain the services of a Land Surveyor licensed in the State of Connecticut to serve as Project Surveyor to directly oversee this work and to ensure that each marker has been set in accordance with CTDOT Standards. The Contractor shall provide the name, place of professional employment, business address, phone number, and license number of the Project Surveyor to the Department.

All boundary and staking computations shall be provided by the Project Surveyor to the Engineer and shall be approved by the District Survey Office prior to staking the locations of the boundary markers.

The Project Surveyor shall establish the location of the existing boundary markers called out on the plans or as directed by the Engineer. The existing boundary marker location shall be tied into at least 3 points for future replacement. This work shall meet or exceed a positional accuracy of 1:5000 (0.02' per 100') as defined in Section 20-300b-11 of the Regulations of Connecticut State Agencies.

Excavation for the existing survey monuments or for the placement of the new CTDOT Boundary Monuments shall be by hand or with a power auger. The use of a backhoe or other heavy equipment for excavation purposes will not be allowed. The concrete monument shall be set plumb into the hole to the finished grade and backfilled and compacted in six inch (6”) layers as shown on the attached detail or as directed by the Engineer.

In locations where the Engineer determines that concrete monuments cannot be set, the Project Surveyor shall set CTDOT Boundary disks or CTDOT Boundary capped rebar as directed. Rebar driving sleeves shall be used in the setting of capped rebar. All disks set in ledge or concrete shall be secured with “Rockite” hydraulic anchor cement, USP-Anchor-Set, Quikrete Anchoring Cement as approved by the Engineer and in accordance with the manufacturer’s recommended procedures.

Concrete boundary monuments must be allowed to settle for fourteen days. Once all concrete boundary monuments are completed and allowed to settle and all other boundary markers are in place, the Contractor will notify the Engineer that the boundary marker disks are ready to be drilled. The CTDOT District Survey Office will verify the location of the boundary markers or monuments by drilling the location of the highway lines on the boundary monuments or markers within 60 days of notification from the Engineer.

If any boundary marker disks are found to be outside of the boundary point locations and are unable to be drilled, the boundary monuments or boundary markers shall be removed and replaced in accordance with the contract specifications and details. Once the boundary monuments or markers have been drilled and found to meet the contract standards, the Engineer shall notify the contractor of this acceptance.

Method of Measurement: This work will be measured for payment by the number of monuments; disks, capped rebar, of the type specified, complete, and accepted in place.

Basis of Payment: This work will be paid for at the contract unit price each for removal of the existing monument and setting of the new survey boundary marker complete and accepted in place, which price shall include all computations, equipment, tools, non-Department supplied materials, removal of surplus material, and labor incidental to the removal, location, staking and setting of boundary markers, and shall include any removal and replacement of non-conforming markers.

Pay Item:
Reset Monument

Pay Unit
EA

CONNECTICUT DEPARTMENT OF TRANSPORTATION Boundary/Control Monument Setting Procedures

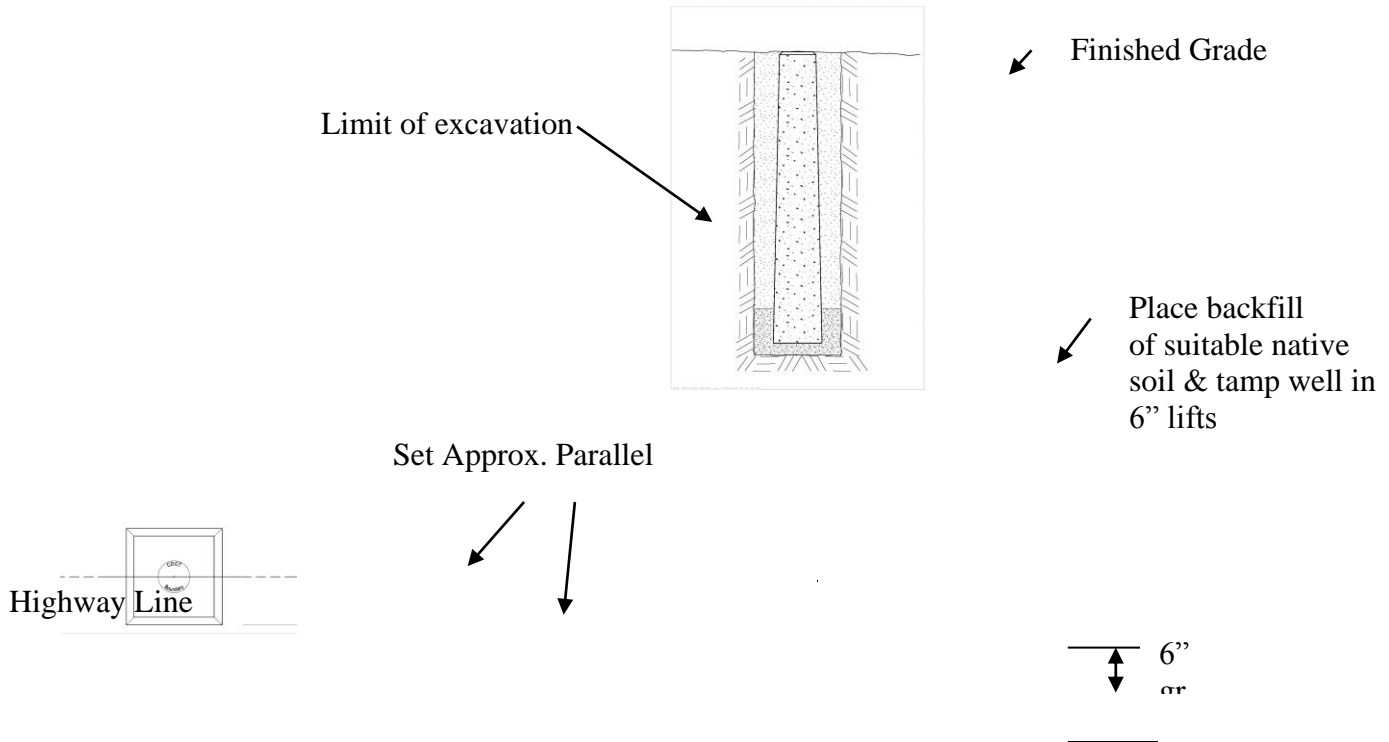


Fig. 1

Fig. 2

Procedure "A"

Setting CT DOT Survey Monuments to a specific point:

The Project Surveyor shall compute and stake the layout of each new CHD monument to be set. The stake shall be a 2" x 2" x 18" (or larger) hardwood stake and tack. The new monument shall be tied in to three points, the hole dug and new monument placed as indicated above. The new monument is to be set plumb in the same horizontal position as the existing staked point to within three, one-hundredths (0.03') of a foot. It shall be positioned by the contractor, to an exact point, within the specified tolerance. Any monuments not falling within the specified limits shall be reset at the contractor's expense.

Procedure "B"

Setting CT DOT disc in ledge:

When a new CHD point falls on ledge which is exposed or within < 2' of the ground surface, a CT DOT disc may be set. A 3/4" diameter hole shall be drilled to a depth of 3" and the surface of

the ledge leveled so that the disc sits flush when complete. Discs shall be affixed using “Rockite” hydraulic anchor cement, USP-Anchor-Set, Quikrete Anchoring Cement as approved by the Engineer and in accordance with the manufacturer’s recommended procedures.

Procedure “C”

Setting CT DOT “RECHD” (Rebar w/cap):

This procedure shall follow the standards of Procedure “A” except a $\frac{3}{4}$ ” x 3’ section of rebar is substituted for the traditional concrete monument. The rebar shall be driven with a protective sleeve and is also set to within three one-hundredths (0.03’) of a foot of the staked point, then topped with a two (2”) inch diameter CT DOT aluminum cap, which receives the final precise drill hole. The capped “Re-CHD” shall be set flush to the ground.

ITEM #0216012A – CONTROLLED LOW STRENGTH MATERIAL

Description: Controlled Low Strength Material (CLSM) is a self consolidating, rigid setting material to be used in backfills, fills, structural fills and elsewhere as indicated on the plans, or as directed by the Engineer. The flow and set time characteristics of CLSM shall be designed to meet the specific job conditions. All CLSM material covered by this specification shall be designed to be hand excavatable at any time after placement. It shall be composed of a mixture of portland cement, aggregate, and water with the option of using fly ash, slag cement, air-entraining agents, and other approved admixtures.

Materials: All materials utilized in the CLSM mix design shall be in accordance with the applicable requirements of Article M.03.01

Composition: The composition of the CLSM shall be in accordance with the requirements set forth in Article M.03.01-General Composition of Concrete Mixes, as well as the applicable sections of ACI 229R. The Contractor shall submit each proposed mix design, with all supporting data, to the Engineer for review and approval at least two weeks prior to its use.

The setting time of CLSM materials shall be designed so as to achieve the strength necessary to comply with the time constraints called for under the Maintenance and Protection of Traffic requirements of the project specifications. The use of chloride accelerators is not permitted.

The minimum compressive strength of the CLSM material shall be 30 pounds per square inch (psi) and the maximum compressive strength of the CLSM shall be 150 pounds per square inch (psi) when tested in accordance with ASTM D4832 after 56 days.

The CLSM mix design shall utilize a nominal maximum size of No. 8 aggregate as specified in M.01.01.

CLSM mixes shall have a minimum of 20% entrained air when tested in accordance with AASHTO T152.

Construction Methods: CLSM shall only be placed when the ambient temperature is at least 32° F and rising. CLSM material shall be deposited within 2 hours of initial mixing.

CLSM may be placed by chutes, conveyors, buckets or pumps depending upon the application and accessibility of the site. Should voids or cavities remain after the placement of the CLSM, the Contractor shall modify the placement method or flow characteristics of the CLSM. Voids or cavities which have not been filled properly shall be corrected as directed by the Engineer and at the Contractor's expense.

Method of Measurement: This work will be measured for payment by the actual number of cubic yards of "Controlled Low Strength Material installed and accepted within the pay limits shown on the contract plans or as directed by the Engineer.

Basis of Payment: This work will be paid at the contract unit price per cubic yard “Controlled Low Strength Material,” which price shall include all materials, equipment, tools and labor incidental thereto.

Pay Item
Controlled Low Strength Material

Pay Unit
C.Y.

ITEM #0406275A – FINE MILLING OF BITUMINOUS CONCRETE (0 TO 4 INCHES)

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 ¼ inch. The variation of the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed ¼ 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 +/- ½ 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 Inches).” This price shall include all equipment, tools, labor, and materials incidental thereto.

No additional payments will be made for multiple passes with the milling machine to remove the bituminous surface.

No separate payments will be made for cleaning the pavement prior to paving; providing protection and doing handwork removal of bituminous concrete around catch basin inlets, manholes, utility valve boxes and any similar structures; repairing surface defects as a result of the Contractors negligence; providing protection to underground utilities from the vibration of the milling operation; removal of any temporary milled 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 Inches)	S.Y.

ITEM #0406999A – ASPHALT ADJUSTMENT COST

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

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

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

Construction Methods:

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

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

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

The Connecticut Department of Transportation (CTDOT) will post on its website, the average per ton selling price (asphalt price) of the performance-graded binder. The average is based on the high and low selling price published in the most recent available issue of the **Asphalt Weekly Monitor®** furnished by Poten & Partners, Inc. under the “East Coast Market – New England, New Haven, Connecticut area,” F.O.B. manufacturer’s terminal.

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

Method of Measurement:

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

where

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

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

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

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

Pay Item	Pay Unit
Asphalt Adjustment Cost	est.

ITEM #0506070A – GROUND ANCHOR

ITEM #0506071A – PERFORMANCE TEST FOR GROUND ANCHOR

ITEM #0506073A – PROOF TEST FOR GROUND ANCHOR

DESCRIPTION:

The work shall consist of installing permanent ground anchors as specified herein and as shown on the plans. The Contractor shall furnish all labor, materials, supervision and equipment required to complete the work. The Contractor shall select the foundation anchor type, drilling method, grouting method, grouting pressures, and subject to the minimum values in the contract documents, determine the bond length, and anchor diameter. The Contractor shall also be responsible for surveying, designing, installing, quality control, and testing ground anchors that will develop the load-carrying capacity indicated on the Contract Drawings in accordance with this Specification.

Subsurface conditions are provided on the boring logs contained in the plan sheets.

The Contractor shall also be responsible for containment, hauling and legal disposal of all-drilling fluids and excavated materials, in accordance with this Specification, Section 1.10 of the Form 817 and all applicable local codes and regulations.

The use of down-hole hammers will not be permitted unless the Engineer provides written authorization.

QUALIFICATIONS AND SUBMITTALS:

1-Qualifications: The Contractor performing the work described in this Specification shall have installed permanent ground anchors for a minimum of 3 years.

The Contractor shall assign an engineer, licensed in the State of Connecticut, to supervise the work. The Contractor's engineer will have at least 3 years of experience in the design and construction of permanent anchored structures. The Contractor may not use consultants or manufacturer's representatives in order to meet the requirements of this section.

Drill operators shall also have a minimum of 3 years experience installing permanent ground anchors with the Contractor's organization.

The Engineer shall suspend the work if the Contractor substitutes personnel without prior written approval. If work is suspended due to the unauthorized substitution of personnel, the Contractor shall be fully liable for additional costs resulting from the suspension of work and no adjustment in contract time resulting from the suspension of work will be allowed.

2-Design Criteria: Unless shown on the plans or otherwise directed in writing by the Engineer, the Contractor shall select the type of tendon to be used. The maximum tendon loading cannot exceed the following percentages of the specified minimum tensile strength (SMTS):

Tendon Design Load.....	60 percent of the SMTS of the prestressing steel
Lock-off Load.....	70 percent of the SMTS of the prestressing steel
Test Load	80 percent of the SMTS of the prestressing steel

The Contractor shall be responsible for determining the bond length necessary to develop the Factored Design Load (FDL) indicated on the Contract Drawings or in accordance with this Specification. However, minimum bond length shall be 15 feet for strand and bar tendons in either soil or weathered bedrock or 10 feet for strand or bar tendons in bedrock.

The free stressing length (unbonded length) shall be not less than 15 feet for bar tendons or strand tendons regardless of soil or rock or as shown on the plans whichever is greater.

Strand and bar tendons shall not extend beyond the right-of-way limit shown on the contract drawings.

3-Submittals: The Contractor shall submit with the Working Drawings, their qualifications including resumes of the Contractors personnel (drill operator(s), and Contractors engineer). For each project, include (1) name of client contract, address, and telephone number; (2) location of project; (3) contract value; (4) relevant anchor work and (5) scheduled completion date and actual completion date for the work.

Working Drawings and supporting documentation for the design and construction of the ground anchors shall be submitted to the Engineer for review in accordance with Article 1.05.02-2. The Working Drawing submission shall include:

- A) Proposed start date and detailed construction sequence with the proposed drilling methods and equipment including drill hole diameter proposed to achieve the specified pullout resistance values. Information on space requirements and excavation methods (if required) to access each anchor location will also be provided.
- B) Ground anchor schedule giving: anchor number; design load; type and size of tendon; minimum total anchor length; minimum bond length; minimum tendon bond length; and minimum unbonded length.
- C) A scale drawing of the ground anchor tendon and the corrosion protection system including spacers; centralizers; unbonded length corrosion protection system; bond length corrosion protection system; anchorage and trumpet; and anchorage corrosion protection system.
- D) Plan view showing location of anchor and location of property line and/or limits of permanent easement.

- E) Certified Test Reports and Materials Certification for the following materials, if used: prestressing steel (strand or bar); Portland cement; prestressing hardware; bearing plates; and corrosion protection system.
- F) Quality Control details including anchor drilling, anchor installation with lifting methods and grout placement.
- G) Grout Mix Design including compressive stress strength test results (AASHTO T106/ASTM C109) supplied by a qualified independent testing lab verifying the specified minimum 7 day and 28 day grout compressive strengths.
- H) Identification number and certified calibration report for each test jack, load cell primary pressure gauge and reference pressure gauge to be used. Jack and pressure gauge shall be calibrated as a unit. Calibration records shall include the date tested, device identification number, and the results shall be certified to an accuracy of 2 percent or less traceable to the National Bureau of Standards by a qualified independent testing laboratory within 90 days prior to submittal. The Engineer may request additional calibration(s) at any time during construction if there is evidence of improper handling of equipment or improper readings. No compensation will be provided for additional calibrations.

MATERIALS:

1-Grout:

Cement shall be Portland Cement Type I, II, III (ASTM C150)

Fine Aggregate meeting Section M.03.01-2

Potable water

The grout mixture shall have a minimum 28-day compressive strength of at least 3000 psi measured in accordance with ASTM C 109 at the time of stressing and 60 percent of design strength at 7 days. Bleed shall be less than 2 percent. Admixtures will be used in strict accordance with the manufacturers' recommendations, subject to the approval of the Engineer. Accelerators, and expansive admixtures, will not be permitted.

Non-shrink, non-staining grout meeting Section M.03.01 may be used for filling sealed encapsulations, trumpets, and anchorage covers.

2-Steel Elements:

- A) Prestressing Steel: Ground anchor tendons shall be fabricated from single or multiple elements of one of the following prestressing steels:
 - ASTM A 722 Steel Bars
 - ASTM A 416 (uncoated seven-wire strand)
 - ASTM A 886 (indented seven-wire strand)
 - ASTM A 882 (epoxy coated, seven-wire strand)

- B) Prestressing Steel Couplers: Prestressing steel bar couplers shall be capable of developing 100 percent of the minimum specified ultimate tensile strength of the prestressing steel bar. Steel strands used for a soil or rock anchor shall be continuous with no splices.
- C) Anchorage devices: shall be capable of developing 95 percent of the specified minimum ultimate tensile strength (SMTS) of the prestressing steel tendon.
- D) Bearing plate: ASTM A 709 Grade 36 or ASTM A536
- E) Trumpet: ASTM A 53 for pipe, ASTM A 500 for tubing. Minimum wall thickness of 0.25 inches.
- F) Anchorage Covers: ASTM A 709 Grade 36 or ASTM A53 for pipe, ASTM A536 for ductile iron, or ASTM 500 for tubing.
- G) Wedges: new steel elements be designed to preclude premature failure of the prestressing steel due to notch or pinching effects under static and dynamic strength meeting requirements of Section 3.1.6 (1) and Section 3.1.8 (1) and 3.1.8 (2) of the Guide Specification contained in the PTI "Post Tensioning Manual". Wedges for epoxy coated strand shall be designed to be capable of biting through the epoxy coating and into the strand. Removal of the epoxy coating from the strand to allow the use of standard wedges is permitted. Anchor nuts and other threadable hardware for epoxy coated bars shall be designed to thread over the epoxy coated bar and still comply with the requirements for carrying capacity.

3-Miscellaneous Anchor Elements:

- A) Bondbreaker: The bondbreaker shall be fabricated from a smooth plastic tube or pipe having the following properties:
 - 1. resistant to grout, or corrosion inhibiting compound;
 - 2. resistant to aging and by ultra-violet light;
 - 3. nondetrimental to the tendon;
 - 4. capable of withstanding handling and installation methods;
 - 5. enable the tendon to elongate during testing and stressing; and
 - 6. allow the tendon to remain unbonded after lock-off.
- B) Centralizers and Spacers: Centralizers and spacers shall be fabricated from plastic, steel or other material that is nondetrimental to the prestressing steel. Wood shall not be used. A combination centralizer-spacer may be used.

4-Corrosion Protection Elements:

- A) Tendon Bond Length Protection for Grout Protected Tendons:

A grout-filled, corrugated plastic encapsulation or a grout-filled, deformed steel tube shall be used. The prestressing steel can be grouted inside the encapsulation prior to inserting the tendon into the drill hole or after the tendon has been placed.

Tendon Bond Length Encapsulations: The tendon bond length to be encapsulated to provide additional corrosion protection, the encapsulation shall be fabricated from one of the following:

1. High density corrugated polyethylene tubing conforming to the requirements of AASHTO M 252 and having a minimum wall thickness of 1/16 inch except pregrouted tendons, which may have a minimum wall thickness 3/64 inch.
2. Deformed steel tubing or pipes conforming to ASTM A 52 or A 500 with a minimum wall thickness of 3/16 inch.
3. Corrugated, polyvinyl chloride tubes manufactured from rigid PVC compounds conforming to ASTM D 1784, Class 13464-B.
4. Fusion-bonded epoxy conforming to the requirements of AASHTO M 284.

B) Unbonded Length Protection:

1. Bar Tendons

A smooth bond breaker shall provide corrosion protection of the unbonded length over a grout filled bar sheath. The corrosion inhibiting compound shall completely coat the tendon element.

2. Strand Tendons

Corrosion protection of the unbonded length shall encapsulate tendons composed of individual grease filled extruded strand sheaths with a common smooth sheath; or individual grease filled strand sheaths with a grout filled smooth sheath. The corrosion inhibiting compound shall completely coat the tendon elements, fill the void between them and the sheath, and fill the interstices between the wires of 7-wire strands. Provisions shall be made to retain the compound within the sheath.

Sheath: A sheath shall be used as part of the corrosion protection system for the unbonded length portion of the tendon. The sheath shall be fabricated from one of the following:

1. A polyethylene tube (minimum 1/16 in wall thickness) pulled or pushed over the prestressing steel. The polyethylene shall be Type II, III or IV as defined by ASTM D 1248.
2. A hot-melt extruded polypropylene tube (minimum 1/16 in wall thickness). The polypropylene shall be cell classification B55542-11 as defined by ASTM D 4101.
3. A hot-melt extruded polyethylene tube (minimum 1/16 in wall thickness). The polyethylene shall be high density Type III as defined by ASTM D 1248.
4. Steel tubing (minimum 3/16 in wall thickness) conforming to ASTM A 500.
5. Steel pipe (minimum 3/16 in wall thickness) conforming to ASTM A 53.
6. Schedule 40 plastic pipe or tube of PVC conforming to ASTM D 1784 Class 13464-B.

Where corrugated pipe is used as a sheath a separate bondbreaker or common smooth sheath shall be provided in the unbonded length to allow the prestressing steel to freely elongate during stressing and to remain unbonded to the surrounding grout after lock-off.

C) Unbonded Length/Bond Length Transition:

The transition between the corrosion protection for the bonded and unbonded length shall be designed and fabricated to ensure continuous protection from corrosive attack.

The corrosion protective sheath surrounding the unbonded length of the tendon shall be long enough to extend into the trumpet, but shall not come into contact with the stressing anchorage during testing. Any excessive protection length shall be trimmed off.

D) Anchorage Protection:

The corrosion inhibiting compound placed in either the free length or the trumpet area shall be an organic compound (i.e., grease or wax) with appropriate polar moisture displacing, corrosion inhibiting additives and self-healing properties. The compound shall permanently stay viscous and be chemically stable and nonreactive with the tendon, sheathing material, and the anchor grout.

1. Anchorages shall be encased in a minimum 2 inch thick concrete or grout-filled cover, or be completely covered in a corrosion inhibiting compound.
2. Centralizers and spacers (multi-element tendon) shall be provided at maximum intervals of 10 feet with the deepest centralizer located within two foot of the end of the anchor and the upper centralizer for the bond zone located no more than 5 feet from the top of the tendon bond length. Centralizers shall be able to support the tendon in the drill hole and position the tendon so a minimum of 1 inch of grout cover is provided and shall permit grout to freely flow around the tendon and up the drill hole. Spacers shall be used to separate elements of a multi-element tendon and shall permit grout to freely flow around the tendon and up the drill hole.
3. The trumpet shall be sealed to the bearing plate and shall overlap the unbonded length corrosion protection by at least 4 inch. The trumpet shall be long enough to accommodate movements of the structure and the tendon during testing and stressing without damaging the encapsulation, regardless of type of tendon.
4. The trumpet shall be completely filled with grout, except restressable anchorages must use corrosion inhibiting compounds. Compounds may be placed any time during construction. Compound-filled trumpets shall have a permanent seal between the trumpet and the unbonded length corrosion protection. Grout must be placed after the ground anchor has been tested and stressed to the lock-off load. Trumpets filled with grout shall have either a temporary seal between the trumpet and the unbonded length corrosion protection or the trumpet shall fit tightly over the unbonded length corrosion protection for a minimum of 4 inch.

E) Coupler Protection:

The coupler and any adjacent exposed bar sections shall be covered with a corrosion-proof compound of wax-impregnated cloth tape. The coupler area shall be covered by a smooth plastic tube complying with the requirements set forth in this Specification, overlapping the

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adjacent sheathed tendon by at least 1 inch. The two joints shall be sealed each by a coated heat shrink sleeve of at least 6-inch length, or approved equal. The corrosion-proof compound shall completely fill the space inside the cover tube.

Heat shrinkable sleeves shall be fabricated from crosslinked polyolefin tube coated with an adhesive sealant. Prior to shrinking, the tube shall have a nominal wall thickness of 0.02 inches. The adhesive sealant shall have a nominal thickness of 0.02 inches.

Strand couplers are not permitted.

A minimum of 1 inch of grout cover over the encapsulation shall be provided.

Construction Methods:

1-Records

The Contractor shall compile the following report on an accepted form, for each anchor that is installed:

- A) **As-built drawings** showing the location, elevations, and orientation of each ground anchor, anchor type, anchor capacity, tendon type, total anchor length, bond length, unbonded length, and tendon bond length.
- B) **Drilling and grouting conditions** containing date of drilling and grouting, diameter of drill hole, drilling method, depth of stratum penetration, quantity of water entering the hole during grouting, groundwater elevation, grouting pressures and quantity injected.
- C) **Testing requirements and results**, anchor test results and graphs, **extended creep tests**, and lock-off loads. Testing equipment shall include dial gauges, dial gauge support, jack and pressure gauge, electronic load cell, and a reaction frame.

The Contractor shall provide the Engineer with a copy of this report immediately after each anchor is tested and/or locked-off.

2-Tendon Storage and Handling:

Tendons shall be handled and stored in such a manner as to avoid damage or corrosion. Heavy corrosion or pitting, damage to the prestressing steel, the corrosion protection, and/or the epoxy coating shall be cause for rejection by the Engineer. Grounding of welding leads to the prestressing steel is forbidden. Prestressing steel exposed to excessive heat (i.e., more than 400° F) shall be rejected.

Lifting of pre-grouted tendons shall be to manufacturers' recommendations and not cause excessive bending, which can debond the prestressing steel from the surrounding grout.

3-Drilling:

The Contractor shall be responsible for selecting drilling equipment and methods suitable to establish a stable hole of adequate dimensions, within the tolerances specified. Down-hole hammers are not permitted unless the Engineer provides **written** authorization.

Holes for anchors shall be drilled at the location [± 3 inches], orientation [$\pm 3^\circ$ inclination and/or lateral direction] and to the length as shown on the Contract Drawings, the approved Working Drawings or as directed by the Engineer. The Contractor is to select the diameter of the hole required to develop the specified pullout resistance. The drill bit or casing crown shall not be more than 1/8 inch smaller than the specified hole diameter. If caving ground is encountered the Contract is to adjust his drill method, including drilling fluid, use of drilling casing, etc..

4-Tendon Insertion:

The tendon shall be inserted into the drill hole at a rate that does not damage the sheathing, coating, and grout tubes; and shall not be driven or forced. When the tendon cannot be completely inserted, the Contractor shall remove the tendon from the drill hole and clean and/or redrill the hole to permit insertion. Strand tendons shall be straightened by hand during installation. The bottom end of the tendon may be fitted with a cap or bullnose to aid its insertion into the hole, casing, or sheathing.

5-Grouting:

The grouting equipment shall produce a uniformly mixed grout free of lumps and undispersed cement, and be capable of continuously agitating the grout. A positive displacement grout pump shall be used. The pump shall be equipped with a pressure gauge capable of measuring pressures of at least 145 Psi or twice the actual grout pressures used whichever is greater. The grouting equipment shall be sized to enable three times the theoretical grout volume to be placed in one continuous operation.

The grout shall be injected from the lowest point of the drill hole. The grout can be placed before or after insertion of the tendon. The quantity of the grout and the grout pressures shall be recorded. The grout pressures and grout takes shall be controlled to prevent excessive heave or fracturing. Grout will be placed by means of a tremie pipe from the bottom of the pile upward to avoid segregation. The grout will be placed immediately after the drill hole is cleaned to the satisfaction of the Engineer, and the steel reinforcing with centering devices is installed.

The grout at the top of the drill hole shall not contact the back of the structure or the bottom of the trumpet.

If the ground anchor is installed in a fine-grained soil using drill holes larger than 6" in diameter, then the grout above the top of the bond length shall be placed after the ground anchor has been tested and stressed. The Engineer will allow the Contractor to grout the entire drill hole at the same time if the Contractor can demonstrate that his particular ground anchor system does not derive a significant portion of its load-carrying capacity from the soil above the bond length portion of the ground anchor.

If grout protected tendons are used for ground anchors anchored in rock, then pressure grouting techniques shall be utilized. Pressure grouting requires that the drill hole be sealed and that the grout be injected until a minimum 50 Psi grout pressure (measured at the top of the drill hole) can be maintained on the grout for at least five (5) minutes.

The grout tube may remain in the hole on completion of grouting if the tube is filled with grout.

After grouting, the tendon shall not be loaded for a minimum of 3 days and the grout has achieved a minimum of 60% of the ultimate design strength.

5-Anchorage Installation:

The anchor bearing plate and the anchor head or nut shall be installed perpendicular [$\pm 3^\circ$] to the tendon, centered on the bearing plate, without bending or kinking of the prestressing steel elements. Wedge holes and wedges shall be clean.

The stressing tail shall be cleaned and protected from damage until final testing and lock-off. After the anchor has been accepted by the Engineer, the stress tail shall be cut to its final length according to the tendon manufacture's recommendations.

The corrosion protection surrounding the unbonded length of the tendon shall extend up beyond the bottom seal of the trumpet or 4 inch into the trumpet if no trumpet seal is provided. The corrosion protection surrounding the unbonded length of the tendon shall not contact the bearing plate or the anchor head during testing and stressing.

STRESSING, LOAD TESTING AND ACCEPTANCE:

1 – General: Each ground anchor shall be tested. No load greater than ten (10) percent of the design load can be applied to the ground anchor prior to testing. The maximum test load shall be no less than 1.00 times the Factored Design Load (FDL) and shall not exceed 80 percent of the guaranteed ultimate tensile strength of the prestressing steel tendon and the Factored Design Load shall not exceed 60% of the guaranteed ultimate tensile strength. The test load shall be simultaneously applied to the entire tendon. Stressing of single elements of multi-element tendons shall not be permitted.

2 – Stressing Equipment: The testing equipment shall consist of:

A dial gauge or vernier scale capable of measuring to the nearest 0.001 inch shall be used to measure the ground anchor movement. The movement-measuring device shall have a minimum travel equal to twice the theoretical elastic elongation of the total anchor length at the maximum test load and it shall have adequate travel so the ground anchor movement can be measured without resetting the device at an interim point.

A hydraulic jack and pump shall be used to apply the test load. The jack and a calibrated primary pressure gauge shall measure the applied load. Testing cannot commence until the Engineer has approved the calibration. The primary pressure gauge shall be graduated in 100 Psi increments or less. Stressing equipment shall be capable of stressing the whole tendon in one

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stroke to the specified Test Load and the equipment shall be capable of stressing the tendon to the maximum specified Test Load within 75 percent of the rated capacity. The pump shall be capable of applying each load increment in less than 60 seconds.

The equipment shall permit the tendon to be stressed in increments so that the load in the tendon can be raised or lowered in accordance with the test specifications and allow the anchor to be lift-off tested to confirm the lock-off load.

A calibrated reference pressure gauge shall also be kept at the site to periodically check the production (i.e., primary pressure) gauge. The reference gauge shall be calibrated with the test jack and primary pressure gauge. The reference pressure gauge shall be stored indoors and not subjected to rough treatment.

The Contractor shall provide an electrical resistance load cell and readout to be used when performing an extended creep test.

The stressing equipment shall be placed over the ground anchor tendon in such a manner that the jack, bearing plates, load cells and stressing anchorage are axially aligned with the tendon and the tendon is centered within the equipment.

3 – Load Testing Setup:

- A) Dial gauges shall bear on the pulling head of the jack and their stems shall be coaxial with the tendon direction. The gauges shall be supported on an independent, fixed frame, which will not move as a result of stressing or other construction activities during the operation.
- B) Prior to setting the dial gauges, an Alignment Load (AL) of no more than 5 % of design load shall be placed on the tendon.
- C) Regripping of strands, which would cause overlapping wedge bites, or wedge bites on the tendon below the anchor head, shall be avoided.
- D) Stressing and testing of multiple element tendons with single element jacks is not permitted.
- E) Stressing shall not begin before the grout has reached adequate strength.

4 – Performance Tests:

- A) The number of ground anchors as shown on the plans or as directed by the Engineer shall be Performance Tested in accordance with the procedures described below. The Engineer shall select the ground anchors to be performance tested. The remaining ground anchors shall be tested in accordance with the proof test procedures (see Part 5).
- B) The performance test shall be made by incrementally loading and unloading the ground anchor in accordance with the schedule provided. The load shall be raised from one increment to another immediately after recording the ground anchor movement. The ground anchor movement shall be measured and recorded to the nearest 0.001 inch with respect to an independent fixed point at the alignment load and at each increment of load. The load shall be monitored with the primary pressure gauge. The reference pressure gauge shall be placed in series with the primary pressure gauge during each performance test. If the load determined by the reference pressure gauge and the load determined by the primary pressure gauge differ by more than ten (10) percent, the jack, the primary pressure gauge and the reference pressure gauge shall be recalibrated at no expense to the State. At load increments other than the maximum test load, the load shall be held just long enough to obtain the movement reading.
- C) The maximum test load in a performance test shall be held for ten (10) minutes.

PERFORMANCE TEST SCHEDULE

Step	Load
1	AL
2	0.20 FDL
3	AL
4	0.20 FDL
5	0.40 FDL
6	AL
7	0.20 FDL
8	0.40 FDL
9	0.60 FDL
10	AL
11	0.20 FDL
12	0.40 FDL
13	0.60 FDL
14	0.75 FDL
15	AL
16	0.20 FDL
17	0.40 FDL
18	0.60 FDL
19	0.75 FDL

20	0.90 FDL
21	AL
22	0.20 FDL
23	0.40 FDL
24	0.60 FDL
25	0.75 FDL
26	0.90 FDL
27	1.00 FDL
28	HOLD FOR 10 MINUTES
29	AL
30	Adjust to lock-off load

D) The jack shall be adjusted as necessary in order to maintain a constant load. The load-hold period shall start as soon as the maximum test load is applied and the ground anchor movement, with respect to a fixed reference, shall be measured and recorded at 1 minute, 2, 3, 4, 5, 6 and 10 minutes. If the ground anchor movement between one (1) and ten (10) minutes exceeds 0.04 inch, the maximum test load shall be held for an additional 50 minutes. If the load-hold is extended, the ground anchor movement shall be recorded at 15 minutes, 20, 30, 40, 50 and 60 minutes.

5 - Proof Tests:

The proof test shall be performed by incrementally loading the ground anchor in accordance with the following schedule. The load shall be raised from one increment to another immediately after recording the ground anchor movement. The ground anchor movement shall be measured and recorded to the nearest 0.001 inch with respect to an independent fixed reference point at the alignment load and at each increment of load. The load shall be monitored with the primary pressure gauge. At load increments other than the maximum test load, the load shall be held just load enough to obtain the movement reading.

PROOF TEST SCHEDULE

Step	Load
1	AL
2	0.20 FDL
3	0.40 FDL
4	0.60 FDL
5	0.75 FDL
6	0.90 FDL
7	1.00 FDL
8	Reduce to lock-off load
9	AL (optional)
10	Adjust to lock-off load

The maximum test load in a proof test shall be held for ten (10) minutes. The jack shall be adjusted as necessary in order to maintain a constant load. The load-hold period shall start as soon as the maximum test load is applied and the ground anchor movement with respect to a fixed reference shall be measured and recorded at 1 minute, 2, 3, 4, 5, 6 and 10 minutes. If the ground anchor movement between one (1) and ten (10) minutes exceeds 0.04 inch, the maximum test load shall be held for an additional 50 minutes. If the load hold is extended, the ground anchor movements shall be recorded at 15 minutes, 20, 30, 40, 50 and 60 minutes.

6 – Extended Creep Tests:

- A) An Extended Creep Test shall be performed on the number of ground anchors as shown on the plans or as directed by the Engineer. The Engineer shall select the ground anchors to be performance tested. The stressing equipment shall be capable of measuring and maintaining the hydraulic pressure within 50 psi. A load cell shall be used to monitor small changes in load during constant load-hold periods.
- B) The extended creep test shall be made by incrementally loading an unloading the ground anchor in accordance with the performance test schedule in Part 4. At the end of each loading cycle, the load shall be held constant for the observation period indicated in the extended creep test schedule below. The times for reading and recording the ground anchor movement during each observation period shall be 1 minute, 2, 3, 4, 5, 6, 10, 15, 20, 25, 30, 45, 60, 75, 90, 100, 120, 150, 180, 210, 240, 270 and 300 minutes as appropriate for the load increment. Each load-hold period shall start as soon as the test load is applied. In a creep test, the primary pressure gauge and reference pressure gauge will be used to measure the applied load and the load cell will be used to monitor small changes in load during constant load-hold periods. The jack shall be adjusted as necessary in order to maintain a constant load.
- C) The Contractor shall plot the ground anchor movement and the residual movement measured in an extended creep test. The Contractor shall also plot the creep movement for each load hold as a function of the logarithm of time.

EXTENDED CREEP TEST SCHEDULE

Load	Observation Period (min.)
AL	
0.20 FDL	10
0.40 FDL	30
0.60 FDL	30
0.75 FDL	45
0.90 FDL	60
1.00 FDL	300

7 – Ground Anchor Acceptance Criteria:

- A) A performance- tested or proof- tested ground anchor with a 10 minute load-hold shall be acceptable if the: (1) ground anchor resists the maximum test load with less than 0.04 inch of movement between 1 minute and 10 minutes; and (2) total elastic movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length.
- B) A performance- tested or proof- tested ground anchor with a 60 minute load-hold shall be acceptable if the: (1) ground anchor resists the maximum test load with a **creep rate** that does not exceed 0.08 inch in the last log cycle of time; and (2) total elastic movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length.
- C) A ground anchor subjected to extended creep testing is acceptable if the: (1) ground anchor resists the maximum test load with a creep rate that does not exceed 0.08 inch in the last log cycle of time; and (2) total elastic movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length.
- D) The initial lift-off reading shall be within plus or minus five (5) percent of the designed lock-off Load. If this criterion is not met, then the tendon load shall be adjusted accordingly and the initial lift-off reading repeated.

8 - Procedures for Anchors Failing Acceptance Criteria:

- A) Anchors that do not satisfy the minimum apparent free length criteria shall be either rejected and replaced at no additional cost to the State or locked off at not more than 50 percent of the maximum acceptable load attained.
- B) Regroutable anchors which satisfy the minimum apparent free length criteria but which fail the extended creep test at the test load may be post-grouted and subjected to an enhanced creep criterion. This enhanced criterion requires a creep movement of not more than 0.04 inch between 1 minute and 60 minutes at test load. Anchors which satisfy the enhanced creep criterion shall be locked off at the design lock-off load. Anchors which cannot be post-grouted or regroutable anchors that do not satisfy the enhanced creep criterion shall either be rejected or locked off at 50% of the maximum acceptable test load attained.
- C) In the event that an anchor fails, the contractor shall immediately modify the design and/or construction procedures. These modifications may include, but are not limited to, modifying the installation methods, reducing the anchor design load by increasing the number of anchors, increasing the anchor length, or changing the anchor type. Any modification of design or construction procedures, or increase in the number of anchors shall be at no cost to the State. A description of any proposed modifications must be submitted to the Engineer in writing. Proposed modifications shall not be implemented until the Contractor receives written approval from the Engineer.

9- Anchor Lock-Off:

- A) After testing has been completed, the load in the tendon shall be such that after seating losses (i.e., wedge seating), the specified lock-off load has been applied to the anchor tendon. If no lock-off load is provided on the plans the lock-off load is to be between 55 and 75 percent of the factored anchor load.

- B) The wedges shall be seated at a minimum load of 50% ultimate load for tendon (Fpu). If the lock-off load is less than 50% Fpu, shims shall be used under the wedge plate and the wedges seated at 50% Fpu. The shims shall then be removed to reduce the load in the tendon to the desired lock-off load.

10- Anchor Lift-Off Test:

After transferring the load to the anchorage, and prior to removing the jack, a lift-off test shall be conducted to confirm the magnitude of the load in the anchor tendon. This load is determined by reapplying load to the tendon to lift off the wedge plate (or anchor nut) without unseating the wedges (or turning the anchor nut). This moment represents zero time for any long time monitoring.

Method of Measurement: The quantity of ground anchors to be paid for will be the number of ground anchors installed and accepted. Should the Contractor elect to use an alternate number of ground anchors, the number of ground anchors to be paid for will not exceed that shown in the Contract Documents. The quantity of performance and extended creep tests to be paid for a maximum of once each per anchor location and this/these test(s) will only be the paid if the ground anchor is accepted.

Basis of Payment: The quantity of ground anchors as determined above will be paid for at the contract price per unit of measurement for the particular pay item listed below and shown in the bid schedule, which price and payment will be full compensation for the cost of furnishing all labor, equipment and material required to complete the work described in this section.

Payment will be made under:

Pay Item	Pay Unit
Ground Anchor	Each
Performance Test for Ground Anchor	Each
Proof Test for Ground Anchor	Each

ITEM #0651468A – 16'-0"X 4'-3" ALUMINUM BOX CULVERT

Description: Work under this item shall consist of designing, fabricating, furnishing, assembling and installing a corrugated aluminum structural plated arch with a concrete invert slab of the size and length shown on the plans, in accordance with the manufacturer's recommendations, and as directed by the Engineer. The box culvert includes concrete headwalls, a concrete invert slab, and any modification or stabilization of the existing wing walls. The Contactor shall submit a plan for approval defining method for construction.

Materials: Materials shall conform to the manufacturer's specifications and the following requirements:

Aluminum plates and ribs shall conform to the requirements of ASTM B864 and AASHTO M219.

Fasteners shall conform to ASTM A307 or ASTM A449 and shall be galvanized in accordance with ASTM A153.

Concrete shall be Class "F" and achieve a minimum 28 day strength of 4000 psi.

Reinforcement shall conform to ASTM A615, Grade 60 and shall be uncoated.

Non-shrink grout shall conform to the requirements of Subarticle M.03.05.

The Contractor shall furnish Materials Certificates in accordance with 1.06.07 certifying that the aluminum plate conforms to these specifications.

Construction Methods:

1. Design and Load Rating: The design of the aluminum box culvert shall conform to the requirements of the latest edition of the AASHTO LRFD Bridge Design Specifications, including the latest interim specifications amended as follows:

- In addition to the HL-93 design live load, the box shall have adequate capacity to support all loading conditions as per the CTDOT Load Rating Manual.
- Design the aluminum box for all construction load effects that may be applied during all stages/phases of construction.

The existing Superstructure shall be assumed to bear no load, and to be included as fill over the culvert.

The live load ratings shall conform to the load and resistance factor rating (LRFR) method in accordance with the AASHTO Manual for Bridge Evaluation.

Live load ratings shall include the condition factor (Article 6A.4.2.3) in the AASHTO Manual for Bridge Evaluation. The condition factor, ϕ_c shall be no greater than 0.95.

Live load ratings shall be prepared for the live loads, the load factor criteria, and analysis parameters as per the CTDOT Load Rating Manual.

All designs and load ratings shall be performed using the software allowed in the CTDOT Bridge Load Rating Manual. Any alternative software used shall be pre-approved by the Department's Bridge Design Section.

Headwall sections and the concrete invert slab shall be designed to resist all loading conditions as per AASHTO LRFD Bridge Design Specifications

The connection of the headwall to the box culvert shall be designed by the contractor for the conditions shown on the plans.

2. Working Drawings, Design Computations and Load Rating Submittals: Prior to fabrication, the Contractor shall submit working drawings and design computations for each headwall section, corrugated aluminum plate arch culvert section and the concrete invert slab to the Engineer for review in accordance with Article 1.05.02. An individual, independently packaged set of working drawings and computations, with all details and documents necessary for fabrication and erection, including a copy of the certificate of insurance, shall be prepared and submitted for **each** corrugated aluminum plate arch culvert section, headwall section, and the concrete invert slab. The working drawings and computations shall be prepared in U.S. Customary Units.

The packaged set of working drawings and computations for each culvert section and headwall shall be submitted in an electronic portable document format (.pdf) with appropriate bookmarks. The packaged set submitted in an electronic portable document format (.pdf) shall be in an individual file. The Contractor may submit individual packages for partial approval of individual units provided each package is entirely independent. The packaged set shall include the following:

- title sheet
- table of contents
- contact information for designer and fabricator – contact information should include name and address of each firm and the name of contact person with phone number and email address
- copy of the certificate of insurance
- aluminum box, concrete invert slab and headwall working drawings
- aluminum box, concrete invert slab, and headwall design computations and supporting data
- aluminum box load ratings and supporting data
- Installation sequence and procedures, including erection plans noting the equipment to be used and the placement of the equipment. The sequence shall also address the

compaction equipment and live load that may be applied over the top of box during placement of subbase and before pavement is placed, including paving equipment loads.

- Backfill, and CLSM placement procedures.

A Professional Engineer licensed in the State of Connecticut shall **sign, date, and seal** all working drawings, design computations, and load ratings. The Engineer that signs the package must be available for consultation in interpreting the computations, drawings, and in the resolution of conflicts which may occur during the performance of the work. Each working drawing shall be signed, dated and sealed. The cover/first sheet for the computations shall be signed, dated and sealed.

Working Drawings:

PDF- Created on ANSI D (22" x 34"; 559 mm x 864 mm) full scale sheet

- Includes:
- Border
 - Title block
 - Rectangular box for reviewer stamp (2 ¼" wide x 1 ¾" high)
 - Upper case text with a height of ⅛" min.

Design computations, load ratings, procedures and other supporting data:

PDF- Created on ANSI A (8 ½" x 11"; 216 mm x 279 mm; Letter) sheet

The drawings shall include complete details of the aluminum box, concrete headwalls and concrete invert slab. The drawings shall include, but not be limited to the following:

- Project number, town and crossing
- Bridge Number
- Layout plan of the aluminum boxes, concrete headwalls, and concrete invert slab. The plan shall include the dimensions of each corrugated aluminum plate arch section, each headwall section, and the concrete invert slab. The Contractor shall determine that the length of each corrugated aluminum plate arch section satisfies the stages of construction, sequence of construction, and construction methodology shown on the plans.
- Plan indicating sequence of erection and stage construction of aluminum box culvert, concrete headwalls, and concrete invert slab. The Contractor shall also detail a plan for the pumping of CLSM including the locations of all holes drilled into existing deck, as well as observation holes in formwork.
- Plans and cross-sections of the corrugated aluminum plate arch, concrete headwall sections, and concrete invert slab detailing the length, width, height, corrugation depth and pitch, gage thickness, ribs and other details necessary to assemble the structure.

- Material specifications/designations for all components

The design computations and load ratings shall include, but not be limited to the following:

- Project number, town and crossing
- References to design and load rating specifications, including interim specifications
- Diagrams identifying all members and load conditions and combinations
- Descriptions for each notation used, and references to applicable specification sections and articles
- Bending moment and shear diagrams
- Size and spacing of rebar in concrete slab
- Complete tabulated results from **all** load conditions and load combinations including shipping, handling, and erection.
- Electronic copies of input files
- Electronic unprotected copies of supplemental MathCad and Excel files
- Results of live load ratings tabulated on a summary sheet

The gage of the aluminum specified in the box shall be increased one gage from that required for design to account for degradation or abrasion over time.

The Contractor shall submit the packaged set of working drawings and calculations in accordance with 1.05.02-2a to the “Engineer of Record”. The “Engineer of Record” is identified in the signature block on the structural contract plans. A copy of the transmittal shall be sent to the District Construction office administering the project.

The reviewed and stamped working drawings and calculations will be returned to the Contractor directly with an appropriate stamp indicating the status of the Department’s review. For submissions that do not require resubmission, the Contractor shall print and deliver to the Assistant District Engineer, the number of paper copies requested by the Engineer.

3. Fabrication and Manufacture: The fabrication and manufacture of the corrugated aluminum plate arches shall conform to the latest edition of the AASHTO LRFD Bridge Design Specifications, including the latest interim specifications, as supplemented by the following:

3-1. Handling and Storage: Care shall be taken during storage, transporting, hoisting and handling of all corrugated aluminum plate arch components 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.

3-2. Acceptance of Box Culverts: Units shall conform to all allowable tolerances and shall be free of unacceptable defects.

3-3 Repairs: The Engineer shall evaluate the acceptability and the cause of the defects and the service condition of the structure. 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 before the section is delivered to the job site. The Contractor shall bear the costs of all repair work.

4. Installation: The installation of the corrugated aluminum plate arch sections shall conform to Manufacturer's recommendation and the following:

All work shall precede in accordance with the special provisions "Prosecution and Progress" and "Maintenance and Protection of Traffic."

Prior to beginning the assembly of the aluminum box culvert on site, a technical representative from the box culvert manufacturer shall conduct a preconstruction meeting to discuss assembly, installation and backfilling procedures and precautions. The technical representative shall be present during assembly and backfilling operations. The Contractor shall be ultimately responsible for the proper handling and lifting of the corrugated aluminum plate arch sections during erection and assembly.

Excavation for the installation of the aluminum box culvert, headwalls, and concrete invert slab shall be such as is required by the plans and working drawings and shall conform to Section 2.03 – Structure Excavation.

Prior to the corrugated aluminum arch section installation for the culvert, the cast-in-place footings, and concrete invert slab, must be constructed and reach a minimum compressive strength equal to or exceeding the manufacturer's specifications. Once the concrete invert slab reaches the required compressive strength, the corrugated aluminum arch section installation can begin. The installation of the aluminum culvert sections shall conform to the manufacturer's specifications.

At the conclusion of the structure installation, the stream channel at the ends of the box culvert and the areas surrounding the culvert, wingwalls and headwalls shall be graded as shown on the

plans. Grading shall be such as to accommodate placement of intermediate riprap as shown on the plans and as directed by the Engineer.

A bed of No. 6 crushed stone over geotextile (separation – high survivability) shall be placed as shown on the plans and as specified by the manufacturer of the aluminum box culvert before the concrete invert slab is constructed.

The invert elevations of the concrete invert slab must be constructed to the elevations indicated on the plans, as indicated in the working drawings and as directed by the Engineer.

All seams shall conform to the manufacturer's recommendations and must provide a silt tight fit. Should the Engineer determine that this criteria is not met, the Contractor shall propose corrective measures to be performed at his own expense. Such measures must be acceptable to the Engineer before the Contractor may perform them.

After its installation, any box section, or joint that is, as determined by the Engineer, not acceptable in vertical or horizontal alignment for any reason, including but not limited to settlement, displacement, excess camber or misfit, shall be removed by the Contractor and correctly installed, as directed by the Engineer and at no additional cost to the State.

Once the aluminum box culvert is in place, the slots in the concrete invert slab shall be filled with non-shrink grout. The non-shrink grout shall reach a minimum compressive strength of 3000 psi prior to the placement of the CLSM or pervious structure backfill.

CLSM shall be placed through holes drilled through existing deck. Formwork shall be flush with fascia of the existing deck during placement of CLSM, with observation holes as indicated in the plans.

CLSM shall only be placed when the ambient temperature is at least 32° F and rising. CLSM material shall be deposited within 2 hours of initial mixing.

CLSM shall be placed in accordance with the contract plans. Should voids or cavities remain after the placement of the CLSM, the Contractor shall modify the placement method or flow characteristics of the CLSM. Voids or cavities which have not been filled properly shall be corrected as directed by the Engineer and at the Contractor's expense.

The culvert and wing walls shall be backfilled with pervious structure backfill to the top of the box culvert in accordance with Section 2.16. Placement of backfill shall be balanced from one side of the box culvert to the other in accordance with the manufacturer's written instructions.

Method of Measurement: This work will be measured for payment by the linear foot of aluminum box culvert, of the size specified, installed and accepted, measured horizontally along the centerline of the invert between ends of the culvert.

Headwalls and the concrete invert slab will not be measured for payment.

Basis of Payment: This work will be paid for at the contract unit price per linear foot for “16’-0” x 4’-3” Aluminum Box Culvert”, complete and accepted, which price shall include the services of the manufacturer’s technical representative, and all equipment, materials, tools and labor incidental to the design, fabrication, delivery and installation of the box culvert.

Work pertaining to the concrete invert slab, concrete headwalls, and maintaining the existing structure are included in the unit price for “16’-0” x 4’-3” Aluminum Box Culvert”.

Pay Item	Pay Unit
16’-0”x 4’-3” Aluminum Box Culvert	L.F.

ITEM #0904997A – REMOVAL OF EXISTING METAL BRIDGE RAIL

Description: Work under this item shall consist of the removal and disposal of the existing metal bridge rail as shown on the plans, as ordered by the Engineer and in accordance with these specifications.

Construction Methods: The metal bridge rail shall be removed and properly disposed of by the Contractor.

The anchor bolts shall be cut off flush with the adjacent concrete surfaces. Since lead paint is present on the metal railing, the use of flame cutting equipment to cut the anchor bolts is not allowed. The method of removal shall be by sawing of the bolts, unless another method is approved by the Engineer. The lead debris shall be disposed of in accordance with the special provision “Item 0020903A - Lead Compliance for Miscellaneous Exterior Tasks.”

The Contractor shall take necessary precautions to prevent debris from dropping to areas below the structure or onto adjacent traffic lanes.

Method of Measurement: This work will be measured for payment by the number of linear feet of metal rail removed, measured horizontally along the top of the rail between centerlines of the rail posts.

Basis of Payment: This work shall be paid for at the contract unit price per linear foot for “Removal of Existing Metal Bridge Rail”, complete and accepted, which price shall include the removal and disposal of the metal bridge rail and all equipment, tools and labor incidental thereto.

Pay Item
Removal of Existing Metal Bridge Rail

Pay Unit
L.F.

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, disposal of rail elements, field touch up painting of the remaining steel anchors in the concrete bridge deck.

9.12.02 – Materials:

Zinc-rich paint for touch-up painting shall be in accordance with ASTM A780, and shall be formulated specifically for use on steel surfaces and shall contain not less than 65% zinc dust by weight.

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 and connected to the endblock.

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 exposed parts of the remaining steel anchor bolts shall be field coated with 2 coats of zinc paint. Zinc paint shall be stirred thoroughly and shall be brush-applied.

All removed rail elements and other removed components shall be disposed of by the Contractor in a manner acceptable to the Engineer. During removal of the bridge mounted metal beam rail, the Contractor shall field verify the locations of the remaining anchorages to identify conflicts with subsequent installation of proposed anchorages of the metal bridge rail system. Should conflicts exist, the Contractor shall notify the Engineer immediately to determine a resolution.

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 as described on the plans. Field touch up painting of anchorages 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, field touch up painting of anchorages, and all equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Remove Metal Beam Rail (Bridge)	l.f.

ITEM #0913952A – PROTECTIVE FENCE (5' HIGH)

Description: Work under this item consists of furnishing and installing chain link fencing in accordance with the details shown on the plans and with these specifications.

Materials: Materials for this work shall be as follows:

1. **Chain Link Fabric:** The fabric shall be a black Poly(Vinyl Chloride) (PVC) - coated steel chain link type, conforming to the specifications of ASTM F668, Class 2b, thermally fused and bonded. The #9 gage core wire shall be galvanized, PVC-coated, then woven to create a continuous fabric having a two inch mesh, knuckled at both top and bottom. The PVC coating shall be the color black as described in ASTM F934.
2. **Base plates, Posts, Tension Wire and Rails:** The material used to manufacture framework for color chain link fencing systems shall be galvanized sheet steel, in coils, meeting the general requirements of ASTM A924 and the specific product requirements of ASTM A653, quality level HSLA (high strength, low alloy), Type I, Grade 50 (50,000 psi minimum yield strength), coating designation Z600 (2.0 oz./ ft²) applied by the hot-dip process. The framework shall be manufactured in accordance with commercial standards to meet the requirements of ASTM F1043, Group IC, electrical resistance welded round steel pipe. Base plates shall conform to ASTM A709, Grade 36 and shall be shop welded to the fence posts. All burrs and sharp edges shall be removed and smoothed before galvanizing. Posts, with bottoms to be angle cut as required for grade, shall be welded to the base plates before coating. All welding shall conform to the requirements of Subarticle 6.03.03-4(e). The base plate/post assembly shall be coated after fabrication. The tension wire shall conform to the manufacturer's specifications.
3. The manufactured framework shall be subjected to a complete thermal stratification coating process (multi-stage, high temperature, multi-layer) including a pretreatment wash with zinc phosphate, an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The color of the finish coat shall be black.
4. The material used for the base coat shall be a zinc-rich thermosetting epoxy. The minimum thickness of the base coat shall be 2 mils. The material used for the finish coat shall be a thermosetting "no mar" TriGlycidyl IsoCyanurate (TGIC) polyester powder. The minimum thickness of the finish coat shall be 2-3 mils.
5. The coated framework shall demonstrate the ability to endure a salt spray resistance test conducted in accordance with ASTM B117 without loss of adhesion for a minimum exposure time of 3,500 hours. Additionally, the coated framework shall demonstrate the ability to withstand exposure in a weatherometer apparatus for 1,000 hours without failure in accordance with Practice D1499 and to show satisfactory adhesion when subjected to the

cross-hatch test in accordance with ASTM D3359. The polyester finish coat shall not fade, crack, blister or split under normal use.

6. **Fence Fittings:** All materials and coating requirements shall conform to the specifications of ASTM F626. All fittings shall receive the same coating system as the posts and rails. The ties used to fasten the fabric to the post and rails shall not be less than #6 and #9 gage respectively.
7. **Galvanizing Compound:** Galvanizing compound shall conform to the requirements of Federal Specification TT-P-641b or Military Specification MIL-P-21035.
8. **Non-shrink Grout:** Grout used to anchor fence posts in preformed holes shall be non-shrink and non-staining and shall conform to the requirements of Article M.03.05 – Non Shrink, Non Staining Grout.
9. **Silicone Joint Seal:** Joint seal placed around the base of the posts to seal the interface between the post and the non-shrink grout shall conform to the requirements of Subarticle M.03.08.

All components of the chain link fence shall be the color black as described in ASTM F934. Coating which exhibits peeling or chipping will be cause for rejection of the shipment.

Materials Certification and Testing: The Contractor shall furnish a Materials Certificate in accordance with Article 1.06.07 for the fabric, posts, rails, all fittings and for the non-shrink grout. A sample of PVC-coated fabric shall be submitted to the Department for testing the bond of the coating in accordance with the requirements of ASTM F668, Class 2b.

Shop Drawings: Before fabricating any materials, the Contractor shall submit shop drawings to the Engineer for approval in accordance with Article 1.05.02. These drawings shall include but not be limited to the following information: a layout plan showing all post and rail spacing, all fence and anchorage details, material lists and material designations and the name and telephone number of a person to contact who can answer questions about the shop drawings.

Construction Methods: The protective fence shall be accurately fabricated and installed in accordance with the plans and as directed by the Engineer.

Posts shall be centered in the preformed holes in the concrete and held plumb. Non-shrink grout shall then be placed in the annular space around the post, overfilling the hole to build the grout up above the surrounding concrete so water drains away from the post.

After the grout has completely set, place silicone joint sealant around the base of the post against the non-shrink grout to seal against moisture intrusion around the post.

All rails shall be erected to produce a smooth, continuous appearance with posts placed vertically and with all rails parallel to the grade of the parapets. The fabric shall be stretched tightly between end posts and securely fastened with stretcher bar bands. The fabric shall be attached to the rails and line posts as shown on the plans. Dome caps shall be installed on top of all posts.

Coated fabric, fence posts, rails and fittings shall be handled with care so the coating is not damaged. Damage to the galvanized coating below the finish coating shall be repaired in accordance with ASTM A780 with two coats of galvanizing compound brush applied before repairing the finish coat. The final dry film thickness of the galvanizing compound shall be a minimum of 2 to 3 mils. Damage to coating shall be repaired as directed by the manufacturer.

Method of Measurement: This work will be measured for payment by the number of linear feet of completed and accepted fence, measured horizontally from centerline to centerline of posts.

Basis of Payment: This work will be paid for at the contract unit price per linear foot for "Protective Fence (5' High)", complete and accepted in place, which price includes all materials, equipment, tools and work incidental thereto.

<u>Pay Item</u>	<u>Pay Unit</u>
Protective Fence (5' High)	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 15th to October 31st.

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 #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/)
- 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)

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, cellulous 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 will be provided by the Contractor for the duration of the work, and if required, for a maximum of ninety days thereafter for the exclusive use of ConnDOT forces and others who may be engaged to augment ConnDOT 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.

Materials: Materials shall be in like new condition for the purpose intended and shall be approved by the Engineer.

Office Requirements: The Contractor shall furnish the office quarters and equipment as described below.

	Description:
400 SF	Sq. Ft. of floor space with a minimum ceiling height of 7 ft. and shall be partitioned as shown on building floor plan as provided by the Engineer.
2 EA	Minimum number of exterior entrances.
7 EA	Minimum number of parking spaces.

Office layout: The office shall have a minimum square footage as indicated in the table above, and shall be partitioned as shown on building floor plan as provided by the Engineer. The underside of the office shall be fully skirted to the ground.

Lavatory Facilities: The Contractor shall furnish lavatory and toilet facilities at a location convenient to the office quarters for the use of Department personnel and such assistants as they may engage. He shall also supply lavatory and sanitary supplies as required.

Windows and Entrances: The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. All keys to the construction field office shall be furnished to the Department 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 and be slip resistant, with appropriate handrails.

Lighting: The Contractor shall equip the office interior with electric lighting that provides a minimum illumination level of 100 foot-candles at desk level height, and electric outlets for each desk and drafting table. The Contractor shall also provide exterior lighting that provides a minimum illumination level of 2 foot-candles throughout the parking area and for a minimum distance of 10 ft. on each side of the field office.

The Contractor shall provide the following additional equipment, facilities, and/or services at the Field Office on this project to include at least the following to the satisfaction of the Engineer:

Parking Facility: Adequate parking spaces with adequate illumination on a paved surface, with surface drainage if needed. If paved parking does not exist adjacent to the field office, the Contractor shall provide a parking area of sufficient size to accommodate the number of vehicles indicated in the table above. Construction of the parking area and driveway, if necessary, will consist of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

Field Office Security: Physical Barrier Devices - This shall consist of physical means to prevent entry, such as: 1) All windows shall be barred or security screens installed; 2) All field office doors shall be equipped with dead bolt locks and regular day operated door locks; and 3) Other devices as directed by the Engineer to suit existing conditions.

Electric Service: The field office shall be equipped with an electric service panel to serve the electrical requirements of the field office, including: lighting, general outlets, computer outlets, calculators etc., and meet the following minimum specifications:

- A. 120/240 volt, 1 phase, 3 wire.
- B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.
- C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.
- D. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each computer workstation location.
- E. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.
- F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.
- G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120 volt, straight blade.
- H. After work is complete and prior to energizing, the State's ConnDOT electrical inspector, must be contacted at 860-594-2240. (Do Not Call Local Town Officials)
- I. Prior to field office removal the ConnDOT Data Communications office 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.

The Following Furnishings and Equipment Shall Be Provided In The Applicable Field Office Type:

Qty	Description:
3 EA	Office desks (2.5 ft x 5 ft) with drawers, locks, and matching desk chairs that have

Qty	Description:
	pneumatic seat height adjustment and dual wheel casters on the base.
2 EA	Office Chairs.
1 EA	Fire resistant cabinets (legal size/4 drawer), locking.
1 EA	Drafting type tables (3 ft x 6 ft) and supported by wall brackets and legs; and matching drafters stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base.
2 EA	Personal computer tables (4 ft x 2.5 ft).
1 EA	Hot and cold water dispensing unit and supply of cups and bottled water shall be supplied by the Contractor for the duration of the project.
2 EA	Electronic office type printing calculators capable of addition, subtraction, multiplication and division with memory and a supply of printing paper.
2 EA	Telephone.
1 EA	Telephone answering machine.
1 EA	Plain paper facsimile (FAX) machine capable of transmitting via telephone credit card. All supplies, paper and maintenance shall be provided by the Contractor.
1 EA	Copier/Scanner - dry, plain paper with automatic feeder and reducing capability. All supplies, paper and maintenance shall be provided by the Contractor.
2 EA	Computer systems as specified below under <u>Computer Hardware and Software</u> . All supplies and maintenance shall be provided by the Contractor.
1 EA	Laser printer as specified below under <u>Computer Hardware and Software</u> . All supplies, paper and maintenance shall be provided by the Contractor.
2 EA	Digital Camera as specified below under <u>Computer Hardware and Software</u> . All supplies and maintenance shall be provided by the Contractor.
1 EA	Wastebaskets - 30 gal., including plastic waste bags.
3 EA	Wastebaskets - 5 gal., including plastic waste bags.
2 EA	Electric pencil sharpeners.
* EA	Fire extinguishers - provide and install type and number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.
1 EA	Vertical plan racks for 2 sets of 2 ft x 3 ft plans for each rack.
1 EA	Infrared Thermometer, including certified calibration, case, cleaning wipes.
1 EA	Concrete Curing Box as specified below under <u>Concrete Testing Equipment</u> .
1 EA	Concrete Air Meter as specified below under <u>Concrete Testing Equipment</u> .
1 EA	Concrete Slump Cone as specified below under <u>Concrete Testing Equipment</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.

Telephone Service: This shall consist of the installation of two (2) telephone lines: one (1) line for phone/voice service and one (1) line dedicated for the facsimile machine. The Contractor shall pay all charges except for out-of-state toll calls made by State personnel.

Data Communications Facility Wiring: Contractor shall install a Category 5e 468B patch panel in a central wiring location and Cat 5e cable from the patch panel to each PC station, terminating in a (category 5e 468B) 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 ConnDOT Data Center staff in coordination with the designated field office personnel as soon as the facility is in place. The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications, approved printer list and data wiring schematic as soon as possible after the contract is awarded.

Contractor to run a CAT 5e LAN cable a minimum length of 25 feet for each computer to LAN switch area leaving an additional 10 feet of cable length on each side with terminated RJ45 connectors. Each run / jack shall be clearly labeled with an identifying Jack Number.

The installation of a data communication circuit between the field office and the ConnDOT Data Communication Center in Newington will be coordinated between the ConnDOT District staff, ConnDOT Office of Information Systems and the local phone company. The ConnDOT District staff will coordinate the installation of the data communication service with ConnDOT PC Support once the field office phone number is issued. The Contractor shall provide the field office telephone number(s) to the ConnDOT Project Engineer as soon as possible to facilitate data line and computer installations.

Computer Hardware and Software:

The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications, approved printer list and data wiring schematic as soon as possible after the contract is awarded.

Before ordering the computer hardware and software, the Contractor must submit a copy of their proposed PC specifications and the type of printer to the ConnDOT Project Engineer for review by the ConnDOT Data Center. If the specification meets or exceeds the minimum specifications listed below, then the Contractor will be notified that the order may be placed.

Before any equipment is delivered to the Data Center, arrangements must be made a minimum of 24 hours in advance by contacting 860-594-3500. All software, hardware and licenses listed below shall be clearly labeled, specifying the (1) Project No., (2) Contractor Name, (3) Project Engineer's Name and (4) Project Engineer's Phone No., and shall be delivered to the ConnDOT Data Center, 2710 Berlin Turnpike, Newington, CT, where it will be configured and prepared for field installation. Installation will then be coordinated with ConnDOT field personnel and the computer system specified will be stationed in the Department's project field office.

The computer system furnished shall have all software and hardware necessary for the complete installation of the latest versions of the software listed, and therefore supplements the minimum specifications below. The Engineer reserves the right to expand or relax the specification to adapt to the software and hardware limitations and availability, the compatibility with current

agency systems, and to provide the Department with a computer system that can handle the needs of the project. This requirement is to ensure that the rapid changing environment that computer systems have experienced does not leave the needs of the project orphan to what has been specified. There will not be any price adjustment due to the change in the minimum system requirements.

The Contractor shall provide the Engineer with a licensed copy registered in the Department's name of the latest versions of the software listed and maintain customer support services offered by each software producer for the duration of the Contract. The Contractor shall deliver to the Engineer all supporting documentation for the software and hardware including any instructions or manuals. The Contractor shall provide original backup media for the software.

The Contractor shall provide the computer system with all required supplies, maintenance and repairs (including labor and parts) throughout the Contract life.

Once the Contract has been completed, the computer will remain the property of the Contractor. Prior to the return of any computer(s) to the Contractor, field personnel will coordinate with the Data Center personnel for the removal of Department owned equipment, software, data, and associated equipment.

A) Computer – Minimum Specification:

Processor – Intel® Core 2 Duo Processor (2.00 GHz, 800 MHz FSB 2MB L2 Cache)

Memory – 2 GB DIMM DDR2 667MHz.

Monitor – 19.0 inch LCD color monitor.

Graphics – Intel Graphics Media Accelerator 3100. or equivalent.

Hard Drive – 160 GB Ultra ATA hard drive (Western Digital, IBM or Seagate).

Floppy Drive – 3.5 inch 1.44MB diskette drive.

Optical Drive – CD-RW/DVD-RW Combo.

Multimedia Package – Integrated Sound Blaster Compatible AC97 Sound and speakers.

Case – Small Form or Mid Tower, capable of vertical or horizontal orientation.

Integrated Network Adapter – comparable to 3COM PCI 10/100 twisted pair Ethernet.

Keyboard – 104+ Keyboard.

Mouse – Optical 2-button mouse with scroll wheel.

Operating System – Windows XP Professional Service Pack 2; Windows Vista Capable.

Application Software – MS Office 2007 Professional Edition.

Additional Software (Latest Releases, including subscription services for the life of the Contract.–

- Norton Anti-Virus and CD/DVD burning software (ROXIO or NERO),
- Adobe Acrobat Standard

Resource or Driver CD/DVD – CD/DVD with all drivers and resource information so that computer can be restored to original prior to shipment back to the contractor.

Uninterrupted power supply – APC Back-UPS 500VA.

Note A1: All hardware components must be installed before delivery. All software documentation and CD-ROMs/DVD for Microsoft Windows XP Professional, Microsoft

Office 2007 Professional Edition, and other software required software must be provided. Computer Brands are limited to Dell, Gateway and HP brands only. No other brands will be accepted. The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications and approved printer list as soon as possible after the contract is awarded.

Note A2: As of June 30, 2008, Microsoft will no longer distribute Windows XP for retail sale, although the date for specific computer manufacturers may be different. Please consult your manufacturer for details. The Department still requires Windows XP on all PCs. Microsoft has stated that any PCs that are purchased with either Windows Vista Business, or Vista Ultimate are automatically entitled to “downgrade rights”, which allow the PC to be rolled back to Windows XP. Please consult the specific manufacturer for details on downgrading new PCs to Microsoft Windows XP after June 30, 2008.

B) Laser Printer – Minimum Specification:

Print speed – 20 ppm.
Resolution – 1,200 x 1,200 dpi.
Paper size – Up to 216 mm x 355 mm (8.5 in x 14 in).
RAM – 16 MB.
Print Drivers – Must support HP PCL6 and HP PCL5e.
Printer cable – 1.8 m (6 ft).

Note B1: Laser printer brands are limited to Hewlett-Packard and Savin brands only. The ConnDOT Project Engineer will provide the Contractor with a copy of the current PC specifications and approved printer list as soon as possible after the contract is awarded.

Note B2: It is acceptable to substitute a multi-function all-in-one printer/copier/scanner/fax machine listed on the approved printer list in place of the required laser printer and fax machine.

C) Digital Camera – Minimum Specification:

Optical – 5 mega pixel, with 3x optical zoom.
Memory – 2 GB.
Features – Date/time stamp feature.
Connectivity – USB cable or memory card reader.
Software – Must be compatible with Windows XP and Vista.
Power – Rechargeable battery and charger.

The Contractor is responsible for service and repairs to all computer hardware. All repairs must be performed with-in 48 hours. If the repairs require more than a 48 hours then a replacement must be provided. All supplies, paper and maintenance for the computers, laptops, printers, copiers, and fax machines shall be provided by the Contractor.

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for

Sampling Materials for Test, the Contractor shall provide the following. All testing equipment will remain the property of the Contractor at the completion of the project.

- A) Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.
- B) Air Meter – The air meter provided shall be in good working order and will meet the requirements of AASHTO T 152.
- C) Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T119, Standard Test Method for Slump of Hydraulic-Cement Concrete.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of twenty thousand dollars (\$20,000.00) in order to insure all State-owned data equipment and supplies used in the office against all losses. The Contractor shall be named insured on that policy, and the Department shall be an additional named insured on the policy. These losses shall include, but not be limited to: theft, fire, and physical damage. The Department will be responsible for all maintenance costs of Department owned computer hardware. In the event of loss, the Contractor shall provide replacement equipment in accordance with current Department 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 Department 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 Department will reimburse the Contractor for replacement costs exceeding the amount of the required coverage.

Maintenance: During the occupancy by the Department, the Contractor shall maintain all facilities and furnishings provided under the above requirements, and shall maintain and keep the office quarters clean through the use of weekly professional cleaning to include, but not limited to, washing & waxing floors, cleaning restrooms, removal of trash, etc. Exterior areas shall be mowed and clean of debris. A trash receptacle (dumpster) with weekly pickup (trash removal) shall be provided. Snow removal, sanding and salting of all parking, walkway, and entrance ways areas shall be accomplished during a storm if on a workday during work hours, immediately after a storm and prior to the start of a workday. If snow removal, salting and sanding are not completed by the specified time, the State will provide the service and all costs incurred will be deducted from the next payment estimate.

Method of Measurement: The furnishing and maintenance of the construction field office will be measured for payment by the number of calendar months that the office is in place and in operation, measured to the nearest month.

There will not be any price adjustment due to any change in the minimum computer system requirements.

Basis of Payment: The furnishing and maintenance of the construction field office will be paid at the listed unit price per month for the item “Construction Field Office, Medium”, which price shall include all material, equipment, labor, utility services and work incidental thereto.

The cost of providing the parking area, external illumination, trash removal and snow and ice removal shall be included in the monthly unit price bid for the respective item “Construction Field Office, Medium”.

The State will be responsible for payment of data communication user fees and for toll calls by State personnel.

<u>Pay Item</u>	<u>Pay Unit</u>
Construction Field Office, Medium	Month

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description is supplemented by the following:

The Contractor shall maintain and protect traffic as described by the following and as limited in the Special Provision "Prosecution and Progress":

Route 32 (River Road)

The Contractor shall maintain and protect a minimum of one lane of traffic in each direction on a paved travelpath not less than 12 feet in width.

Excepted therefrom will be those periods, during the allowable periods when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travelpath not less than 12 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet.

During those periods when the Contractor is actively working, the Contractor shall provide Trafficperson as required if sight line is restricted from intersecting roads and driveways on Route 32.

During Stage Construction the Contractor shall maintain and protect traffic as shown on the Stage Construction Plans contained in the contract plans.

The Contractor will be allowed to halt traffic for a period not to exceed ten minutes. The Contractor shall allow all stored vehicles to proceed through the work area before halting traffic for another ten-minute period.

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:

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed except during the allowable periods.

Unpaved travel paths will only be permitted for areas requiring full depth and full width reconstruction.

During full depth and full width reconstruction, the Contractor shall maintain and protect at least an alternating one-way traffic operation, on a travel path not less than 12 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet. The Contractor will be allowed to maintain traffic temporarily on a processed aggregate base pavement structure. The Contractor shall complete each processed aggregate base lift for the entire length between the project limits before proceeding to the next processed aggregate base lift. The unpaved section shall be the full width of the road and perpendicular to the travel lanes at the end of each day. If the traverse 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. The cost of furnishing, installing and removing this temporary traversable slope material shall be included in the contract lump sum for "Item No. 0971001A Maintenance and Protection of Traffic." Opposing traffic lane dividers shall be used as a centerline. The Contractor will be allowed to maintain traffic on process aggregate for a duration not to exceed 10 calendar days.

The Contractor is required to delineate any raised structures within the travel lanes, so that the structures are visible day and night, unless there are specific contract plans and provisions to temporarily lower these structures prior to the completion of work.

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway (bridge) section by the end of a workday (worknight). All transverse height differentials on all roadway surfaces shall be tapered to negate any "bump" to traffic as approved by the Engineer. The cost of furnishing, installing and removing this taper material shall be included in the contract lump sum for "Item No. 0971001A Maintenance and Protection of Traffic."

Longitudinal dropdowns greater than 3 inches will not be allowed during those periods when the maximum number of lanes of through traffic are required. The Contractor shall temporarily provide a 4:1 traversable slope of suitable material in those areas where a longitudinal dropdown exists. The cost of furnishing, installing and removing this material shall be included in the contract lump sum for "Item No. 0971001A Maintenance and Protection of Traffic."

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.

All temporary concrete barriers, other protective systems and traffic control devices as called for by the contract must be on-hand and available in sufficient quantity for immediate installation prior to any stage change.

Signing

The Contractor shall maintain existing 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 and foundations if necessary.

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:

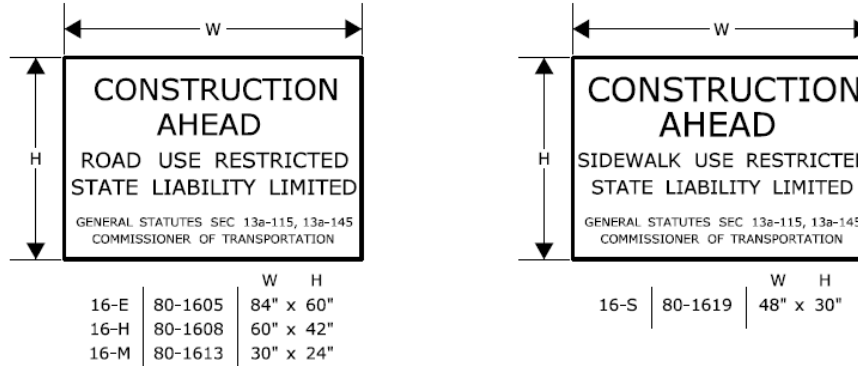
<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>	<u>Message No.</u>	<u>Frame 1</u>	<u>Frame 2</u>
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	WORKERS ON ROAD	REDUCE SPEED
4	2 LEFT 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 RAMP 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 RAMP, OTHER STATE ROADWAYS, AND MAJOR TOWN/CITY ROADWAYS.

SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

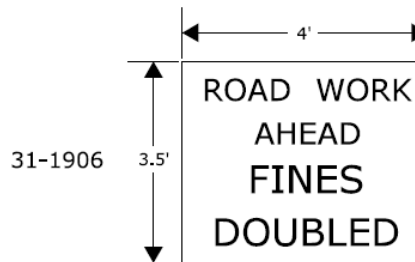
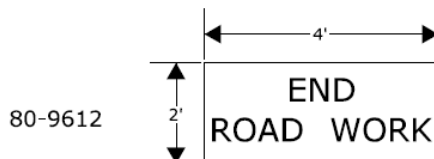
REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

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

CONNECTICUT DEPARTMENT OF TRANSPORTATION
 BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Harlow*
 PRINCIPAL ENGINEER
 Charles S. Harlow
 2012.06.05 11:35:43-04'00'

NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.
2. SIGNS (AA), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.
3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.
4. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.
5. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.
6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.
7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).
8. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.
9. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.
10. SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

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

METRIC CONVERSION CHART (1" = 25mm)

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



SCALE: NONE

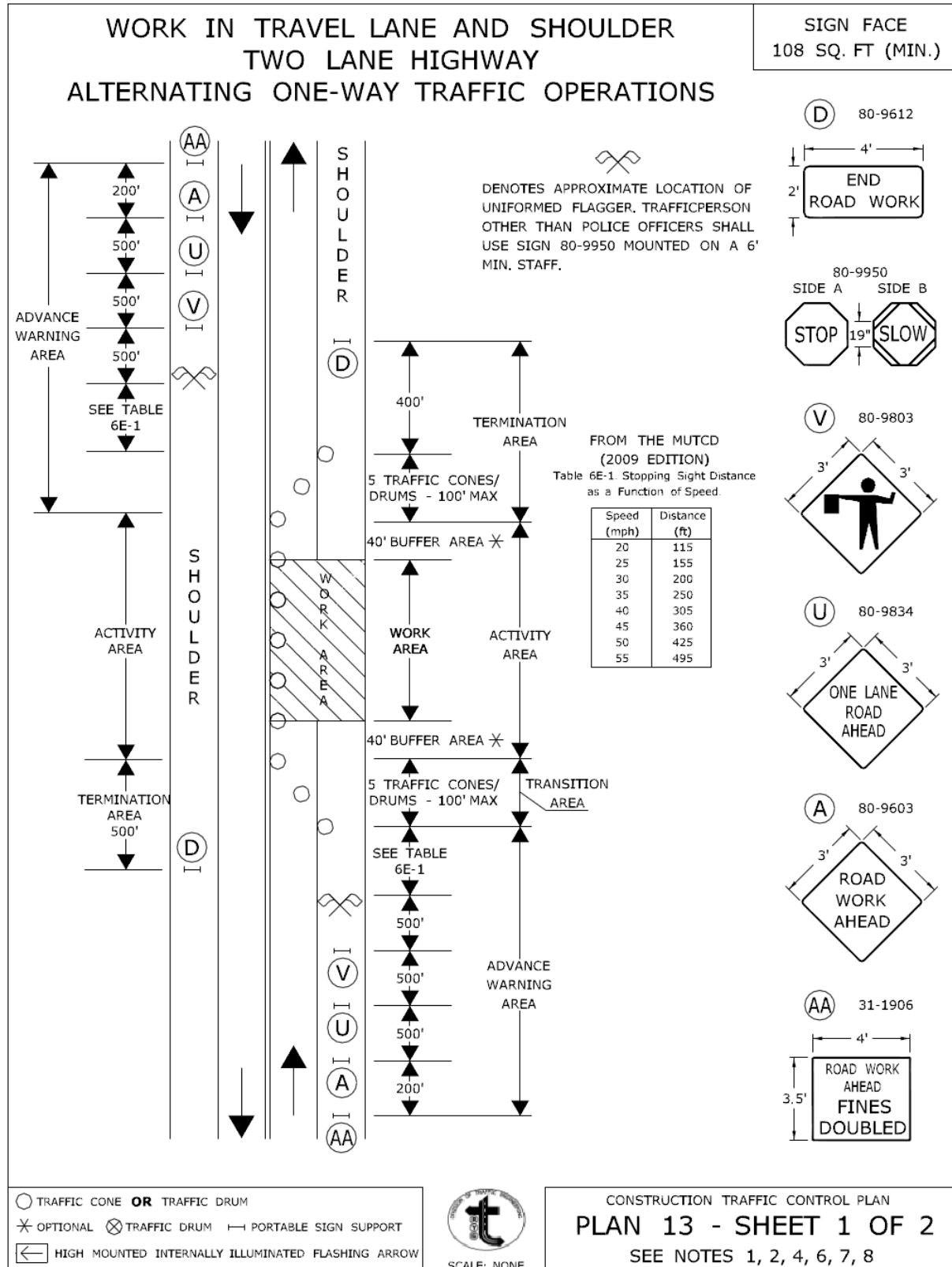
CONSTRUCTION TRAFFIC CONTROL PLAN NOTES

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

Charles S. Harlow
PRINCIPAL ENGINEER

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



- 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

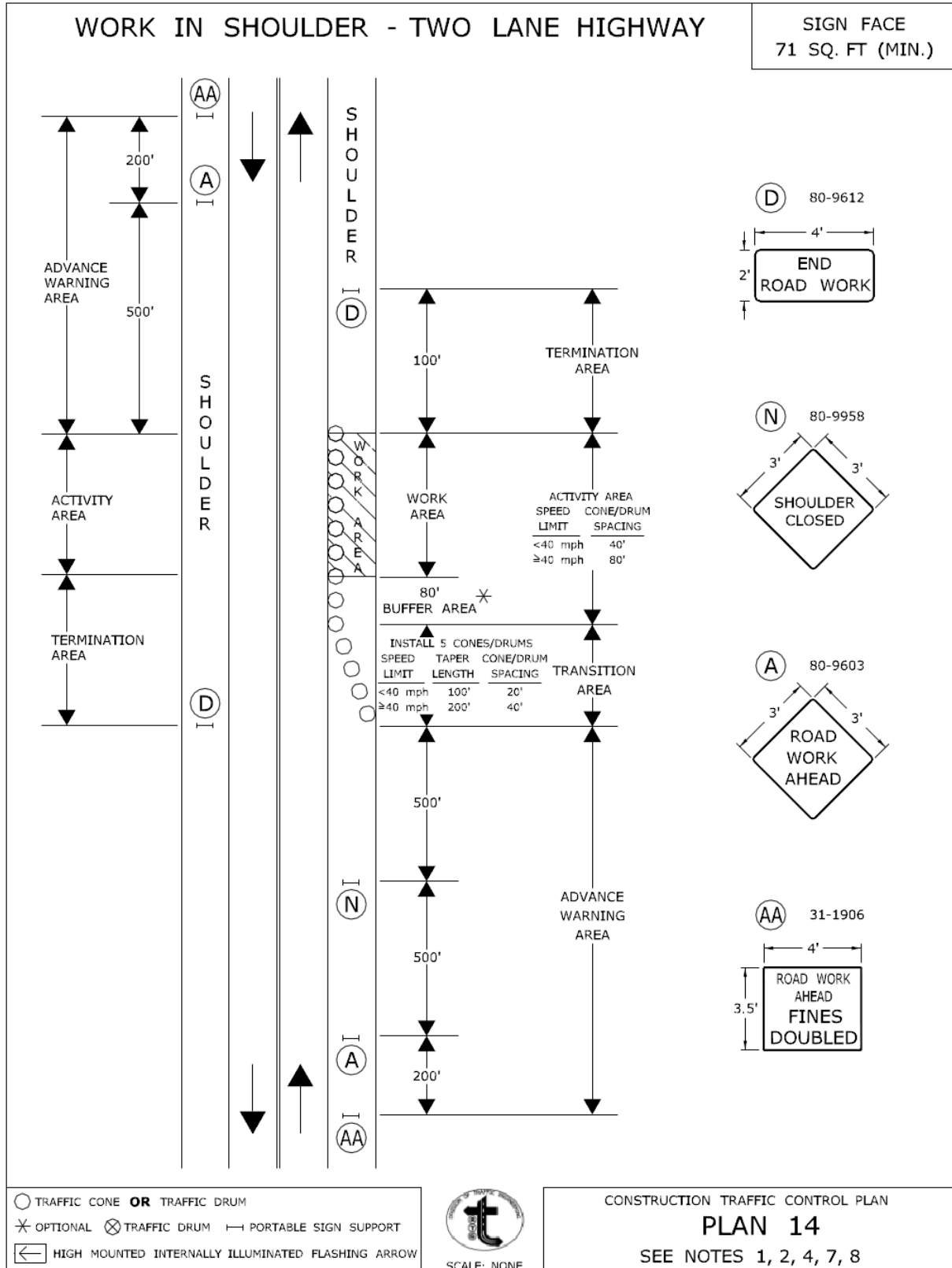


SCALE: NONE

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



○ TRAFFIC CONE **OR** TRAFFIC DRUM
 ✱ OPTIONAL ⊗ TRAFFIC DRUM — PORTABLE SIGN SUPPORT
 ◀ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

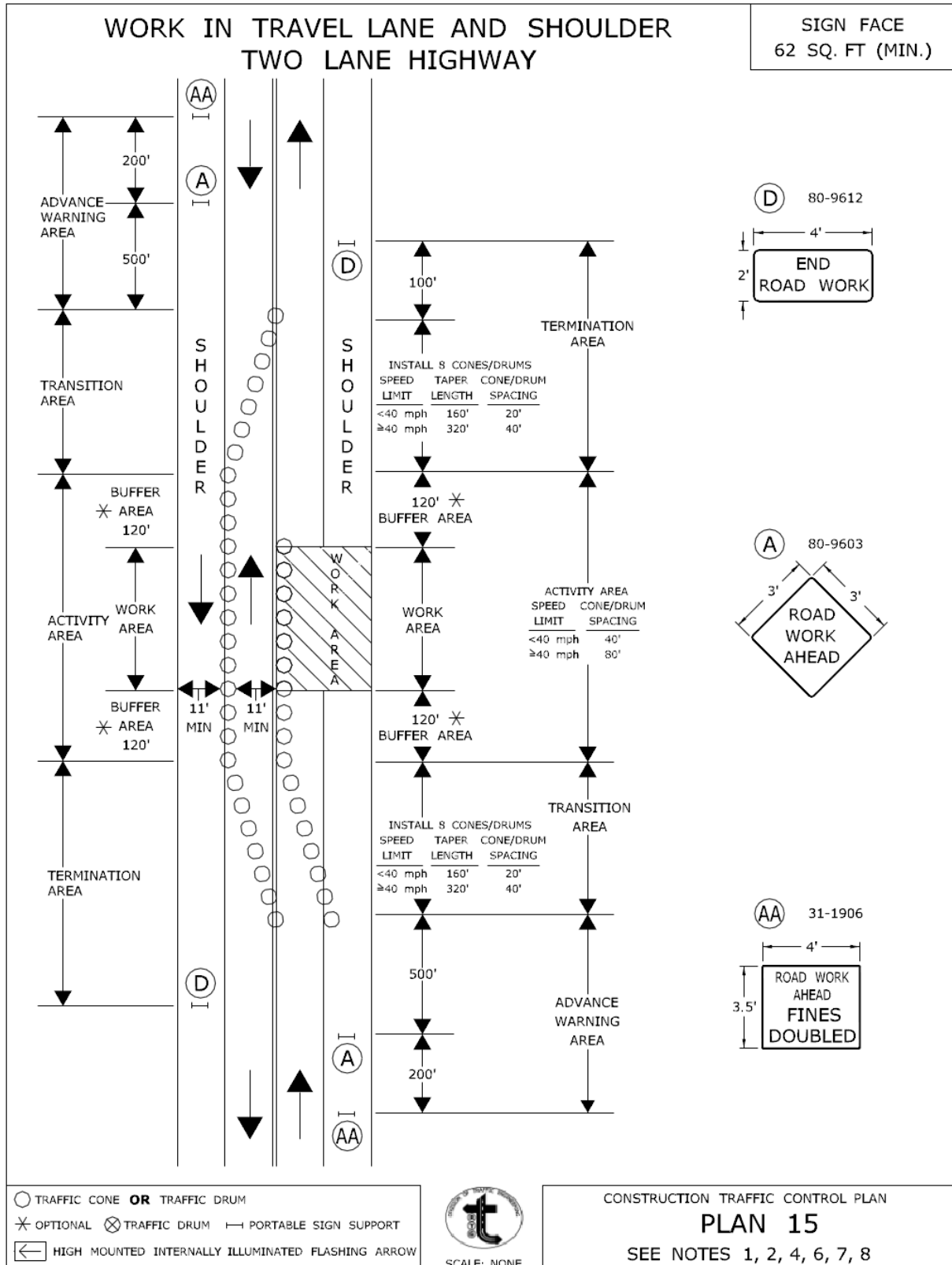


SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 14
 SEE NOTES 1, 2, 4, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
 BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Harlow*
 PRINCIPAL ENGINEER
Charles S. Harlow
 2012.06.05 15:56:09-04'00"



CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED *Charles S. Harlow* Charles S. Harlow
2012.06.05 15:56:29-04'00"
PRINCIPAL ENGINEER

Article 9.71.05 – Basis of Payment is supplemented by the following:

The temporary relocation of signs and supports shall be paid for under the item “Maintenance and Protection of Traffic.”

The cost of furnishing, installing, and removing the material for the temporary traversable slope of 4:1 shall be paid for under the item “Maintenance and Protection of Traffic.”

ITEM #0981101A – OPPOSING TRAFFIC LANE DIVIDER

Article 9.81.01 - Description:

This item shall include furnishing, installing, resetting, and removing Opposing Traffic Lane Dividers. Opposing Traffic Lane Dividers will be used to separate opposing traffic on a two-lane two-way roadway. The legend on the divider shall be two opposing arrows.

The Opposing Traffic Lane Divider shall meet the requirements of Federal Highway Administration's Strategic Highway Research Program (SHRP). The Opposing Traffic Lane Divider shall be 12 inch wide by 18 inch high sign panels mounted back to back on a flexible support post. The post shall be mounted to a base.

A series of these devices shall be placed on the center line of a temporary two-way operation. The support shall be designed to recover automatically to a vertical position if struck by a vehicle.

The opposing Traffic Lane Divider is covered in Section 6F.76 of the Manual on Uniform Traffic Control Devices (2009 Edition).

Article 9.81.02 - Materials:

- 1) Panel - The vertical panel shall be constructed of a flexible material resistant to ultraviolet light, ozone and hydrocarbons. The surface shall be smooth and suitable for adherence of appropriate retroreflective sheeting. The retroreflective sheeting shall be Type IV retroreflective sheeting in accordance with Section M.18.09.
- 2) Support Post - The support post shall be made of a material resistant to ultraviolet light, ozone, and hydrocarbons. The post shall have sufficient stiffness to remain rigid in windy conditions. The support shall be designed to recover automatically to a vertical position or manually restored (when fastened to the roadbed), if struck by a vehicle.
- 3) Base - The base shall consist of a metal ballast plate fastened to a rubber base. For long-term use, the metal ballast plate can be fastened directly to the roadbed. When fastened to the roadbed, the post will need to be manually reset when hit. The base shall meet the requirements of the Federal Highway Administration's Strategic Highway Research Program (SHRP).

Article 9.81.03 - Construction Methods:

The Opposing Traffic Lane Dividers shall be spaced every 30 feet apart or as directed by the Engineer. The Contractor shall insure that the devices are kept clean and bright. Any devices that are missing, damaged, or defaced so that they are not effective, as determined by the Engineer and in accordance with the American Traffic Safety Services Association (ATSSA) guidelines contained in "Quality Standards for Work Zone Traffic Control Devices", shall be replaced by the Contractor at no cost to the State. When no longer required, they shall remain the property of the Contractor.

Article 9.81.04 - Method of Measurement:

This work will be measured for payment by the number of opposing traffic lane dividers furnished, installed and accepted on the project. Replacement devices shall not be measured for payment. Devices relocated to a different location in accordance with the Engineer shall not be measured.

Article 9.81.05 - Basis of Payment:

This work will be paid for at the contract unit price each for "Opposing Traffic Lane Divider" which price shall include all materials, equipment, tools, labor and work incidental to furnishing, installing, maintaining and removing the units.

ITEM #1208931A – SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)

Section 12.08 is supplemented and amended as follows:

12.08.01—Description:

Add the following:

This item shall also include field testing of metal sign base posts as directed by the Engineer.

12.08.03—Construction Methods:

Delete the last sentence and add the following:

Metal sign base posts shall be whole and uncut. Sign base post embedment and reveal lengths shall be as shown on the plans. The Contractor shall drive the metal sign base posts by hand tools, by mechanical means or by auguring holes. If an obstruction is encountered while driving or placing the metal sign base post, the Contractor shall notify the Engineer who will determine whether the obstruction shall be removed, the sign base post or posts relocated, or the base post installation in ledge detail shall apply. Backfill shall be thoroughly tamped after the posts have been set level and plumb.

Field Testing of Metal Sign Posts: When the sign installations are complete, the Contractor shall notify the Engineer the Project is ready for field testing. Based on the number of posts in the Project, the Engineer will select random sign base posts which shall be removed by the Contractor for inspection and measurement by the Engineer. After such inspection is completed at each base post location, the Contractor shall restore or replace such portions of the work to the condition required by the Contract. Refer to the table in 12.08.05 for the number of posts to be field tested.

12.08.04—Method of Measurement:

Add the following:

The work required to expose and measure sign base post length and embedment depth using field testing methods, and restoration of such work, will not be measured for payment and shall be included in the general cost of the work.

12.08.05—Basis of Payment:

Replace the entire Article with the following:

This work will be paid for at the Contract unit price per square foot for “Sign Face - Sheet Aluminum” of the type specified complete in place, adjusted by multiplying by the applicable Pay Factor listed in the table below. The price for this work shall include the completed sign, metal sign post(s), span-mounted sign brackets and mast arm-mounted brackets, mounting hardware, including reinforcing plates, field testing, restoration and replacement of defective base post(s), and all materials, equipment, and work incidental thereto.

Pay Factor Scale: Work shall be considered defective whenever the base post length or base post embedment depth is less than the specified length by more than 2 inches. If the number of defects results in rejection, the Contractor shall remove and replace all metal sign base posts on the Project, at no cost to the Department.

Number of Posts to be Tested and Pay Factors (Based on Number of Defects)

Number of Posts in Project =>	51-100	101-250	251-1000	>1000
Sample Size=>	5 Posts	10 Posts	40 Posts	60 Posts
0 Defects	1.0	1.0	1.025	1.025
1 Defect	0.9	0.95	0.975	0.983
2 Defects	Rejection	0.9	0.95	0.967
3 Defects	Rejection	Rejection	0.925	0.95
4 Defects	Rejection	Rejection	0.9	0.933
5 Defects	Rejection	Rejection	Rejection	0.917
6 Defects	Rejection	Rejection	Rejection	0.9
7 or more Defects	Rejection	Rejection	Rejection	Rejection

Note: Projects with 50 or fewer posts will not include field testing

PERMITS AND/OR REQUIRED PROVISIONS:

The following Permits and/or and Required Provisions follow this page are hereby made part of this Contract.

- **PERMITS AND/OR PERMIT APPLICATIONS**

Construction Activities – General Permit 201814764 Approved on November 20, 2018

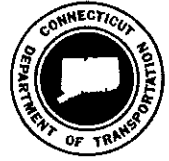
Army Corps of Engineers PCN NAE-2018-01363 Approved on November 13, 2018

Connecticut Addendum ACOE - Connecticut
General Permit 201807893 Approved on July 16, 2018

- **Construction Contracts - Required Contract Provisions (FHWA Funded Contracts)**



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2931

November 14, 2018

TO: Willington Planning & Zoning Commission
40 Old Farms Road
Willington, CT 06279

FROM: Kimberly C. Lesay
Transportation Assistant Planning Director
Bureau of Policy and Planning

SUBJECT: Notification of Submittal of Application to the State of Connecticut, Department of Energy and Environmental Protection's (DEEP) for a General Permit for Water Resource Construction Activities

PROJECT: State Project No. 160-147
Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook
Town of Willington

Enclosed is a copy of our Request for Authorization under the State of Connecticut Department of Energy and Environmental Protection's General Permit for Water Resources Construction Activities. If your agency wishes to comment on the enclosed application, comments must be submitted to the State Department of Energy and Environmental Protection.

Comments should be directed to:

Land and Water Resources Division
Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

If we can provide additional information, please contact Mr. Andrew H. Davis at 860-594-2157.

Michael J. Salter/mjs

bcc: Kimberly C. Lesay – Kevin F. Carifa – Andrew Piraneo
Andrew H. Davis – Michael J. Salter
Mary E. Baker – Kevin V. Blasi – Jonathan J. Kempf
Donald Ward, District 1



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2931

November 14, 2018

TO: Willington Conservation Commission
40 Old Farms Road
Willington, CT 06279

FROM: Kimberly C. Lesay
Transportation Assistant Planning Director
Bureau of Policy and Planning

SUBJECT: Notification of Submittal of Application to the State of Connecticut, Department of Energy and Environmental Protection's (DEEP) for a General Permit for Water Resource Construction Activities

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Michael J. Salter/mjs

bcc: Kimberly C. Lesay – Kevin F. Carifa – Andrew Piraneo
Andrew H. Davis – Michael J. Salter
Mary E. Baker – Kevin V. Blasi – Jonathan J. Kempf
Donald Ward, District 1



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2931

November 14, 2018

TO: Willington Inland Wetlands & Watercourses Commission
40 Old Farms Road
Willington, CT 06279

FROM: Kimberly C. Lesay *Kimberly Lesay*
Transportation Assistant Planning Director
Bureau of Policy and Planning

SUBJECT: Notification of Submittal of Application to the State of Connecticut, Department of Energy and Environmental Protection's (DEEP) for a General Permit for Water Resource Construction Activities

PROJECT: State Project No. 160-147
Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook
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Michael J. Salter/mjs

bcc: Kimberly C. Lesay – Kevin F. Carifa – Andrew Piraneo
Andrew H. Davis – Michael J. Salter
Mary E. Baker – Kevin V. Blasi – Jonathan J. Kempf
Donald Ward, District 1

**INTERDEPARTMENTAL
MESSAGE**

STATE OF CONNECTICUT

To	NAME, TITLE Central Permit Processing Unit, 1 st Floor	DATE November 14, 2018
	AGENCY, ADDRESS Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106	
From	NAME, TITLE Kimberly C. Lesay, Transportation Assistant Planning Director	TELEPHONE (860) 594-2931
	AGENCY, ADDRESS Department of Transportation, 2800 Berlin Turnpike, Newington, CT 06131-7546	

Subject: State Project No. 160-147
Rehabilitation of Bridge No. 02559, Route 32 over South Branch Roaring Brook
Town of Willington
IWRD: 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

Zoltan M. Kanyo/zmk

cc: Kimberly Lesay – Andrew H. Davis – Michael J. Salter
Mary E. Baker – Kevin V. Blasi – Jonathan J. Kempf
Kevin Carifa – Andrew Piraneo
Donald Ward, District 1



**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): <input type="checkbox"/> individual <input type="checkbox"/> *business entity <input type="checkbox"/> federal agency <input checked="" type="checkbox"/> state agency <input type="checkbox"/> municipality <input type="checkbox"/> tribal	
*If a business entity, list type (e.g., corporation, limited partnership, etc.):	
<input type="checkbox"/> 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 <i>billing purposes only</i> , if different:	
Company/Individual Name:	
Mailing Address:	
City/Town:	State: Zip Code:
Contact Person:	Phone: ext.

Part II: Project Information

Brief Description of Project: <i>(Example: Development of a 50 slip marina on Long Island Sound)</i>					
State Project No. 0160-0147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook					
Location (City/Town): Willington					
Other Project Related Permits <i>(not included with this form)</i> :					
Permit Description	Issuing Authority	Submittal Date	Issuance Date	Denial Date	Permit #
PCN - GP 19	ACOE	6/6/2018	11/13/2018		NAE-2018-01363
CT Addendum	DEEP	6/6/2018	7/16/2018		201807893-PGP

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
	AIR EMISSIONS				
	New Source Review	\$940.00			1 + 0
	<input type="checkbox"/> Revision <input type="checkbox"/> minor mod				
	Title V Operating Permits	none			1 + 0
	<input type="checkbox"/> Revision <input type="checkbox"/> minor mod <input type="checkbox"/> non-minor mod				
	Title IV	none			1 + 0
	Clean Air Interstate Rule (CAIR)	none			1 + 0
	WATER DISCHARGES				
	To Groundwater	\$1300.00			1 + 1
	To Sanitary Sewer (POTW)	\$1300.00			1 + 1
	To Surface Water (NPDES)	\$1300.00			1 + 1
	WATER PLANNING AND MANAGEMENT				
	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
	LAND AND WATER RESOURCES				
	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
	WASTE MANAGEMENT				
	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	
	GENERAL PERMITS and AUTHORIZATIONS	Subtotals Page 3 & 4 ➡	1	\$2500	
	Enter subtotals from Part IV, pages 3 - 6 of this form	Subtotals Page 5 ➡	0	0	
		Subtotals Page 6 ➡	0	0	
		TOTAL ➡	1	\$2500	
	<input checked="" type="checkbox"/> Indicate whether municipal discount or state waiver applies. Less Applicable Discount ➡			State Waiver	
		AMOUNT REMITTED ➡		\$0	
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
AIR EMISSIONS				
<input type="checkbox"/> Limit Potential to Emit from Major Stationary Sources of Air Pollution	\$2760.00			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):				
WATER DISCHARGES				
<input type="checkbox"/> Categorical Industry User to a POTW				
<input type="checkbox"/> Discharges ≥ 10,000 gpd	\$6250.00			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

★ 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
AQUIFER PROTECTION PROGRAM				
<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
WATER PLANNING AND MANAGEMENT				
<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	\$2500	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):				
LAND AND WATER RESOURCES				
Minor Coastal Structures				
<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	
Coastal Maintenance				
<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	\$2500

★ See fee schedule on registration/application.

★★ Contact the specific permit program for this information.
(Contact numbers are provided in the instructions)

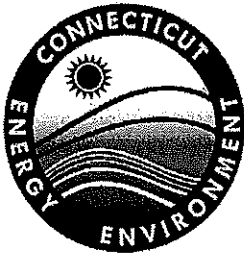
Part IV: General Permit Registrations and Requests for Other Authorizations (continued)

<input checked="" type="checkbox"/> General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
WASTE MANAGEMENT				
<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
Construct and Operate a Commercial Facility for the Management of Recyclable Materials and Certain Solid Wastes (Commercial GP)				
<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
Contaminated Soil and/or Staging Management (Staging/Transfer)				
<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			★★
Special Waste Authorization				
<input type="checkbox"/> Landfill or RRF Disposal	\$660.00			1 + 0
<input type="checkbox"/> Asbestos Disposal	\$300.00			
<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):				
REMEDIATION				
<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

★ 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 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 Request for Authorization 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 Request for Authorization 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>Wilmington</u></p>	
<p>Brief Description of Project: CTDOT Project No. 160-147; Rehabilitation of Bridge No. 02259 carrying Route 32 over S. Branch Roaring Brook. The existing structure will be rehabilitated by inserting an aluminum box culvert liner through the existing bridge opening and pumping flowable fill between the voids. The culvert will have a concrete slab base with new concrete headwalls, wingwalls, and footings with vertical ground anchors.</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)
- 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: State of Connecticut Department of Transportation

Mailing Address: 2800 Berlin Turnpike, P.O. BOX 317546

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

*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)

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: **860-594-3166**

ext.

Contact Person: **Zoltan Kanyo**

Title: **Transportation Engineer 2**

Email: **zoltan.kanyo@ct.gov**

Service Provided: **Design Engineer/Application Preparer**

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 : **Bridge No. 02259**

Street Address or Location Description: **Route 32 over S. Branch Roaring Brook**

City/Town: **Willington**

State: **CT**

Zip Code: **06279**

Tax Assessor's Reference: Map **N/A**

Block **N/A**

Lot **N/A**

Latitude and longitude of the exact location of the proposed activity in degrees, minutes, and seconds or in decimal degrees: Latitude: **41° 54' 9.93"** Longitude: **72° 17' 14.78"**

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 (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 2017**

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 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 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: 4/1/2019
- Anticipated Date of Completion: 10/31/2019
- Name of the wetland or watercourse involved with or adjacent to the subject activity:
S. Branch Roaring 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: Not Required. Project not within FEMA flood zone

Part IV: Construction Activity Details (continued)

7. Disturbance to wetlands, watercourses and flood plains:

Wetlands (acres):

excavation: 0.023 ac. fill: 0.032 ac. total disturbance: .055 ac.

Floodplain (cubic yards):

excavation: N/A fill: N/A net: N/A

Watercourse (linear feet): 136 feet

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.

The existing Bridge No. 02259 consists of a single span, multi-beam superstructure supported by stone masonry abutments and wingwalls that carries Route 32 over South Branch Roaring Brook. The deck consists of two concrete slab sections on the outside of each fascia beam and 7 bays consisting of arch pan stay-in-place forms. The superstructure was rated to be in serious condition by Bridge Safety and Evaluation and exhibits moderate to heavy rust with loss of section in girders. The proposed rehabilitation consists of installing an aluminum box culvert founded on a concrete slab. Flowable fill will be pumped between the roof of the aluminum arch and the existing culvert. The intended use remains the same. The curb-to-curb width of the roadway will be increased from 30 to 334 feet. The improvements will maintain the existing structure and provide adequate lane and shoulder widths. The present and intended uses will remain the same.

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.

South Branch Roaring Brook will be disturbed during construction with some areas being permanently altered. Temporary impacts include impacts from the installation of cofferdams and appropriate water handling system as well as the construction of access roads and site excavation. Utility poles with overhead wires will need to be temporarily relocated during construction. Permanent impacts include the installation of the aluminum box culvert founded on a concrete slab that is being placed underneath the existing structure. Small quantities of additional fill will be placed within the watercourse associated with widening of the roadway and new riprap will be installed for permanent stabilization. All temporarily impacted watercourse and upland areas will be restored to existing conditions with natural streambed material and native plantings. Wildlife passage through the structure will be temporarily impacted during construction but will be restored upon completion.

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): Inland Fisheries Division Coordination, Statewide Inland Wetlands & Watercourses Activity Reporting Form, Interagency Meeting Coordination Meeting Notes, and Site Photographs

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.

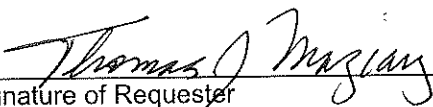
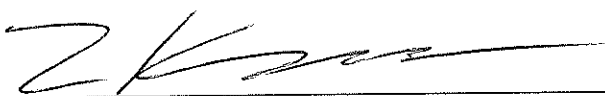
"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate 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-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute."

	11-14-2018
Signature of Requester	Date
Thomas J. Maziarz	Bureau Chief - Policy & Planning
Name of Requester (print or type)	Title (if applicable)
	5/16/18
Signature of Preparer (if different than above)	Date
Zoltan M. Kanyo	Transportation Engineer 2, Bridge Design
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:

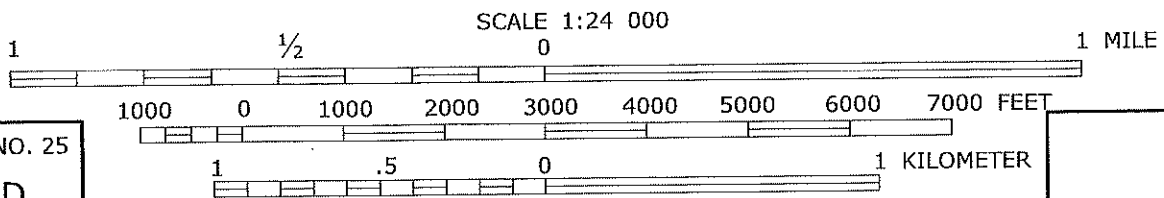
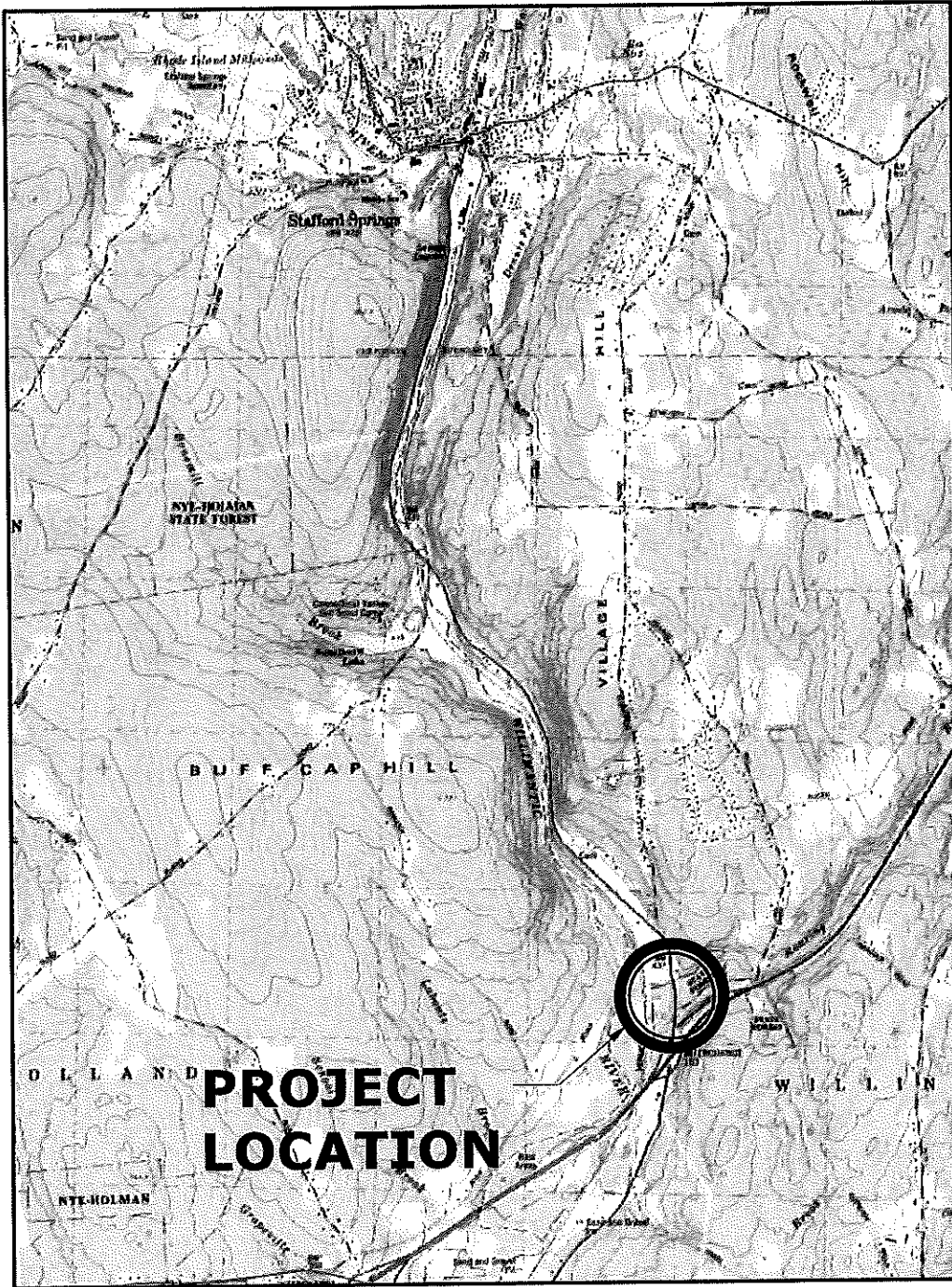
CENTRAL PERMIT PROCESSING UNIT
 DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
 79 ELM STREET
 HARTFORD, CT 06106-5127

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 and Construction Activities (IWRD General)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



QUADRANGLE NO. 25

**STAFFORD
SPRINGS**

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1983

STATE PROJECT NO.: 160-147
REHABILITATION OF BRIDGE NO.
02259 CARRYING ROUTE 32
OVER S. BRANCH ROARING BROOK
COUNTY: TOLLAND



APPLICATION BY:
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



DATE:

CITY/TOWN: WILLINGTON

ATTACHMENT A

Project Description
State Project No. 0160-0147
Rehabilitation of Bridge No. 02259
Route 32 over South Branch Roaring Brook
In the Town of Willington

Project Location: The proposed rehabilitation of Bridge 02259 is located on Route 32 (River Road) over South Branch Roaring Brook in the Town of Willington. The bridge is at mile point 44.87 of Route 32 between the intersections of Route 32 and Village Hill Road and Route 32 and Schofield Road.

Project Description: Bridge 02559 was constructed in 1914 to carry Route 32 over South Branch Roaring Brook. The single-span, multi-beam superstructure is supported by stone masonry abutments and wingwalls with concrete caps. The deck consists of two concrete slab sections on the outside of each fascia beam and 7 bays consisting of arch pan stay-in-place forms. The curb to curb deck width is 30 feet and carries one lane of traffic with narrow shoulders in each direction. The structure has a skew angle of 42 degrees and an overall length of 31 feet, with a maximum span of 27 feet.

The latest bridge inspection report dated July 19, 2016 states that the superstructure is in a serious condition (rating 3) and exhibits moderate to heavy rust with loss of section in girders. All remaining components of the bridge are in a satisfactory condition (rating 6) or better.

The proposed rehabilitation consists of installing an aluminum box culvert founded on a slotted concrete invert slab within the existing structure opening. The installation involves pumping flowable-fill in between the voids of the existing structure and the proposed aluminum box culvert. Concrete wingwalls and footings with vertical ground anchors will be cast at both the inlet and the outlet. The rehabilitation also includes widening the roadway curb to curb width to 34 feet, allowing for a 12 foot lane and a 5 foot shoulder in each direction.

Due to the ease of installation with the aluminum box culvert, the new structure can be constructed without having to close Route 32 and detour traffic. Traffic can be maintained with periods of one-way-alternating. South Branch Roaring Brook is an overflow channel to the main watercourse. The brook does not typically experience flowing water unless a significant storm event has occurred. The drainage area of this watershed to the structure is 22 square miles. Any areas disturbed temporarily for construction shall be restored in kind.

During construction, cofferdams to handle the water will be installed at the inlet and outlet to protect the excavation from excess water entering the construction site. In order to facilitate the construction and installation of the structure, temporary access roads will be built at both the inlet and the outlet. In addition, a temporary modified riprap swale and a temporary 15" RCP drainage pipe will be installed at the outlet.

This project has been presented in front of DEEP and the ACOE and concurrence with the structure type has been given. Coordination with DEEP Fisheries and NDDDB have been

completed and their comments have been incorporated into the project documents. Permits to be obtained prior to the start of construction have been listed below.

Permits: A General Water Resource Construction Activities, Army Corps Pre-Construction Notification, and corresponding Connecticut Addendum Army Corps of Engineers General Permit (CT GP) permits are anticipated to be needed prior to construction.

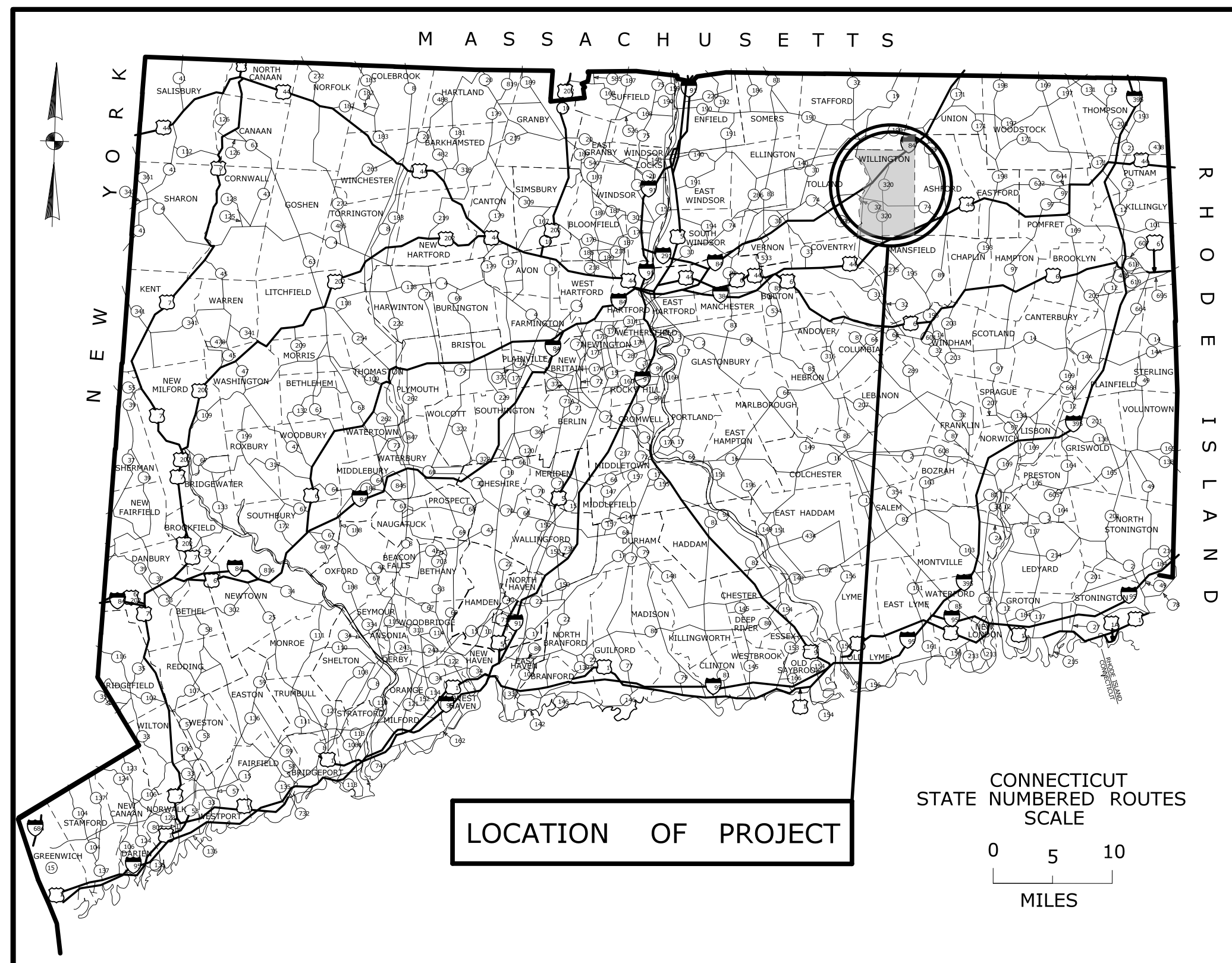
Attachment B: Site Permit Plans

General Permit for Water Resource and Construction Activities (IWRD General)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

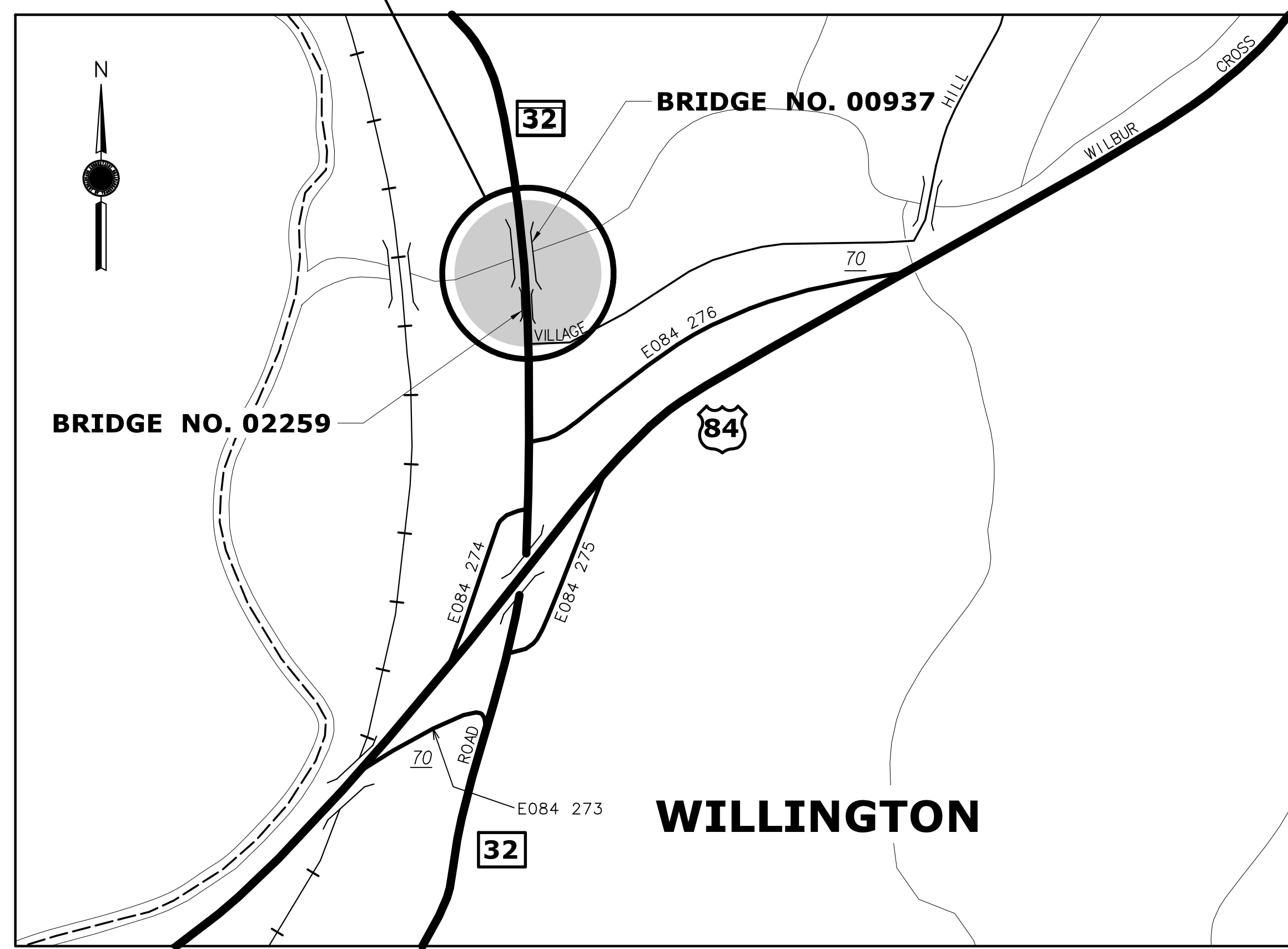
List of Plan Sheets and Drawings:

Sheet 1	Title Sheet
Sheet 2	General Plan
Sheet 3	Wetland/Watercourse Impact Plan
Sheet 4	Construction Sequence - I
Sheet 5	Construction Sequence - II
Sheet 6	Construction Sequence - III
Sheet 7	Permit Planting Plan



ENVIRONMENTAL PERMIT PLANS
STATE PROJECT NO. 160-147
REHABILITATION OF BRIDGE NO. 02259 CARRYING
ROUTE 32 OVER S. BRANCH ROARING BROOK
TOWN OF WILLINGTON

PROJECT LOCATION



ALL ELEVATIONS BASED ON NGVD OF 1988
 COORDINATES BASED ON CONNECTICUT COORDINATE SYSTEM NAD 1983

GENERAL NOTES:

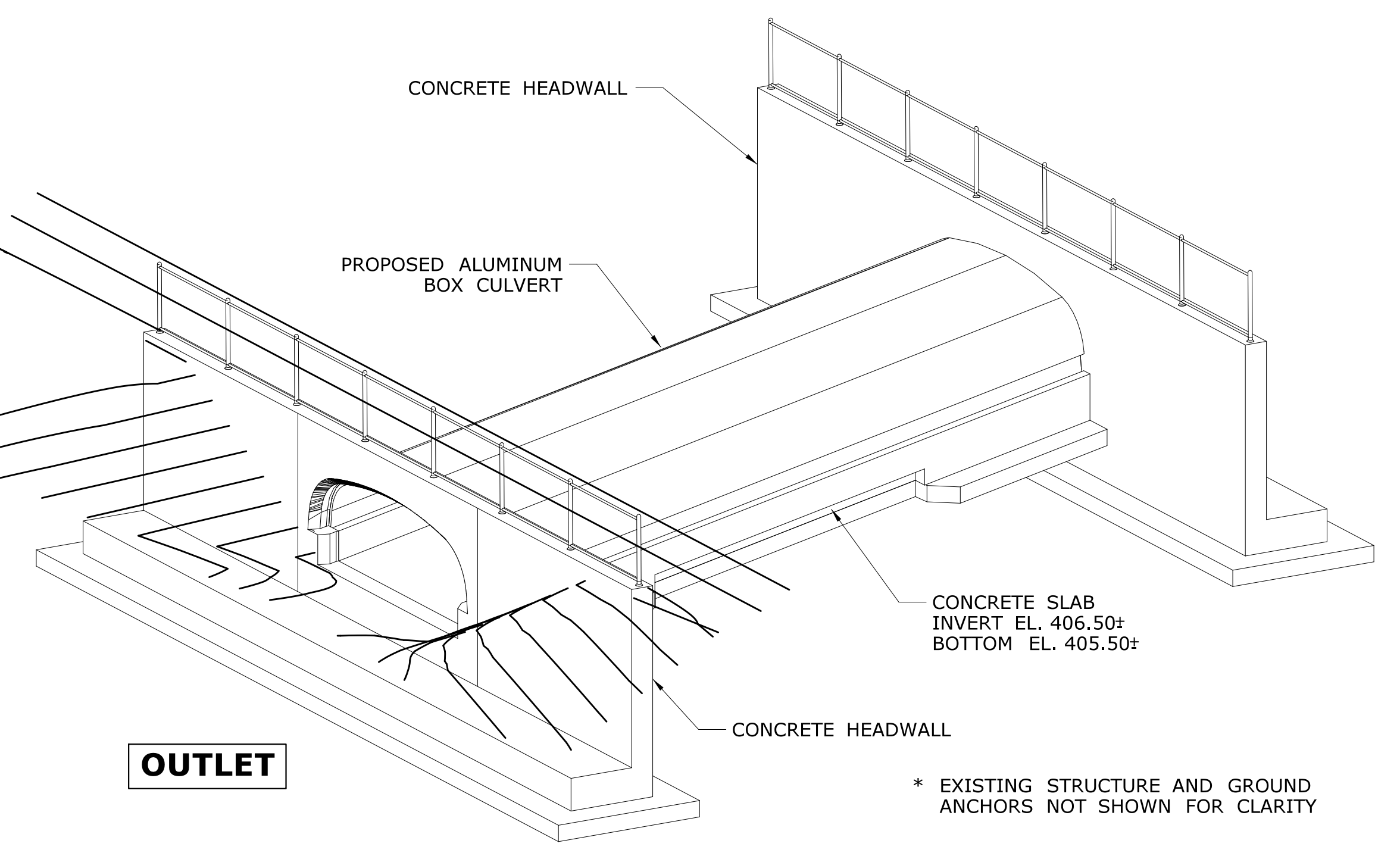
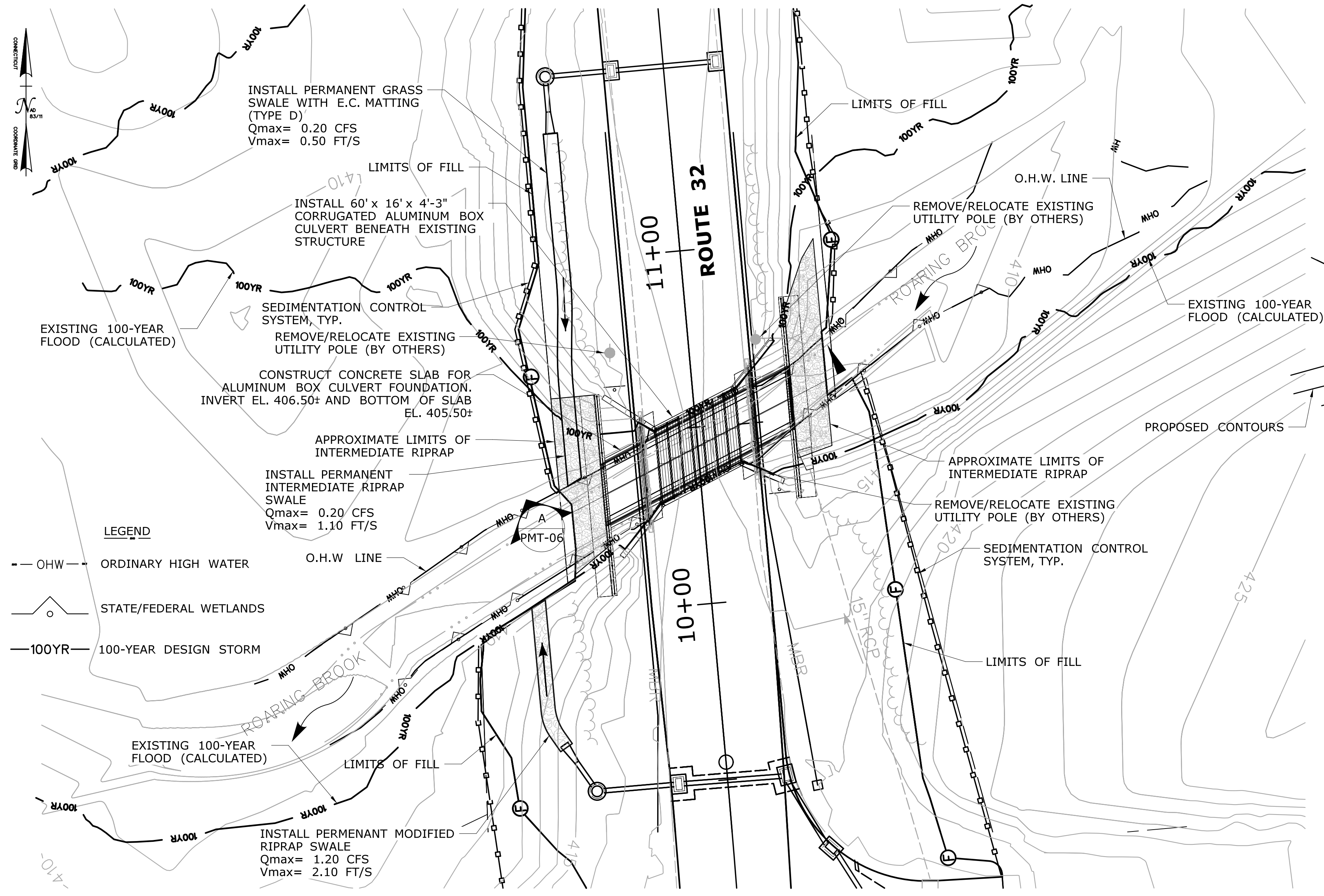
1. THESE PLANS ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS 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 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.

LOCATION MAP
SCALE 1"=500'

INDEX OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	CONSTRUCTION SEQUENCE - 1
PMT-05	WATER HANDLING AND CONSTRUCTION SEQUENCE - 2
PMT-06	CONSTRUCTION SEQUENCE - 3
PMT-07	PERMIT PLANTING PLAN

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: APRIL 12, 2018

REV. DATE REVISION DESCRIPTION SHEET NO. Plotted Date: 4/18/2018	DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
	CHECKED BY: JJK		APPROVED BY:		DRAWING TITLE: PERMIT TITLE SHEET	DRAWING NO. PMT-01
SCALE AS NOTED		Filename: ...SB-160-147_P-01_Attachment_B_Title_Sheet.dgn				



PLAN VIEW - BRIDGE NO. 02259
SCALE: 1" = 20'

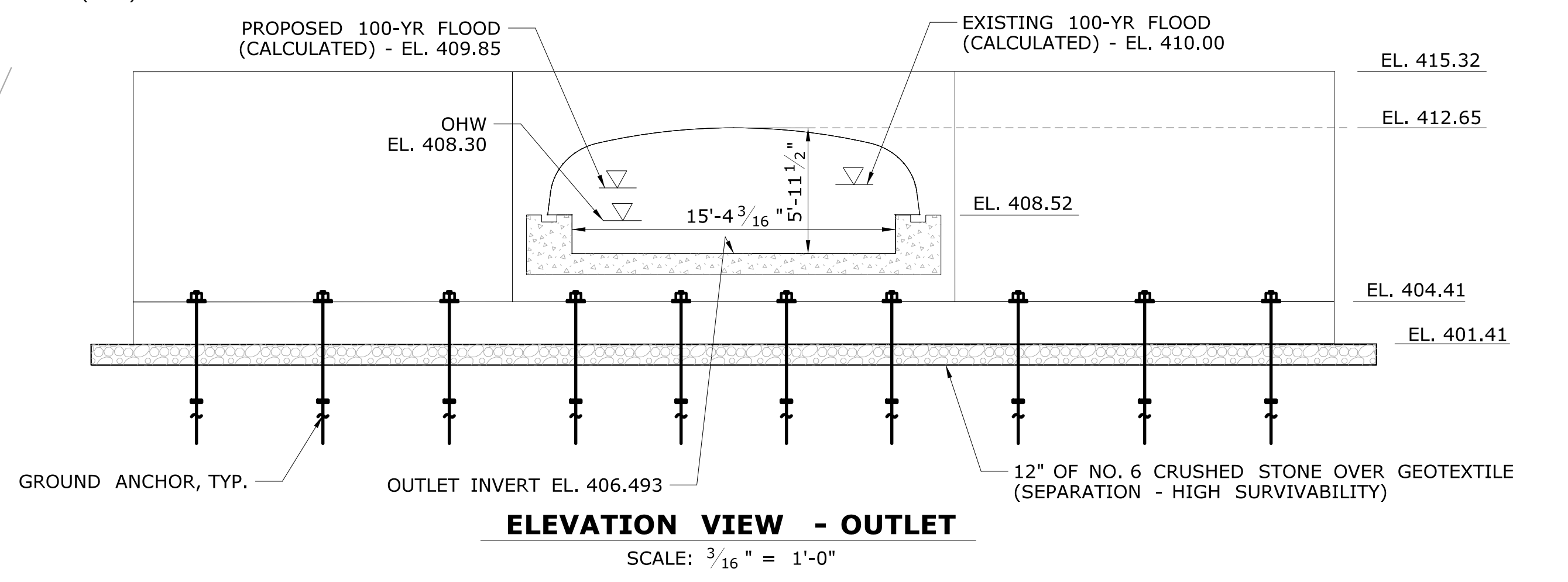
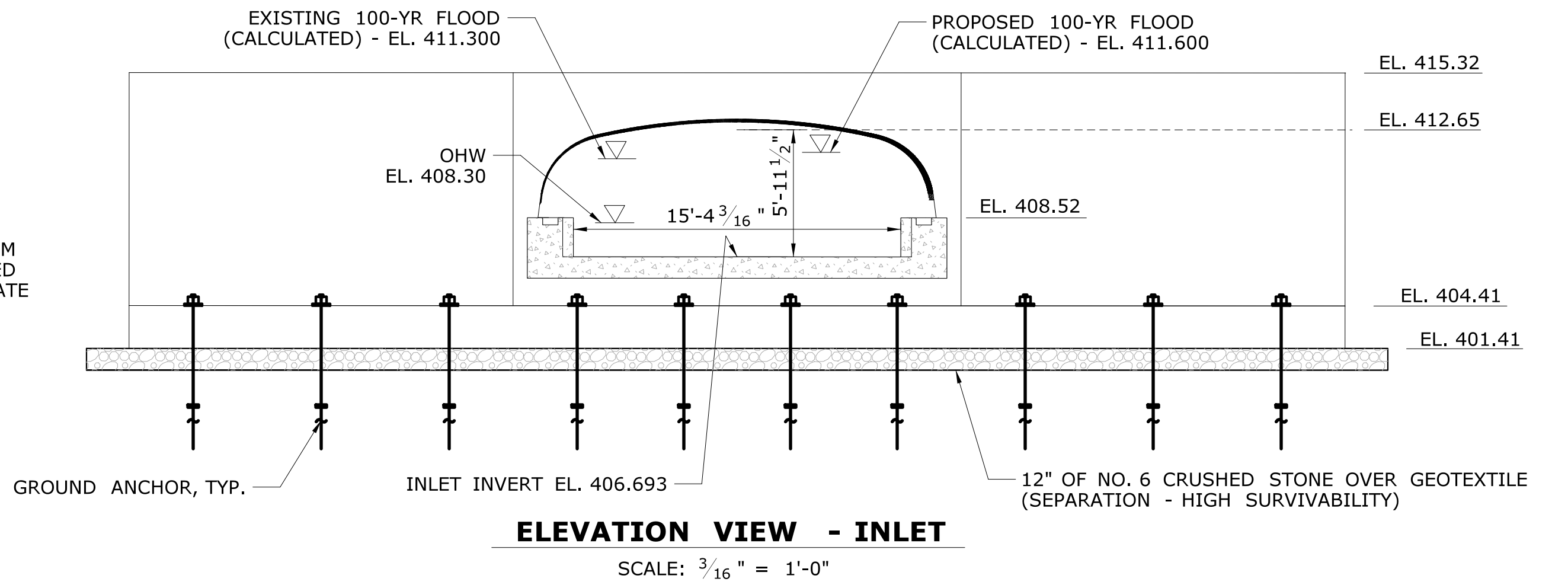
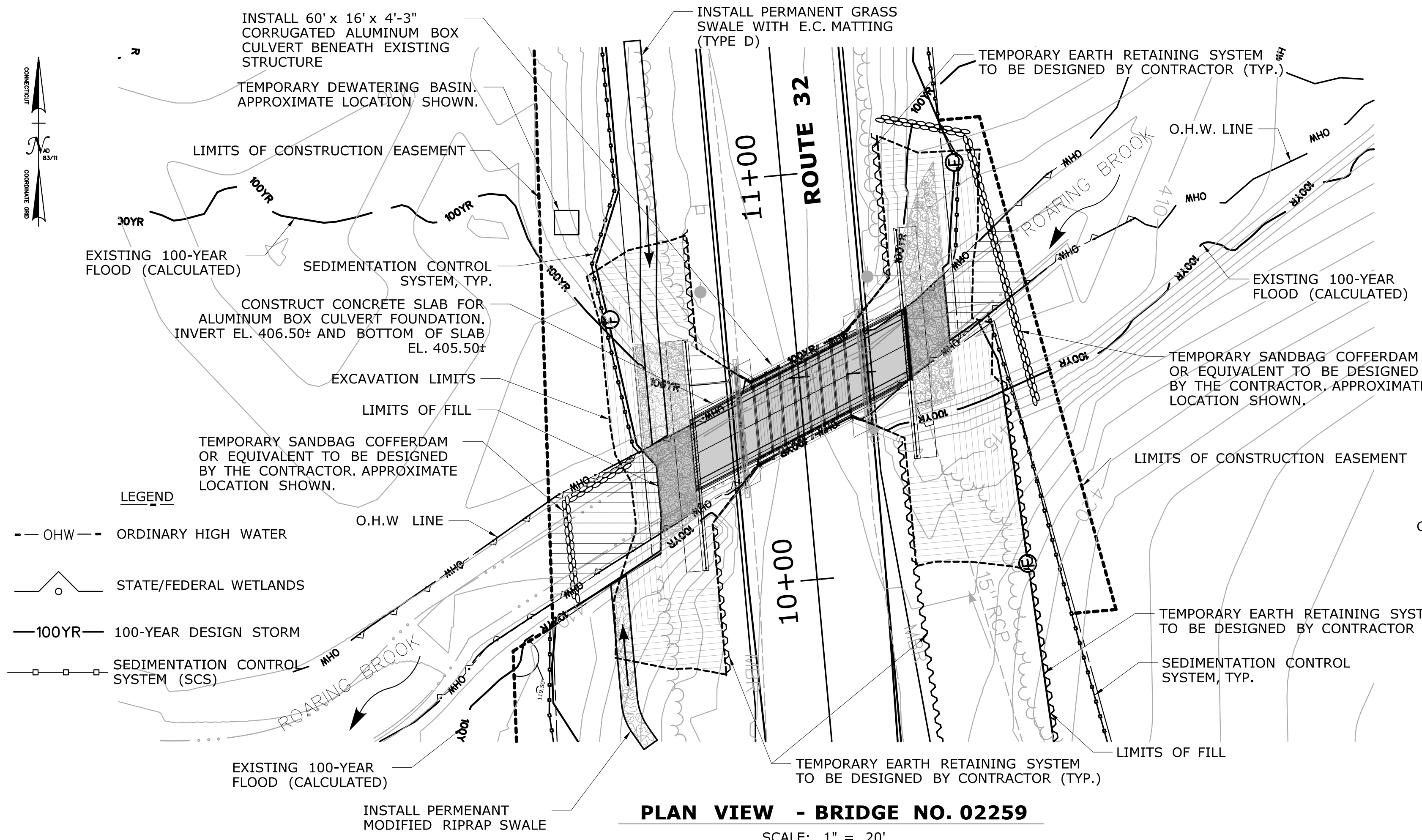
HYDRAULIC DATA TABLE - BRIDGE NO. 02259

DRAINAGE AREA	22 SQ. MI.
DESIGN FREQUENCY	100 - YEAR
DESIGN DISCHARGE	405 CFS (2460 CFS*)
AVERAGE DAILY FLOW EL. (ESTIMATED)	N.A. (DRY)
UPSTREAM DESIGN WATER SURFACE ELEVATION	411.6 FT +
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	410.0 FT +

* SHARED WITH BRIDGE NO. 00937

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: MAY 11, 2018

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:	OFFICE OF ENGINEERING REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
	CHECKED BY: JJK		APPROVED BY:		DRAWING TITLE: GENERAL PLAN	DRAWING NO. PMT-02
SCALE AS NOTED Plotted Date: 5/14/2018 Filename: ... \SB_160-147_P-02_General Plan.dgn					SHEET NO.	



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 PER DRAWING NO. PMT-07 "PERMIT PLANTING PLAN".

TEMPORARY IMPACT AREAS BELOW OHW LIMITS SHALL BE RESTORED WITH NATURAL CHANNEL BOTTOM MATERIAL.

WETLAND IMPACT AREAS (ABOVE O.H.W. LEVEL)	
TEMPORARY (S.F.)	0 (0.00 ACRES)
PERMANENT (S.F.)	0 (0.00 ACRES)
TOTAL (S.F.)	0 (0.00 ACRES)

STREAM IMPACT AREAS (BELOW O.H.W. LEVEL)	
TEMPORARY (S.F.)	1000 (0.023 ACRES)
PERMANENT (S.F.)	1400 (0.032 ACRES)
TOTAL (S.F.)	2400 (0.055 ACRES)

- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

TOTAL WETLAND + STREAM IMPACT AREA = 2,400 (S.F.) (0.055 ACRES)

OPENNESS RATIO (OR):

OR = OPEN AREA / CULVERT LENGTH
 OR = 80 S.F. / 60 FT = 1.33 FT
 1.33 FT > 0.82 FT (RECOMMENDED MINIMUM)

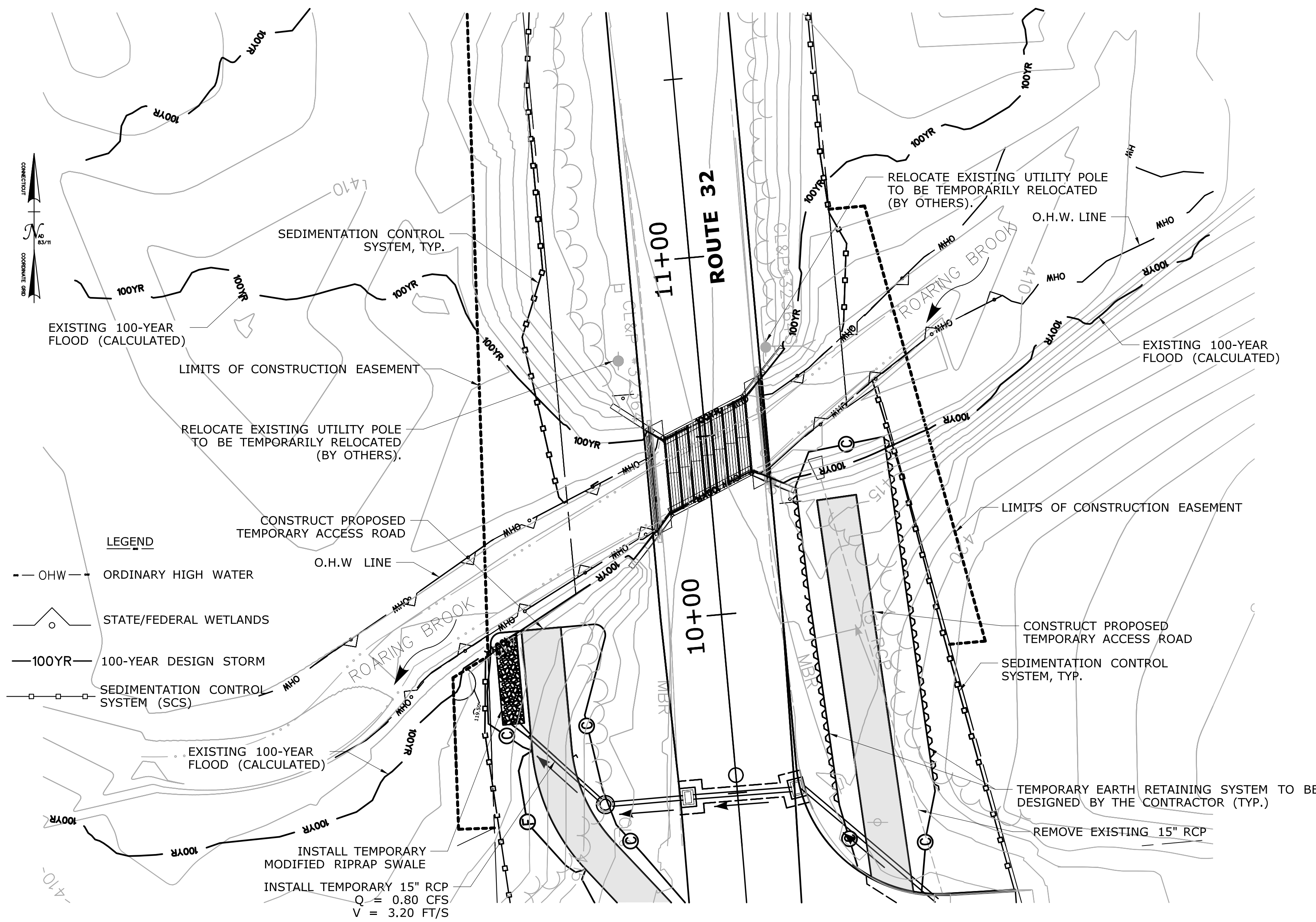
BANKFULL WIDTH (BFW):

BFW = 15 FT EXISTING UPSTREAM (OHW)
 1.2 x BFW = 18 FT
 18 FT > 16 FT (PROPOSED CULVERT SPAN)

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 10, 2018**

		DESIGNER/DRAFTER: ZMK	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147	
		CHECKED BY: JJK		OFFICE OF ENGINEERING	APPROVED BY:	DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN	DRAWING NO. PMT-03	SHEET NO.
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/15/2018	SCALE AS NOTED	Filename: ...SB-160-147_P-03_Environmental Impact Plan.dgn		



PROPOSED CONSTRUCTION SEQUENCE:

PRE-STAGE 1:

1. RELOCATE UTILITY POLES (BY OTHERS)

STAGE 1:

1. MOBILIZATION; ERECT CONSTRUCTION SIGNS
2. CLEARING AND GRUBBING AND INSTALL SEDIMENTATION & EROSION CONTROL
3. INSTALL TEMPORARY MODIFIED RIPRAP SWALE INCLUDING TEMPORARY 15" RCP.
4. INSTALL TEMPORARY SHEET PILING FOR TEMPORARY ACCESS ROAD CONSTRUCTION.
4. REMOVE EXISTING 15" RCP AND CONSTRUCT TEMPORARY ACCESS ROADS

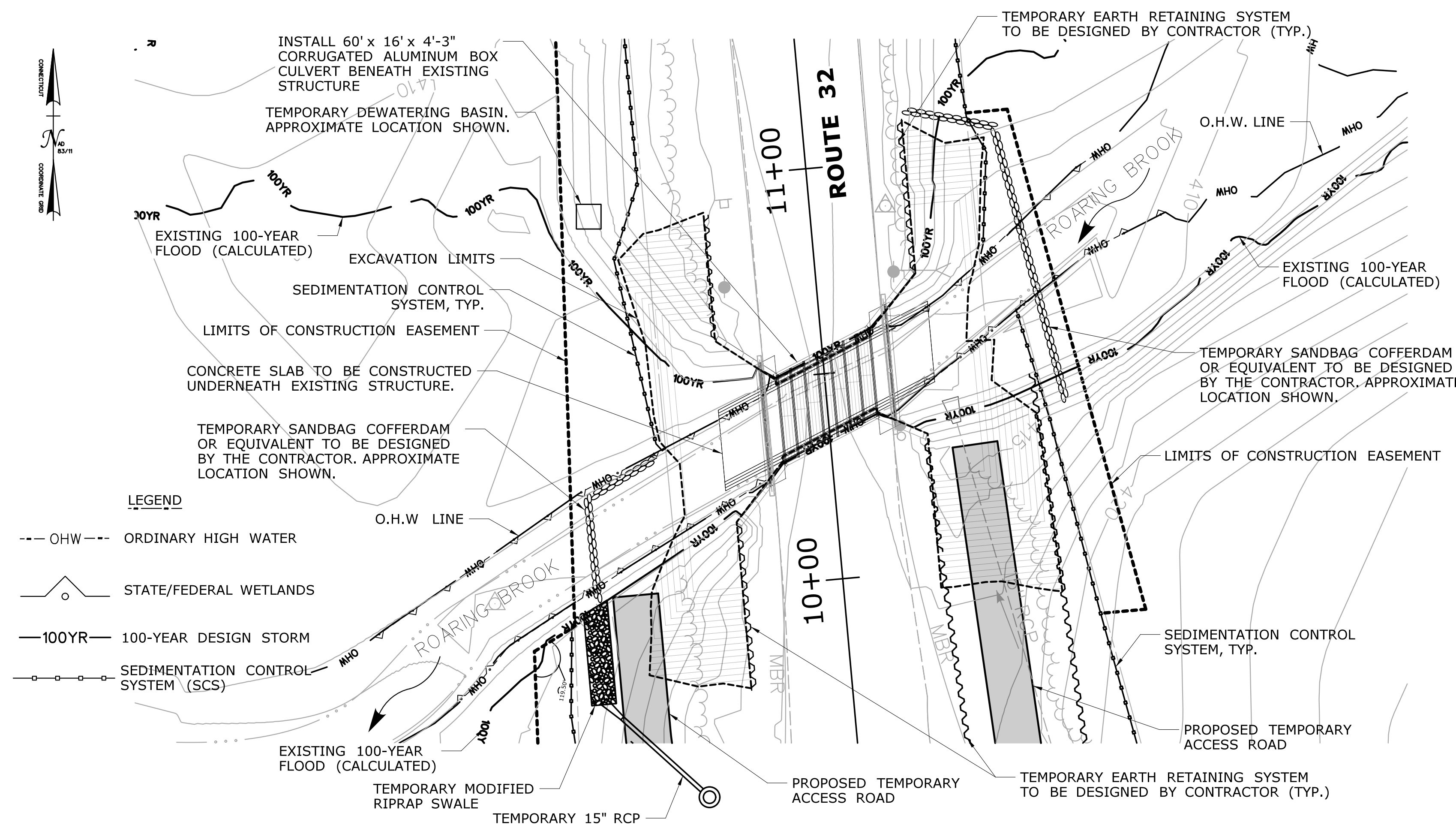
STAGE 1: INSTALLATION OF TEMPORARY DRAINAGE AND CONSTRUCTION OF ACCESS ROADS

SCALE: 1" = 20'

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 11, 2018**

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
CHECKED BY: JJK	SCALE AS NOTED	APPROVED BY:		DRAWING TITLE: CONSTRUCTION SEQUENCE - 1	DRAWING NO. PMT-04		
REV. DATE REVISION DESCRIPTION SHEET NO.	Plotted Date: 5/14/2018	Filename: ...\\SB-160-147_P-04_Construction Sequence - 1.dgn					



STAGE 2: INSTALLATION OF WATER HANDLING, SITE EXCAVATION AND CONSTRUCTION OF CONCRETE SLAB

SCALE: 1" = 20'

TERS TO BE DESIGNED BY THE CONTRACTOR FOR SUPPORT OF THE ROADWAY

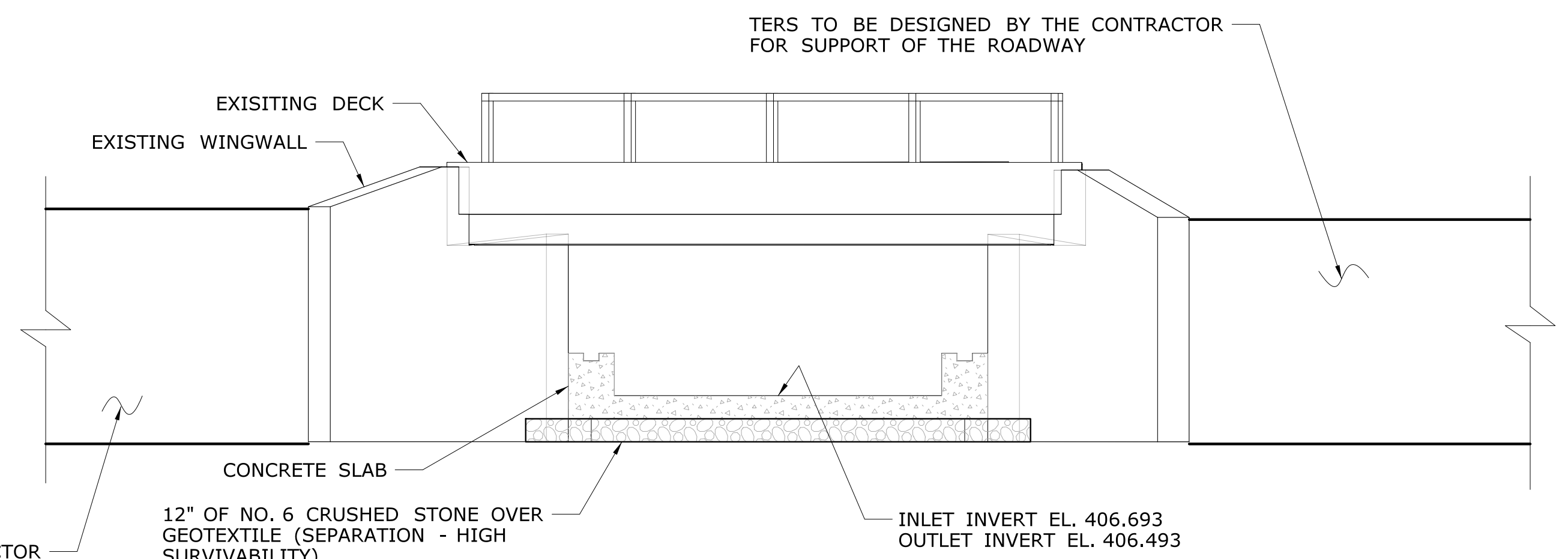
PROPOSED CONSTRUCTION SEQUENCE:

STAGE 2:

6. CONSTRUCT COFFERDAM AND INSTALL WATER HANDLING SYSTEM INCLUDING TEMPORARY DEWATERING BASIN.
7. INSTALL TERS FOR SUPPORT OF THE ROADWAY DURING EXCAVATION.
8. EXCAVATE EARTH FOR THE INSTALLATION OF THE CONCRETE INVERT SLAB.
9. PLACE 12" OF NO. 6 CRUSHED STONE OVER GEOTEXTILE FABRIC UP TO BOTTOM ELEVATION OF CONCRETE SLAB.
10. CONSTRUCT CONCRETE SLAB

WATER HANDLING NOTES:

1. A TEMPORARY DEWATERING BASIN AND PUMP SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR IN ORDER TO KEEP THE WORK SITE DRY THROUGHOUT CONSTRUCTION.
2. ALL WORK RELATING TO WATER HANDLING SHALL BE INCLUDED UNDER THE PAY ITEM "HANDLING WATER" (SEE SPECIAL PROVISION).
3. APPROXIMATE FINAL TOP TEMPORARY COFFERDAM ELEVATIONS GIVEN.

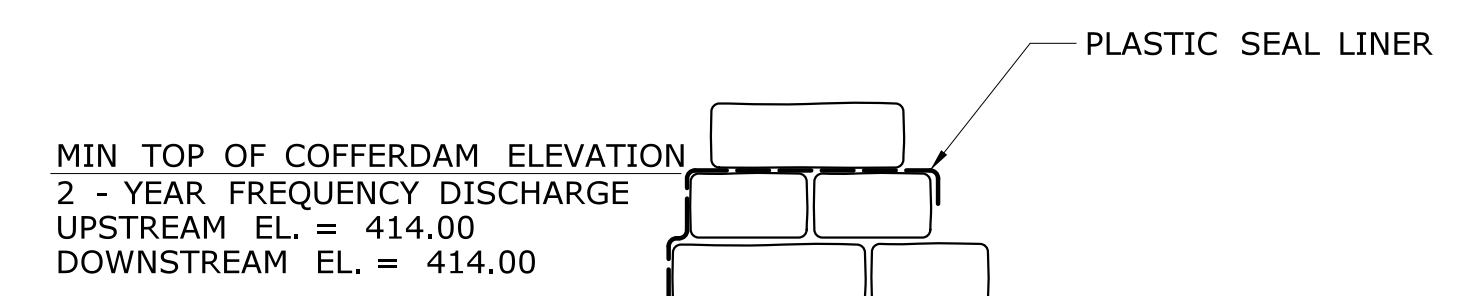


ELEVATION - STAGE 2 CONSTRUCTION

SCALE: 1" = 5'

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW	N.A. (DRY)
AVERAGE SPRING FLOW	0.1 CFS
2-YEAR FREQUENCY DISCHARGE	33 CFS (TOTAL 627 CFS FOR ROARING BROOK)*
TEMPORARY DESIGN DISCHARGE	33 CFS (TOTAL 627 CFS FOR ROARING BROOK)*
TEMPORARY DESIGN FREQUENCY	2 - YEAR
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	414.0 FT
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	N.A. (DRY)

*SHARED WITH BRIDGE NO. 00937



TEMPORARY SANDBAG COFFERDAM OR EQUIVALENT TO BE DESIGNED BY THE CONTRACTOR.

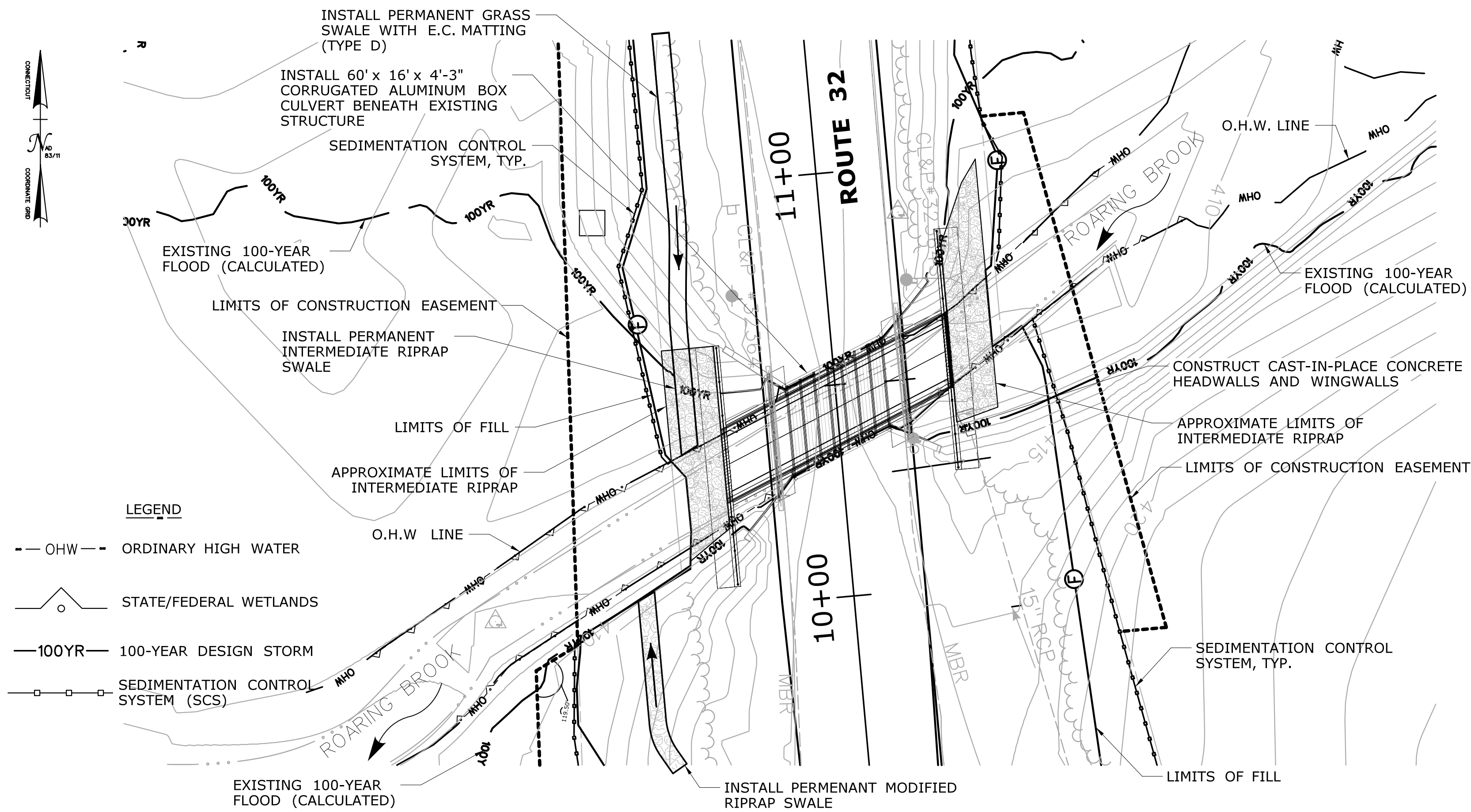
TEMPORARY COFFERDAM TYPICAL SECTION

NOT TO SCALE

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 11, 2018**

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	CHECKED BY: JJK		APPROVED BY:		DRAWING NO. PMT-05	SHEET NO.
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/11/2018	SCALE AS NOTED	Filename: ...SB-160-147_P-05_Water Handling and Construction Sequence - 2.dgn



LEGEND

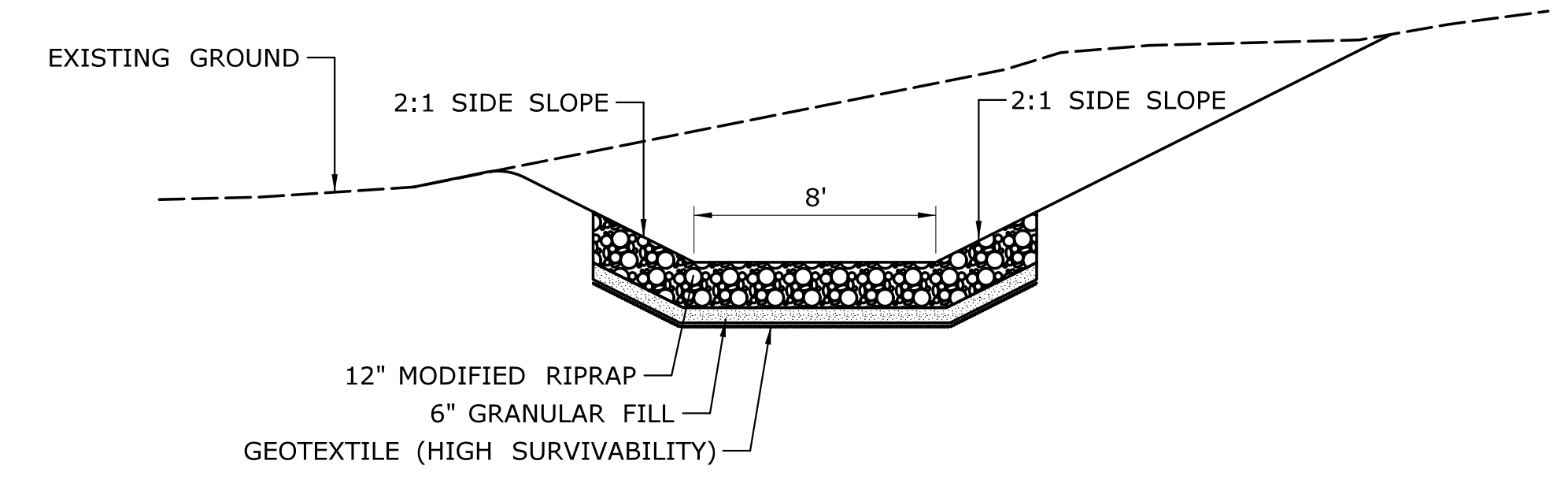
- OHW -- ORDINARY HIGH WATER
- STATE/FEDERAL WETLANDS
- 100YR 100-YEAR DESIGN STORM
- SCS SEDIMENTATION CONTROL SYSTEM (SCS)

STAGE 3: INSTALLATION OF ALUMINUM BOX CULVERT AND CONSTRUCTION OF CONCRETE HEADWALLS, AND WINGWALLS

SCALE: 1" = 20'

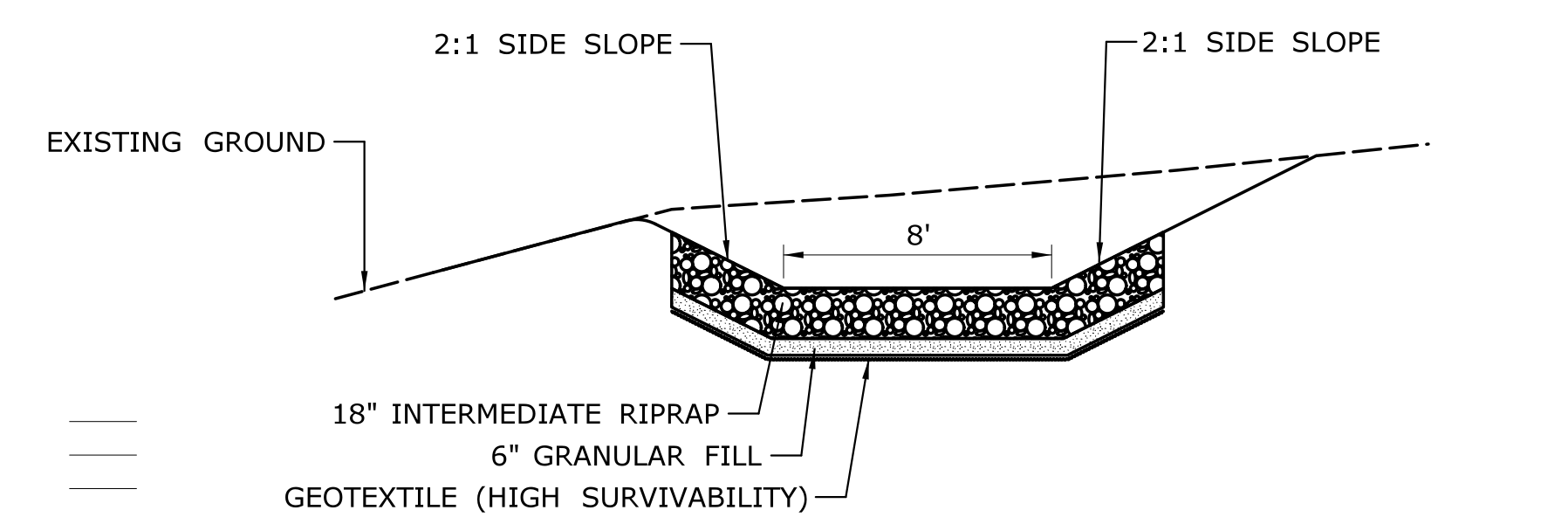
PROPOSED CONSTRUCTION SEQUENCE:

- STAGE 3:
11. IF NECESSARY IMPLEMENT ONE-WAY SINGLE LANE ALTERNATING TRAFFIC, INCLUDING CONSTRUCTION BARRICADES
 12. INSTALL ALUMINUM BOX CULVERT AT THE PROPOSED LOCATION
 13. INSTALL AND TEST VERTICAL GROUND ANCHORS.
 14. FORM, POUR, AND CURE CONCRETE HEADWALLS, WINGWALLS, AND FOOTINGS.
 15. INSTALL PERMANENT GRASS SWALE WITH E.C. MATTING (TYPE D), PERMANENT INTERMEDIATE RIPRAP SWALE AND PERMANENT MODIFIED RIPRAP SWALE.
 16. BACKFILL AND FINALIZE GRADING AND INSTALL INTERMEDIATE RIPRAP. NATURAL STREAMBED MATERIAL SHALL BE PLACED TO RESTORE TEMPORARILY IMPACTED AREAS WITHIN THE WATERCOURSE.
 17. REMOVE COFFERDAMS AND WATER HANDLING DEVICES.
 18. REMOVE TEMPORARY ACCESS ROADS, TEMPORARY EARTH RETAINING SYSTEMS, AND TEMPORARY MODIFIED RIPRAP SWALE.
 19. RECONSTRUCT ROADWAY AND MODIFY DECK FOR WIDENING
 20. INSTALL PROTECTIVE FENCE & METAL BEAM RAIL
 21. PREPARE FOR FULL DEPTH PAVEMENT RECONSTRUCTION.
 22. REMOVE SEDIMENTATION CONTROL SYSTEM UPON PERMANENT STABILIZATION.



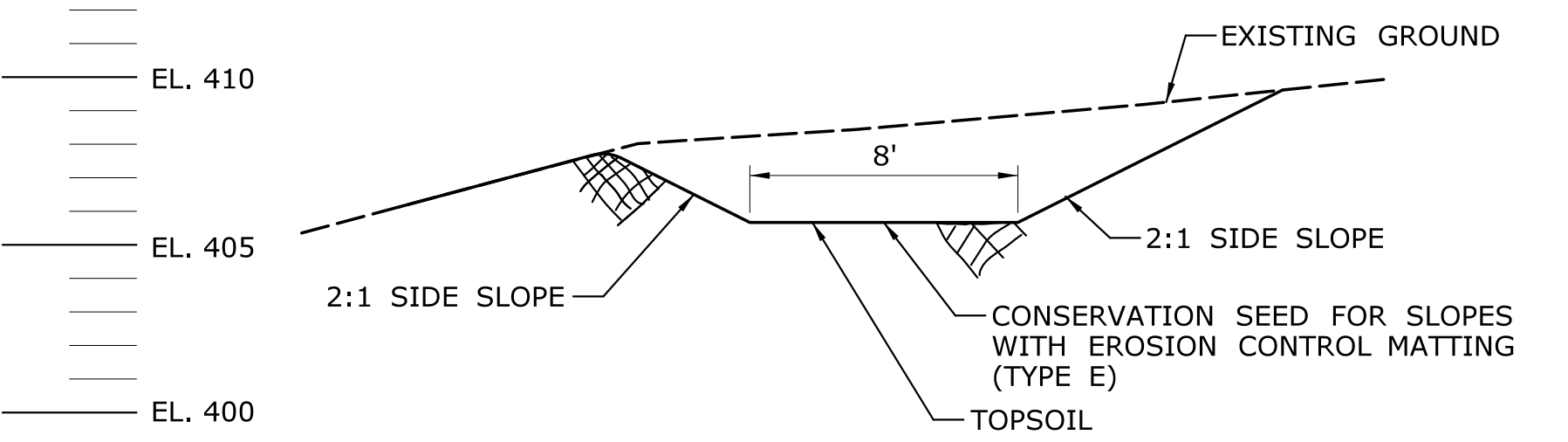
TYPICAL MODIFIED RIPRAP SWALE

SCALE: 1" = 5'



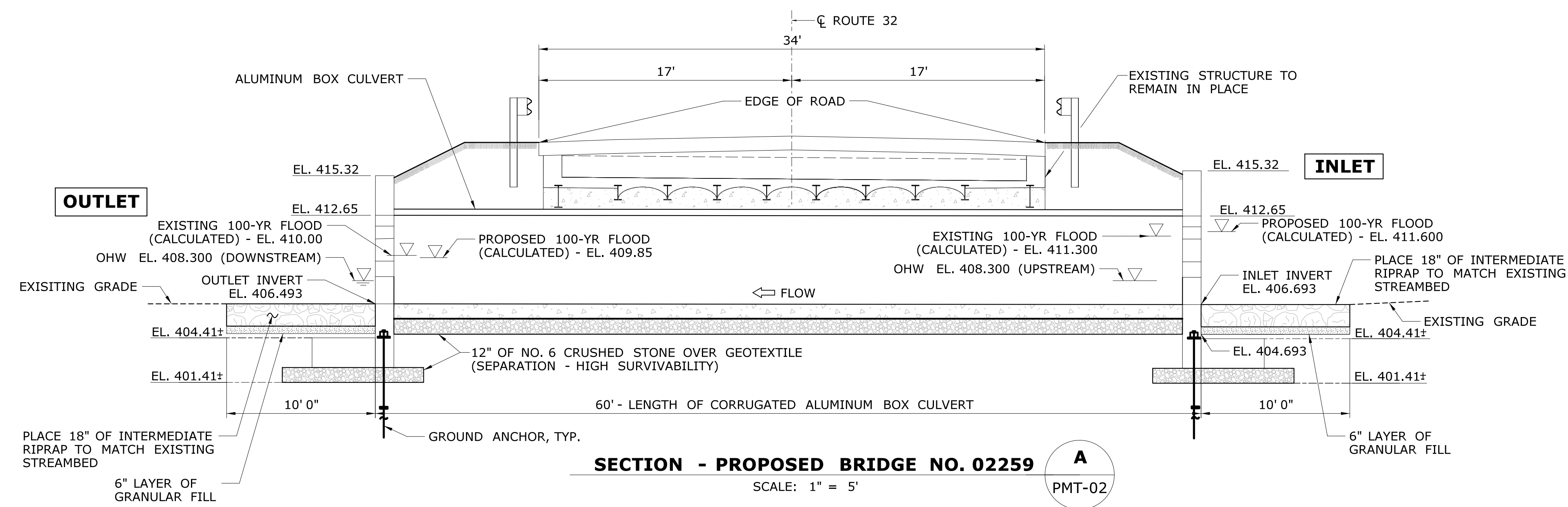
TYPICAL INTERMEDIATE RIPRAP SWALE

SCALE: 1" = 5'



TYPICAL GRASS SWALE

SCALE: 1" = 5'



SECTION - PROPOSED BRIDGE NO. 02259

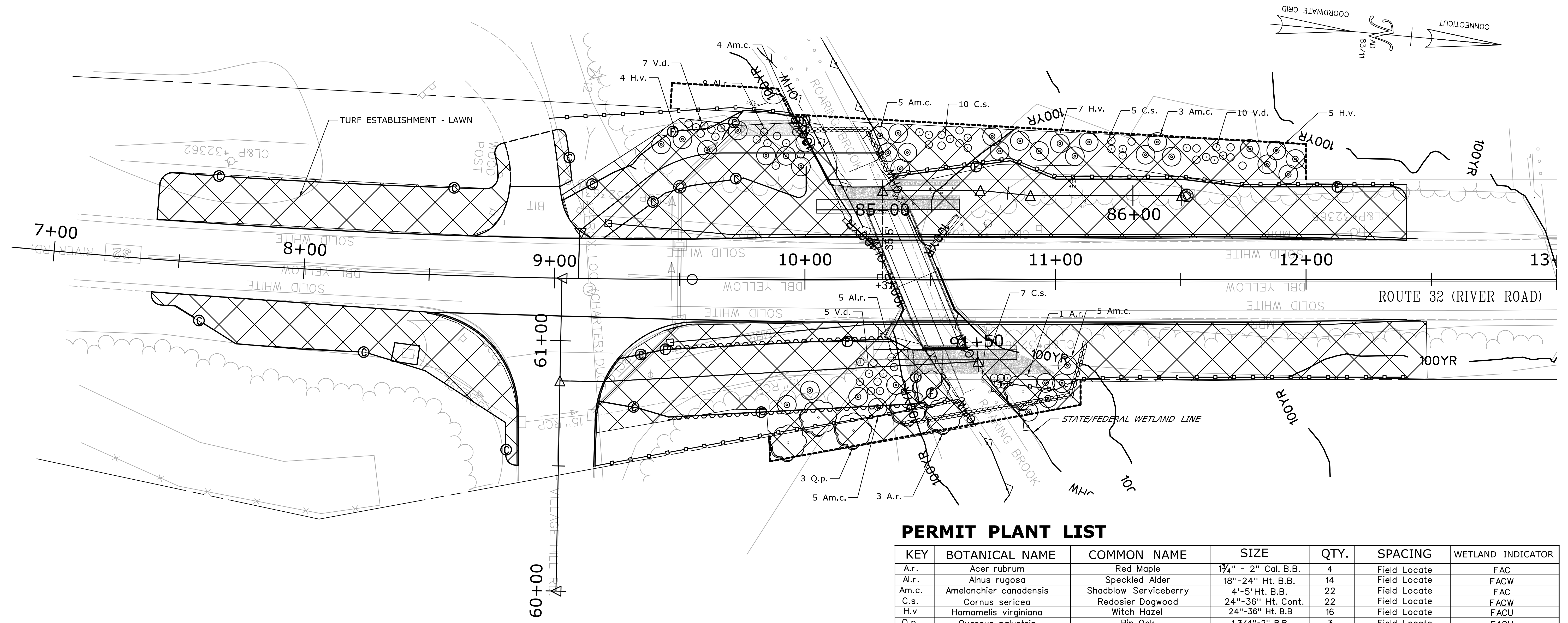
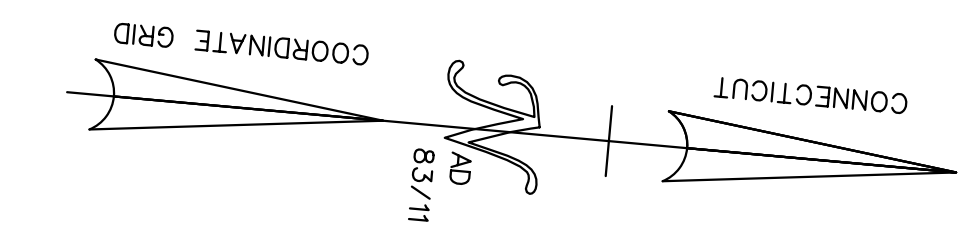
SCALE: 1" = 5'

A
 PMT-02

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: MAY 11, 2018

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNER/DRAFTER: ZMK CHECKED BY: JJK SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION FILENAME: ...SB-160-147-P-06-Construction Sequence - 3.dgn	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147 DRAWING NO. PMT-06 SHEET NO.
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/22/2018			



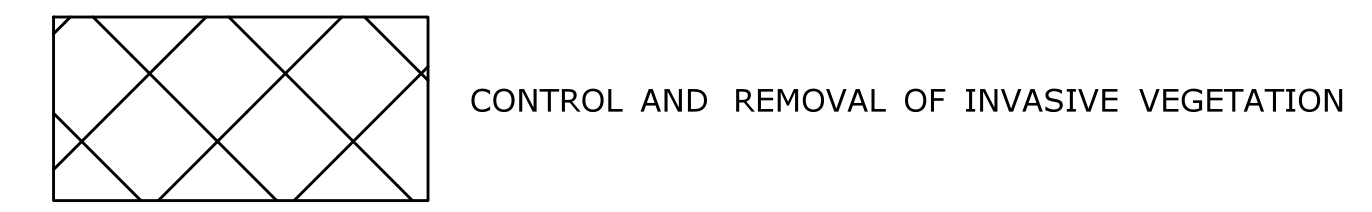
PERMIT PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	WETLAND INDICATOR
A.r.	<i>Acer rubrum</i>	Red Maple	1 3/4" - 2" Cal. B.B.	4	Field Locate	FAC
Al.r.	<i>Alnus rugosa</i>	Speckled Alder	18"-24" Ht. B.B.	14	Field Locate	FACW
Am.c.	<i>Amelanchier canadensis</i>	Shadblow Serviceberry	4'-5' Ht. B.B.	22	Field Locate	FAC
C.s.	<i>Cornus sericea</i>	Redosier Dogwood	24"-36" Ht. Cont.	22	Field Locate	FACW
H.v.	<i>Hamamelis virginiana</i>	Witch Hazel	24"-36" Ht. B.B.	16	Field Locate	FACU
Q.p.	<i>Quercus palustris</i>	Pin Oak	1 3/4"-2" B.B.	3	Field Locate	FACU
V.d.	<i>Viburnum dentatum</i>	Arrowwood Viburnum	18"-24" Ht. B.B.	22	Field Locate	FAC
	Turf Establishment - Lawn					
	Control and Removal of Invasive Vegetation					
	Conservation Seeding for Slopes					
	Wood Chip Mulch					

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. WOOD CHIP MULCH SHALL NOT BE PLACED IN THE WETLAND AREA.
3. 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 SPECIFIED.
4. ALL PLANTS SHALL BE STRAIGHT SPECIES. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.
5. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE COVERED WITH WOOD CHIP MULCH OR CONSERVATION SEED MIX FOR SLOPES UNLESS OTHERWISE NOTED.
6. THE EXACT QUANTITIES AND LIMITS FOR CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE FIELD DETERMINED.

KEY



ENVIRONMENTAL PERMIT PLANS

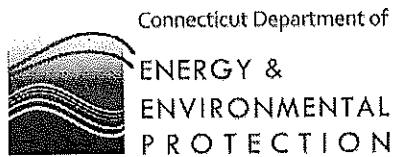
PLAN DATE: APRIL 25, 2018

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: MV/MR	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:	PROJECT TITLE:	TOWN:	PROJECT NO.:
	CHECKED BY: MC		OFFICE OF ENGINEERING	REHABILITATION OF BRIDGE NO. 02259 ROUTE 32 OVER SOUTH BRANCH ROARING BROOK	WILLINGTON	160-147
SCALE IN FEET 0 20 40 SCALE 1"=20'	APPROVED BY:	FILENAME: ...VHW_MSH_0160-0147_LDS-02.dgn	DRAWING TITLE:	PERMIT PLANTING PLAN	SHEET NO.:	PMT-07
REV. DATE REVISION DESCRIPTION SHEET NO. Plotted Date: 5/16/2018						

Attachment D: NDDB Coordination

General Permit for Water Resource and Construction Activities (IWRD General)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



79 Elm Street • Hartford, CT 06106-5127

www.ct.gov/deep

Affirmative Action/Equal Opportunity Employer

April 11, 2017

Michael Salter
State Of Connecticut Department Of Transportation
2800 Berlin Tpke.
Newington, CT 06131-7546
michael.salter@ct.gov

Project: DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington
NDDB Determination No.: 201703031

Dear Michael Salter,

I have reviewed Natural Diversity Database (NDDB) maps and files regarding the area of work provided for the proposed rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington, Connecticut. I do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDB. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits. This determination is good for two years. Please re-submit a new NDDB Request for Review if the scope of work changes or if work has not begun on this project by April 11, 2019.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey, cooperating units of DEEP, landowners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substitutes for on-site surveys necessary for a thorough environmental impact assessment. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the database as it becomes available.

Please contact me if you have further questions at (860) 424-3378, or karen.zyko@ct.gov . Thank you for consulting the Natural Diversity Database.

Sincerely,

A handwritten signature in cursive script, appearing to read "Karen Zyko".

Karen Zyko
Environmental Analyst

Attachment F: Category 2 Approval Letter from ACOE

General Permit for Water Resource and Construction Activities (IWRD General)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751

November 13, 2018

Regulatory Division
File Number: **NAE-2018-01363**
CT DEEP File Number: 201807893-PGP

Attn: Mr. Andrew Davis
Connecticut Department of Transportation
P.O. Box 317546
2800 Berlin Turnpike
Newington, CT 06131-7546

Dear Mr. Davis:

We have reviewed your application to place permanent and temporary fill in approximately 2,400 SF of areas below OHW of the South Branch Roaring Brook in association with the rehabilitation of Bridge No. 02259 on Route 32 over South Branch Roaring Brook in Willington, CT. The work is described below and shown on the enclosed plans titled "ENVIRONMENTAL PERMIT PLANS, STATE PROJECT NO. 160-147, REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK, TOWN OF WILLINGTON"; on seven (7) sheets (Drawings PMT-01 through PMT-07); sheet PMT-01 dated "April 12, 2018", sheet PMT-03 dated "May 10, 2018", sheets PMT-02, PMT-04, PMT-05, and PMT-06 dated "May 11, 2018", and sheet PMT-07 dated "April 25, 2018".

The rehabilitation of Bridge 02259 involves inserting an aluminum box culvert liner inside the existing structure, and includes a minor roadway widening in the vicinity of the Bridge 02259 to provide sufficient lane and shoulder widths on the bridge. The liner will be founded on a concrete slab and include cast in place concrete wing walls and footings. Additional impacts below OHW of the brook are associated with riprap within the stream bed at the inlet and outlet ends and adjacent embankment at the headwall/wing walls. Concrete flowable fill material will be pumped between the existing structure and the aluminum box liner to fill void space. Onsite water handling facilities will consist of temporary sandbag cofferdams or equivalent containment at the inlet and outlet ends. Temporarily impacted stream bed areas will be restored with natural stream bed materials. Invasive species will be removed within the project limits. Native plantings and seeding are proposed to restore the vegetative community affected by construction disturbances/access.

Based on the information you have provided, we have determined that the proposed activity, which includes a discharge of dredged or fill material into waters or wetlands, will have only minimal individual and cumulative impacts on waters of the United States, including wetlands. Therefore, this work is authorized under General Permit #19 of the enclosed Federal permit known as the Connecticut General Permits (GPs). This work must be performed in accordance with the terms and conditions of the GPs.

You must complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting date.

You are responsible for complying with all of the GPs' requirements. Please review the enclosed GPs carefully, in particular the general conditions, to be sure that you understand its requirements. You should ensure that whoever does the work also fully understands the requirements and that a copy of the GPs and this authorization letter are at the project site throughout the time the work is underway. If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

This authorization expires on August 19, 2021, unless the GPs are modified, suspended, or revoked before then. You must commence or have under contract to commence the work authorized herein by August 19, 2021 and complete the work by August 19, 2022. If not, you must contact this office to determine the need for further authorization *before* beginning or continuing the activity. We recommend that you contact us before this authorization expires to discuss a permit reissuance.

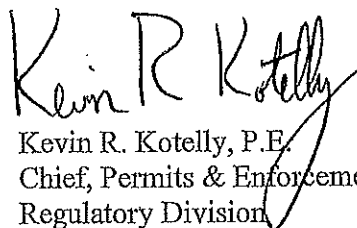
This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law. Performing work not specifically authorized by this determination or failing to comply with any special condition(s) provided above and all the terms and conditions of the GPs may subject you to the enforcement provisions of our regulations.

The Connecticut Department of Energy & Environmental Protection (DEEP) has issued a Water Quality Certification (WQC) for this project, as required under Section 401 of the Clean Water Act, based on their review of the project. You must comply with all condition requirements contained in the WQC approval (enclosed) issued for this project.

This authorization presumes that the work as described above and as shown on your plans noted above is in waters of the U.S.

Please contact Susan Lee of my staff at (978) 318-8494 if you have any questions.

Sincerely,


Kevin R. Kotelly, P.E.
Chief, Permits & Enforcement Branch
Regulatory Division

Enclosures

Copy Furnished (via email): Robert Gilmore/CT DEEP-LWRD; Nate Margason/US EPA

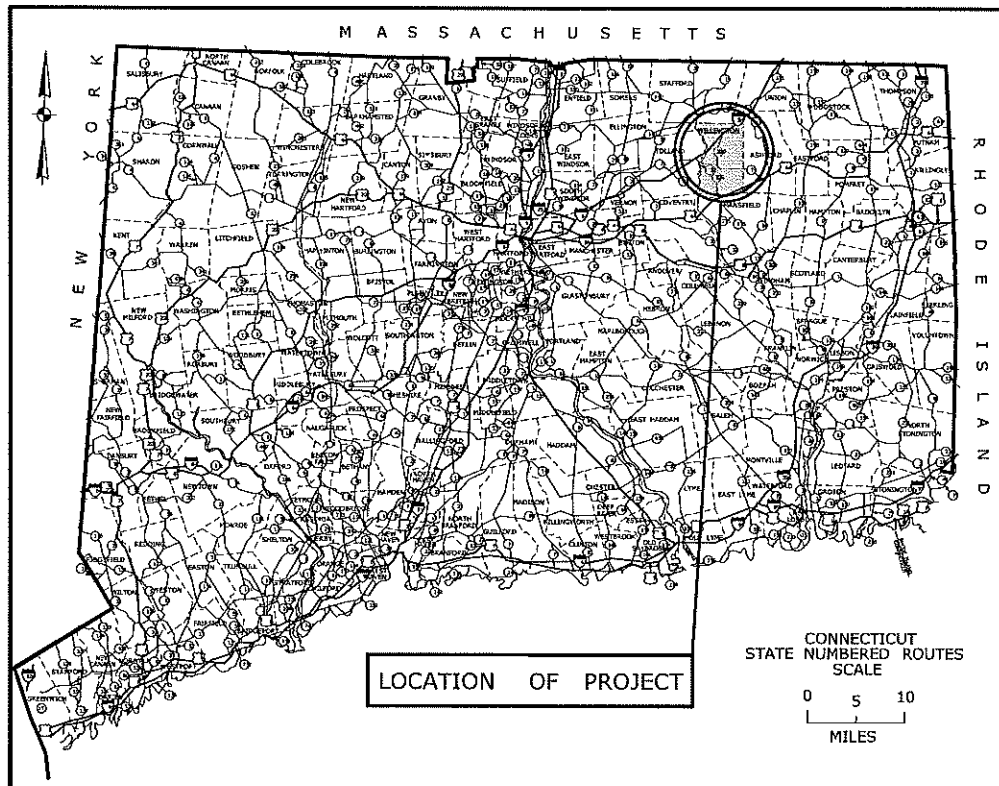
Attachment H: Other Information

General Permit for Water Resource and Construction Activities (IWRD General)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Wilmington, CT

List of Attachments:

- Inland Fisheries Division Coordination
- Statewide Inland Wetlands & Watercourses Activity Reporting Form
- Interagency Coordination Meeting Notes
- Site Photographs



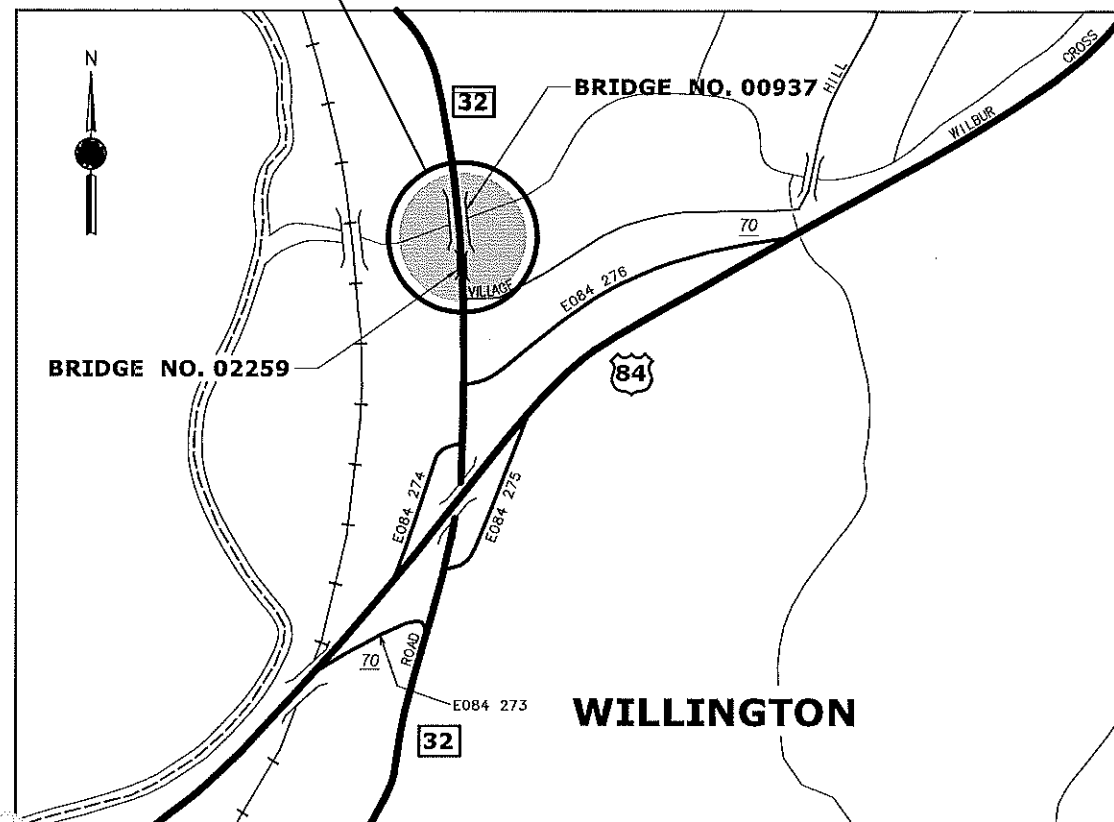
ALL ELEVATIONS BASED ON NGVD OF 1988
 COORDINATES BASED ON CONNECTICUT COORDINATE SYSTEM NAD 1983

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 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
STATE PROJECT NO. 160-147
REHABILITATION OF BRIDGE NO. 02259 CARRYING
ROUTE 32 OVER S. BRANCH ROARING BROOK
TOWN OF WILLINGTON

PROJECT LOCATION

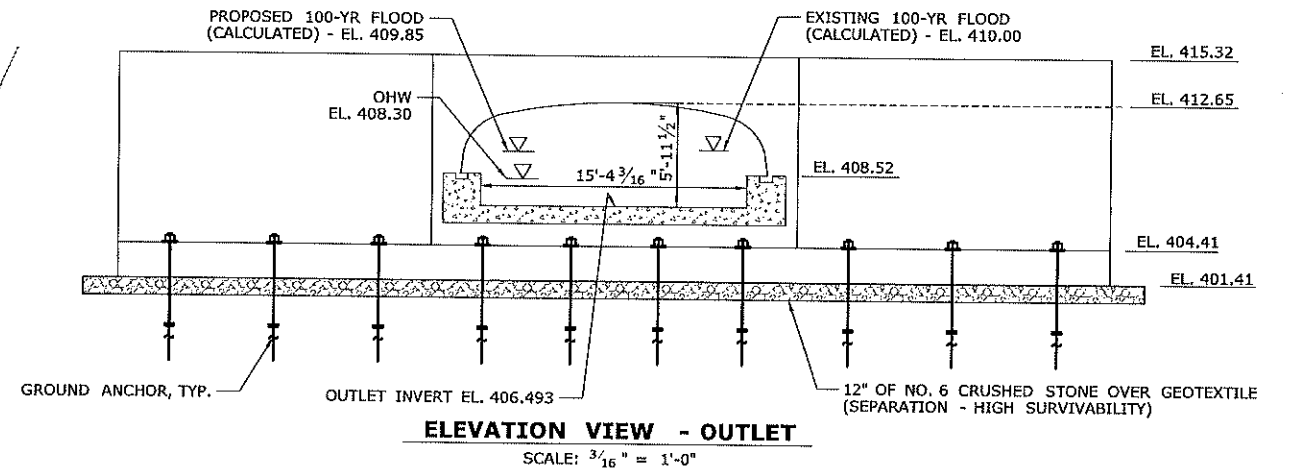
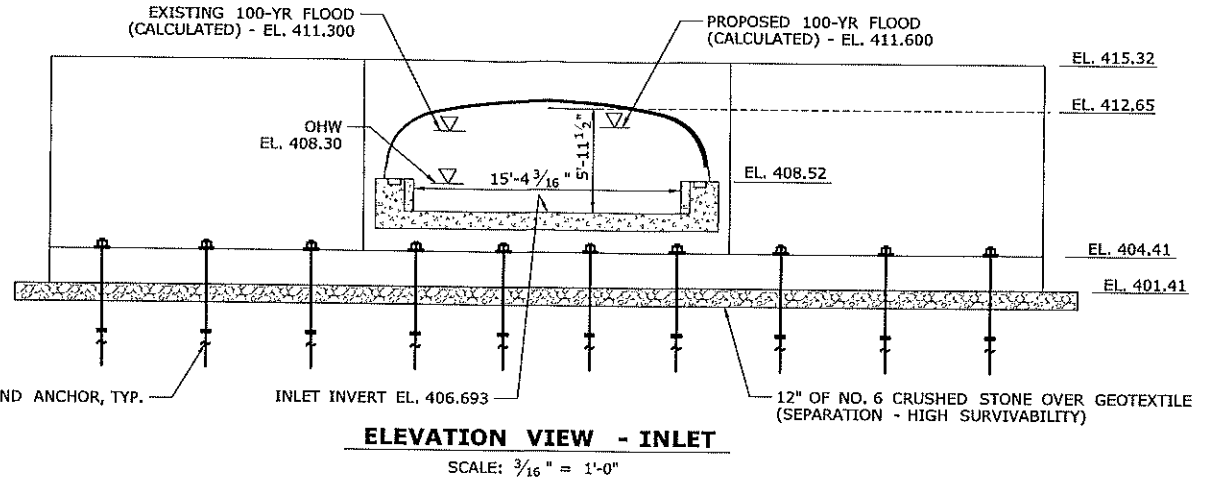
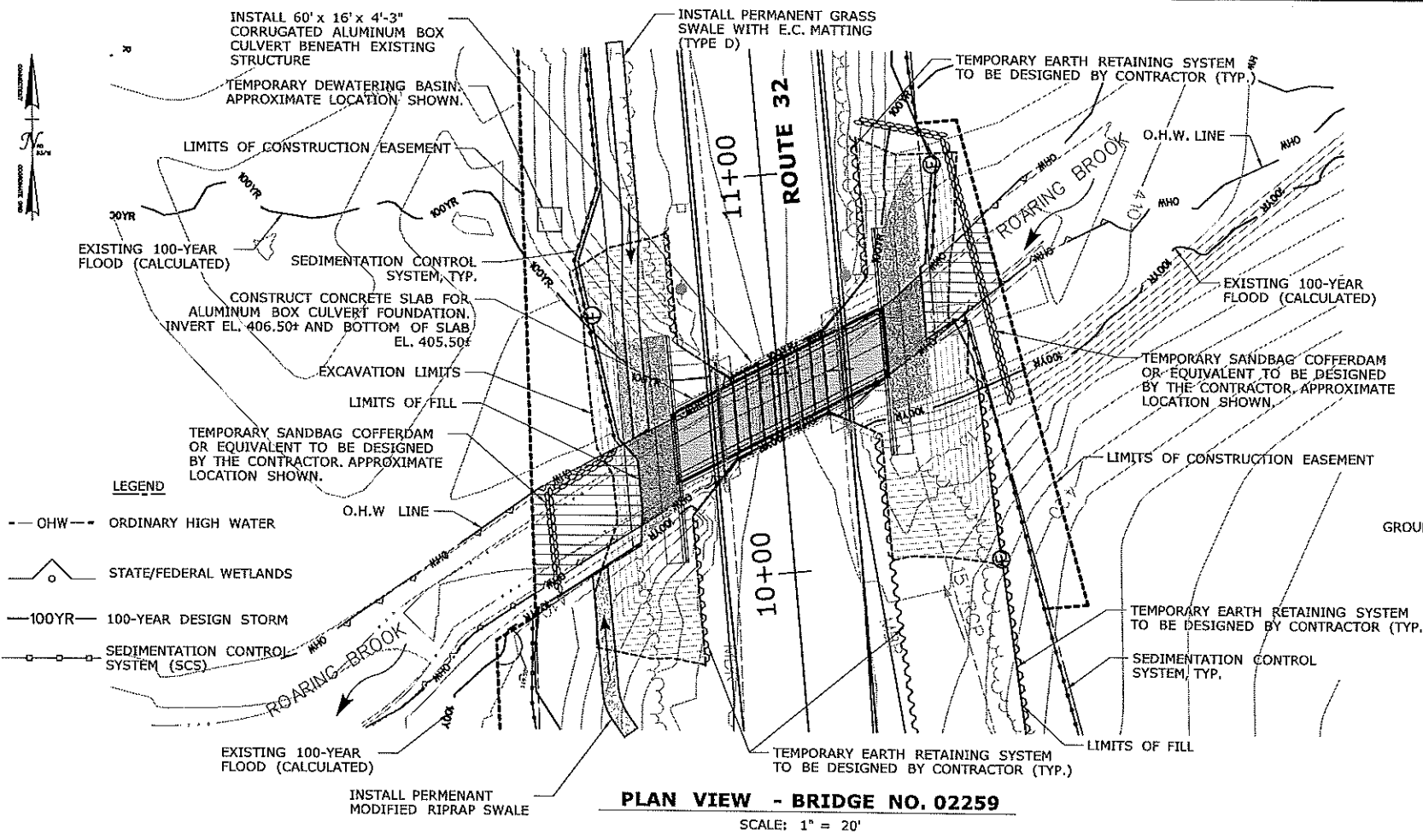


Brian D. Murphy
 Digitally signed by Brian D. Murphy
 Date: 2018.05.22 10:19:40 -04'00'

INDEX OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	CONSTRUCTION SEQUENCE - 1
PMT-05	WATER HANDLING AND CONSTRUCTION SEQUENCE - 2
PMT-06	CONSTRUCTION SEQUENCE - 3
PMT-07	PERMIT PLANTING PLAN

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: APRIL 12, 2018

DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
CHECKED BY: JJK		APPROVED BY:	DRAWING NO. PMT-01	DRAWING TITLE: PERMIT TITLE SHEET	SHEET NO.
SCALE AS NOTED	Plotted Date: 4/18/2018	Filename: ...\\SB-160-147_P-01_Attachment_B_Title_Sheet.dgn			



- LEGEND**
- OHW — ORDINARY HIGH WATER
 - STATE/FEDERAL WETLANDS
 - 100YR — 100-YEAR DESIGN STORM
 - SCS — SEDIMENTATION CONTROL SYSTEM (SCS)

PLAN VIEW - BRIDGE NO. 02259
SCALE: 1" = 20'

ELEVATION VIEW - INLET
SCALE: 3/16" = 1'-0"

ELEVATION VIEW - OUTLET
SCALE: 3/16" = 1'-0"

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 PER DRAWING NO. PMT-07 "PERMIT PLANTING PLAN".
TEMPORARY IMPACT AREAS BELOW OHW LIMITS SHALL BE RESTORED WITH NATURAL CHANNEL BOTTOM MATERIAL.

WETLAND IMPACT AREAS (ABOVE O.H.W. LEVEL)	
TEMPORARY (S.F.)	0 (0.00 ACRES)
PERMANENT (S.F.)	0 (0.00 ACRES)
TOTAL (S.F.)	0 (0.00 ACRES)

STREAM IMPACT AREAS (BELOW O.H.W. LEVEL)	
TEMPORARY (S.F.)	1000 (0.023 ACRES)
PERMANENT (S.F.)	1400 (0.032 ACRES)
TOTAL (S.F.)	2400 (0.055 ACRES)

■ PERMANENT IMPACT AREA
▨ TEMPORARY IMPACT AREA
THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

TOTAL WETLAND + STREAM IMPACT AREA = 2,400 (S.F.) (0.055 ACRES)

OPENNESS RATIO (OR):
OR = OPEN AREA / CULVERT LENGTH
OR = 80 S.F. / 60 FT = 1.33 FT
1.33 FT > 0.82 FT (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):
BFW = 15 FT EXISTING UPSTREAM (OHW)
1.2 x BFW = 18 FT
18 FT > 16 FT (PROPOSED CULVERT SPAN)

Digitally signed
Brian D. Murphy
by Brian D. Murphy
Date: 2018.05.22
10:22:04 -04'00'

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: MAY 10, 2018

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plated Date: 5/15/2018	DESIGNER/DRAFTER: ZMK	CHECKED BY: JJK	SCALE AS NOTED	<p>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</p>	SIGNATURE/BLOCK: OFFICE OF ENGINEERING	APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
										DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN		DRAWING NO. PMT-03	SHEET NO.

Lisowitch, Ostap

From: Salter, Michael J
Sent: Monday, May 22, 2017 9:56 AM
To: Lisowitch, Ostap
Cc: Davis, Andrew H; Roise, Michelle A.; DOT-EPC; Blasi, Kevin; Basha, Sarwat A; Song, Won S.
Subject: FW: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Follow Up Flag: Follow up
Flag Status: Flagged

Ozzy,

Below is concurrence from DEEP Fisheries on the new structure type and removal of natural streambed material. Once we have more developed plans we will need to get them signed by DEEP Fisheries. Please let me know if you have any questions.

Thank you,
Mike

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov

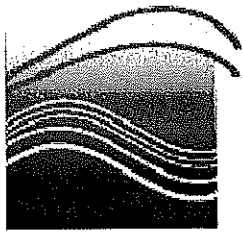
From: Murphy, Brian
Sent: Monday, May 22, 2017 9:32 AM
To: Salter, Michael J
Cc: Davis, Andrew H; DOT-EPC; Roise, Michelle A.
Subject: RE: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Hi Mike,

I'm in agreement with your assessment at this location, fish passage and habitat protection are not warranted. I can sign off on the redesigned plans once they come around for review.
Thanks.

Brian D. Murphy, Senior Fisheries Habitat Biologist
Fisheries Division
Habitat Conservation and Enhancement Program
Connecticut Department of Energy and Environmental Protection
Eastern District Headquarters

209 Hebron Road
Marlborough, CT 06447
P: 860.295-9523 | F: 860.295.8175 | brian.murphy@ct.gov



Connecticut Department of
**ENERGY &
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*Conserving, improving and protecting our natural resources and environment;
Ensuring a clean, affordable, reliable, and sustainable energy supply.*

From: Salter, Michael J
Sent: Friday, May 19, 2017 1:45 PM
To: Murphy, Brian
Cc: Davis, Andrew H; DOT-EPC; Roise, Michelle A.
Subject: FW: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Brian,

The attached zip file contains the initial fisheries review package for DOT Project No. 160-147. There has been a change in the design of the project due to constructability concerns about undermining the existing footings during construction in order to install the aluminum base plate. The new proposed structure will replace the aluminum base plate with a concrete slab. This subject bridge is not a typical stream crossing. This crossing conveys stream flow only when the Roaring Brook flow, which is mainly conveyed by a bridge located to the north, is high enough to cause the diversion onto an upstream overbank area. This crossing is normally dry and occasionally may have standing water, possibly from the runoff associated with its drainage area of 13.8 acres. The ground profile at the crossing is such that it forms a low point or sag under the bridge. Thus, the storm water runoff from its drainage area will gather under the bridge and pond until it evaporates or infiltrates into the ground. The streamflow from the Roaring Brook can also get there, possibly once a year or so in our assessment. Nevertheless, it will not likely be a condition conducive to fish passage. DOT Staff didn't see a defined and continuous channel downstream of the bridge, though there may possibly be disconnected shallow swale sections according to LiDAR generated contours. Thus, the flow reaching and passing through the bridge will likely spread thin (shallow flow depth) over the floodplain on the downstream side where the path is typically covered with heavy vegetation, hindering and thus minimizing the fish passage potential. Only in high magnitude storm events when the flood significantly inundates the floodplains on both sides of Rte 32, it may allow fish passage. However, during such events, the flow depth through the crossing will be relatively greater compared to the upstream and downstream sides rendering the bottom material type irrelevant. Considering these conditions we are not proposing to include a natural bottom within the structure. Utilizing the concrete slab will result in less excavation, will not undermine the footings, will provide for a larger hydraulic opening, will structurally support the aluminum culvert, and we will be able to maintain traffic throughout construction. I have attached and updated elevation view and site photos. Please let me know if you have any questions or need any additional information.

Thank you,
Mike

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov

From: Salter, Michael J
Sent: Monday, April 03, 2017 9:05 AM
To: Gephard, Steve
Cc: Davis, Andrew H; Samorajczyk, Christopher W; Murphy, Brian; DOT-EPC; Roise, Michelle A.
Subject: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington

Steve,

Attached for review are the Fisheries Transmittal Form, location map, project description, site photos and preliminary plans for DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington. Please contact Chris Samorajczyk if you have any questions or need any additional information.

Thank you,

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov



Inland Water Resources Division
 Department of Environmental Protection
 79 Elm Street, 3rd Floor
 Hartford, CT 06106-5127
www.ct.gov/dep

GIS CODE #: _____
 For DEP Use Only

Statewide Inland Wetlands & Watercourses Activity Reporting Form

Complete, print, sign, and mail this form in accordance with the instructions on pages 2 and 3.

PART I: To Be Completed By The Municipal Inland Wetlands Agency Only

- DATE ACTION WAS TAKEN (use drop-down box): Year _____ Month _____
- ACTION TAKEN (use drop-down box): _____
- WAS A PUBLIC HEARING HELD? (select one only) Yes No
- NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:
 (print): _____ (signature) _____

PART II: To Be Completed By The Municipal Inland Wetlands Agency Or The Applicant

- TOWN IN WHICH THE ACTION IS OCCURRING: **Willington, CT**
 Does this project cross municipal boundaries? (select one only) Yes No
 If Yes, list the other town(s) in which the action is occurring: _____
- LOCATION: USGS Quad Map Name (see hyperlink): **Stafford Springs**
Quad Number (see hyperlink): **25**
Subregional Drainage Basin Number (see hyperlink): **3104**
- NAME OF APPLICANT, VIOLATOR OR PETITIONER: **Connecticut Department of Transportation**
- NAME & ADDRESS/LOCATION OF PROJECT SITE: **Route 32 Over S. Branch Roaring Brook**
Close Proximity to I-84 Exit 70

 Briefly describe the action/project/activity: Temporary Permanent
CTDOT Project No. 160-147; Rehabilitation of Bridge No. 02259 carrying Route 32 over S. Branch Roaring Brook.
- ACTIVITY PURPOSE CODE (Use drop-down box): **N**
- ACTIVITY TYPE CODE(S) (Use drop-down box) **1, 2, 7,**
- WETLAND / WATERCOURSE AREA ALTERED [must be provided in acres or linear feet as indicated]:
 Wetlands: **0.008** acres Open Water Body: **0.0** acres Stream: **136** linear feet
- UPLAND REVIEW AREA ALTERED [must be provided in acres]: **1.12** acres
- AREA OF WETLANDS AND / OR WATERCOURSES RESTORED, ENHANCED OR CREATED: **0.061** acres
 [must be provided in acres]

PART III: To Be Completed By The DEP

DATE RECEIVED: _____ DATE RETURNED TO DEP: _____
 FORM COMPLETED: YES NO FORM CORRECTED / COMPLETED: YES NO

Interagency Coordination Meeting Notes

December 21, 2017

DOT Room 3130

Meeting Minutes:

The meeting notes for November were presented. No comments were made.

53-190 Glastonbury/Wethersfield Putnam Trail

12/21/2017 – The purpose of the proposed project is to provide a bike ped connection between Wethersfield and Glastonbury and repair the Putnam Bridge Walkway. The multi-use trail in Glastonbury was the subject of discussion in this meeting. The designer provided detailed information about Alternative 1 (cutting into the embankment and using a retaining wall along Route 3), Alternative 1A (moving the trail further from the roadway and using a fill slope to support the trail), and Alternative 4 (building the trail along the toe of slope).

Project Impacts:

	Alt 1	Alt 1A	Alt 4
Tree Clearing Area Acres	2.5	4.8	6.1
Erodible Surface Area Disturbance Acres	6.3	5.9	7.5
Wetland Impacts sq. ft.	3,417	17,603	29,888
Floodplain Impact C. Y. Fill	10,082	27,204	19,386
Floodway Impact C. Y. Fill	67	1,067	8,746

Permitting Requirements: Specific permit requirements will not be decided until an alternative is selected.

Agency Comments: DEEP Staff expressed concerns about floodplain impacts and how they will be compensated for. They also stated that Alternative 4 is likely unfeasible due to the amount of floodway impacts. DOT OEP staff asked if elements of Alternative 1 and 1A can be combined by using a retaining wall for some sections and a fill slope for others. DOT Engineering Staff said that they will investigate that possibility. Hydraulics and Drainage staff stated that net fill in the floodplain is “generally a no, no.”

Action Items: Provide more floodplain impact and cost analysis. Provide hydraulic analysis that indicates that proposed fill in the floodplain does not increase flood elevations. H&D and the design unit will investigate required floodplain compensation requirements.

102-358 Route 15/7 Interchange Improvement, Norwalk

12/21/2017 – This project was put on hold due to legal action in 2009. The purpose of this project is to improve system linkage, increase mobility for all modes of transportation, and improve safety in the vicinity of the interchanges. The intersections and interchanges will be redesigned using ramps with new alignments and additional traffic signals. A wetland delineation and report for this project was done in Fall 2016. To the north of the project site there are mitigation sites from previous DOT projects.

Project Impacts: Due to the removal of a dam on the Norwalk River the project site will have river herring on site which would require a Time of Year Restriction during construction. All alternatives explored will result in FEMA 100-year floodplain impacts.

**DEEP /USACE/ DOT
Interagency Coordination Meeting 12/21/2017
Project Meeting Notes**

Permitting Requirements: Permitting Requirements will be determined at the conclusion of the NEPA/CEPA study.

Agency Comments: Hydraulics and Drainage Staff stated that the FEMA map for this area is out of date and inaccurate, a map revision will be necessary. The consultant replied that the analysis is currently being performed. DEEP Fisheries Staff stated that they will be removing a dam that creates a back water upstream to Glover Ave. DOT OEP requested to be sent the plans for the dam removal. DEEP Fisheries Staff mentioned, if mitigation is necessary Davis Pond Dam would benefit from a new fishway.

Action Items: Continue the NEPA/CEPA study.

160-147 Bridge 02259, Route 32 over South Branch Roaring Brook, Willington

12/21/2017 – Bridge 02259 has a curb to curb width of 30 feet and a span length of 27 feet. The existing masonry abutments were built in 1914. That fascia beams have become badly deteriorated. The proposed rehabilitation for this structure consists of placing an aluminum box with a concrete footing between the existing abutments. The designers intend to keep the bridge open during construction. This branch of Roaring Brook experiences very little flow except during flood events, fisheries has stated that they are not concerned with this structure.

Project Impacts: The proposed project will result in 2940 sq. ft. of wetland impacts, 1559 sq. ft. of impacts below Ordinary High Water, 5216 sq. ft. of FEMA floodplain impacts, 0.2 acres of tree clearing, and 0.88 erodible surface disturbances.

Permitting Requirements: The federal permitting requirement for this project is an ACOE Pre-Construction Notice. State permitting requirements for this project are a PGP Addendum and a GP for Water Resource Construction activities. Flood Management will not be required for this project due to the size of the drainage area.

Agency Comments: DOT OEP staff asked if it is possible to obtain a Self-Verification for this project instead of a Pre-Construction Notice. ACOE staff replied that this project will require a Pre-Construction Notice due to this project being a bridge lining project, it does not meet the criteria for a Self-Verification. DEEP Regulatory staff stated that they have no concerns if DEEP fisheries is satisfied with the chosen structure and signs off on the permit plan set.

Action Items: Develop permits and submit them to OEP for review.



Bridge No. 02559 Outlet



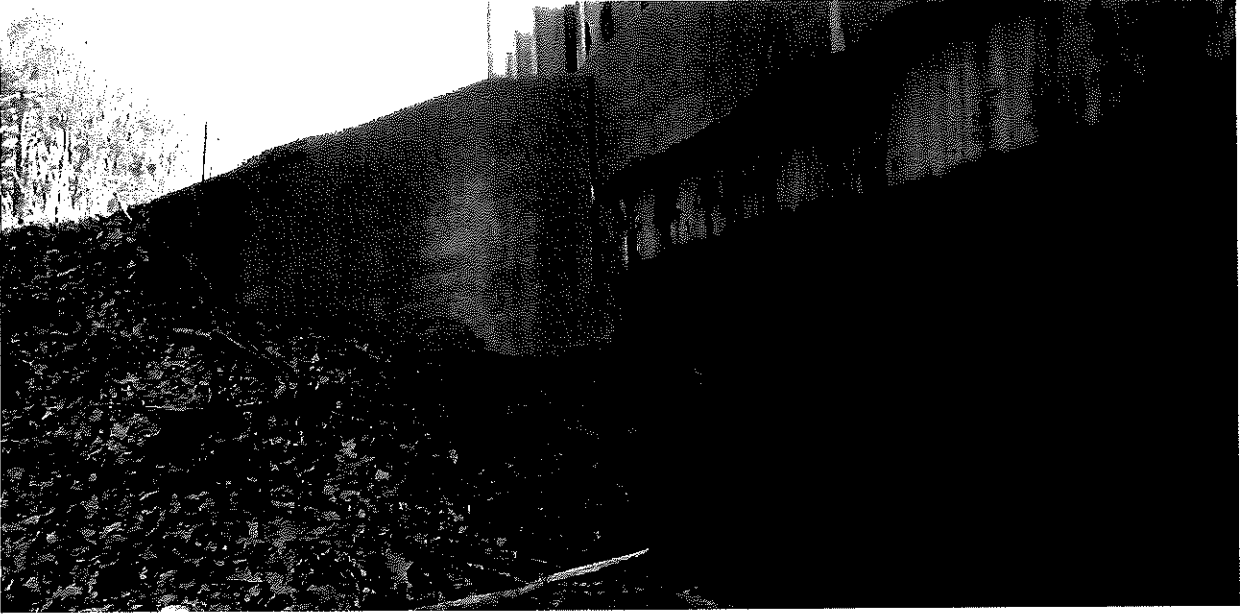
Bridge No. 02559 Inlet



Southern Outlet Wingwall



Northern Outlet Wingwall



Northern Inlet Wingwall



Southern Inlet Wingwall



Area Overview Looking Northbound



Area Overview Looking Southbound



Deteriorating Bridge No. 02559 Superstructure

November 12, 2018 - November 18, 2018

November 2018

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
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December 2018

Su	Mo	Tu	We	Th	Fr	Sa
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30	31					

Monday, November 12

- Holiday** - Lesay, Kimberly C
- 8:30am - 9:00am Supervisor's check in** (Kim's Place) - Lesay, Kimberly C ☉
- 9:00am - 9:30am Noise Program - By-weekly Status Meeting** (OEP Library) - Carifa, Kevin F ☉

Thursday, November 15

- 8:30am - 9:30am Env summit dry run** (2141) - Lesay, Kimberly C
- 9:00am - 1:30pm FW: Interagency Review Meeting - LEAN / PMM** (RESHQ3 Conf Room 3130)
- 9:30am - 10:00am Env Summit dry run** (2141) - Lesay, Kimberly C
- 11:00am - 12:00pm MGRS/Tom Bi-Weekly** (Rm. 2307) - Maziarz, Thomas J ☉
- 1:00pm - 3:00pm 102-358 Route 7/15 Progress Meeting** (RESHQ3 Conf Room 3115, DOT) -
- 1:00pm - 2:00pm FW: IT support to Policy and Planning projects and initiatives** (Conference room)
- 1:30pm - 3:30pm DEEP/DOT Group of Eight** (DOT Headquarters Room 2141) - Lesay, Kimberly C ☉
- 1:30pm - 3:00pm Canceled: I-84 Hartford**

Notes

Replace Falcon Box
- Bridgeport
Reach out to
Jennifer?
Questions. -

Tuesday, November 13

- send mid-pay period timesheet reminder ☉
- 8:00am - 8:15am FW: Water Natural Resources Unit Staff Meeting** (Drafting Table) - Davis, Andrew
- 8:30am - 9:30am Team Meeting Water/Natural Resources & Compliance** (2324) - Lesay, Kimberly C
- 8:45am - 9:00am Property Concurrences** (Kim's Place) - Carifa, Kevin F ☉
- 9:30am - 11:30am SPN 34-349 I-84 Danbury PROGRESS MEETING** (RESHQ3 Conf Room 3130)
- 11:00am - 12:00pm Pavement Preservation** (RESHQ3 Conf Room 3137, DOT) - Rolfe, Mark D
- 1:00pm - 2:00pm Stamford Parking Garage - Comments** (Chris' office?) - Lesay, Kimberly C
- 3:00pm - 3:30pm dry run for env summit** (2141) -
- 5:00pm - 6:00pm lunch** (TBD) - Lesay, Kimberly C

Friday, November 16

- 9:00am - 12:00pm 84-110 Preconstruction Meeting - Additional Information** (RES3C218 Dist 3 Conf Room 218, DOT) - Chandra, Prashant K
- 9:00am - 10:30am I-84 Hartford Project PM Meeting** (CTDOT Newington, Room 3130) - Russell, Sue M. ☉
- 10:00am - 11:00am pre-application permit plan set reviews** (RESHQ3 Conf Room 3115, DOT) - Lesay, Kimberly C
- 1:00pm - 2:00pm Steps to Improve Workflow** (Room 2141) - Davis, Andrew H
- 1:00pm - 2:00pm Walk Bridge Permit Review** (Conference Call) - Lauren DiGovanni ☉
- 2:30pm - 3:00pm Env Summit dry run** (2141) - Lesay, Kimberly C

Wednesday, November 14

- 7:30am - 9:00am Directors Meeting** (2158) - Cabelus, Robbin L ☉
- 9:00am - 10:00am Supervisor's/Manager's meeting OSPP/OEP** (conference room 2141) -
- 10:00am - 12:00pm PN 0079-0240 Environmental Discussion** (Conf Room 2141, DOT) - Mar, Pinith B
- 11:00am - 12:00pm General Question** (DOT Conference Room 2324) - Taylor, Cathleen A.
- 1:00pm - 2:00pm NEPA / CEPA handbook working / status meeting** (2141) - Lesay, Kimberly C
- 2:00pm - 3:30pm 158-214 - PAC Meeting Prep**
- 2:00pm - 3:00pm CES Natural Resources**
- 2:00pm - 3:00pm Canceled: CES Natural**
- 3:00pm - 3:30pm field work health and safety**
- 6:30pm - 8:30pm 7/15 Norwalk - PAC #5 - Route**

Pavement Pres 212, 9, 395
2 Dist 2, Dist 4.
chip seal + ultrathin.
ADV. mid Feb for DBB -
start planning March/April
for next year
need project #s -- need to talk
w/traffic -
Nota I-off!

CAWS - need bullets;

November 5, 2018 - November 11, 2018

November 2018						
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December 2018						
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30	31					

Monday, November 5

- 7:30am - 7:45am FW: Water/Noise Compliance Unit - Biweekly Check-in (Room 2141) - Carifa, Kevin F ☺
- 8:30am - 9:00am Supervisor's check in (Kim's Place) - Lesay, Kimberly C ☺
- 10:00am - 12:00pm 158-214 PAC Meeting #3 Prep (RESHQ4 Conf Room 4319, DOT) - Bhardwaj,
- 1:00pm - 1:30pm dry run - env summit (2141) - Lesay, Kimberly C
- 1:30pm - 2:30pm Weekly Meeting with Assistant Directors (2307) - Bell, Robert E. ☺
- 3:00pm - 3:15pm USCG Coordination / STURAA Exemptions (CTDOT Room 2141) - Lesay, Kimberly C
- 3:15pm - 4:15pm Monthly check in CTDOT OEP & FHWA (Kim's place, FHWA Glastonbury or via

Thursday, November 8

- 10:00am - 11:30am I-84 Hartford Project PM Meeting (CTDOT Newington, Room 3207) - Russell, Sue M. ☺
- 1:30pm - 3:30pm 7/15 Norwalk PAC #5 Prep Session - Route 7/15 Interchange - 102-358 - [Invitation] (CTDOT Rm 3211) - Ken Livingston

Payday

Tuesday, November 6

- Time sheets ☺
- 8:00am - 8:15am FW: Water Natural Resources Unit Staff Meeting (Drafting Table) - Davis, Andrew H ☺
- 8:30am - 11:30am Labor Hearing (Dept of Labor)
- 9:30am - 10:00am IDP Plan (Kim's Office) - Lesay, Kimberly C
- 1:30pm - 2:00pm Thompson 141-000-004C (Room 2141) - Pena, Marlon E
- 2:00pm - 2:30pm dry run for env summit (2141) - Lesay, Kimberly C
- 2:30pm - 3:30pm environmental permit plan set process (kims place or 2141...) - Lesay, Kimberly C

Friday, November 9

- 12:00am Kids weekend ☺ →
- 8:00am - 9:00am Walk Bridge Program: bi-weekly coordination (Conference Call: Cal-in #: 855.797.9485; Access code: 86182116) - Joe Grilli ☺

Wednesday, November 7

- 7:30am - 9:00am Directors Meeting (2158) - Cabelus, Robbin L. ☺
- 8:30am - 10:00am Quarterly Meeting (RESHQ3 Conf Room 3130, DOT) - D'Attilio, Paul
- 10:30am - 11:30am Louis Berger Invoices (CTDOT HQ Room 2307) - Speal, Charles S
- 12:00pm - 1:00pm lunch (TBD) - Lesay, Kimberly C ☺ ☺
- 1:30pm - 2:00pm env. summit dry run (RESHQ3 Conf Room 3207, DOT) - Lesay, Kimberly C

Notes

look at Resiliency Notes re: extreme weather

TP2 position

Interview panel and questions

Rob, Breezy, me, Carlino

10min (5/15 min) presentations talk to Rob

response to "grab" noise complaint

Belger eval



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

11/20/2018

Dear Applicant:

This letter is to confirm the receipt of the following application package:

Permit Type: Construction Activities-GP-3(a)(8-9)

CTDOT Project No. 160-147; Rehabilitation of Bridge No. 02259 carrying Route 32 over S. Branch Roaring Brook. The existing structure will be inserting an aluminum box culvert liner through the existing bridge opening and pumping flowable fill between the voids. The culvert will have a concrete slab base with new concrete headwalls, wingwalls, and footings with vertical ground anchors. (Willington, CT)

Your application has been assigned the following number: 201814764
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			11/15/2018
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



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2931

May 29, 2018

Ms. Susan Lee
U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742-2751

Subject: State Project No. 160-147
Rehabilitation of Bridge No. 02559 Carrying Route 32 over S. Branch
Roaring Brook
Willington, CT

Dear Ms. Lee:

Enclosed please find the Section 404 permit application for General Permit 19 – Stream, River and Brook Crossings (not including wetland crossings) for your review and approval. An application for 401 Water Quality Certification (via the Connecticut Addendum) was previously submitted to the Connecticut Department of Energy and Environmental Protection under a separate cover letter for processing. 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,

A handwritten signature in cursive script that reads "Kimberly C. Lesay".

Kimberly C. Lesay
Transportation Assistant Planning Director
Bureau of Policy and Planning

Attachments

cc: Nathan Margason – USEPA

bcc: Kimberly C. Lesay
Andrew H. Davis – Christopher W. Samorajczyk – Michael J. Salter
Mary E. Baker – Kevin Blasi – Jonathan J. Kempf – Zoltan M. Kanyo
Donald Ward, District 1

U.S. Army Corps of Engineers (USACE)
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
 33 CFR 325. The proponent agency is CECW-CO-R.

*Form Approved -
 OMB No. 0710-0003
 Expires: 01-08-2018*

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at . Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website:

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
--------------------	----------------------	------------------	------------------------------

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Middle - Last - Company - State of Connecticut, Department of Transportation E-mail Address - kimberly.lesay@ct.gov	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Middle - Last - Company - E-mail Address -
6. APPLICANT'S ADDRESS: Address- 2800 Berlin Turnpike, P.O. Box 317546 City - Newington State - CT Zip - 06111 Country - USA	9. AGENT'S ADDRESS: Address- City - State - Zip - Country -
7. APPLICANT'S PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax (860)594-2931	10. AGENTS PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT

DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions) State Project No. 160-147, Rehabilitation of Bridge No. 02259 Carrying Route 32 over S. Branch Roaring Brook	
13. NAME OF WATERBODY, IF KNOWN (if applicable) S. Branch Roaring Brook	14. PROJECT STREET ADDRESS (if applicable) Address Route 32 City - Willington State- CT Zip- 06279
15. LOCATION OF PROJECT Latitude: °N 41° 54' 9.93" Longitude: °W 72° 17' 14.78"	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Municipality Section - Township - Range -	

17. DIRECTIONS TO THE SITE

From I-84 WB, take Exit 70 (Route 32 Willington/Willimantic); Turn right at the bottom of the ramp onto Route 32 and go North; Travel 0.2 miles to Bridge No. 02259 (There is no bridge number on the bridge, but there is a tributary sign for "Roaring Brook").

18. Nature of Activity (Description of project, include all features)

Bridge 02259 was constructed in 1914 to carry Route 32 over South Branch Roaring Brook. The single-span, multi-beam superstructure is supported by stone masonry abutments and wingwalls with concrete caps. The deck consists of two concrete slab sections on the outside of each fascia beam and 7 bays consisting of arch pan stay-in-place forms. The curb to curb deck width is 30 feet and carries one lane of traffic with narrow shoulders in each direction. The structure has a skew angle of 22 degrees and an overall length of 31 feet, with a maximum span of 27 feet. The existing 27 foot span will be will be rehabilitated by inserting a aluminum box culvert liner inside the existing structure and filling the voids between the existing structure and the liner by pumping concrete flowable fill. The aluminum box culvert will be founded on a concrete slab and have cast-in-place concrete wing walls and footings with vertical ground anchors. This rehabilitation will include widening the road to provide a curb to curb roadway width of 34 feet which will contain a 12 ft lane width and a 1 ft shoulder in each direction. Temporary access roads will be built to facilitate the construction of the new structure. All disturbed areas will be re-vegetated with native plantings. Modified and intermediate riprap swales and a grass swale will be constructed for the permanent condition.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The latest bridge inspection report dated July 19, 2016 states that the superstructure is in a serious condition (rating 3) and exhibits moderate to heavy rust with loss of section in girders. All remaining components of the bridge are in a satisfactory condition (rating 6) or better. New permanent drainage will be installed on the outlet side, and the roadway will be widened to a curb to curb width of 34 feet. In order to correct the deficiencies in the existing structure, a new aluminum box culvert founded on a culvert invert slab is being inserted underneath the existing structure. The roadway widening to 34 feet is required to provide sufficient lane and shoulder widths across Bridge No. 02259.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Permanent impacts to the wetlands and watercourse are the result of grading and rip-rap placement in the brook and the installation of a new aluminum box culvert that will be founded on a concrete invert slab. Additionally, this permanent impact also includes the placement of fill along Route 32 for the support of the roadway as well as permanent drainage to the West of the structure. Temporary impacts in the wetland and watercourse are the result of the water handling measures which will be required to divert flows away from the construction site if a storm event takes place during construction operations.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
See attached		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres See attached
or
Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See attached

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- Connecticut Department of Energy and Environmental Protection, 79 Elm Street

City - Hartford State - CT Zip - 06106

b. Address- Town of Willington, 40 Old Farms Road

City - Willington State - CT Zip - 06279

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
CT DEEP	IWRD General	TBD	Post ACOE Approval	TBD	
CT DEEP	PGP Addendum	TBD	Concurrently	TBD	

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

Thomas J. Maziany 5-30-2018

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

Block 21, 22 and 23

Application for Department of the Army Permit

Applicant: State of Connecticut, Department of Transportation
Project No. 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S. Branch
Roaring Brook
Willington, CT

21. Types of Material Being Discharged and the Amount of Each Type in C.Y.

Natural Streambed Material	20
Intermediate Riprap	55
No. 6 Crushed Stone	50
Granular fill	10
Concrete	110

22. Surface Area in Acres of Wetlands or Other Waters Filled

Permanent impacts to the wetlands and watercourse are the result of grading and rip-rap placement in the brook and the installation of a new aluminum box culvert founded on a concrete invert slab. Additionally, this permanent impact also includes the placement of fill along Route 32 for the support of the roadway as well as permanent drainage to the West of the structure. Temporary impacts in the wetland and watercourse are the result of the water handling measures which will be required to divert flows away from the construction site if a storm event takes place during construction operations. Temporary access roads will be built in order to facilitate construction.

	Permanent *	Temporary *	Total *
Wetland	0 (0.000)	0 (0.000)	0 (0.000)
Watercourse	1400 (0.032)	1000 (0.023)	2400 (0.055)
Total	1400 (0.032)	1000 (0.023)	2400 (0.055)

*Impact values shown within parentheses are in acres. All other values shown are in square feet.

The water handling facilities during construction will consist of sandbag cofferdam or equivalent at the inlet and outlet ends. A pump system shall be provided by the Contractor for the purpose of keeping the site dry during construction and to handle potential groundwater.

23. Description of Avoidance, Minimization, and Compensation

Impacts to the stream will be minimized through adherence to the Form 817, Section 1.10 Best Management Practices (BMP's) and the 2004 Storm water Quality Manual. Traffic will be maintained on Route 32 throughout the duration of construction in order to have the least adverse effect to the traveling public during the rehabilitation. During construction, proper water handling measures will be implemented to allow work to occur in the areas confined within those water handling devices. Sedimentation and Erosion Control Systems will be installed as necessary to limit disturbance to protect

the wetlands and watercourses through adherence of the 2002 Erosion and Sedimentation Guideline Manual.

- Installation, use and maintenance of combined silt fencing and hay bale erosion and sedimentation control around other work areas.
- Storage of construction materials outside of wetlands.
- Vehicle re-fueling and servicing at a location outside of the wetland and watercourse.
- Proper care and maintenance of vehicles and equipment.
- Installation of a debris shield to protect the existing channel.
- Provide a dewatering basin to treat any water pumped out of the site prior to it re-entering the watercourse.

In order to avoid potential erosion, the use of slopes steeper than those specified on the plans shall not be permitted unless approved by the design engineer. Invasive species will be controlled during construction through the use of the Department's *Control and Removal of Invasive Vegetation* specification within the project limits. The areas of temporary watercourse impact will be restored to existing condition with natural streambed material. Native plantings and seeding are proposed for the impacted wetland areas and adjacent buffer areas to restore the vegetative community of the streambank at the inlet and outlet. Please see Permit Planting Plan for limits of invasive vegetation removal and for proposed planting and restoration plan.

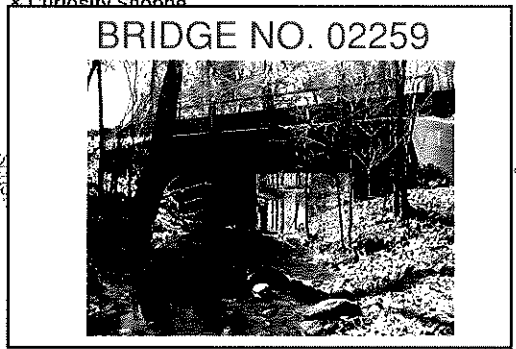
Attachment A: Location Map

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



All in All Pastime
& Curiosity Shoppe



BRIDGE NO. 02259

32 Old River Rd

Schofield Rd
River Rd

Kucko Rd
Village Hill Rd

Pine

Village Hill Rd

River Road
Athletic Complex

BRIDGE NO. 02259

Mobil

Babcock Rd

Babcock Rd

N River Rd

Lebanon Brook

School Brook

1000 ft

STATE PROJECT NO.:

0160-0147

CITY/TOWN:

Town of Willington



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

LOCATION MAP

BRIDGE NO. 02259

Route 32 over South Branch Roaring Brook



OFFICE OF
ENGINEERING



DATE:

09/20/2016

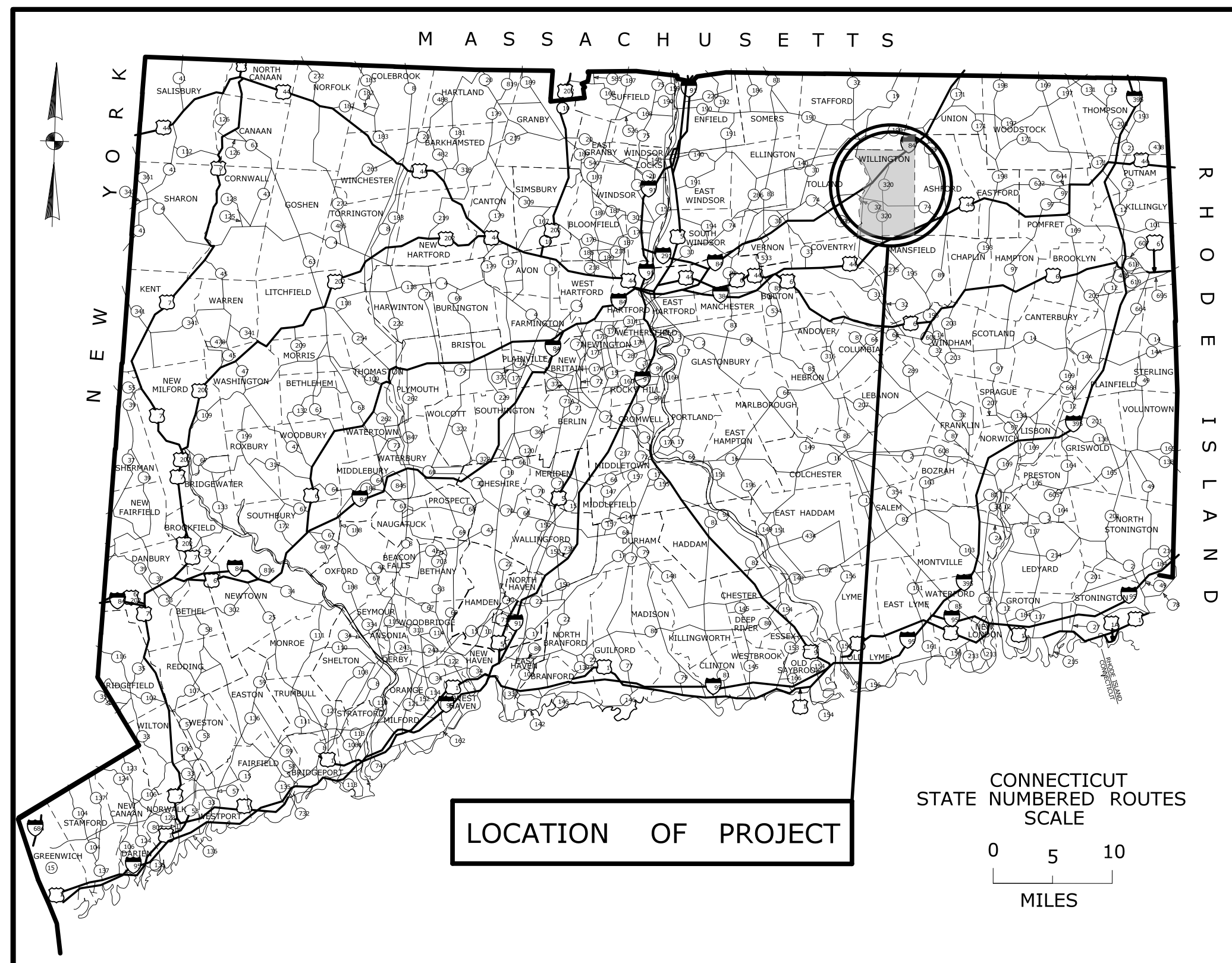
Attachment B: Permit Plans

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

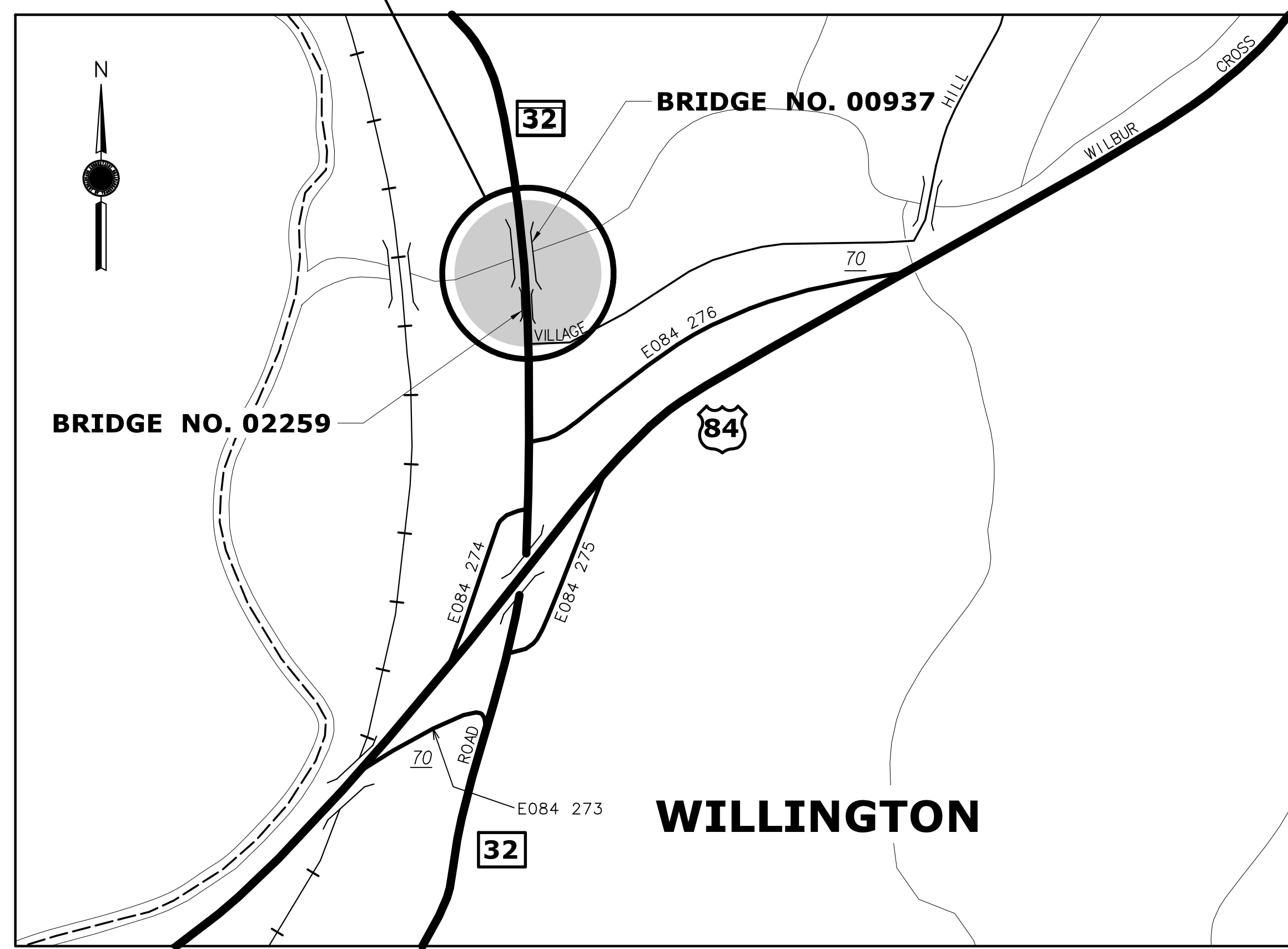
List of Plan Sheets and Drawings

Sheet 1	Title Sheet
Sheet 2	General Plan
Sheet 3	Wetland/Watercourse Impact Plan
Sheet 4	Construction Sequence - I
Sheet 5	Construction Sequence - II
Sheet 6	Construction Sequence - III
Sheet 7	Permit Planting Plan



ENVIRONMENTAL PERMIT PLANS
STATE PROJECT NO. 160-147
REHABILITATION OF BRIDGE NO. 02259 CARRYING
ROUTE 32 OVER S. BRANCH ROARING BROOK
TOWN OF WILLINGTON

PROJECT LOCATION



LOCATION MAP
SCALE 1"=500'

ALL ELEVATIONS BASED ON NGVD OF 1988
 COORDINATES BASED ON CONNECTICUT COORDINATE SYSTEM NAD 1983

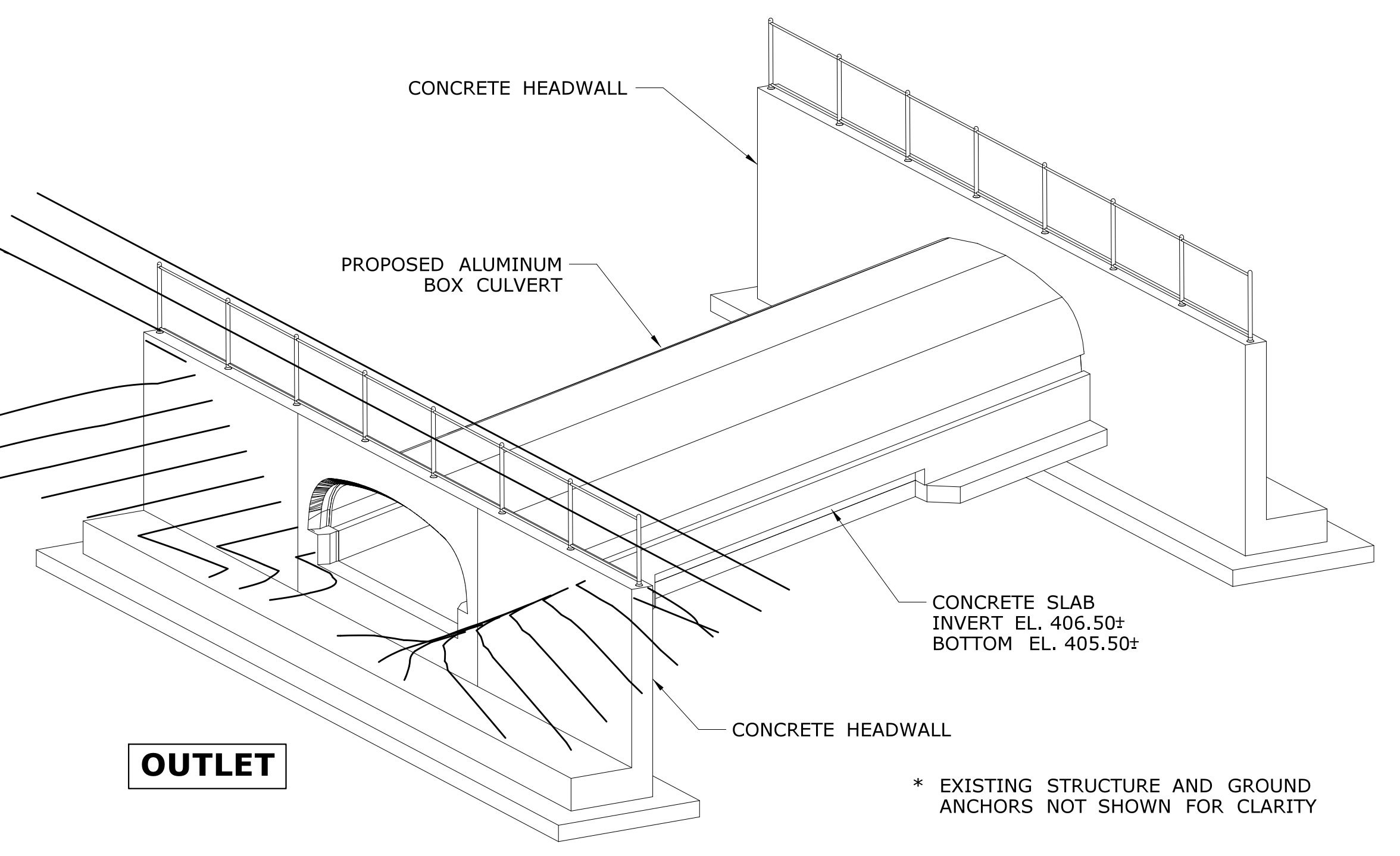
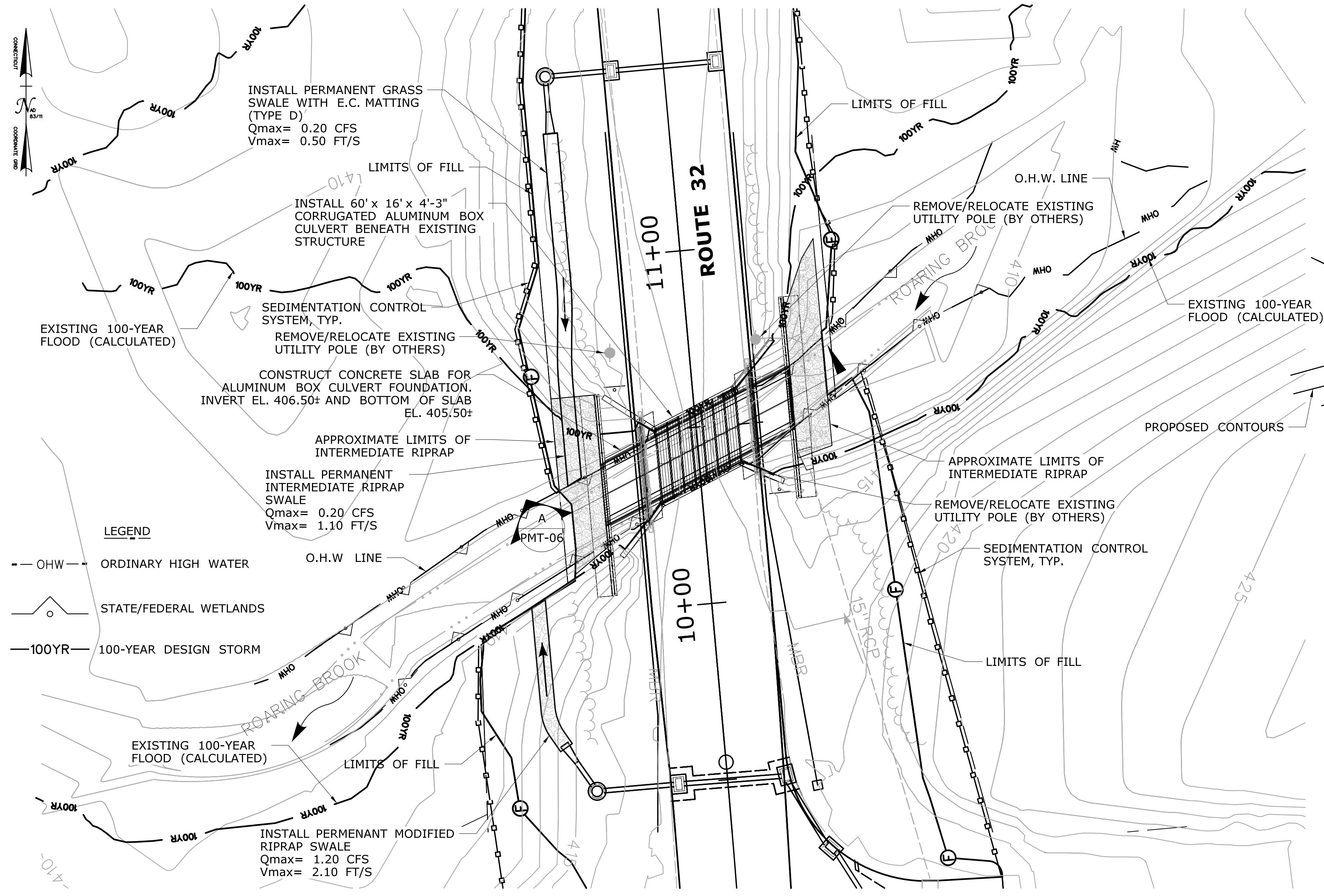
GENERAL NOTES:

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 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.

INDEX OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	CONSTRUCTION SEQUENCE - 1
PMT-05	WATER HANDLING AND CONSTRUCTION SEQUENCE - 2
PMT-06	CONSTRUCTION SEQUENCE - 3
PMT-07	PERMIT PLANTING PLAN

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: APRIL 12, 2018

REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 4/18/2018	DESIGNER/DRAFTER: ZMK		SIGNATURE/BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
				CHECKED BY: JJK		APPROVED BY:		DRAWING TITLE: PERMIT TITLE SHEET	DRAWING NO. PMT-01
				SCALE AS NOTED	Filename: ...SB-160-147_P-01_Attachment_B_Title_Sheet.dgn			SHEET NO.	



PLAN VIEW - BRIDGE NO. 02259
SCALE: 1" = 20'

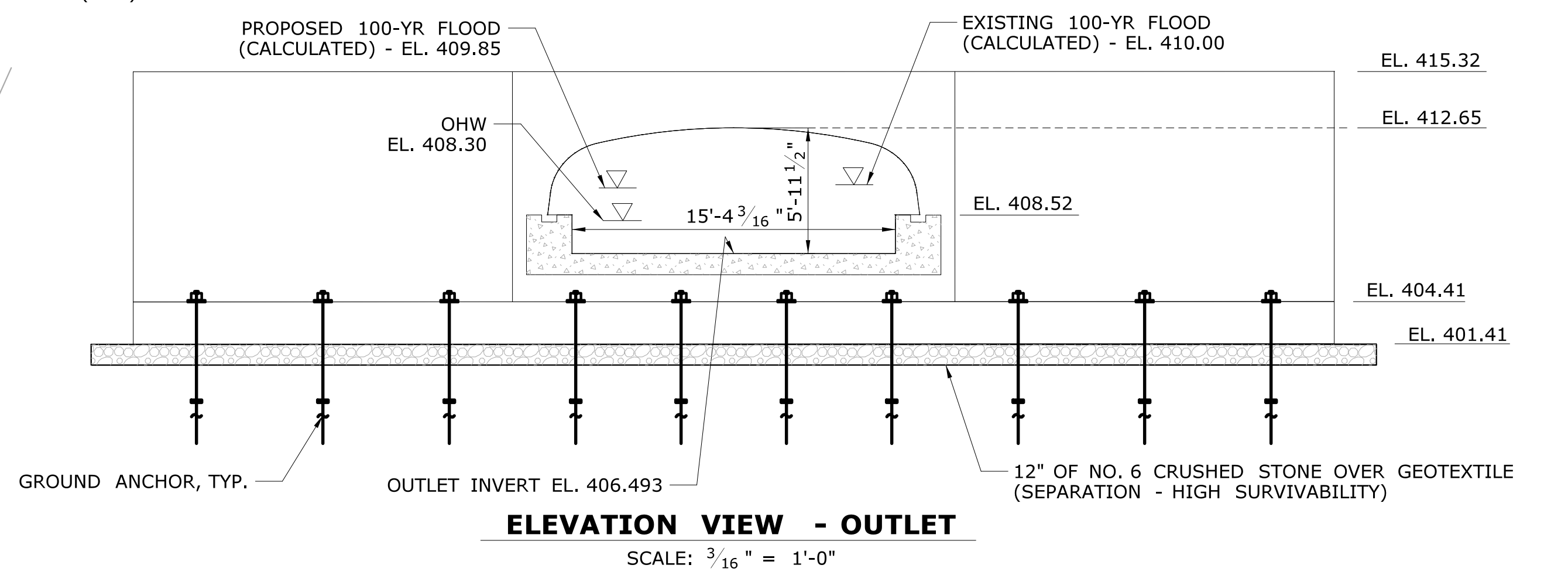
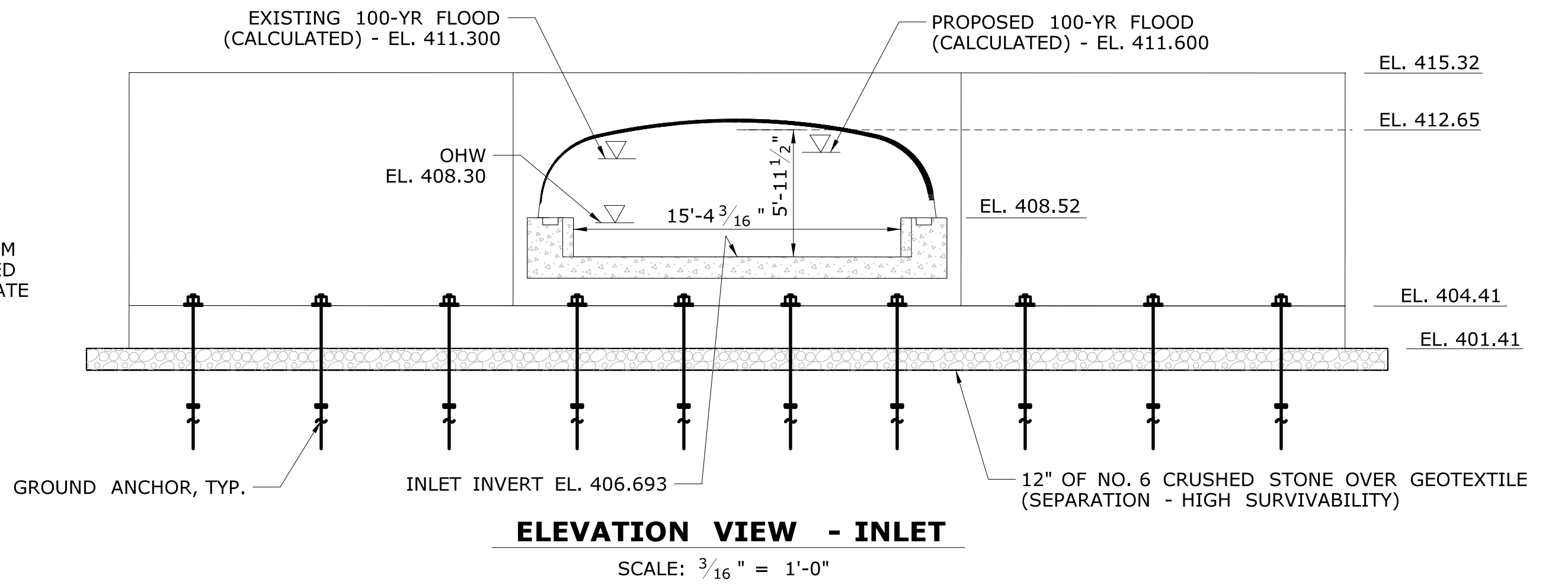
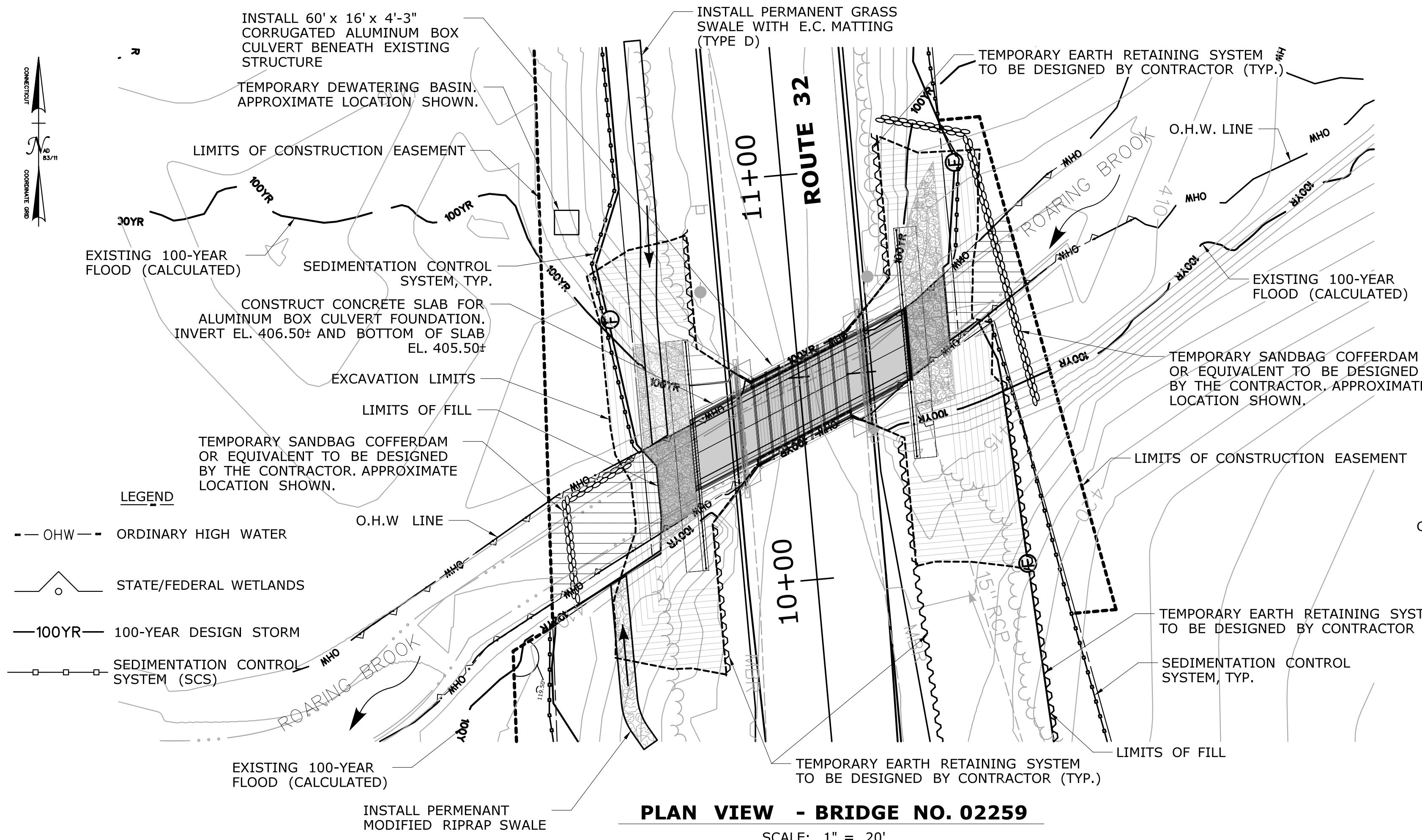
HYDRAULIC DATA TABLE - BRIDGE NO. 02259

DRAINAGE AREA	22 SQ. MI.
DESIGN FREQUENCY	100 - YEAR
DESIGN DISCHARGE	405 CFS (2460 CFS*)
AVERAGE DAILY FLOW EL. (ESTIMATED)	N.A. (DRY)
UPSTREAM DESIGN WATER SURFACE ELEVATION	411.6 FT +
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	410.0 FT +

* SHARED WITH BRIDGE NO. 00937

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: MAY 11, 2018

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
	CHECKED BY: JJK		APPROVED BY:		DRAWING TITLE: GENERAL PLAN	DRAWING NO. PMT-02
SCALE AS NOTED Plotted Date: 5/14/2018 Filename: ... \SB_160-147_P-02_General Plan.dgn					SHEET NO.	



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 PER DRAWING NO. PMT-07 "PERMIT PLANTING PLAN".

TEMPORARY IMPACT AREAS BELOW OHW LIMITS SHALL BE RESTORED WITH NATURAL CHANNEL BOTTOM MATERIAL.

WETLAND IMPACT AREAS (ABOVE O.H.W. LEVEL)	
TEMPORARY (S.F.)	0 (0.00 ACRES)
PERMANENT (S.F.)	0 (0.00 ACRES)
TOTAL (S.F.)	0 (0.00 ACRES)

STREAM IMPACT AREAS (BELOW O.H.W. LEVEL)	
TEMPORARY (S.F.)	1000 (0.023 ACRES)
PERMANENT (S.F.)	1400 (0.032 ACRES)
TOTAL (S.F.)	2400 (0.055 ACRES)

- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

TOTAL WETLAND + STREAM IMPACT AREA = 2,400 (S.F.) (0.055 ACRES)

OPENNESS RATIO (OR):

OR = OPEN AREA / CULVERT LENGTH
 OR = 80 S.F. / 60 FT = 1.33 FT
 1.33 FT > 0.82 FT (RECOMMENDED MINIMUM)

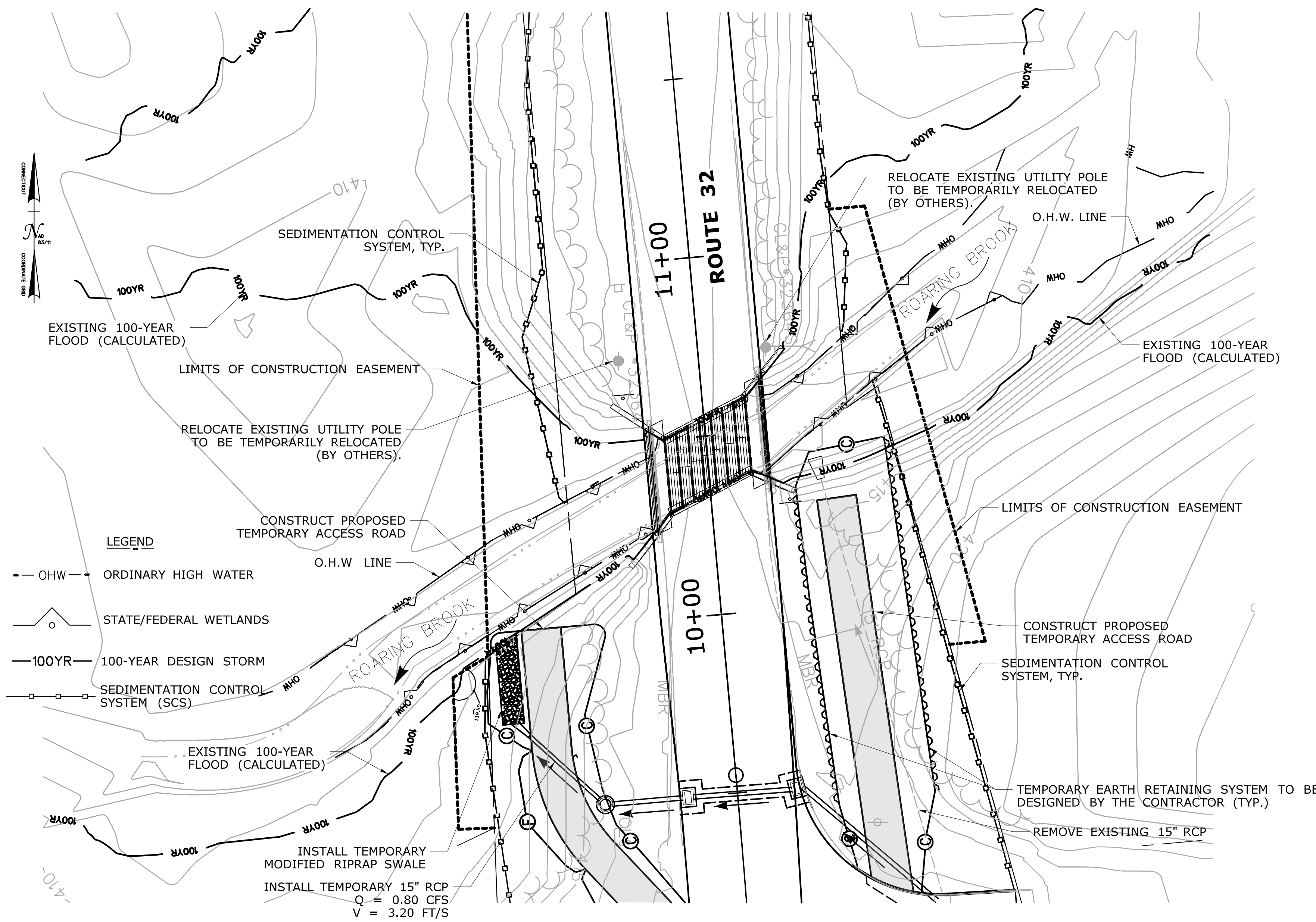
BANKFULL WIDTH (BFW):

BFW = 15 FT EXISTING UPSTREAM (OHW)
 1.2 x BFW = 18 FT
 18 FT > 16 FT (PROPOSED CULVERT SPAN)

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 10, 2018**

	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: ZMK CHECKED BY: JJK SCALE AS NOTED	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147 DRAWING NO. PMT-03 SHEET NO.
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/15/2018	Filename: ...SB-160-147_P-03_Environmental Impact Plan.dgn		



STAGE 1: INSTALLATION OF TEMPORARY DRAINAGE AND CONSTRUCTION OF ACCESS ROADS

SCALE: 1" = 20'

PROPOSED CONSTRUCTION SEQUENCE:

PRE-STAGE 1:

1. RELOCATE UTILITY POLES (BY OTHERS)

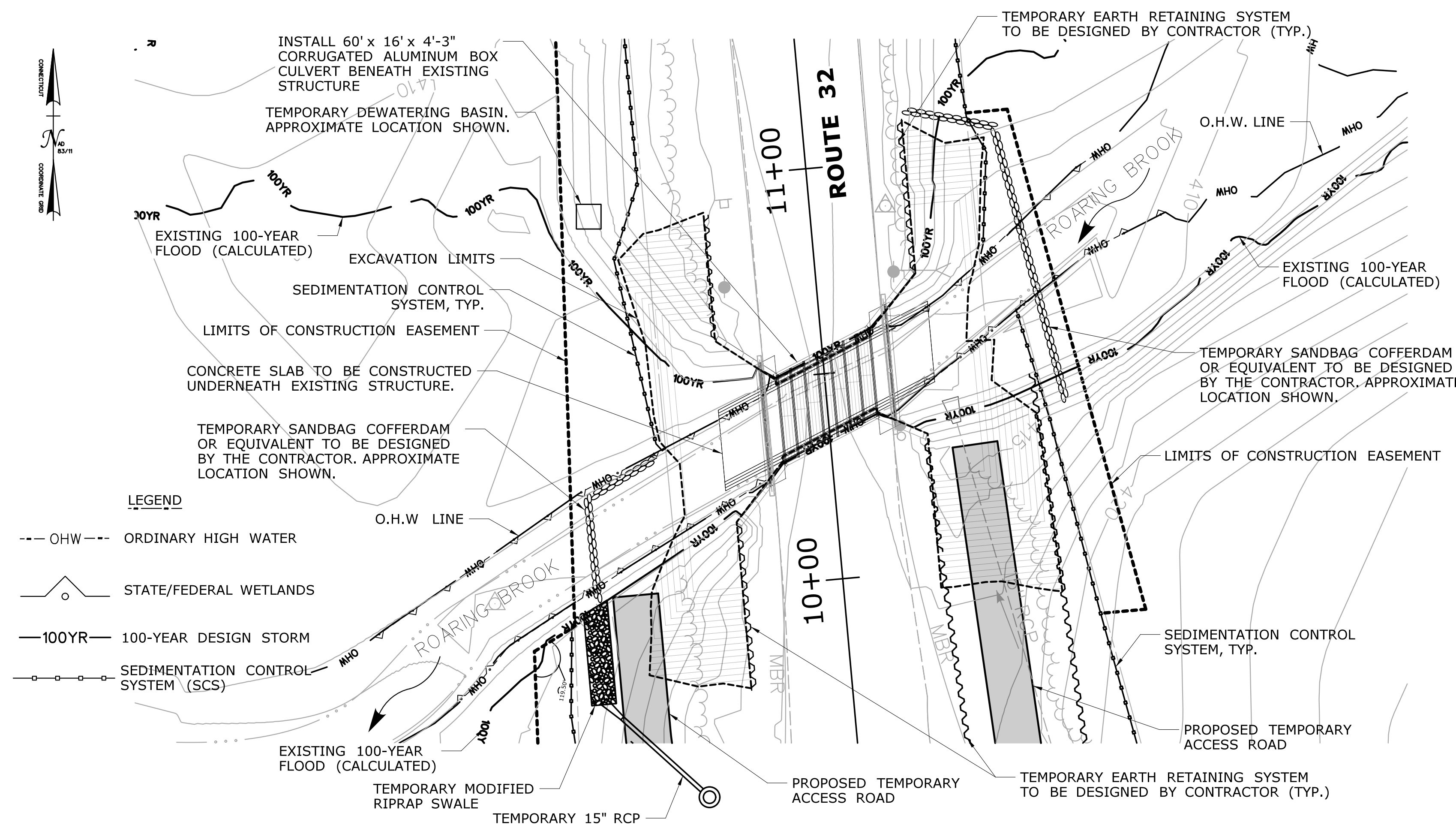
STAGE 1:

1. MOBILIZATION; ERECT CONSTRUCTION SIGNS
2. CLEARING AND GRUBBING AND INSTALL SEDIMENTATION & EROSION CONTROL
3. INSTALL TEMPORARY MODIFIED RIPRAP SWALE INCLUDING TEMPORARY 15" RCP.
4. INSTALL TEMPORARY SHEET PILING FOR TEMPORARY ACCESS ROAD CONSTRUCTION.
4. REMOVE EXISTING 15" RCP AND CONSTRUCT TEMPORARY ACCESS ROADS

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 11, 2018**

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REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/14/2018	Filename: ...\\SB-160-147_P-04_Construction Sequence - 1.dgn	DRAWING TITLE: CONSTRUCTION SEQUENCE - 1	



STAGE 2: INSTALLATION OF WATER HANDLING, SITE EXCAVATION AND CONSTRUCTION OF CONCRETE SLAB

SCALE: 1" = 20'

TERS TO BE DESIGNED BY THE CONTRACTOR FOR SUPPORT OF THE ROADWAY

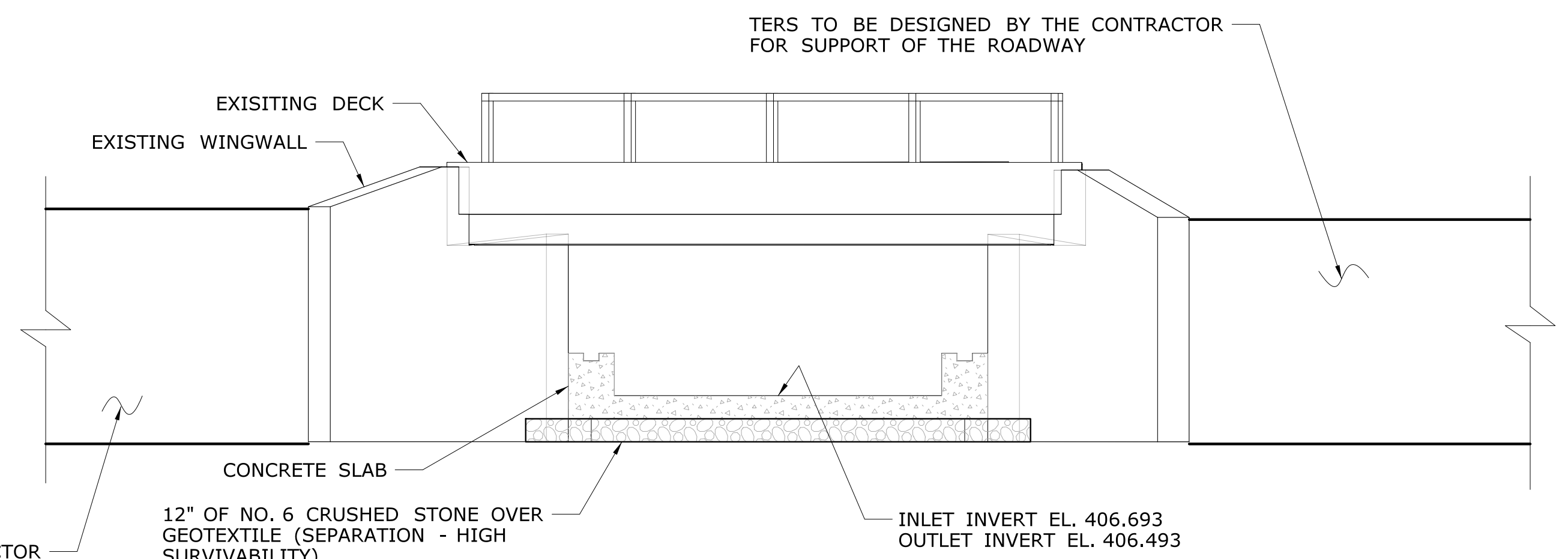
PROPOSED CONSTRUCTION SEQUENCE:

STAGE 2:

6. CONSTRUCT COFFERDAM AND INSTALL WATER HANDLING SYSTEM INCLUDING TEMPORARY DEWATERING BASIN.
7. INSTALL TERS FOR SUPPORT OF THE ROADWAY DURING EXCAVATION.
8. EXCAVATE EARTH FOR THE INSTALLATION OF THE CONCRETE INVERT SLAB.
9. PLACE 12" OF NO. 6 CRUSHED STONE OVER GEOTEXTILE FABRIC UP TO BOTTOM ELEVATION OF CONCRETE SLAB.
10. CONSTRUCT CONCRETE SLAB

WATER HANDLING NOTES:

1. A TEMPORARY DEWATERING BASIN AND PUMP SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR IN ORDER TO KEEP THE WORK SITE DRY THROUGHOUT CONSTRUCTION.
2. ALL WORK RELATING TO WATER HANDLING SHALL BE INCLUDED UNDER THE PAY ITEM "HANDLING WATER" (SEE SPECIAL PROVISION).
3. APPROXIMATE FINAL TOP TEMPORARY COFFERDAM ELEVATIONS GIVEN.

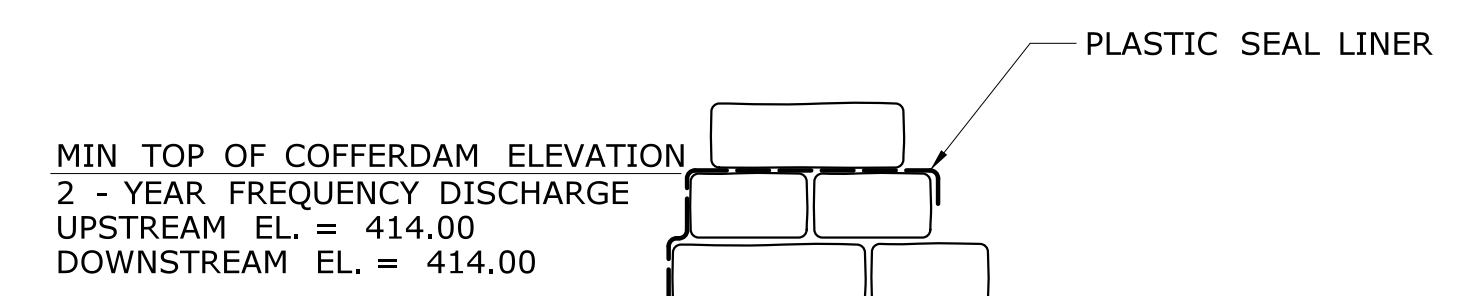


ELEVATION - STAGE 2 CONSTRUCTION

SCALE: 1" = 5'

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW	N.A. (DRY)
AVERAGE SPRING FLOW	0.1 CFS
2-YEAR FREQUENCY DISCHARGE	33 CFS (TOTAL 627 CFS FOR ROARING BROOK)*
TEMPORARY DESIGN DISCHARGE	33 CFS (TOTAL 627 CFS FOR ROARING BROOK)*
TEMPORARY DESIGN FREQUENCY	2 - YEAR
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	414.0 FT
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	N.A. (DRY)

*SHARED WITH BRIDGE NO. 00937



TEMPORARY SANDBAG COFFERDAM OR EQUIVALENT TO BE DESIGNED BY THE CONTRACTOR.

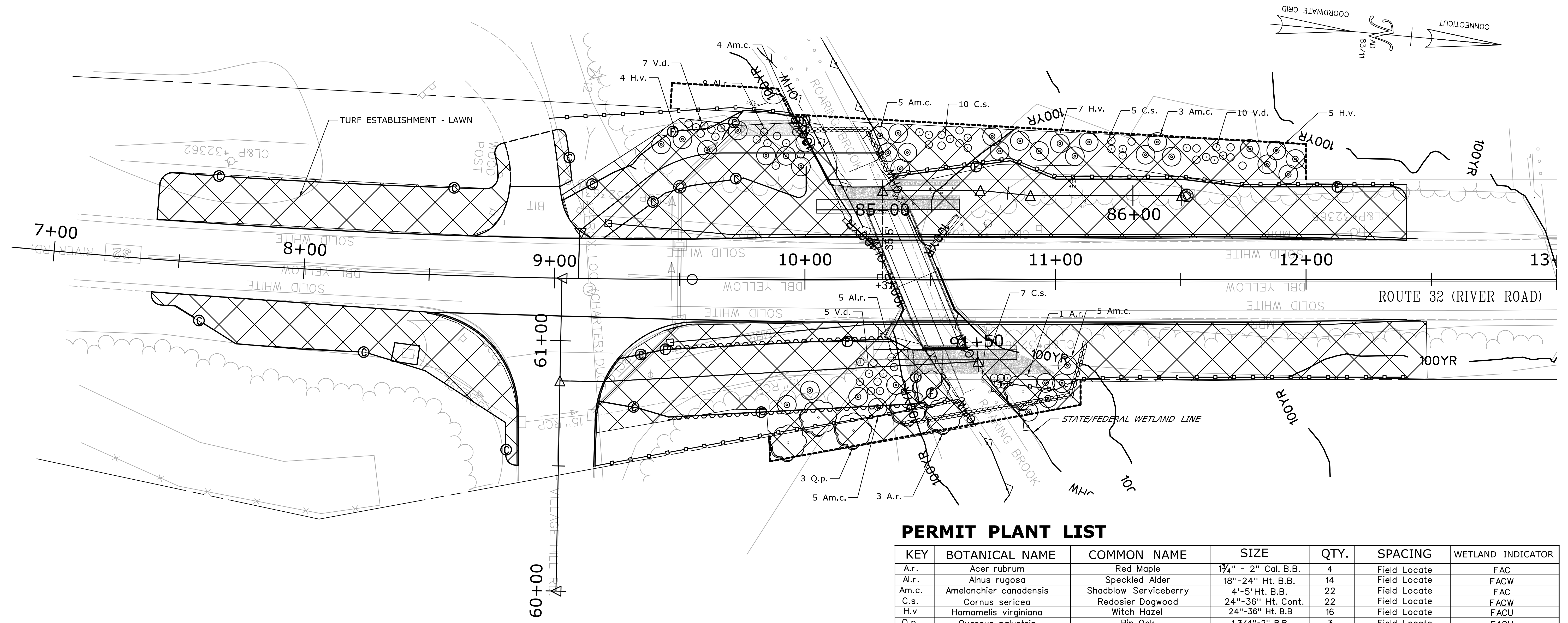
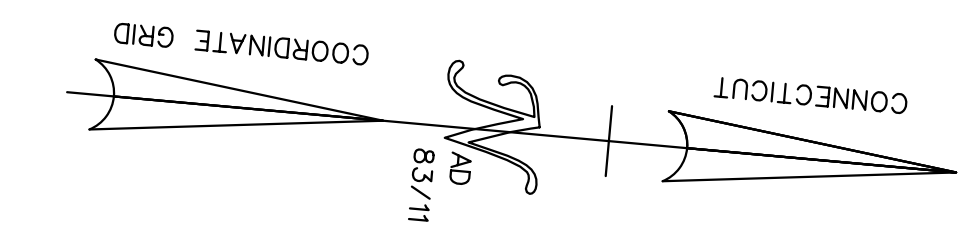
TEMPORARY COFFERDAM TYPICAL SECTION

NOT TO SCALE

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 11, 2018**

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	CHECKED BY: JJK				REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	WILLINGTON	160-147
Plotted Date: 5/11/2018	SCALE AS NOTED	Filename: ...SB-160-147_P-05_Water Handling and Construction Sequence - 2.dgn			WATER HANDLING AND CONSTRUCTION SEQUENCE - 2		PMT-05
REV. DATE REVISION DESCRIPTION SHEET NO.							



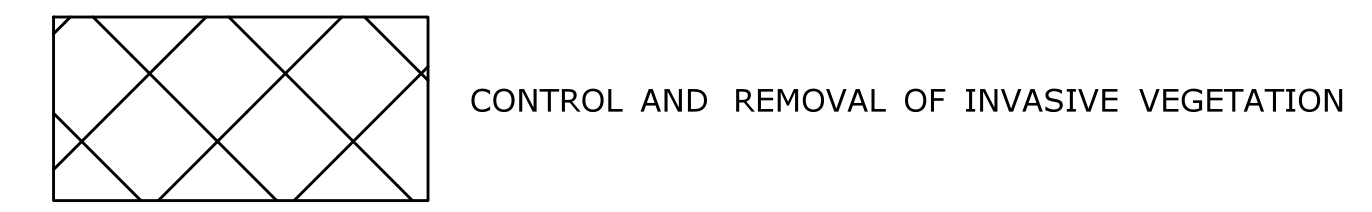
PERMIT PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	WETLAND INDICATOR
A.r.	<i>Acer rubrum</i>	Red Maple	1 3/4" - 2" Cal. B.B.	4	Field Locate	FAC
Al.r.	<i>Alnus rugosa</i>	Speckled Alder	18"-24" Ht. B.B.	14	Field Locate	FACW
Am.c.	<i>Amelanchier canadensis</i>	Shadblow Serviceberry	4'-5' Ht. B.B.	22	Field Locate	FAC
C.s.	<i>Cornus sericea</i>	Redosier Dogwood	24"-36" Ht. Cont.	22	Field Locate	FACW
H.v.	<i>Hamamelis virginiana</i>	Witch Hazel	24"-36" Ht. B.B.	16	Field Locate	FACU
Q.p.	<i>Quercus palustris</i>	Pin Oak	1 3/4"-2" B.B.	3	Field Locate	FACU
V.d.	<i>Viburnum dentatum</i>	Arrowwood Viburnum	18"-24" Ht. B.B.	22	Field Locate	FAC
Turf Establishment - Lawn						
Control and Removal of Invasive Vegetation						
Conservation Seeding for Slopes						
Wood Chip Mulch						

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. WOOD CHIP MULCH SHALL NOT BE PLACED IN THE WETLAND AREA.
3. 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 SPECIFIED.
4. ALL PLANTS SHALL BE STRAIGHT SPECIES. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.
5. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE COVERED WITH WOOD CHIP MULCH OR CONSERVATION SEED MIX FOR SLOPES UNLESS OTHERWISE NOTED.
6. THE EXACT QUANTITIES AND LIMITS FOR CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE FIELD DETERMINED.

KEY



ENVIRONMENTAL PERMIT PLANS

PLAN DATE: APRIL 25, 2018

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	CHECKED BY: MC		OFFICE OF ENGINEERING	REHABILITATION OF BRIDGE NO. 02259 ROUTE 32 OVER SOUTH BRANCH ROARING BROOK	WILLINGTON	160-147	
Plotted Date: 5/16/2018	SCALE IN FEET 0 20 40 SCALE 1"=20'	FILENAME: ...VHW_MSH_0160-0147_LDS-02.dgn	APPROVED BY:		DRAWING TITLE:	DRAWING NO.:	
					PERMIT PLANTING PLAN	PMT-07	
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	SHEET NO.			

Attachment C: Site Photographs

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



Bridge No. 02559 Outlet



Bridge No. 02559 Inlet



Southern Outlet Wingwall



Northern Outlet Wingwall



Northern Inlet Wingwall



Southern Inlet Wingwall



Area Overview Looking Northbound



Area Overview Looking Southbound

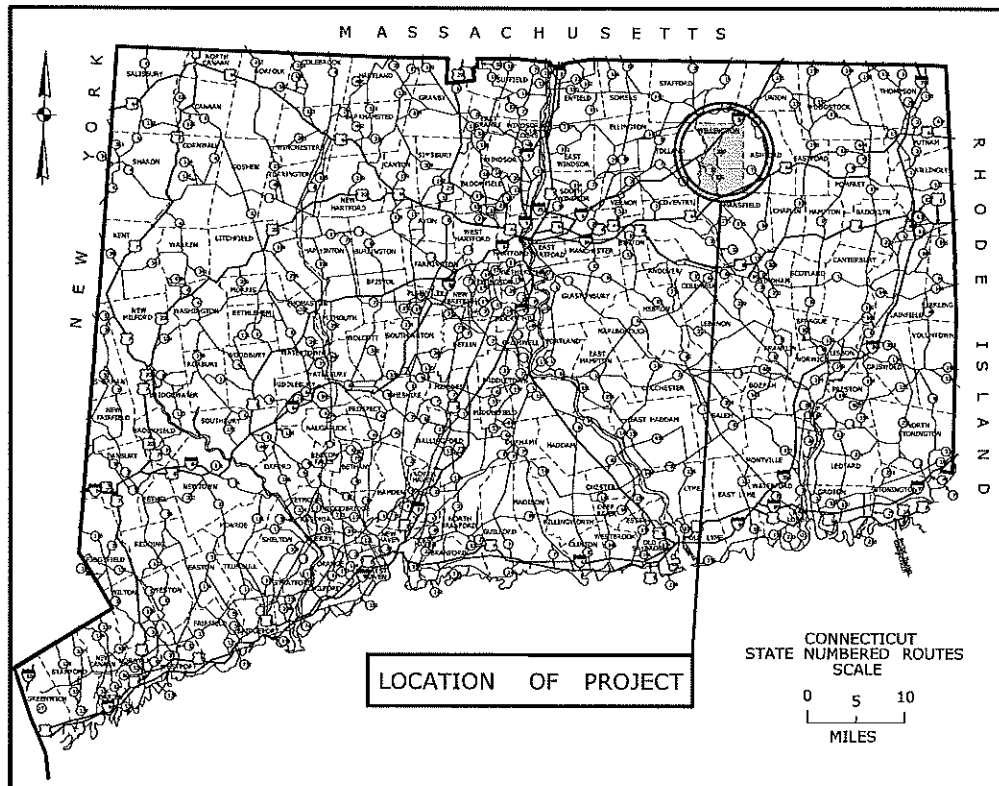


Deteriorating Bridge No. 02559 Superstructure

Attachment D: DEEP Fisheries and NDDB Coordination

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



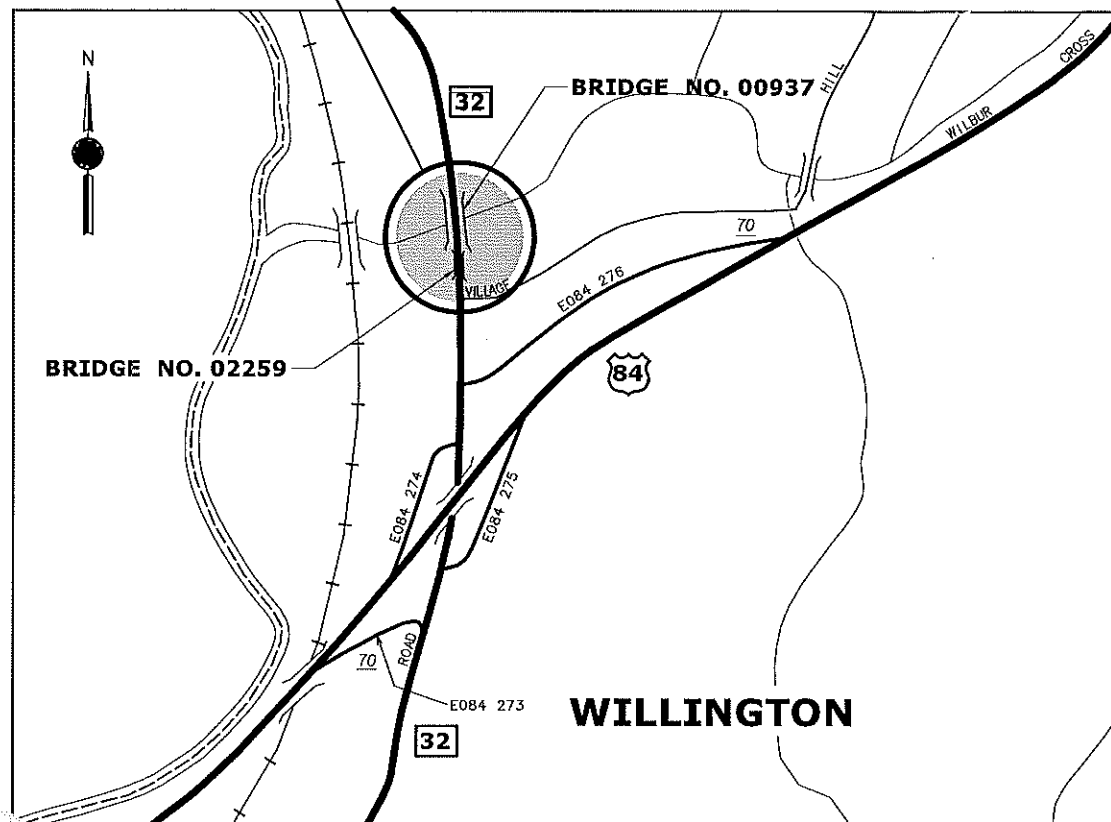
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ENVIRONMENTAL PERMIT PLANS
STATE PROJECT NO. 160-147
REHABILITATION OF BRIDGE NO. 02259 CARRYING
ROUTE 32 OVER S. BRANCH ROARING BROOK
TOWN OF WILLINGTON

PROJECT LOCATION

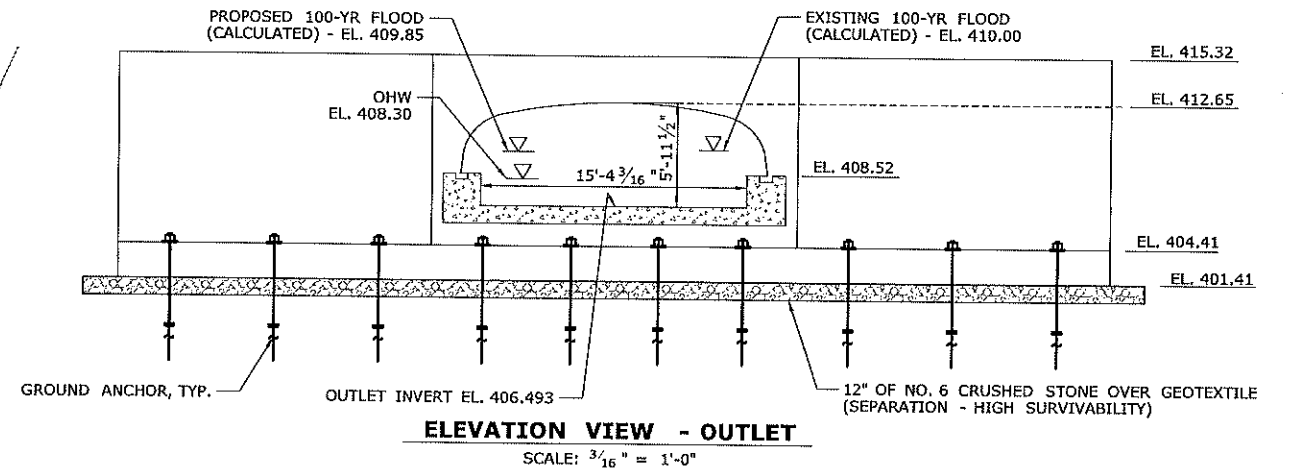
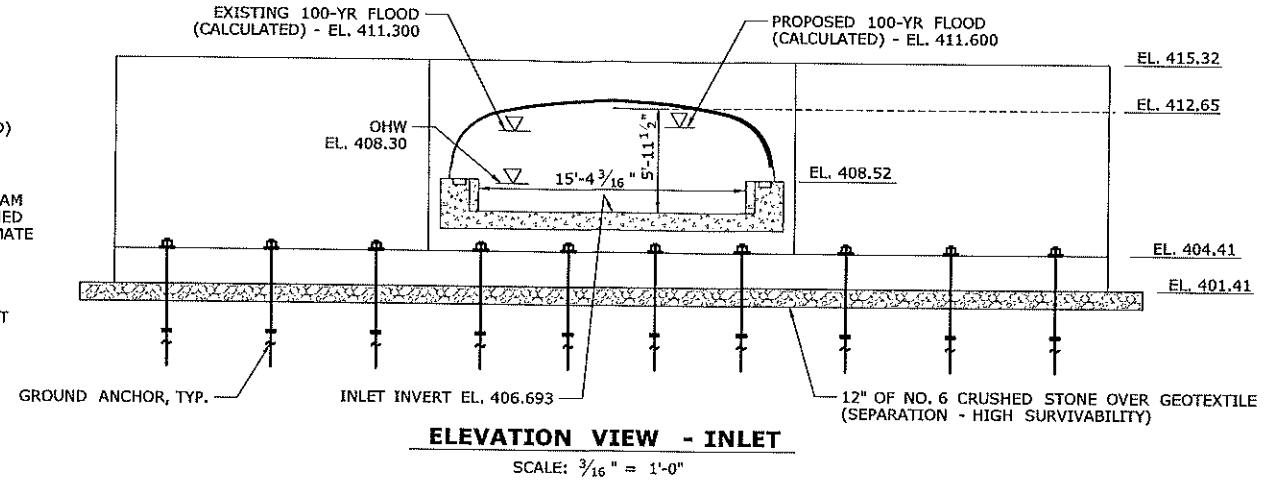
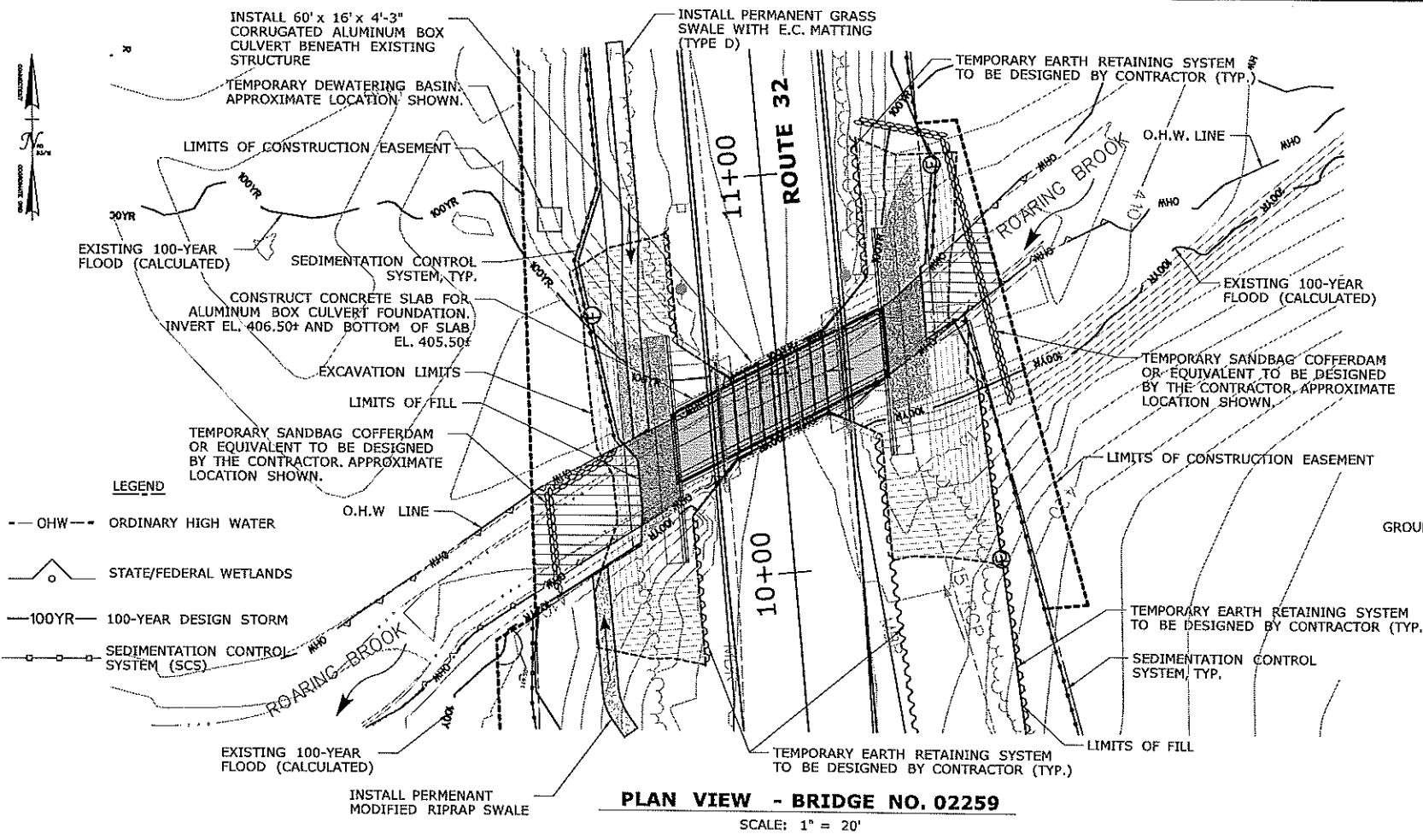


Brian D. Murphy
 Digitally signed by Brian D. Murphy
 Date: 2018.05.22 10:19:40 -04'00'

INDEX OF DRAWINGS	
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PMT-06	CONSTRUCTION SEQUENCE - 3
PMT-07	PERMIT PLANTING PLAN

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: APRIL 12, 2018

DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
CHECKED BY: JJK		APPROVED BY:	DRAWING NO. PMT-01	DRAWING TITLE: PERMIT TITLE SHEET	SHEET NO.
SCALE AS NOTED	Plotted Date: 4/18/2018	Filename: ...\\SB-160-147_P-01_Attachment_B_Title_Sheet.dgn			
REV. DATE	REVISION DESCRIPTION	SHEET NO.			



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PERMANENT (S.F.)	0 (0.00 ACRES)
TOTAL (S.F.)	0 (0.00 ACRES)

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TEMPORARY (S.F.)	1000 (0.023 ACRES)
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 18 FT > 16 FT (PROPOSED CULVERT SPAN)

Digitally signed
 by Brian D. Murphy
 Date: 2018.05.22
 10:22:04 -04'00'

ENVIRONMENTAL PERMIT PLANS
 PLAN DATE: MAY 10, 2018

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plated Date: 5/15/2018	DESIGNER/DRAFTER: ZMK	CHECKED BY: JJK	SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING	APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
											DRAWING NO. PMT-03	SHEET NO.	
												DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN	

Lisowitch, Ostap

From: Salter, Michael J
Sent: Monday, May 22, 2017 9:56 AM
To: Lisowitch, Ostap
Cc: Davis, Andrew H; Roise, Michelle A.; DOT-EPC; Blasi, Kevin; Basha, Sarwat A; Song, Won S.
Subject: FW: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Follow Up Flag: Follow up
Flag Status: Flagged

Ozzy,

Below is concurrence from DEEP Fisheries on the new structure type and removal of natural streambed material. Once we have more developed plans we will need to get them signed by DEEP Fisheries. Please let me know if you have any questions.

Thank you,
Mike

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov

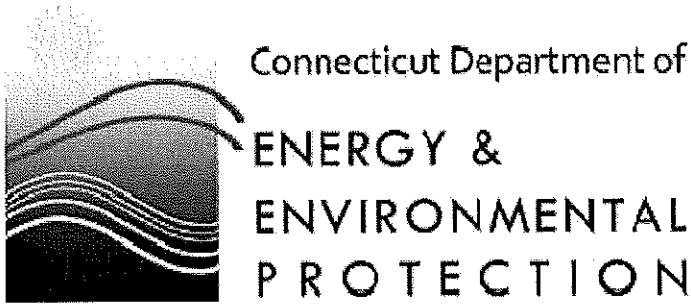
From: Murphy, Brian
Sent: Monday, May 22, 2017 9:32 AM
To: Salter, Michael J
Cc: Davis, Andrew H; DOT-EPC; Roise, Michelle A.
Subject: RE: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Hi Mike,

I'm in agreement with your assessment at this location, fish passage and habitat protection are not warranted. I can sign off on the redesigned plans once they come around for review.
Thanks.

Brian D. Murphy, Senior Fisheries Habitat Biologist
Fisheries Division
Habitat Conservation and Enhancement Program
Connecticut Department of Energy and Environmental Protection
Eastern District Headquarters

209 Hebron Road
Marlborough, CT 06447
P: 860.295-9523 | F: 860.295.8175 | brian.murphy@ct.gov



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Ensuring a clean, affordable, reliable, and sustainable energy supply.*

From: Salter, Michael J
Sent: Friday, May 19, 2017 1:45 PM
To: Murphy, Brian
Cc: Davis, Andrew H; DOT-EPC; Roise, Michelle A.
Subject: FW: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Brian,

The attached zip file contains the initial fisheries review package for DOT Project No. 160-147. There has been a change in the design of the project due to constructability concerns about undermining the existing footings during construction in order to install the aluminum base plate. The new proposed structure will replace the aluminum base plate with a concrete slab. This subject bridge is not a typical stream crossing. This crossing conveys stream flow only when the Roaring Brook flow, which is mainly conveyed by a bridge located to the north, is high enough to cause the diversion onto an upstream overbank area. This crossing is normally dry and occasionally may have standing water, possibly from the runoff associated with its drainage area of 13.8 acres. The ground profile at the crossing is such that it forms a low point or sag under the bridge. Thus, the storm water runoff from its drainage area will gather under the bridge and pond until it evaporates or infiltrates into the ground. The streamflow from the Roaring Brook can also get there, possibly once a year or so in our assessment. Nevertheless, it will not likely be a condition conducive to fish passage. DOT Staff didn't see a defined and continuous channel downstream of the bridge, though there may possibly be disconnected shallow swale sections according to LiDAR generated contours. Thus, the flow reaching and passing through the bridge will likely spread thin (shallow flow depth) over the floodplain on the downstream side where the path is typically covered with heavy vegetation, hindering and thus minimizing the fish passage potential. Only in high magnitude storm events when the flood significantly inundates the floodplains on both sides of Rte 32, it may allow fish passage. However, during such events, the flow depth through the crossing will be relatively greater compared to the upstream and downstream sides rendering the bottom material type irrelevant. Considering these conditions we are not proposing to include a natural bottom within the structure. Utilizing the concrete slab will result in less excavation, will not undermine the footings, will provide for a larger hydraulic opening, will structurally support the aluminum culvert, and we will be able to maintain traffic throughout construction. I have attached and updated elevation view and site photos. Please let me know if you have any questions or need any additional information.

Thank you,
Mike

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov

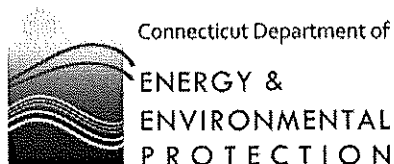
From: Salter, Michael J
Sent: Monday, April 03, 2017 9:05 AM
To: Gephard, Steve
Cc: Davis, Andrew H; Samorajczyk, Christopher W; Murphy, Brian; DOT-EPC; Roise, Michelle A.
Subject: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington

Steve,

Attached for review are the Fisheries Transmittal Form, location map, project description, site photos and preliminary plans for DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington. Please contact Chris Samorajczyk if you have any questions or need any additional information.

Thank you,

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov



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April 11, 2017

Michael Salter
State Of Connecticut Department Of Transportation
2800 Berlin Tpke.
Newington, CT 06131-7546
michael.salter@ct.gov

Project: DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington
NDDDB Determination No.: 201703031

Dear Michael Salter,

I have reviewed Natural Diversity Database (NDDDB) maps and files regarding the area of work provided for the proposed rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington, Connecticut. I do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDDB. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits. This determination is good for two years. Please re-submit a new NDDDB Request for Review if the scope of work changes or if work has not begun on this project by April 11, 2019.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey, cooperating units of DEEP, landowners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDDB should not be substitutes for on-site surveys necessary for a thorough environmental impact assessment. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the database as it becomes available.

Please contact me if you have further questions at (860) 424-3378, or karen.zyko@ct.gov . Thank you for consulting the Natural Diversity Database.

Sincerely,

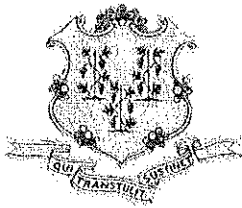
A handwritten signature in cursive script, appearing to read "Karen Zyko".

Karen Zyko
Environmental Analyst

Attachment E: SHPO Determination for Historic Properties

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



STATE OF CONNECTICUT

DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546



Determination of Exemption for Historic Properties

Author: Mark McMillan **Date:** May 26, 2017

Project: State No.: 160-147
F.A.P. No.: TBD
Project Title: Replacement of Bridge #02259
Route 32 over S. Branch of Roaring Brook
Town: Willington

Category of Exemption: Appendix B "Screened Undertakings..."

Description of Activity

Using federal and state funds, the Connecticut Department of Transportation (CTDOT) proposes to replace Bridge #02259, which carries Route 32 over the south branch of Roaring Brook in Willington. Recent inspections by CTDOT's Bridge Safety and Evaluation unit have determined that structure is in Serious condition due to the deterioration of its superstructure. Because the subject bridge has an overall sufficiency rating of 22%, it is recommended for full replacement.

The proposed replacement structure is an aluminum box culvert, though the structure type and overall size is still being developed pending hydraulic and drainage analysis. It is anticipated that the work can be completed with only minor construction easements from adjacent properties. Construction is scheduled to begin in 2018 and be completed within one season. Temporary one-way alternating traffic patterns will be utilized to allow the road to remain open throughout construction.

Technical Review of Project

Bridge #02259 consists of a single span multi-beam steel and concrete superstructure supported on masonry abutments (Image 1). Spanning between each of the lower flanges of the beams are arches of corrugated metal that support the bridge's concrete slab deck (Image 2). The bridge substructure is composed of masonry abutments and concrete wing walls. Atop the deck is a single rail beam and post parapet. This feature is largely obscured by modern W-profile guiderails.

The bridge was constructed in 1914 and there are no records of additional work or alterations being performed. While the steel post parapets appear to be a later addition to the bridge, research by CTDOT staff did not discover the date of their installation or the design of the element that they replaced. The subject bridge is categorized as Not Eligible for the National Register of Historic Places in CTDOT's statewide bridge inventory. Following research and a field assessment of the project site, CTDOT's cultural resource staff concur with this.

Bridge #02259 is situated in a rural section of Willington approximately 1,000 feet north of I-84 and 1,000 feet east of the Willimantic River. The New London, Willimantic, and Palmer (NLW&P) railroad line runs roughly parallel to Route 32 between the roadway and east side of the river. The Nye-Holman State Forest abuts the east side of Route 32.

The Area of Potential Effect (APE) has a rectangular footprint that is approximately 700 feet long and 400 feet wide. The APE has Bridge #02259 at its center and follows the alignment of Route 32. Beyond the existing road right of way, there are four parcels within the APE, none of which is privately owned or developed (Image 4).

Nye-Holman State Forest (Block 13, Lot 0A)

Bordering the eastern side of the APE is the Nye-Holman State Forest. This 19.8 acre parcel is owned by the State of Connecticut. It had previously been farmland owned by the Nye family, who donated it to the state in 1931. In the 1930s the Civilian Conservation Corps planted evergreens on the former farm fields to create a demonstration forest.

Block 13, Lot 00 (River Road)

Bordered by Village Hill Road, River Road and I-84 is a 5-acre parcel of vacant land that is owned by the State of Connecticut. It is part of the Nye-Holman State Forest. It is moderately wooded but not considered forest land.

River Road Athletic Complex (511 River Road)

River Road Athletic Complex is an 8.11 acre sports field owned by the Town of Willington. It is bordered by the south branch of Roaring Brook to the north; Route 32 to the east; the I-84 right of way to the south and the NLW&P railroad line to the west. The parcel features a baseball diamond, paved basketball court, tennis court, and an open soccer or football field. Surrounding the parcel is a gravel running path. There is a gravel parking lot at the south end of the parcel. On the site are three sheds and a covered gazebo with picnic tables.

There is the potential that a portion of the parking lot may be used during construction for a job trailer or equipment staging. The park will remain open and accessible to the public.

Block 6, Lot 0B (River Road)

Abutting the west side of the subject bridge is a 4.99 acre parcel that is owned by the Town of Willington. The parcel is bordered by Route 32 and the NLW&P railroad line. It is moderately wooded but not considered forest land and has no structures built within it.

There are two basic types of soils within the project's area of potential effect. To the west of Route 32 the sediments are classified as Gloucester Gravelly Sandy Loam. To the east of Route 32 are Ridgebury, Leicester, and Whitman Soils and Charlton-Chatfield Complex soils. The soils on the east are described as "very rocky" or extremely stony". There are two known archaeological sites near the APE.

Site #160-14 is the abutments of a former bridge that spanned the Willimantic River. Known as "Nye's Bridge", this structure was built in 1727 and connected the towns of Tolland and Willington across the Willimantic River. The bridge was destroyed in the 1938 flood and the road discontinued. Today, masonry abutments remain (Image 5). This site is beyond the APE of Project #160-147 and will not be impacted by the proposed work.

Site #160-15 is listed on the National Register of Historic Places as an archaeological district.¹ The address/location of archaeological districts are restricted in order to protect the site. Staff from CTDOT's Office of Environmental Planning (OEP) have reviewed the Eldredge Mills' NRHP Inventory Form and verified that it is located outside this project's APE. They affirmed that there is over ½ mile distance and intervening properties and landscape features that would prevent impacts to this NRHP-listed site.

Soils in proximity to the bridge have been previously disturbed by road and bridge construction. The APE extends just outside the bridge and road limits. Given the previous known disturbances created by the installation of utility poles along the road and the introduction of fill soils to elevate the roadbed, it is highly unlikely intact, eligible archaeological resources are present within the project area.

Staff from OEP's cultural resources unit has conducted background research on the subject bridge and the properties within the APE. The Willington property records, National Register of Historic Places, and files of the State Archaeologist were reviewed, as were the project's design drawings. Staff from the OEP conducted a field assessment of the subject bridge and the APE. They noted that the APE consists largely of properties that have been undeveloped beyond their past farming use and later forestation. They noted that Route 32 had been built on fill soils that raise the roadbed approximately 10-12 feet above the natural topography.

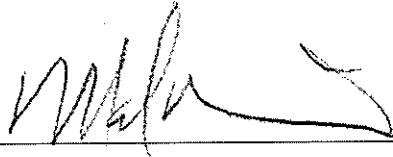
Based on the information gathered, the project poses minimal potential to impact historic properties. However, any use of the State Forest land and/or public park would present a Section 4(f) issue under the National Transportation Act. For this reason, we recommend avoidance or minimization of use of these properties. Additional coordination regarding Section 4(f) may be required.

¹ National Park Service, *Eldredge Mills Archaeological District (NPS #00000938)*, listed on October 20, 2000.

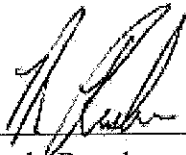
Determination

As proposed, this project has minimal potential to cause effects to properties eligible for the National Register. The bridge and its area of potential effect are not located within the boundaries of an eligible or listed historic district, nor are there any known cultural resources in the vicinity of the project. Because the undertaking will impact a bridge that is not eligible for the National Register of Historic Places, it can be classified as "Bridge/Culvert Related Projects" of Appendix B *Screened Undertakings Not Requiring Connecticut CTSHPO Review*. No further consultation with the SHPO is required.

A copy of this finding will be included in the quarterly report of Minor Transportation Projects that is submitted to the SHPO. It will also be sent to FHWA, who will consult with federally recognized tribes, for their review and comment.



Mark McMillan
National Register Specialist
Office of Environmental Planning
Connecticut Department of Transportation



Mandy Ranslow
Archaeologist
Office of Environmental Planning
Connecticut Department of Transportation

Attachment F: THPO Determination for Tribal Properties

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

Lisowitch, Ostap

From: McMillan, Mark J.
Sent: Friday, May 26, 2017 3:24 PM
To: Lisowitch, Ostap; Blasi, Kevin
Subject: Project #160-147 Willington
Attachments: EMAIL_RE Tribal Consultation Project #160-147 Willington (Bridge #02259 replacement, Route 32 over Roaring Brook).pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Ozzy,

FHWA has informed me that tribal consultation will not be required for Project #160-147 in Willington. This completes the Section 106 review for this undertaking. The determination that this is a Minor Transportation Project and exempt from Section 106 review stands.

I've attached a copy of FHWA's letter for your records.

Mark

Mark McMillan

National Register Specialist
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
☎ (860) 594-2135
☎ (860) 594-3028 - Fax
✉ mark.mcmillan@ct.gov

From: Hansen, Christopher (FHWA) <christopher.hansen@dot.gov>
Sent: Friday, May 26, 2017 3:02 PM
To: McMillan, Mark J.; Powell, Eloise (FHWA)
Subject: RE: Tribal Consultation: Project #160-147 Willington (Bridge #02259 replacement, Route 32 over Roaring Brook)

Hi Mark,

I have carefully reviewed CTDOT's proposed project #160-147 for bridge #02259 replacement. As per email and documentation sent May 26, 2017, I understand that the project primarily occurs in previously disturbed right-of-way with a small footprint. As per the THPO Section 106 Agreements with FHWA-CT Division, dated January 4, 2012 and May 14, 2013, this project would generally fall within the category of "resurfacing or repair of existing ramps or roadways within the previously disturbed right-of-way".

With this email, and taking all these items into consideration, the FHWA-CT Division has determined that tribal consultation would not be required for this project. Should any changes be made to the scope of work for this project that would involve additional ground disturbance beyond what is currently proposed, tribal consultation would have to be reconsidered.

Thanks

Chris Hansen

Environmental Protection Specialist
Federal Highway Administration
628-2 Hebron Avenue, Suite 303
Glastonbury, CT 06033
860.494.7577
christopher.hansen@dot.gov

From: McMillan, Mark J. [<mailto:Mark.McMillan@ct.gov>]
Sent: Friday, May 26, 2017 1:06 PM
To: Hansen, Christopher (FHWA) <christopher.hansen@dot.gov>; Powell, Eloise (FHWA) <Eloise.Powell@dot.gov>
Subject: Tribal Consultation: Project #160-147 Willington (Bridge #02259 replacement, Route 32 over Roaring Brook)


Chris, Eloise,


Attached is a Determination of Exemption letter for State Project #160-147 in Willington. This bridge is located just off I-84 and is sandwiched between a town-owned sports park and State Forest land. The undertaking has a small footprint (see attached construction plans). Given this, and the previous disturbances caused by the installation of utility poles and the introduction of fill on to create the roadway, I do not think that tribal consultation is warranted.


Mark

Mark McMillan

National Register Specialist
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131

 (860) 594-2135

 (860) 594-3028 - Fax

 mark.mcmillan@ct.gov

Attachment G: Environmental Reports

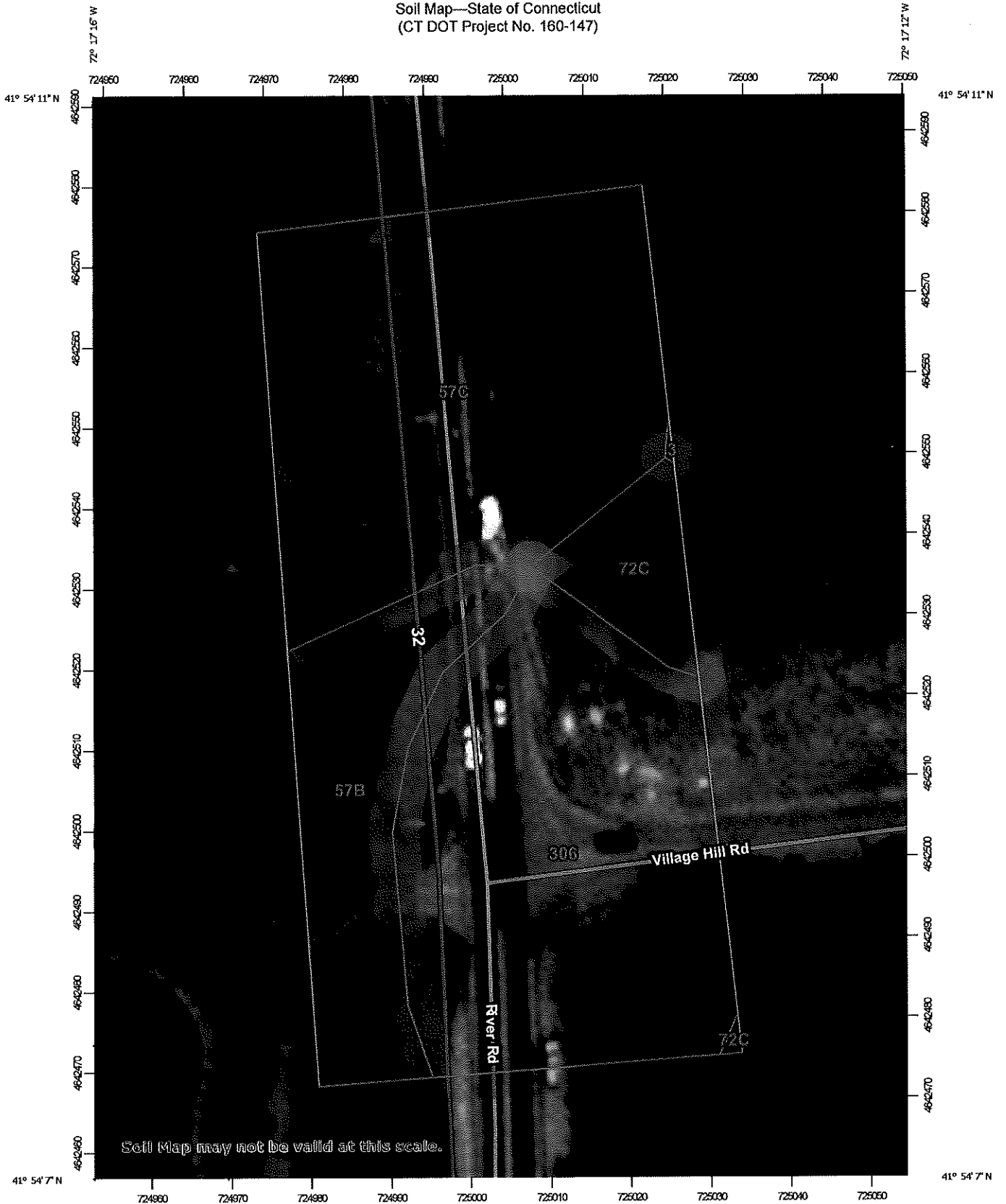
Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

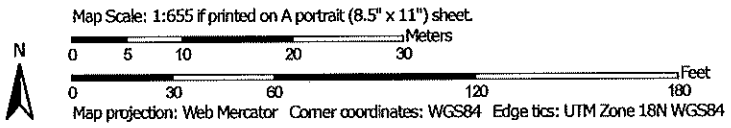
List of Attachments:

- USDA Soil Survey Map
- USDA Soils Report (Brief, Generated)
- Environmental Report – Functions and Values
- Army Corps Wetland Delineation Data Forms

Soil Map—State of Connecticut
(CT DOT Project No. 160-147)



Soil Map may not be valid at this scale.



MAP LEGEND

- Area of Interest (AOI)
- Soils
- Area of Interest (AOI)
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points
- Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features
- Water Features
- Streams and Canals
- Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads
- Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 16, Sep 15, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 14, 2011—Aug 27, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	0.0	0.1%
57B	Gloucester gravelly sandy loam, 3 to 8 percent slopes	0.2	16.2%
57C	Gloucester gravelly sandy loam, 8 to 15 percent slopes	0.5	40.2%
72C	Nipmuck-Brookfield complex, 3 to 15 percent slopes, very rocky	0.1	5.3%
306	Udorthents-Urban land complex	0.5	38.2%
Totals for Area of Interest		1.4	100.0%

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, provide information on the composition of map units and properties of their components.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

State of Connecticut

Map Unit: 3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony

Component: Ridgebury, extremely stony (40%)

The Ridgebury, extremely stony component makes up 40 percent of the map unit. Slopes are 0 to 8 percent. This component is on depressions on glaciated uplands. The parent material consists of coarse-loamy lodgment till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer, densic material, is 15 to 35 inches (depth from the mineral surface is 14 to 32 inches). The natural drainage class is poorly drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches (depth from the mineral surface is 2 inches) during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 95 percent. Below this thin organic horizon the organic matter content is about 10 percent. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Component: Leicester, extremely stony (35%)

The Leicester, extremely stony component makes up 35 percent of the map unit. Slopes are 0 to 8 percent. This component is on depressions on glaciated uplands. The parent material consists of coarse-loamy melt-out till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches (depth from the mineral surface is 2 inches) during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 95 percent. Below this thin organic horizon the organic matter content is about 10 percent. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Component: Whitman, extremely stony (17%)

The Whitman, extremely stony component makes up 17 percent of the map unit. Slopes are 0 to 3 percent. This component is on depressions on glaciated uplands. The parent material consists of coarse-loamy lodgment till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer, densic material, is 7 to 38 inches (depth from the mineral surface is 7 to 30 inches). The natural drainage class is very poorly drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, September, October, November, December. Organic matter content in the surface horizon is about 95 percent. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Component: Woodbridge, extremely stony (6%)

Generated brief soil descriptions are created for major soil components. The Woodbridge soil is a minor component.

Component: Swansea (2%)

Generated brief soil descriptions are created for major soil components. The Swansea soil is a minor component.

Map Unit: 57B—Gloucester gravelly sandy loam, 3 to 8 percent slopes

Component: Gloucester (80%)

The Gloucester component makes up 80 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on uplands. The parent material consists of sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 2s. This soil does not meet hydric criteria.

Component: Hinckley (5%)

Generated brief soil descriptions are created for major soil components. The Hinckley soil is a minor component.

Component: Canton (5%)

Generated brief soil descriptions are created for major soil components. The Canton soil is a minor component.

Component: Charlton (3%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Paxton (3%)

Generated brief soil descriptions are created for major soil components. The Paxton soil is a minor component.

Component: Leicester (2%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Sutton (2%)

Generated brief soil descriptions are created for major soil components. The Sutton soil is a minor component.

Map Unit: 57C—Gloucester gravelly sandy loam, 8 to 15 percent slopes

Component: Gloucester (80%)

The Gloucester component makes up 80 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on uplands. The parent material consists of sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Hinckley (5%)

Generated brief soil descriptions are created for major soil components. The Hinckley soil is a minor component.

Component: Canton (5%)

Generated brief soil descriptions are created for major soil components. The Canton soil is a minor component.

Component: Charlton (3%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Paxton (3%)

Generated brief soil descriptions are created for major soil components. The Paxton soil is a minor component.

Component: Sutton (2%)

Generated brief soil descriptions are created for major soil components. The Sutton soil is a minor component.

Component: Leicester (2%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Map Unit: 72C—Nipmuck-Brookfield complex, 3 to 15 percent slopes, very rocky

Component: Nipmuck (50%)

The Nipmuck component makes up 50 percent of the map unit. Slopes are 3 to 15 percent. This component is on bedrock controlled hills on uplands, bedrock controlled ridges on uplands. The parent material consists of loamy supraglacial meltout till derived from mica schist. Depth to a root restrictive layer, bedrock, lithic, is 20 to 39 inches (depth from the mineral surface is 20 to 35 inches). The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 67 percent. Below this thin organic horizon the organic matter content is about 7 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Brookfield (40%)

The Brookfield component makes up 40 percent of the map unit. Slopes are 3 to 15 percent. This component is on bedrock controlled hills on uplands, bedrock controlled ridges on uplands. The parent material consists of loamy supraglacial meltout till derived from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 70 percent. Below this thin organic horizon the organic matter content is about 9 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Brimfield (5%)

Generated brief soil descriptions are created for major soil components. The Brimfield soil is a minor component.

Component: Rock outcrop (5%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Map Unit: 306—Udorthents-Urban land complex

Component: Udorthents (50%)

The Udorthents component makes up 50 percent of the map unit. Slopes are 0 to 25 percent. This component is on urban land. The parent material consists of drift. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 59 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Urban land (35%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Unnamed, undisturbed soils (8%)

Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Udorthents, wet substratum (5%)

Generated brief soil descriptions are created for major soil components. The Udorthents soil is a minor component.

Component: Rock outcrop (2%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 16, Sep 15, 2017

**ENVIRONMENTAL REPORT - WETLAND FUNCTIONS AND VALUES
STATE PROJECT 0160-0147**

***Rehabilitation of Bridge 02559, CT Route 32 over South Branch Roaring Brook
Willington, Connecticut***

Introduction

This project involves the rehabilitation of Bridge No. 02559, which carries CT Route 32 (River Road) over South Branch Roaring Brook in the Town of Willington. Originally built in 1914, the existing bridge consists of a single-span, multi-beam superstructure supported by stone masonry abutments and wingwalls with concrete caps. The curb-to-curb deck width is 30 feet and carries one lane of traffic with narrow shoulders in each direction and the bridge has a skew angle of 42 degrees. The existing superstructure is in serious condition and exhibits moderate to heavy rust with section loss in the girders.

Existing Conditions

The project is located within the Willimantic River sub regional drainage basin (CTDEEP #3100). Flows for South Branch Roaring brook are generally in a west to east direction through the project site. The existing structure functions as an overflow channel for Roaring Brook which crosses Route 32 approximately 250 feet north of Bridge No. 02559.

According to the June 15, 1982 Community Panel Number 090159 0004 A, Willington, CT, Tolland County Flood Insurance Rate Map, the project is not located within a FEMA floodzone.

According to the Connecticut Department of Energy & Environmental Protection (CT DEEP) Aquifer Protection Area maps, no Aquifer Protection Areas have been designated within or adjacent to the project site and the project is not located within a public water supply watershed. The site does fall within a mapped Natural Diversity Database area (December 2017 mapping)

and an NDDDB Determination Letter was received on April 11, 2017 indicating the project is not anticipated to have any negative impacts to state-listed species. Soils within the project area are depicted on the attached NRCS Soils Map and described in the attached NRCS Web Soil Survey Report. The bridge site is located north of the intersection of Route 32 and Village Hill Road. River Road Athletic Complex is located to the Southwest of the project area and Nye Holm State Forest is

Looking upstream towards Bridge 02559



Looking downstream towards Bridge 02559

located East of Bridge No 02559. Nye Holm State Forest is managed by the Connecticut Department of Energy and Environmental Protection. There are existing overhead utilities located on the East side of the structure and an existing 15-inch RCP which outlets East of Route 32 in the vicinity of the bridge.

Areas of state and federal wetlands are limited to the area below ordinary high water (OHW). There are no additional wetlands within the project area. The upland vegetated communities adjacent to the project area are forested and there are areas adjacent which are manicured turf associated with the existing transportation right-of-way and the adjacent sports complex to the Southwest. The canopy of the upland upstream community consists of eastern hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*), white oak (*Quercus alba*), red maple (*Acer rubrum*), white ash (*Fraxinus Americana*), and American sycamore (*Platanus occidentalis*) dominated by the eastern hemlock, eastern white pine and white oak. The shrub layer is dominated by white ash and red maple (*Acer rubrum*) saplings. There were no species present in the herb and woody vine strata. The canopy of the upland downstream community is comprised of white oak, American Sycamore, white ash, red maple, eastern hemlock and American elm (*Ulmus americana*), dominated by white oak and American sycamore. The shrub community is dominated by eastern white pine, eastern hemlock and red maple saplings and Japanese barberry* (*Berberis thunbergii*). The herbaceous community is dominated by Christmas fern (*Polystichum acrostichoides*) and eastern white pine and there were no woody vines present.

South Branch Roaring Brook has a contributing watershed of approximately 22 sq. mi. Upstream, the watercourse is approximately 10' to 15' wide and consists of primarily a cobble substrate with sands and gravels. The upstream banks are well relatively steep, vegetated and stable. The banks downstream are vegetated, gently sloped and stable. The channel downstream is generally wider than upstream and is as much as 20' wide. The downstream channel is primarily sands and gravels with some cobbles intermixed.

Functions and Values Assessments follow the US Army Corps of Engineers Highway Methodology Workbook. The primary functions of the system are floodflow alteration, groundwater recharge/discharge. Additional functions of the watercourse (overflow channel) include sediment/toxicant retention and wildlife habitat. The wildlife habitat function is more readily provided by the forested areas upstream and downstream of the project site and the existing structure is providing a suitable crossing for wildlife utilizing the upstream and downstream habitat. There are no values found in any significant form within the watercourse or adjacent uplands.

Proposed Conditions

The proposed rehabilitation includes installation of an aluminum box culvert founded on a slotted concrete invert slab within the existing structure opening. The installation involves placement of a concrete invert slab and foundations below the existing bridge, installation of the aluminum box culvert and pumping of flowable-fill in between the voids of the existing structure and the proposed aluminum box culvert. Concrete wingwalls and footings with vertical ground anchors will be cast at both the inlet and outlet. Intermediate riprap scour protection will be installed upstream and downstream of the structure. The rehabilitation also consists of widening of the existing curb-to-curb roadway width from 30 to 34 feet. Construction easements will be

acquired to provide access to the upstream and downstream ends of the bridge for installation of the aluminum box culvert.

Regulated Activities

The overall project impacts from the proposed activities are relatively limited in duration and scale. Permanent impacts are a result of embankment grading, riprap placement within the watercourse and installation of the proposed concrete slab, footings and aluminum box culvert. Permanent watercourse (below OHW) impacts amount to 1,000 sf (0.023 ac). Temporary impacts to the watercourse are a result of temporary water handling and access required for installation of the proposed box culvert. Temporary watercourse impacts amount to 1,400 sf (0.032 ac). The areas of temporary watercourse impact will be restored to existing conditions and natural streambed material will be placed in these areas. Areas of state and federal wetlands are limited to the area below ordinary high water within the project area. As such, the project will not result in any permanent or temporary impacts to wetlands.

During construction, impacts will be mitigated through the use of Best Management Practices (BMPs) stipulated in the Department's *Standard Specifications for Roads, Bridges, and Incidental Construction, Form 817*, Section 1.10, Environmental Compliance, Best Management Practices, and the implementation of an erosion and sediment control plan consistent with the *2002 CT Guidelines for Soil Erosion and Sediment Control*. All water handling will be done in accordance with the 2004 Stormwater Quality Manual. Native plantings are proposed for the impacted wetland areas and adjacent buffer areas to restore the vegetative communities. The proposed culvert lining will not have an impact on fisheries habitat or resources of the brook as determined by DEEP Inland Fisheries Division. District inspection personnel, as well as staff from the Office of Environmental Planning, will oversee construction during the construction activity.

Invasive Species

Invasive species will be controlled during construction through the use of the Department's *Control and Removal of Invasive Vegetation* specification within the project limits. Seeding and native plantings are proposed for all disturbed areas within the project limits. The proposed control methods and the subsequent native plantings should provide for native plant community establishment within the project limits for this short duration project.

Summary

The functions provided by South bank Roaring Brook will not be significantly impacted by the proposed activities. Wildlife habitat may be temporarily impacted by construction, but will return upon completion of construction. Impacts are limited and are mitigated through the use of BMPs, erosion and sediment controls, project oversight, invasive species control and the implementation of a native planting and stabilization plan following construction.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT DOT Project No. 160-147 City/County: Willington/Tolland Sampling Date: 4/11/2018
 Applicant/Owner: CTDOT State: CT Sampling Point: Upland 1
 Investigator(s): Michael Salter Section, Township, Range: Willington
 Landform (hillslope, terrace, etc.): terrace Local Relief (concave, convex, none): none
 Slope (%): 3% Lat: 41.902795 Long: -72.287598 Datum: NAD 83
 Soil Map Unit Name: Gloucester gravelly sandy loam NWI Classification: _____

Are Climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks).
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Hydric Soil Present	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: (Explain alternative procedures here or in a separate report) Soils were sampled from the upland area. The existing structure conveys an overflow channel for Roaring Brook and is a dry channel the majority of the year. The wetland limits at the project site are limited to the area below ordinary high water.		

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		Secondary Indicators (minimum of two required) <table style="width:100%; border: none;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																															
Describe Recorded Data (stream gauge, monitoring well, aerial photographs, previous inspections), if available:																																
Remarks:																																

VEGETATION – Use scientific names of plants.

Sampling Point: Upland 1

Tree Stratum	(Plot Size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <i>Quercus alba</i>		20%	Yes	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>25%</u> (A/B)
2. <i>Platanus occidentalis</i>		15%	Yes	FACW	
3. <i>Fraxinus americana</i>		7%	No	FACU	
4. <i>Acer rubrum</i>		5%	No	FAC	
5. <i>Tsuga canadensis</i>		5%	No	FACU	
6. <i>Ulmus americana</i>		2%	No	FACW	
7.					
		<u>54%</u>	= Total Cover		Prevalence Test Worksheet: Total % Cover of _____ Multiply by _____ OBL Species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum	(Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Pinus strobus</i>		10%	Yes	FACU	
2. <i>Tsuga canadensis</i>		7%	Yes	FACU	
3. <i>Acer rubrum</i>		5%	Yes	FAC	
4. <i>Berberis thunbergii</i>		5%	Yes	FACU	
5.					
6.					
7.					
		<u>27%</u>	= Total Cover		
Herb Stratum	(Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <i>Polystichum acrostichoides</i>		5%	Yes	FACU	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Pinus strobus</i>		5%	Yes	FACU	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
		<u>10%</u>	= Total Cover		
Woody Vine Stratum	(Plot Size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:
1. None					Tree – Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vines – All woody vines greater than 3.28 ft in height.
2.					
3.					
4.					
		<u>0%</u>	= Total Cover		Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: (include photo numbers here or on a separate sheet.) 					

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	7.5YR 4/2	100%					Sandy	
5-12	7.5YR 4/3	100%					Loamy/Clayey	
12-18	7.5YR 4/4	100%					Loamy/Clayey	
18+	7.5YR 3/3	100%					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depression (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

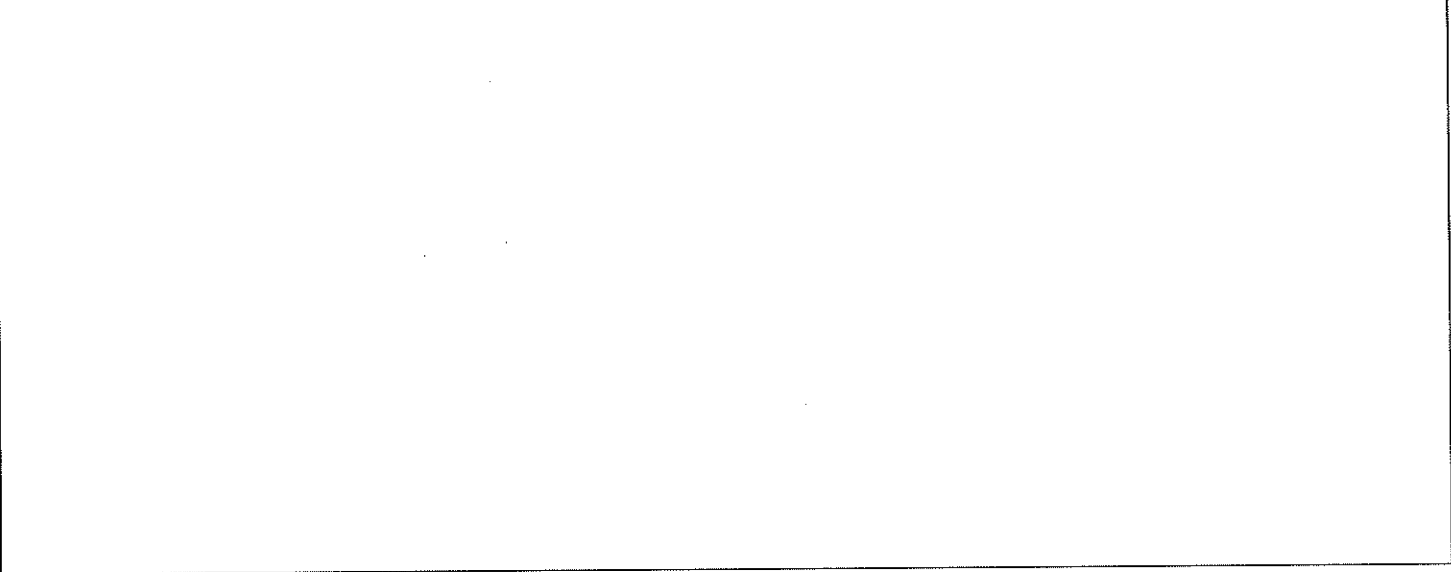
³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:



WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT DOT Project No. 160-147 City/County: Willington/Tolland Sampling Date: 4/11/2018
 Applicant/Owner: CTDOT State: CT Sampling Point: Upland 2
 Investigator(s): Michael Salter Section, Township, Range: Willington
 Landform (hillslope, terrace, etc.): terrace Local Relief (concave, convex, none): none
 Slope (%): 3% Lat: 41.902855 Long: -72.287371 Datum: NAD 83
 Soil Map Unit Name: Gloucester gravelly sandy loam NWI Classification: _____

Are Climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks).
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report) Soils were sampled from the upland area. The existing structure conveys an overflow channel for Roaring Brook and is a dry channel the majority of the year. The wetland limits at the project site are limited to the area below ordinary high water.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply) <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;"><input type="checkbox"/> Surface Water (A1)</td> <td style="width:50%; border: none;"><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> High Water Table (A2)</td> <td style="border: none;"><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Saturation (A3)</td> <td style="border: none;"><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Water Marks (B1)</td> <td style="border: none;"><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Sediment Deposits (B2)</td> <td style="border: none;"><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Drift Deposits (B3)</td> <td style="border: none;"><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td style="border: none;"><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Iron Deposits (B5)</td> <td style="border: none;"><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td style="border: none;"><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		Secondary Indicators (minimum of two required) <table style="width:100%; border: none;"> <tr><td style="border: none;"><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td style="border: none;"><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> FAC-Neutral Test (D5)																																
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																															
Describe Recorded Data (stream gauge, monitoring well, aerial photographs, previous inspections), if available:																																
Remarks:																																

VEGETATION – Use scientific names of plants.

Sampling Point: Upland 2

Tree Stratum (Plot Size: 30')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1.	<i>Tsuga canadensis</i>	20%	Yes	FACU	Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)	
2.	<i>Pinus strobus</i>	10%	Yes	FACU		
3.	<i>Quercus alba</i>	10%	Yes	FACU	Total Number of Dominant Species Across All Strata: 5 (B)	
4.	<i>Acer rubrum</i>	5%	No	FAC		
5.	<i>Fraxinus americana</i>	5%	No	FACU	Percent of Dominant Species That are OBL, FACW, or FAC: 20% (A/B)	
6.	<i>Platanus occidentalis</i>	5%	No	FACW		
7.						
		55%	= Total Cover		Prevalence Test Worksheet:	
Sapling/Shrub Stratum (Plot Size: 15')				Total % Cover of	Multiply by	
1.	<i>Fraxinus americana</i>	5%	Yes	FACU	OBL Species	x 1 =
2.	<i>Acer rubrum</i>	5%	Yes	FAC	FACW species	x 2 =
3.					FAC species	x 3 =
4.					FACU species	x 4 =
5.					UPL species	x 5 =
6.					Column Totals:	(A) (B)
7.					Prevalence Index = B/A =	
Herb Stratum (Plot Size: 5')		10%	= Total Cover		Hydrophytic Vegetation Indicators:	
1.	None				<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation	
2.					<input type="checkbox"/> Dominance Test is >50%	
3.					<input type="checkbox"/> Prevalence Index is ≤ 3.0 ¹	
4.					<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5.					<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
6.					¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7.					Definitions of Vegetation Strata:	
8.					Tree – Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height	
9.					Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1m) tall.	
10.					Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
11.					Woody Vines – All woody vines greater than 3.28 ft in height.	
12.					Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Woody Vine Stratum (Plot Size: 30')		0%	= Total Cover			
1.	None					
2.						
3.						
4.						

Remarks: (include photo numbers here or on a separate sheet.)

Attachment H: Interagency Coordination Meeting Notes

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

Interagency Coordination Meeting Notes

December 21, 2017

DOT Room 3130

Meeting Minutes:

The meeting notes for November were presented. No comments were made.

53-190 Glastonbury/Wethersfield Putnam Trail

12/21/2017 – The purpose of the proposed project is to provide a bike ped connection between Wethersfield and Glastonbury and repair the Putnam Bridge Walkway. The multi-use trail in Glastonbury was the subject of discussion in this meeting. The designer provided detailed information about Alternative 1 (cutting into the embankment and using a retaining wall along Route 3), Alternative 1A (moving the trail further from the roadway and using a fill slope to support the trail), and Alternative 4 (building the trail along the toe of slope).

Project Impacts:

	Alt 1	Alt 1A	Alt 4
Tree Clearing Area Acres	2.5	4.8	6.1
Erodible Surface Area Disturbance Acres	6.3	5.9	7.5
Wetland Impacts sq. ft.	3,417	17,603	29,888
Floodplain Impact C. Y. Fill	10,082	27,204	19,386
Floodway Impact C. Y. Fill	67	1,067	8,746

Permitting Requirements: Specific permit requirements will not be decided until an alternative is selected.

Agency Comments: DEEP Staff expressed concerns about floodplain impacts and how they will be compensated for. They also stated that Alternative 4 is likely unfeasible due to the amount of floodway impacts. DOT OEP staff asked if elements of Alternative 1 and 1A can be combined by using a retaining wall for some sections and a fill slope for others. DOT Engineering Staff said that they will investigate that possibility. Hydraulics and Drainage staff stated that net fill in the floodplain is “generally a no, no.”

Action Items: Provide more floodplain impact and cost analysis. Provide hydraulic analysis that indicates that proposed fill in the floodplain does not increase flood elevations. H&D and the design unit will investigate required floodplain compensation requirements.

102-358 Route 15/7 Interchange Improvement, Norwalk

12/21/2017 – This project was put on hold due to legal action in 2009. The purpose of this project is to improve system linkage, increase mobility for all modes of transportation, and improve safety in the vicinity of the interchanges. The intersections and interchanges will be redesigned using ramps with new alignments and additional traffic signals. A wetland delineation and report for this project was done in Fall 2016. To the north of the project site there are mitigation sites from previous DOT projects.

Project Impacts: Due to the removal of a dam on the Norwalk River the project site will have river herring on site which would require a Time of Year Restriction during construction. All alternatives explored will result in FEMA 100-year floodplain impacts.

**DEEP /USACE/ DOT
Interagency Coordination Meeting 12/21/2017
Project Meeting Notes**

Permitting Requirements: Permitting Requirements will be determined at the conclusion of the NEPA/CEPA study.

Agency Comments: Hydraulics and Drainage Staff stated that the FEMA map for this area is out of date and inaccurate, a map revision will be necessary. The consultant replied that the analysis is currently being performed. DEEP Fisheries Staff stated that they will be removing a dam that creates a back water upstream to Glover Ave. DOT OEP requested to be sent the plans for the dam removal. DEEP Fisheries Staff mentioned, if mitigation is necessary Davis Pond Dam would benefit from a new fishway.

Action Items: Continue the NEPA/CEPA study.

160-147 Bridge 02259, Route 32 over South Branch Roaring Brook, Willington

12/21/2017 – Bridge 02259 has a curb to curb width of 30 feet and a span length of 27 feet. The existing masonry abutments were built in 1914. That fascia beams have become badly deteriorated. The proposed rehabilitation for this structure consists of placing an aluminum box with a concrete footing between the existing abutments. The designers intend to keep the bridge open during construction. This branch of Roaring Brook experiences very little flow except during flood events, fisheries has stated that they are not concerned with this structure.

Project Impacts: The proposed project will result in 2940 sq. ft. of wetland impacts, 1559 sq. ft. of impacts below Ordinary High Water, 5216 sq. ft. of FEMA floodplain impacts, 0.2 acres of tree clearing, and 0.88 erodible surface disturbances.

Permitting Requirements: The federal permitting requirement for this project is an ACOE Pre-Construction Notice. State permitting requirements for this project are a PGP Addendum and a GP for Water Resource Construction activities. Flood Management will not be required for this project due to the size of the drainage area.

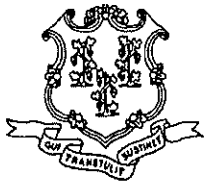
Agency Comments: DOT OEP staff asked if it is possible to obtain a Self-Verification for this project instead of a Pre-Construction Notice. ACOE staff replied that this project will require a Pre-Construction Notice due to this project being a bridge lining project, it does not meet the criteria for a Self-Verification. DEEP Regulatory staff stated that they have no concerns if DEEP fisheries is satisfied with the chosen structure and signs off on the permit plan set.

Action Items: Develop permits and submit them to OEP for review.

Attachment I: USFWS Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2939

May 25, 2018

U.S. Fish & Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301

Re: NLEB Final 4(d) Submittals

To whom it may concern:

Please find enclosed project submittals under the streamlined final 4(d) process for the Northern Long-Eared Bat.

Includes project(s):

0051-0269
0096-0200
0100-0174
0101-0116
0120-0093
0135-0307
0160-0147
0171-0432
0173-0460
0173-0461

Sincerely,

A handwritten signature in cursive script that reads "Amanda M. Saul".

Office of Environmental Planning
Water/Natural Resources Unit
DOT-NLEB@ct.gov

Enclosures

cc:

Susan Lee, USACE
file

[S:\Policy_Planning\EnvPlanning\WatNatResources\Programs-Projects\NLEB Database\Final 4\(d\) Submittals\NLEB_Final4\(d\)Submittal_coviet.docx](#)

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 ¹ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have you contacted the appropriate agency ² 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

Applicant³ (Name, Email, Phone No.):
 Connecticut Department of Transportation
 Amanda M. Saul, Office of Environmental Planning
DOT.NLEB@ct.gov, (860)594-2939

Project Name: CTDOT0160-0147

Project Location (include coordinates if known): Route 32 in the Town of Willington; 41.9028, -72.2874

Basic Project Description (provide narrative below or attach additional information):

Replacement of Bridge 02259, Route 32 over the South Branch of Roaring Brook in the Town of Willington.

¹ <http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf>

² See <http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html>

³ If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.



DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751

November 13, 2018

Regulatory Division
File Number: **NAE-2018-01363**
CT DEEP File Number: 201807893-PGP

Attn: Mr. Andrew Davis
Connecticut Department of Transportation
P.O. Box 317546
2800 Berlin Turnpike
Newington, CT 06131-7546

Dear Mr. Davis:

We have reviewed your application to place permanent and temporary fill in approximately 2,400 SF of areas below OHW of the South Branch Roaring Brook in association with the rehabilitation of Bridge No. 02259 on Route 32 over South Branch Roaring Brook in Willington, CT. The work is described below and shown on the enclosed plans titled "ENVIRONMENTAL PERMIT PLANS, STATE PROJECT NO. 160-147, REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK, TOWN OF WILLINGTON"; on seven (7) sheets (Drawings PMT-01 through PMT-07); sheet PMT-01 dated "April 12, 2018", sheet PMT-03 dated "May 10, 2018", sheets PMT-02, PMT-04, PMT-05, and PMT-06 dated "May 11, 2018", and sheet PMT-07 dated "April 25, 2018".

The rehabilitation of Bridge 02259 involves inserting an aluminum box culvert liner inside the existing structure, and includes a minor roadway widening in the vicinity of the Bridge 02259 to provide sufficient lane and shoulder widths on the bridge. The liner will be founded on a concrete slab and include cast in place concrete wing walls and footings. Additional impacts below OHW of the brook are associated with riprap within the stream bed at the inlet and outlet ends and adjacent embankment at the headwall/wing walls. Concrete flowable fill material will be pumped between the existing structure and the aluminum box liner to fill void space. Onsite water handling facilities will consist of temporary sandbag cofferdams or equivalent containment at the inlet and outlet ends. Temporarily impacted stream bed areas will be restored with natural stream bed materials. Invasive species will be removed within the project limits. Native plantings and seeding are proposed to restore the vegetative community affected by construction disturbances/access.

Based on the information you have provided, we have determined that the proposed activity, which includes a discharge of dredged or fill material into waters or wetlands, will have only minimal individual and cumulative impacts on waters of the United States, including wetlands. Therefore, this work is authorized under General Permit #19 of the enclosed Federal permit known as the Connecticut General Permits (GPs). This work must be performed in accordance with the terms and conditions of the GPs.

You must complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting date.

You are responsible for complying with all of the GPs' requirements. Please review the enclosed GPs carefully, in particular the general conditions, to be sure that you understand its requirements. You should ensure that whoever does the work also fully understands the requirements and that a copy of the GPs and this authorization letter are at the project site throughout the time the work is underway. If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

This authorization expires on August 19, 2021, unless the GPs are modified, suspended, or revoked before then. You must commence or have under contract to commence the work authorized herein by August 19, 2021 and complete the work by August 19, 2022. If not, you must contact this office to determine the need for further authorization *before* beginning or continuing the activity. We recommend that you contact us before this authorization expires to discuss a permit reissuance.

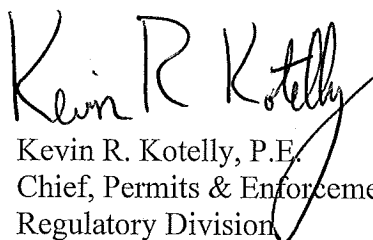
This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law. Performing work not specifically authorized by this determination or failing to comply with any special condition(s) provided above and all the terms and conditions of the GPs may subject you to the enforcement provisions of our regulations.

The Connecticut Department of Energy & Environmental Protection (DEEP) has issued a Water Quality Certification (WQC) for this project, as required under Section 401 of the Clean Water Act, based on their review of the project. You must comply with all condition requirements contained in the WQC approval (enclosed) issued for this project.

This authorization presumes that the work as described above and as shown on your plans noted above is in waters of the U.S.

Please contact Susan Lee of my staff at (978) 318-8494 if you have any questions.

Sincerely,


Kevin R. Kotelly, P.E.
Chief, Permits & Enforcement Branch
Regulatory Division

Enclosures

Copy Furnished (via email): Robert Gilmore/CT DEEP-LWRD; Nate Margason/US EPA

**INTERDEPARTMENTAL
MESSAGE**

STATE OF CONNECTICUT

To	NAME, TITLE Central Permit Processing Unit, 1 st Floor	DATE May 29, 2018
	AGENCY, ADDRESS Department of Energy and Environmental Protection, 79 Elm Street, Hartford, CT 06106	
From	NAME, TITLE Kimberly C. Lesay, Transportation Assistant Planning Director	TELEPHONE (860) 594-2931
	AGENCY, ADDRESS Department of Transportation, 2800 Berlin Turnpike, Newington, CT 06131-7546	

Subject: State Project No. 160-147

Rehabilitation of Bridge No. 02559, Route 32 over South Branch Roaring Brook
Town of Willington

Attached are an original and three hard copies of the Connecticut Addendum Army Corps of Engineers General Permit State of Connecticut (CT GP) 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

Zoltan M. Kanyo/zmk

cc: Kimberly Lesay – Andrew H. Davis - Christopher W. Samorajczyk – Michael J. Salter
Mary E. Baker – Kevin V. Blasi – Jonathan J. Kempf
Donald Ward, District 1



**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: State of Connecticut, Department of Transportation	
Mailing Address: 2800 Berlin Turnpike, P.O. Box 317546	
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	
Applicant (check one): <input type="checkbox"/> individual <input type="checkbox"/> *business entity <input type="checkbox"/> federal agency <input checked="" type="checkbox"/> state agency <input type="checkbox"/> municipality <input type="checkbox"/> tribal	
*If a business entity, list type (e.g., corporation, limited partnership, etc.):	
<input type="checkbox"/> 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 <i>billing purposes only</i> , if different:	
Company/Individual Name:	
Mailing Address:	
City/Town:	State: Zip Code:
Contact Person:	Phone: ext.

Part II: Project Information

Brief Description of Project: <i>(Example: Development of a 50 slip marina on Long Island Sound)</i>					
State Project No. 0160-0147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook					
Location (City/Town): Willington					
Other Project Related Permits (<i>not</i> included with this form):					
Permit Description	Issuing Authority	Submittal Date	Issuance Date	Denial Date	Permit #
CT General PCN	ACOE	Concurrent Submission			
IWRD General	DEEP	Post-ACOE Approval			

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
	AIR EMISSIONS				
	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
	WATER DISCHARGES				
	To Groundwater	\$1300.00			1 + 1
	To Sanitary Sewer (POTW)	\$1300.00			1 + 1
	To Surface Water (NPDES)	\$1300.00			1 + 1
	INLAND WATER RESOURCES				
	Dam Safety	none			1 + 2
	Flood Management Certification	none			1 + 1
	Inland Wetlands and Watercourses	none			1 + 5
	Inland 401 Water Quality Certification	none			
	FERC- Hydropower Projects- 401 Water Quality Certification	none			1 + 1
	Water Diversion	★			1 + 5
	OFFICE OF LONG ISLAND SOUND PROGRAMS				
	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
	WASTE MANAGEMENT				
	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	
		GENERAL PERMITS and AUTHORIZATIONS Subtotals Page 3 & 4 ➡	0	0	
		Enter subtotals from Part IV, pages 3 - 6 of this form Subtotals Page 5 ➡	1	0	
		Subtotals Page 6 ➡	0	0	
		TOTAL ➡	1	0	
		<input checked="" type="checkbox"/> Indicate whether municipal discount or state waiver applies. Less Applicable Discount ➡		100%	
		AMOUNT REMITTED ➡		\$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
AIR EMISSIONS				
<input type="checkbox"/> Limit Potential to Emit from Major Stationary Sources of Air Pollution	\$2760.00			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):				
WATER DISCHARGES				
<input type="checkbox"/> Boiler Blowdown Wastewater	Expired- wastewater discharge authorized under MISC GP			
<input type="checkbox"/> Categorical Industry User to a POTW Discharges > 10,000 gpd Discharges < 10,000 gpd	\$6250.00 \$3125.00			1 + 0
<input type="checkbox"/> Domestic Sewage	\$625.00			1 + 0
<input type="checkbox"/> Food Preparation Establishment Wastewater	No Registration			
<input type="checkbox"/> Food Processing Wastewater	\$500.00			1 + 0
<input type="checkbox"/> Groundwater Remediation Wastewater to a Sanitary Sewer	\$500.00			1 + 0
<input type="checkbox"/> Groundwater Remediation Wastewater to a Surface Water Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEEP	\$1250.00			
<input type="checkbox"/> Hydrostatic Pressure Testing Wastewater Registration Only	\$625.00			1 + 0
<input type="checkbox"/> Approval of Registration by DEEP (natural gas pipelines)	\$1250.00			
<input type="checkbox"/> Miscellaneous Discharges of Sewer Compatible Wastewater 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"/> Non-Contact Cooling and Heat Pump Water (Minor)	\$625.00			1 + 0
<input type="checkbox"/> Photographic Processing Wastewater (Minor)	Expired- wastewater discharge authorized under MISC GP			
<input type="checkbox"/> Point Source Discharges from Application of Pesticides	\$200.00			1 + 0
<input type="checkbox"/> Printing & Publishing Wastewater (Minor) Flow < 40 gpd	\$500.00 \$100.00			1 + 0
<input type="checkbox"/> Stormwater Associated with Commercial Activities	\$300.00			1 + 0
<input type="checkbox"/> Stormwater Associated with Industrial Activities <50 employees—see general permit for additional requirements >50 employees—see general permit for additional requirements	\$500.00 \$1000.00			1 + 0
<input type="checkbox"/> Stormwater & Dewatering Wastewaters-Construction Activities	★			1 + 0
<input type="checkbox"/> Stormwater from Small Municipal Separate Storm Sewer Systems (MS4)	\$250.00	0.0	0.0	1 + 0

★ 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)

WATER DISCHARGES (continued)				
<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"/> Tumbling or Cleaning of Parts Wastewater (Minor)	Expired- wastewater discharge authorized under MISC GP			
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"/> Water Treatment Wastewater	\$625.00			1 + 0
<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

★ 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
AQUIFER PROTECTION PROGRAM				
<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
INLAND WATER RESOURCES				
<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"/> Programmatic General Permit	★	1	0	1 + 3
<input type="checkbox"/> Water Resource Construction Activities	★			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):				
OFFICE OF LONG ISLAND SOUND PROGRAMS				
<input type="checkbox"/> 4/40 Docks	\$700.00			1 + 1
<input type="checkbox"/> Beach Grading	\$100.00			1 + 1
<input type="checkbox"/> Buoys or Markers	No Registration			
<input type="checkbox"/> Coastal Remedial Activities Required by Order	\$700.00			1 + 1
<input type="checkbox"/> Dock Reconstruction	\$300.00			1 + 1
<input type="checkbox"/> Harbor Moorings	No Registration			
<input type="checkbox"/> Maintenance of Catch Basins and Tide Gates	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"/> Non-harbor Moorings	\$100.00			1 + 1
<input type="checkbox"/> Osprey Platforms and Perch Poles	none			1 + 1
<input type="checkbox"/> Pump-out Facilities (no fee for Clean Vessel Act grant recipients)	\$100.00			1 + 1
<input type="checkbox"/> Programmatic General Permit	★			1 + 1
<input type="checkbox"/> Removal of Derelict Structures	\$100.00			1 + 1
<input type="checkbox"/> Residential Flood Hazard Mitigation	\$100.00			1 + 1
<input type="checkbox"/> Swim Floats	\$100.00			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	0

★ 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
WASTE MANAGEMENT				
<input type="checkbox"/> Addition of Grass Clippings at Registered Leaf Composting Facilities	\$500.00			1 + 0
<input type="checkbox"/> Beneficial Use Determination	★			1 + 0
Certain Recycling Facilities:				
<input type="checkbox"/> Drop-site Recycling Facility	\$200.00			1 + 0
<input type="checkbox"/> Limited Processing Recycling Facility	\$500.00			1 + 0
<input type="checkbox"/> Recyclables Transfer Facility	\$500.00			1 + 0
<input type="checkbox"/> Single Item Recycling Facility	\$500.00			1 + 0
<input type="checkbox"/> Collection and Storage of Post Consumer Paint	\$0			1 + 0
Contaminated Soil and/or Staging Management (Staging/Transfer)				
<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"/> Connecticut Solid Waste Demonstration Project	\$1000.00			1 + 0
<input type="checkbox"/> Disassembling Used Electronics	\$2000.00			1 + 0
<input type="checkbox"/> Leaf Composting Facility	none			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			★★
Special Waste Authorization				
<input type="checkbox"/> Landfill or RRF Disposal	\$660.00			1 + 0
<input type="checkbox"/> Asbestos Disposal	\$300.00			
<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):				
REMEDIATION				
<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	0.0

★ 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 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

**Connecticut Addendum
Army Corps of Engineers
General Permit State of Connecticut
(CT GP)**

Print or type unless otherwise noted.

Part I: Application Description

DEEP/CPPU USE ONLY	
App #:	_____
Doc #:	_____
Check #:	_____
Program: Programmatic General Permit	
NAE #:	_____
DEEP #:	_____
Determinations:	<input type="checkbox"/> Eligible Category 2 <input type="checkbox"/> Eligible Category 1 <input type="checkbox"/> Individual Permit

Town where site is located: Willington

Brief Description of Project: CTDOT Project No. 160-147; Rehabilitation of Bridge No. 02259 carrying Route 32 over South Branch Roaring Brook. The existing structure will be rehabilitated by inserting an aluminum box culvert liner through the existing bridge opening and pumping flowable fill between the voids. The culvert will have a concrete slab base with new concrete headwalls, wingwalls, and footings with vertical ground anchors.

Part II: Fee Information

There is no fee required at this time. The Department of Energy and Environmental Protection (DEEP) may require an application fee to be submitted with this addendum at a later date.

Part III: 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, registrant's name shall be stated exactly as it is registered with the Secretary of State. This information can be accessed at **CONCORD**.*
- 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.).*

1. Applicant Name: **Department of Transportation**
 Mailing Address: **2800 Berlin Turnpike**
 City/Town: **Newington** State: **CT** Zip Code: **06111**
 Business Phone: **860-594-2931** ext. Fax:
 Contact Person: **Kimberly C. Lesay** Title: **Transportation Assistant Planning Director**
 *E-Mail: **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 application. 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.

Part III: Applicant Information (continued)

- a) Registrant Type (check one): individual *business entity federal agency
 state agency municipality tribal

*If a business entity:

- 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 CONCORD

iii) Check here if you are **NOT** registered with the SOTS.

Check here if any co-applicants. If so, attach additional sheet(s) with the required information as requested above.

b) Applicant's interest in property at which the proposed activity is to be located:

- site owner option holder lessee developer
 easement holder operator other (specify): _____

Check here if there are co-applicants. If so, label and attach additional sheet(s) to this sheet with the required information.

2. List primary contact for departmental correspondence and inquiries, if different than the applicant.

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Fax:

Contact Person:

Title:

E-Mail:

*By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject application. 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.

3. Property Owner, if different than the applicant:

Name:

Mailing Address:

City/Town:

State:

Zip Code:

Business Phone:

ext.

Fax:

Contact Person:

Title:

E-Mail:

Part III: Applicant Information (continued)

4. List any engineer(s) or other consultant(s) employed or retained to assist in preparing the application 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: **860-594-3166**

ext.

Fax:

Contact Person: **Zoltan Kanyo**

Title: **Transportation Engineer 2**

E-Mail: **zoltan.kanyo@ct.gov**

Service Provided: **Permit Application Preparation, Design Engineering**

Check here if additional sheets are necessary, and label and attach them to this sheet.

Part IV: Site/Project Information

1. SITE NAME AND LOCATION

Is the name of the site the same as the name of the applicant? Yes No

Name of Site : **Bridge No. 02259**

Street Address or Description of Location: **Site is located at mile point 44.87 of Route 32 between the intersections of Route 32 and Village Hill Road and Route 32 and Schofield Road.**

City/Town: **Willington**

State: **CT**

Zip Code: **06279**

Latitude and longitude of the exact location of the proposed activity in degrees, minutes, and seconds or in decimal degrees: Latitude: **41° 54' 9.93"** Longitude: **72° 17' 14.78"**

Method of determination (check one):

GPS USGS Map Other (please specify): **Google Earth**

If a USGS Map was used, provide the quadrangle name:

2. **COASTAL BOUNDARY:** Is the activity which is the subject of this application located within the coastal boundary as delineated on DEEP approved coastal boundary maps? Yes No

If yes, and this application 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 (DEP-APP-004) with this completed application.

Information on the coastal boundary is available at the local town hall or on the "Coastal Boundary Map" available at DEEP Maps and Publications (860-424-3555).

3. **ENDANGERED OR THREATENED SPECIES:** Is the project site located within an area identified as a habitat for endangered, threatened or special concern species as identified on the "State and Federal Listed Species and Natural Communities Map"? Yes No Date of Map: **Dec, 2017**

If yes, complete and submit a Request for NDDB State Listed Species Review Form (DEP-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 applicant.**

The CT NDDB response **must** be submitted with this completed application.

For more information visit the DEEP website at www.ct.gov/dep/nddbrequests or call the NDDB at 860-424-3011.

Part IV: Project Information (continued)

4. AQUIFER PROTECTION AREAS: Is the site located within a town required to establish Aquifer Protection Areas, as defined in section 22a-354a through 354bb of the General Statutes (CGS)?

Yes No To view the applicable list of towns and maps visit the DEEP website at www.ct.gov/deep/aquiferprotection

If yes, is the site within an area identified on a Level A map? Yes No

If yes, is the site within an area identified on a Level B map? Yes No

If your site is on a Level A map, check the DEEP website, [Business and Industry Information](#) to determine if your activity is required to be registered under the Aquifer Protection Area Program.

If your site is on a Level B map, no action is required at this time, however you may be required to register under the Aquifer Protection Area Program in the future when the area is delineated as Level A.

5. 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 with this completed form.

6. Total area (in acres) within property boundaries: **0.42**

7. Project Category: (please check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Industrial Site Development | <input type="checkbox"/> Condo/Apartment Complex |
| <input type="checkbox"/> Commercial Site Development | <input type="checkbox"/> Stream Restoration/Enhancement |
| <input type="checkbox"/> Pond/Lake Dredging | <input type="checkbox"/> Multiple Lot Residential Development |
| <input type="checkbox"/> Fish/Wildlife Management (Government Agency) | <input type="checkbox"/> Public Water Supply |
| <input type="checkbox"/> Golf Course Development | <input type="checkbox"/> Mine/Quarry |
| <input type="checkbox"/> Individual Residential | <input checked="" type="checkbox"/> Other (Describe below): |

CTDOT Bridge Rehabilitation

Part V: Environmental Information

1. Wetland Impact

a. Direct Impact

(Fill includes permanent & temporary): **0 sf** **0.00 acres**

b. Secondary/Indirect Impact: **0 sf** **acres**

c. **Total Impact:** **0 sf** **0.00 acres**

2. Waters/Waterways/Watercourses Impact

a. Direct Impact

(Fill includes permanent & temporary): **136 lf** **2400 sf**

b. Secondary/Indirect Impact: **0 lf** **0 sf**

c. **Total Impact:** **136 lf** **2400 sf**

Part V: Environmental Information (continued)

3. Do the following special wetland types occur on site?				
Special Wetland	Yes	No	Total Area of Resource (SF)	Area of Resource Impacted (SF)
Vernal Pool	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Fen	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Bog	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Cedar Swamp	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Spruce Swamp	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Calcareous Seepage Swamp	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
4. Channel Relocation/Restoration/Stabilization				
Does the project include alterations to a perennial watercourse(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If Yes, indicate all design features included in your project from the list below:				
Design Features	Yes	No		
Avoidance of barriers to fish movement	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Formation of pools and riffles	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Provisions for areas of sheltered flow (e.g., boulders, low check dams)	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Preservation of stream bank vegetation and establishment of new vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Use of clean natural bed materials of a suitable size	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Indicate Design Flow for bank-full flow: 20 cfs				
Indicate Frequency Recurrence (year): 1.5 - YR				
Indicate Design Velocity for bank-full flow: 3 fps				
Indicate Frequency Recurrence (year): 1.5 - YR				
5. Floodplains	Yes	No		
Is there a FEMA mapped floodplain for floodway on the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Are any excavations or permanent fill/structures proposed within the floodplain?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Are any excavations or permanent fill/structures proposed within the floodway?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Are any temporary stockpiles of fill or materials proposed within the floodplain?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Are any increases in the 100 year water surface elevation proposed? If Yes, indicate maximum increase in feet: 0.24	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Are any flooding increases proposed that would extend off the subject property? If Yes, attach an explanation to this sheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
If applicable, include with this form, hydraulic calculations including tabulated summary of results that demonstrate no adverse impacts of any fill in a floodplain and which are in accordance with the guidance document entitled, "Hydraulic Analysis Guidance Document" (www.ct.gov/dep/lib/dep/Permits_and_Licenses/Land_Use_Permits/Inland_Water_Permits/iwrdrhydraulicguidance.pdf)				

Part VI: Hydraulic and Drainage Structures (You are required to complete a separate sheet for each structure)

Sheet ____ of ____

1. Identify the type of structure: (Check one below that applies)

- Culvert
 Detention/Retention Basin
 Infiltration Basin/Structure
 Drainage Outfall
 Drainage Swale
 Bridge
 Dam
 Dike
 Weir
 Outlet Control Structure
 Pipe/Conduit/Aqueduct
 Other:

2. How is the structure labeled on the site plans and in reports? **60' x 16' x 4'-3" Corrugated Aluminum Box Culvert**

3. Where is the structure located on the site plans? **Route 32 - STA. 10+45**

4. For bridge/culvert structures, what is the **openness ratio?** **0.41** meters
 (The openness ratio is the X-sectional area of structure opening/ length of the structure parallel to the stream.)
 ([www.nae.usace.army.mil/reg/Openness_Ratio_\(OR\)_Spreadsheet.pdf](http://www.nae.usace.army.mil/reg/Openness_Ratio_(OR)_Spreadsheet.pdf))

5. What is the size of the contributing watershed to the structure? **14,080** Acres **22** Square Miles

6. Is the structure located within a **FEMA flood zone?** No Yes If yes, indicate the type of zone: Floodway Flood Plain

7. Provide the following information as appropriate for the structure identified above.

Water Surface Elevation (feet) (Immediately upstream of structure)

		Storm Event Frequency												
		2-yr		10-yr		25-yr		50-yr		100-yr				
Existing	Proposed	Change (+/-)	Existing	Proposed	Change (+/-)	Existing	Proposed	Change (+/-)	Existing	Proposed	Change (+/-)			
408.35	408.79	0.44	409.62	410.00	0.38	410.33	410.61	0.28	410.79	411.04	0.25	411.29	411.53	0.24

Aerial Extent of Inundation (square feet) (Maximum)

		Storm Event Frequency												
		2-yr		10-yr		25-yr		50-yr		100-yr				
Existing	Proposed	Change (+/-)	Existing	Proposed	Change (+/-)	Existing	Proposed	Change (+/-)	Existing	Proposed	Change (+/-)			
128450	128439	-11	256971	258799	1828	311765	303345	-8420	321096	331334	10238	391492	391823	331

Duration of Inundation (hours)

Storm Event Frequency

Discharge Velocity (feet/second)

Storm Event Frequency

Flow Volume (cubic feet/second)

Storm Event Frequency

		Storm Event Frequency												
		2-yr		10-yr		25-yr		50-yr		100-yr				
Existing	Proposed	Change (+/-)	Existing	Proposed	Change (+/-)	Existing	Proposed	Change (+/-)	Existing	Proposed	Change (+/-)			
n/a	n/a	n/a	n/a	n/a	2.3	6.0	7.0	7.6	8.3	22	169	257	322	405

Part VII: Supporting Documents

Please check the documents submitted as verification that *all* applicable attachments have been submitted with this application form. When submitting any supporting documents, please label the documents as indicated in this part and be sure to include the applicant's name.

Environmental Documentation	Report	Show on Plans
	√ If Included with this application	
Description of the proposed activities and the purpose.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Evaluation of the functions and values of all wetlands and waters on-site or affected off-site.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Evaluation of direct and secondary impacts to the functions and values of wetlands and waters affected.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Evaluation of mitigation/restoration and or creation of wetlands to replace the functions and values of impacted wetlands/watercourses.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Design details for reconstruction/modification of existing stream crossings	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Biological field survey of the project area and any other information to identify the presence of endangered, threatened, or special concern species, including copies of any correspondence to and from the NDDB (including a completed CT NDDB Review Request Form, if applicable).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Culvert invert elevations for roadway crossings set at least 12 inches below the elevation of the natural stream bed for fish and aquatic passage?	<input type="checkbox"/>	<input type="checkbox"/>
Federal wetland delineation of the site shown on plans.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
State wetland delineation of the site shown on plans.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Are there amphibian breeding pool(s) present on the project site or adjacent to the project site? If yes, project development plans incorporate recommendations presented in <i>"Best Development Practices, Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, NY"</i>	<input type="checkbox"/>	<input type="checkbox"/>
Report documenting vegetation, soils, and hydrology of wetlands on site.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Incorporation of a permanently protected buffer zone adjacent to wetlands and waters.	<input type="checkbox"/>	<input type="checkbox"/>
Site plans drawn at a scale of 1":100' or larger showing the pre- and post- construction aerial extent of inundation of wetlands and waters for the 2-yr, 10-yr, 25-yr, 50-yr and 100-yr storm frequency events.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Part VI: Supporting Documents

Engineering Documentation	Report	Show on Plans
<i>All plans and calculations must be signed and sealed by a professional engineer (PE) licensed in the state of Connecticut</i>	√ If Included with this application	
Summary of all water handling proposed at the site, including plans and computations, as needed to show that temporary water handling will not cause erosion or flooding.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Erosion and Sediment control measures designed in accordance with the <i>2002 Connecticut Guidelines for Soil Erosion and Sediment Control</i> , including calculations as required for engineered measures. (www.ct.gov/dep/cwp/view.asp?a=2720&q=325660&depNav_GID1654)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Design details and calculations for each hydraulic and drainage structure demonstrating consistency with the standards contained within the Connecticut DOT Drainage Manual and 2004 Connecticut Storm Water Quality Manual.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FEMA floodway/floodplain boundaries within the project site plotted on the site plans and a copy of the FEMA map showing the site location.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hydrologic calculations including pre- and post- drainage area maps and a tabulated summary of results that demonstrate no adverse increase in runoff rates or velocities as a result of the proposed activity at appropriate downstream points.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Part VII: Application Certification

The applicant *and* the individual(s) responsible for actually preparing the application must sign this part. An application will be considered incomplete unless all required signatures are provided. This includes consultants, professional engineers, surveyors, soil scientists, etc. If the applicant is the preparer, please mark N/A in the spaces provided for the preparer. By their signature, they certify that, to the best of their knowledge and belief, the information contained in this application, including all attachments, is true, accurate and complete.

The certification of this application package shall be signed as follows: 1) For an individual(s) or sole proprietorship: by the individual(s) or proprietor, respectively; 2) For a corporation: by a principal executive officer of at least the level of vice president, or his agent; 3) For a limited liability company (LLC): by a manager, if management of the LLC is vested in a manager(s) in accordance with the company's "Articles of Organization", or by a member of the LLC if no authority is vested in a manager(s); 4) For a partnership: by a general partner; 5) For a municipal, state, or federal agency or department: by either a principal executive officer, a ranking elected official, or by other representatives of such registrant authorized by law.

"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 understand that a false statement in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

I certify that this application is on complete and accurate forms as prescribed by the commissioner without alteration of the text."



 Signature of Applicant

5-30-2018


 Date

Thomas J. Maziarz

 Name of Applicant (print or type)

Bureau Chief - Policy & Planning

 Title (if applicable)



 Signature of Preparer (if different than above)

5/16/18

 Date

Zoltan M. Kanyo

 Name of Preparer (print or type)

Transportation Engineer II

 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 application (i.e., professional engineers, surveyors, soil scientists, consultants, etc.)

Note: Please submit **three** copies of this completed Addendum Form, a completed Army Corps Application Form (ENG Form 4345), and **all** Supporting Documents (including full scale plans, 1" = 40') to:

CENTRAL PERMIT PROCESSING UNIT
 DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
 79 ELM STREET
 HARTFORD, CT 06106-5127

Please do **not** mail or directly deliver this completed application and supporting documents to the DEEP's Inland Water Resources Division.

**DEPARTMENT OF THE ARMY
GENERAL PERMIT
STATE OF CONNECTICUT**

**NOTICE TO APPLICANTS FOR CT GP CATEGORY 2 AUTHORIZATION
NEW ENGLAND DISTRICT ARMY CORPS OF ENGINEERS**

If you are filing a Federal Clean Water Act Section 404 application with the New England District Army Corps of Engineers for a CT GP Category 2 authorization for an activity located within the State of Connecticut, then you must also submit the required documents listed below directly to the Connecticut Department of Energy and Environmental Protection for Section 401 authorization (Water Quality Certification) at the following address:

CENTRAL PROCESSING UNIT
CONNECTICUT DEPARTMENT OF ENERGY AND
ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

The Central Processing Unit is located on the first floor and is open for deliveries Monday through Friday from 8:30 AM to 4:30 PM.

Applications submitted to the Connecticut Department of Energy and Environmental Protection are **not** to be mailed or delivered directly to the Department's Inland Water Resources Division.

Applications for PGP Category 2 authorization submitted to the Connecticut Department of Energy and Environmental Protection shall include **three (3) copies** *of each of the following:

- CT GP Addendum form (DEP-ACGP-APP-001),
- Army Corps of Engineers application form (ENG Form 4345),
- 8.5" x 11" drawings (plans),
- Large scale drawings (plans) (1" = 40'),
- Wetland functions and values assessment,
- Federal wetland delineation data sheets,
- Documentation of any proposed wetland mitigation,
- Any other supporting documentation provided to the Army Corps in support of the Army Corps of Engineers application, and
- Any application fee as may be required by the State of Connecticut, Department of Energy and Environmental Protection.

* Applicants may submit one paper copy with original signatures along with 2 copies in PDF format on 2 CDs or DVDs in lieu of 3 paper copies.

Attachment A: Executive Summary

Connecticut Addendum Army Corps of Engineers General Permit State of Connecticut (CT GP)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

Project Description
State Project No. 0160-0147
Rehabilitation of Bridge No. 02259
Route 32 over South Branch Roaring Brook
In the Town of Willington

Project Location: The proposed rehabilitation of Bridge 02259 is located on Route 32 (River Road) over South Branch Roaring Brook in the Town of Willington. The bridge is at mile point 44.87 of Route 32 between the intersections of Route 32 and Village Hill Road and Route 32 and Schofield Road.

Project Description: Bridge 02559 was constructed in 1914 to carry Route 32 over South Branch Roaring Brook. The single-span, multi-beam superstructure is supported by stone masonry abutments and wingwalls with concrete caps. The deck consists of two concrete slab sections on the outside of each fascia beam and 7 bays consisting of arch pan stay-in-place forms. The curb to curb deck width is 30 feet and carries one lane of traffic with narrow shoulders in each direction. The structure has a skew angle of 42 degrees and an overall length of 31 feet, with a maximum span of 27 feet.

The latest bridge inspection report dated July 19, 2016 states that the superstructure is in a serious condition (rating 3) and exhibits moderate to heavy rust with loss of section in girders. All remaining components of the bridge are in a satisfactory condition (rating 6) or better.

The proposed rehabilitation consists of installing an aluminum box culvert founded on a slotted concrete invert slab within the existing structure opening. The installation involves pumping flowable-fill in between the voids of the existing structure and the proposed aluminum box culvert. Concrete wingwalls and footings with vertical ground anchors will be cast at both the inlet and the outlet. The rehabilitation also includes widening the roadway curb to curb width to 34 feet, allowing for a 12 foot lane and a 5 foot shoulder in each direction.

Due to the ease of installation with the aluminum box culvert, the new structure can be constructed without having to close Route 32 and detour traffic. Traffic can be maintained with periods of one-way-alternating. South Branch Roaring Brook is an overflow channel to the main watercourse. The brook does not typically experience flowing water unless a significant storm event has occurred. The drainage area of this watershed to the structure is 22 square miles. Any areas disturbed temporarily for construction shall be restored in kind.

During construction, cofferdams to handle the water will be installed at the inlet and outlet to protect the excavation from excess water entering the construction site. In order to facilitate the construction and installation of the structure, temporary access roads will be built at both the inlet and the outlet. In addition, a temporary modified riprap swale and a temporary 15" RCP drainage pipe will be installed at the outlet.

This project has been presented in front of DEEP and the ACOE and concurrence with the structure type has been given. Coordination with DEEP Fisheries and NDDB have been

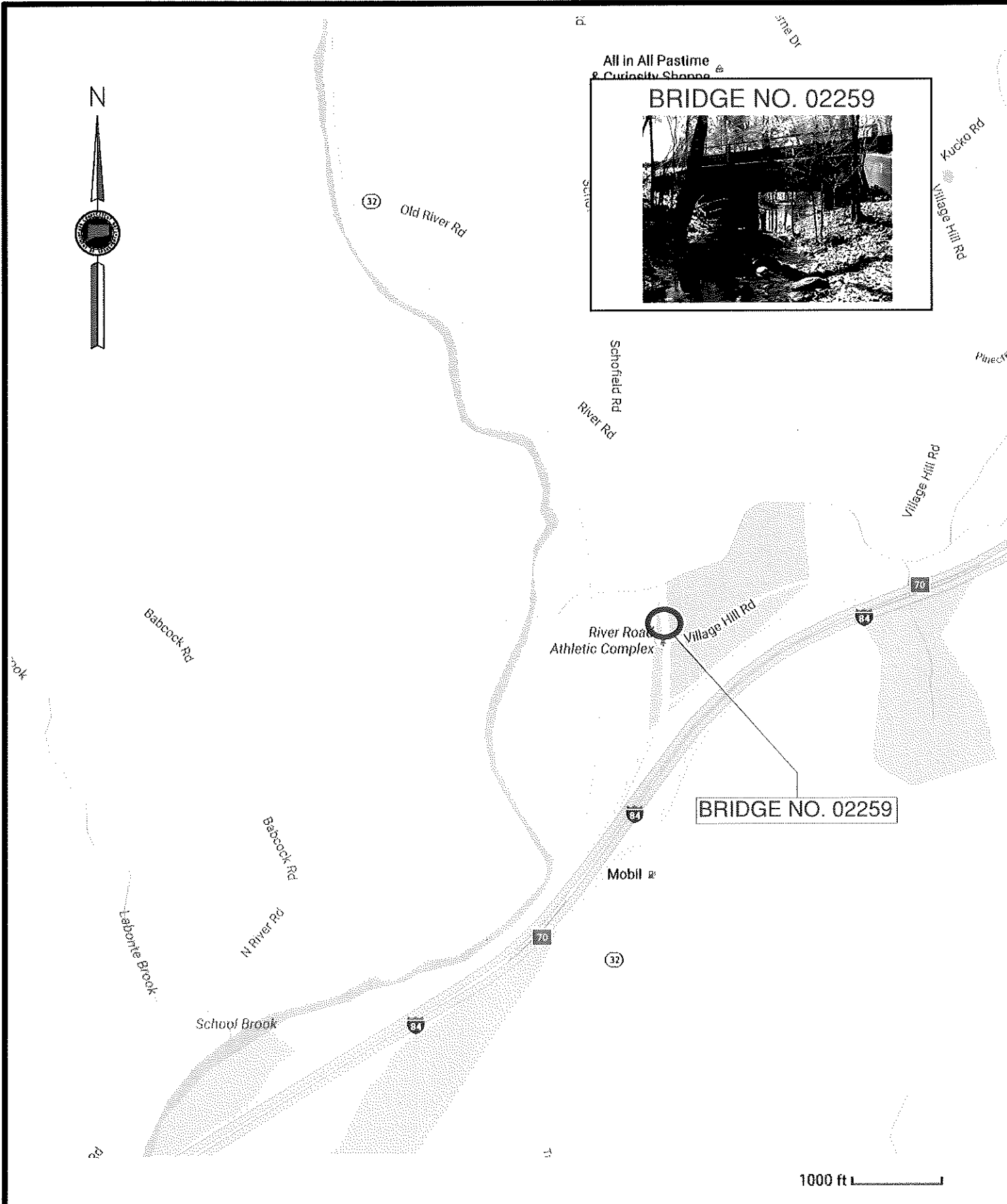
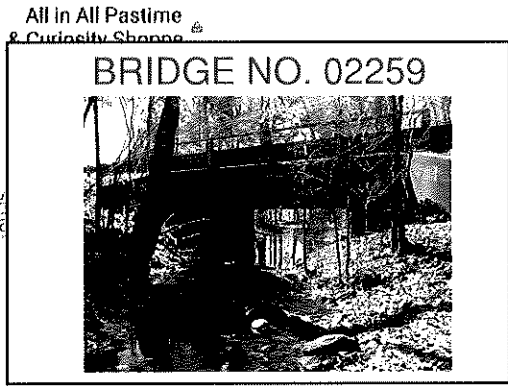
completed and their comments have been incorporated into the project documents. Permits to be obtained prior to the start of construction have been listed below.

Permits: A General Water Resource Construction Activities, Army Corps Pre-Construction Notification, and corresponding Connecticut Addendum Army Corps of Engineers General Permit (CT GP) permits are anticipated to be needed prior to construction.

Attachment B: Location Map



Connecticut Addendum Army Corps of Engineers General Permit State of Connecticut (CT GP)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT




STATE PROJECT NO.:
 0160-0147
 CITY/TOWN:
 Town of Willington

STATE OF CONNECTICUT
 DEPARTMENT OF TRANSPORTATION
LOCATION MAP
 BRIDGE NO. 02259
 Route 32 over South Branch Roaring Brook

OFFICE OF
 ENGINEERING



DATE:
 09/20/2016

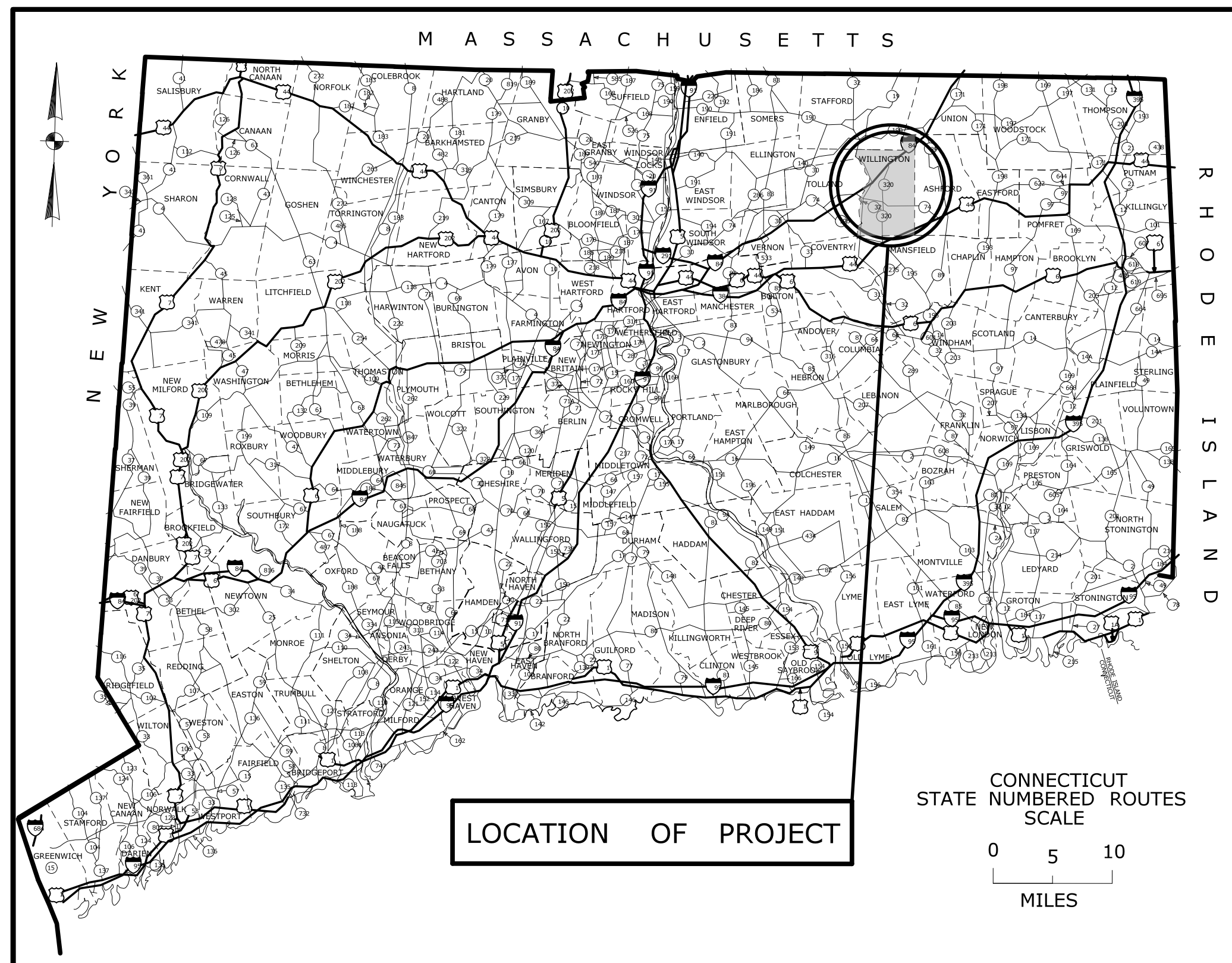
Attachment C: Permit Plans

Connecticut Addendum Army Corps of Engineers General Permit State of Connecticut (CT GP)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

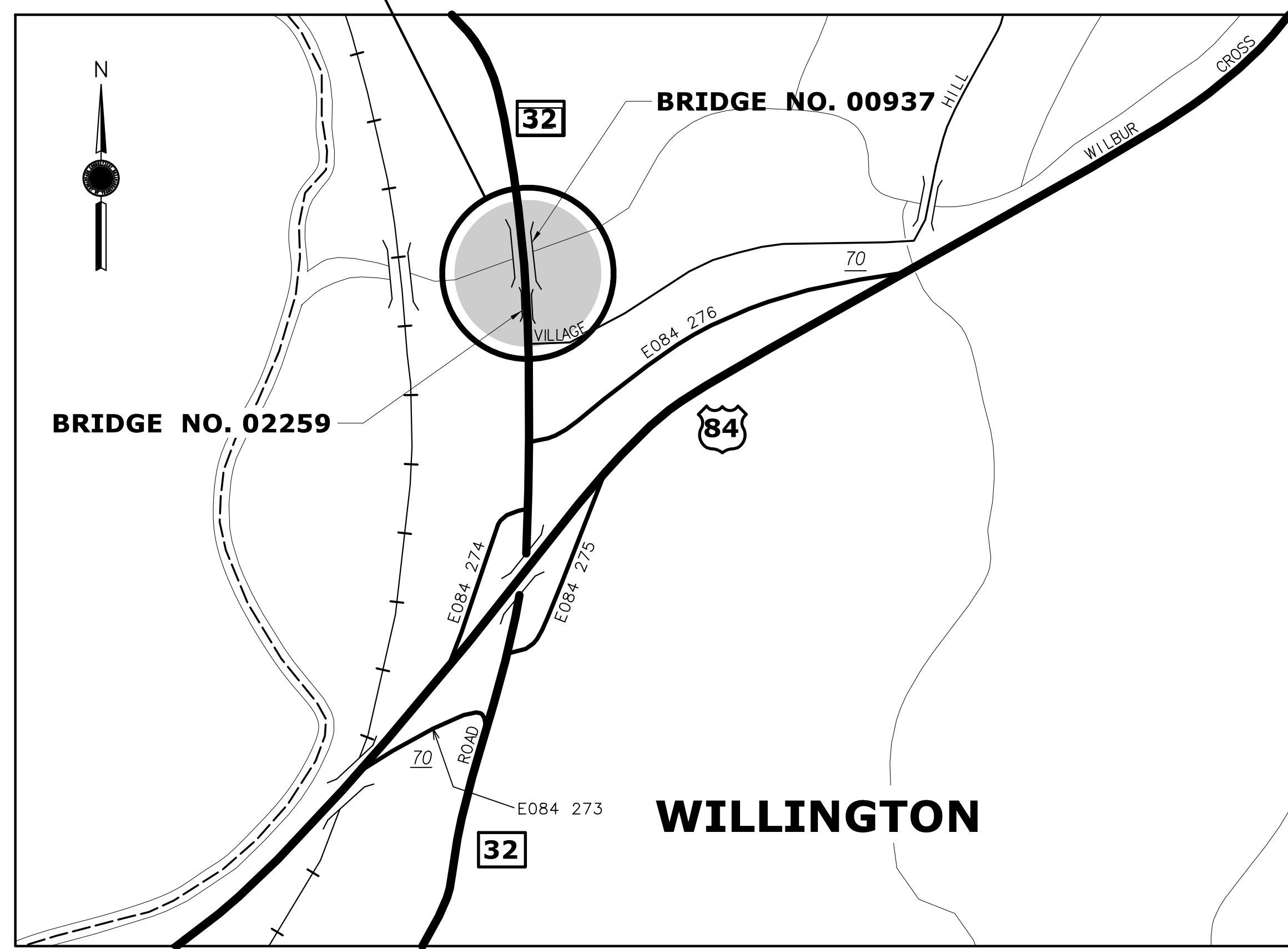
List of Plan Sheets and Drawings

Sheet 1	Title Sheet
Sheet 2	General Plan
Sheet 3	Wetland/Watercourse Impact Plan
Sheet 4	Construction Sequence - I
Sheet 5	Construction Sequence - II
Sheet 6	Construction Sequence - III
Sheet 7	Permit Planting Plan



ENVIRONMENTAL PERMIT PLANS
STATE PROJECT NO. 160-147
REHABILITATION OF BRIDGE NO. 02259 CARRYING
ROUTE 32 OVER S. BRANCH ROARING BROOK
TOWN OF WILLINGTON

PROJECT LOCATION



LOCATION MAP
SCALE 1"=500'

ALL ELEVATIONS BASED ON NGVD OF 1988
 COORDINATES BASED ON CONNECTICUT COORDINATE SYSTEM NAD 1983

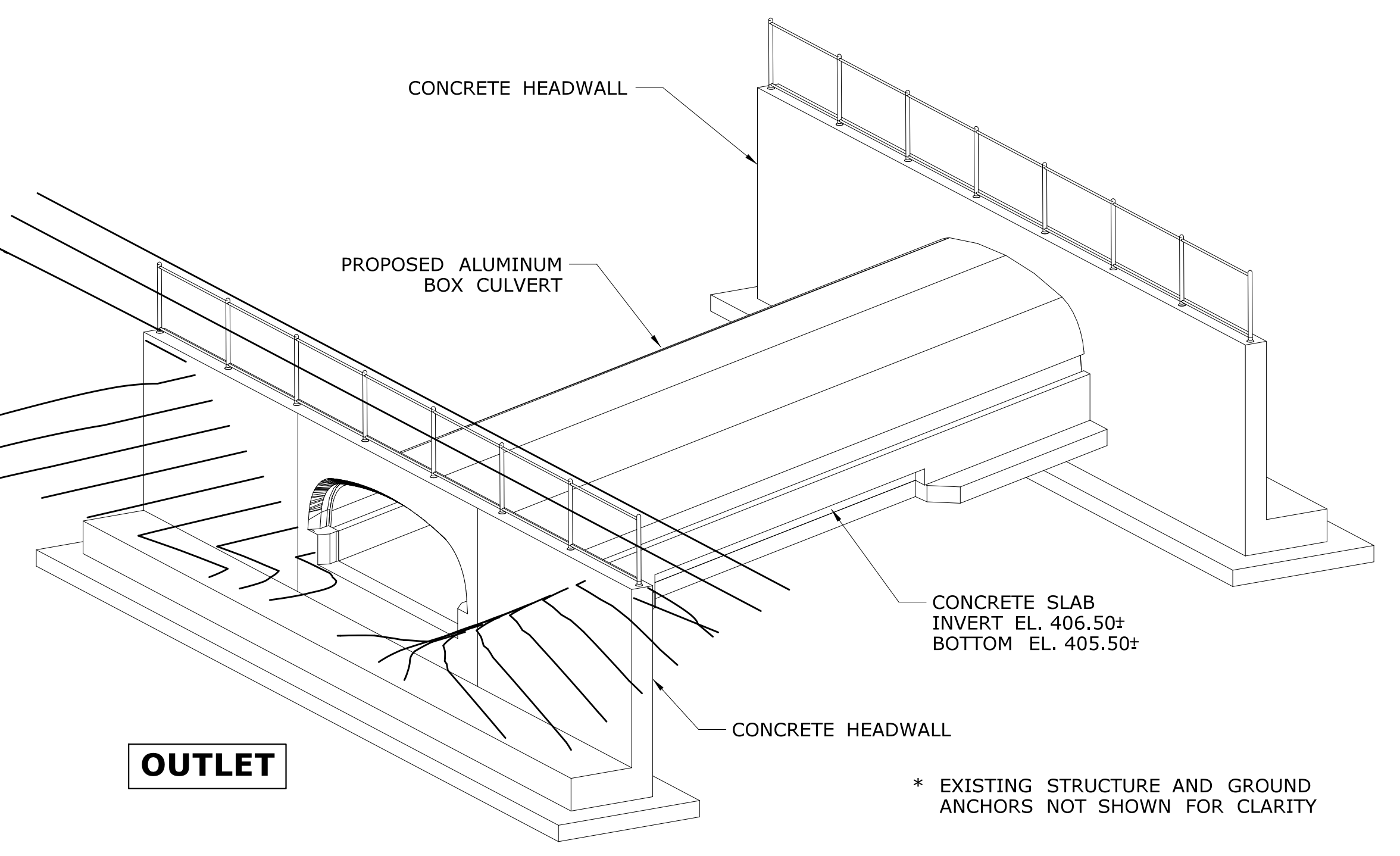
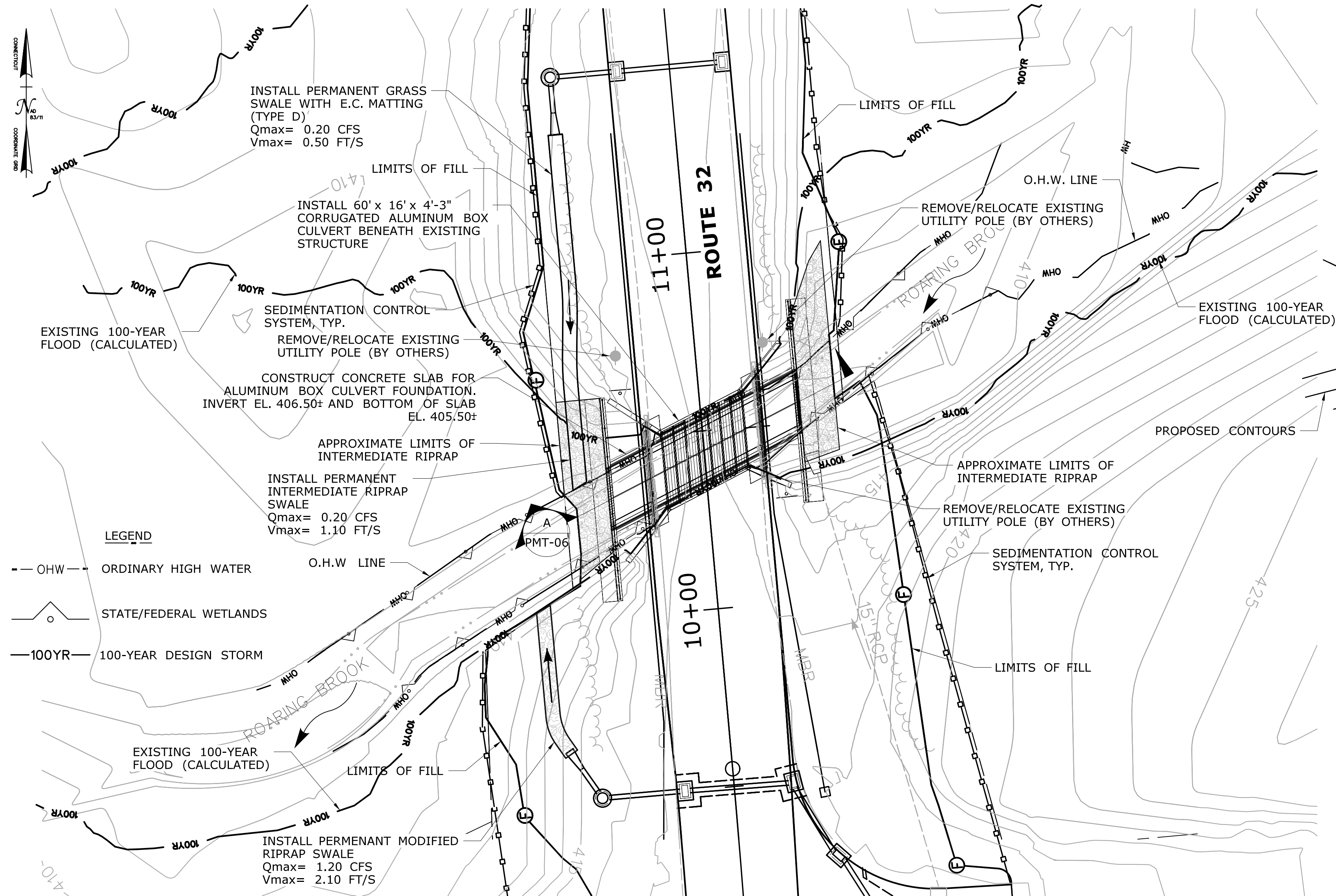
GENERAL NOTES:

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 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.

INDEX OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	CONSTRUCTION SEQUENCE - 1
PMT-05	WATER HANDLING AND CONSTRUCTION SEQUENCE - 2
PMT-06	CONSTRUCTION SEQUENCE - 3
PMT-07	PERMIT PLANTING PLAN

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: APRIL 12, 2018

REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 4/18/2018	DESIGNER/DRAFTER: ZMK		SIGNATURE/BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
				CHECKED BY: JJK		APPROVED BY:		DRAWING TITLE: PERMIT TITLE SHEET	DRAWING NO. PMT-01
				SCALE AS NOTED	Filename: ...\\SB-160-147_P-01_Attachment_B_Title_Sheet.dgn			SHEET NO.	



PLAN VIEW - BRIDGE NO. 02259
SCALE: 1" = 20'

HYDRAULIC DATA TABLE - BRIDGE NO. 02259

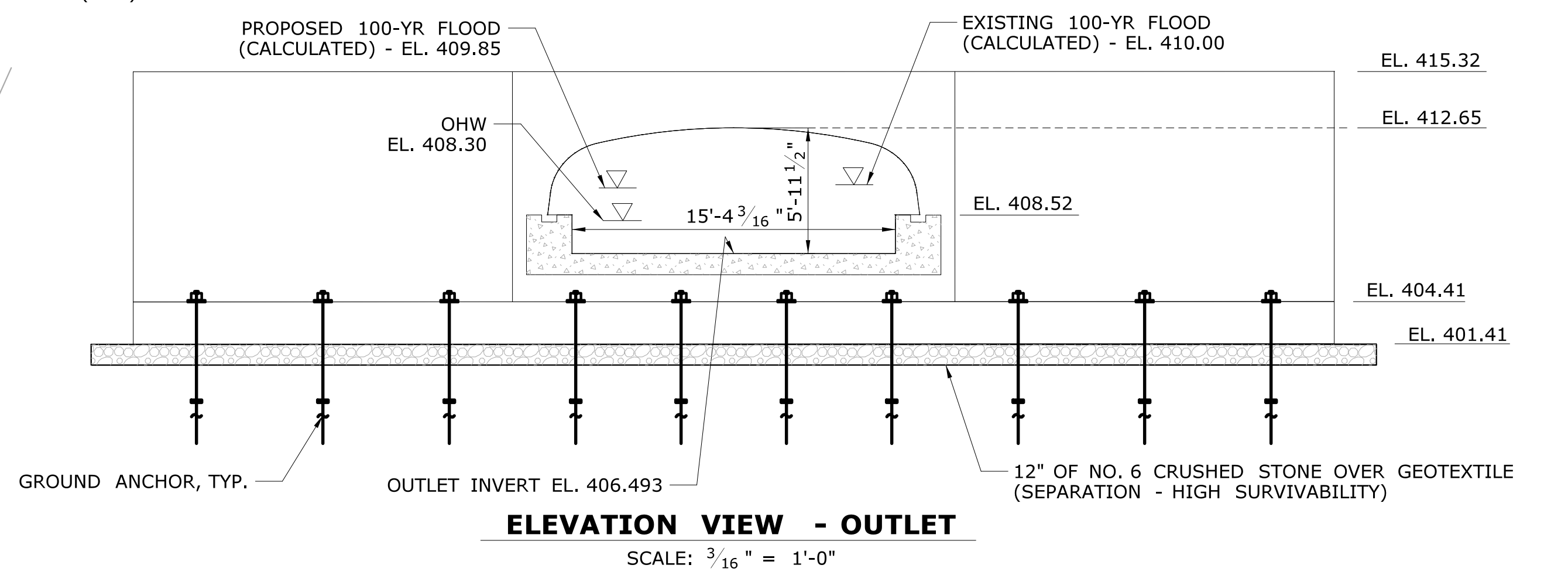
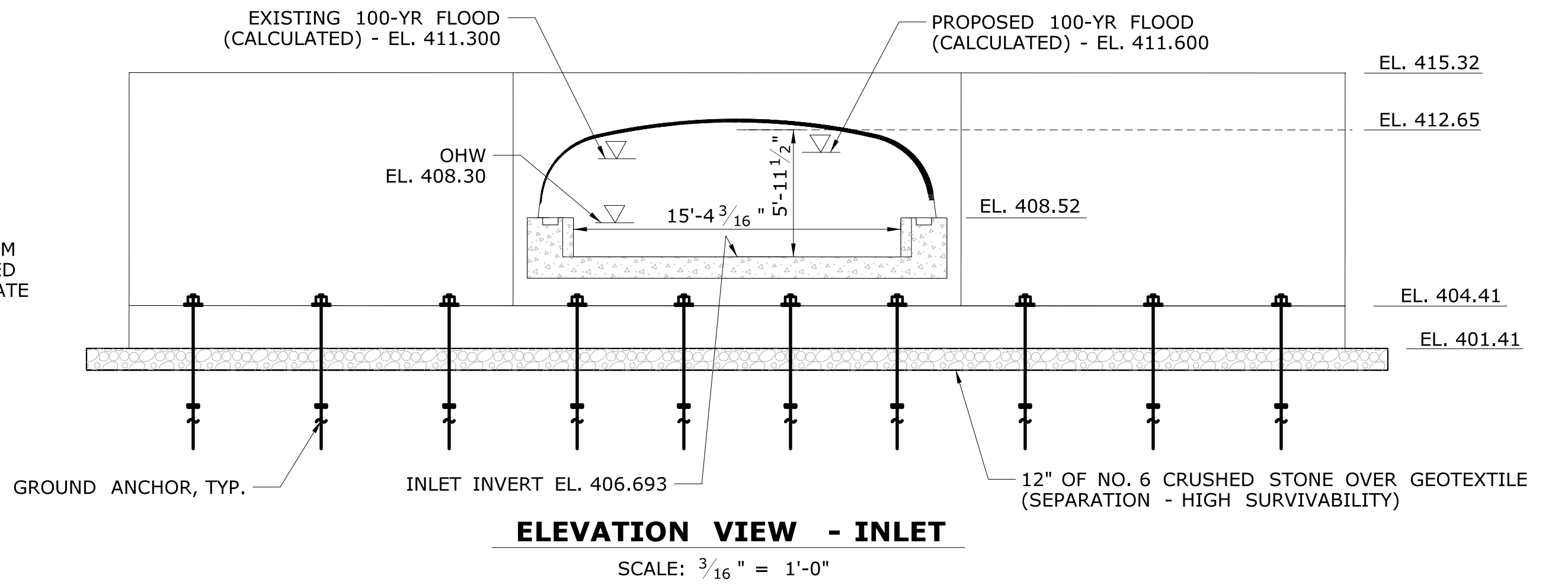
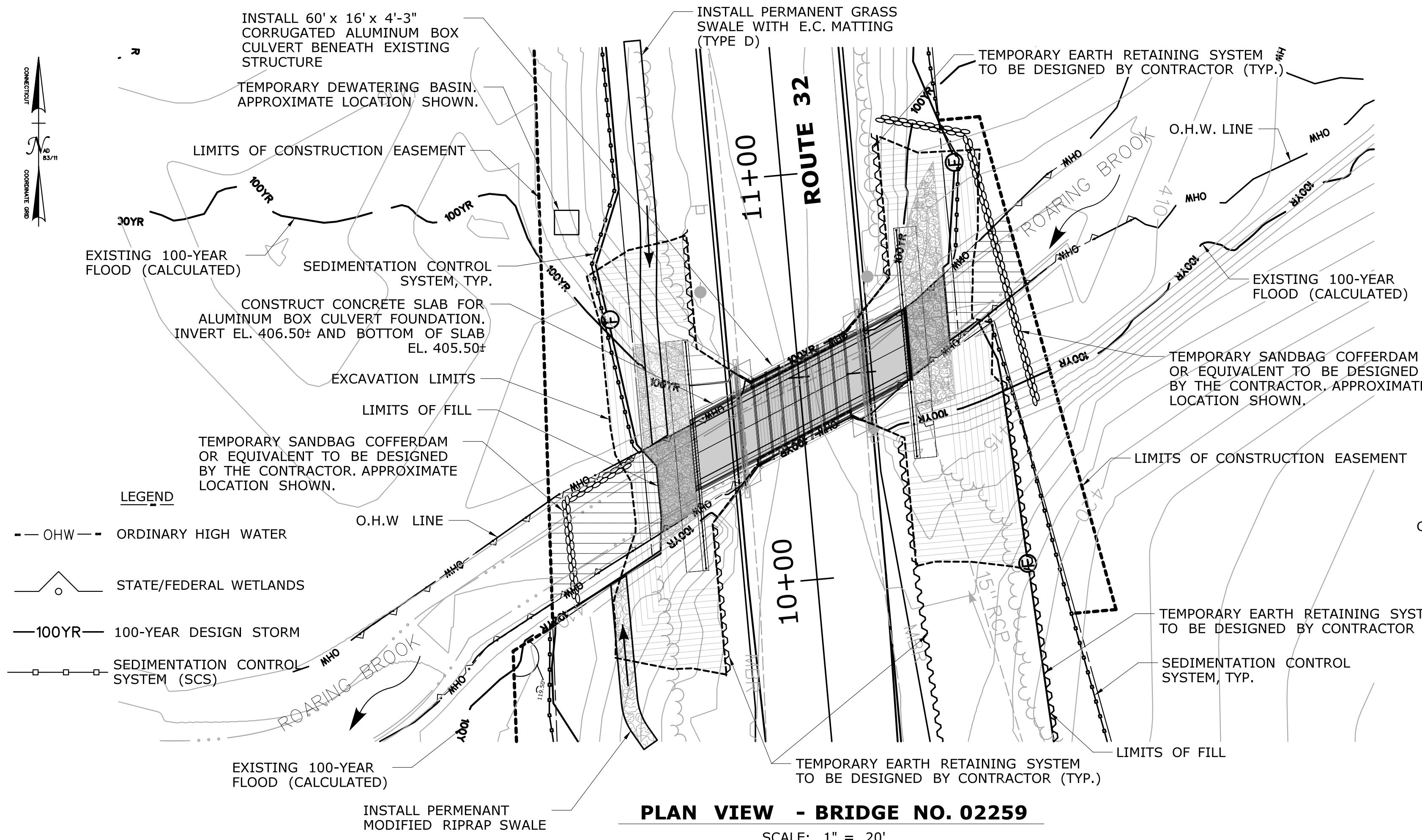
DRAINAGE AREA	22 SQ. MI.
DESIGN FREQUENCY	100 - YEAR
DESIGN DISCHARGE	405 CFS (2460 CFS*)
AVERAGE DAILY FLOW EL. (ESTIMATED)	N.A. (DRY)
UPSTREAM DESIGN WATER SURFACE ELEVATION	411.6 FT +
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	410.0 FT +

* SHARED WITH BRIDGE NO. 00937

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 11, 2018**

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
	CHECKED BY: JJK		APPROVED BY:	DRAWING TITLE: GENERAL PLAN	DRAWING NO. PMT-02	SHEET NO.
SCALE AS NOTED Plotted Date: 5/14/2018 Filename: ... \SB_160-147_P-02_General Plan.dgn						



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 PER DRAWING NO. PMT-07 "PERMIT PLANTING PLAN".

TEMPORARY IMPACT AREAS BELOW OHW LIMITS SHALL BE RESTORED WITH NATURAL CHANNEL BOTTOM MATERIAL.

WETLAND IMPACT AREAS (ABOVE O.H.W. LEVEL)	
TEMPORARY (S.F.)	0 (0.00 ACRES)
PERMANENT (S.F.)	0 (0.00 ACRES)
TOTAL (S.F.)	0 (0.00 ACRES)

STREAM IMPACT AREAS (BELOW O.H.W. LEVEL)	
TEMPORARY (S.F.)	1000 (0.023 ACRES)
PERMANENT (S.F.)	1400 (0.032 ACRES)
TOTAL (S.F.)	2400 (0.055 ACRES)

- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

TOTAL WETLAND + STREAM IMPACT AREA = 2,400 (S.F.) (0.055 ACRES)

OPENNESS RATIO (OR):

OR = OPEN AREA / CULVERT LENGTH
 OR = 80 S.F. / 60 FT = 1.33 FT
 1.33 FT > 0.82 FT (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):

BFW = 15 FT EXISTING UPSTREAM (OHW)
 1.2 x BFW = 18 FT
 18 FT > 16 FT (PROPOSED CULVERT SPAN)

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 10, 2018**

	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: ZMK CHECKED BY: JJK SCALE AS NOTED	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147 DRAWING NO. PMT-03 SHEET NO.
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/15/2018	Filename: ...SB-160-147_P-03_Environmental Impact Plan.dgn	WETLAND/WATERCOURSE IMPACT PLAN	

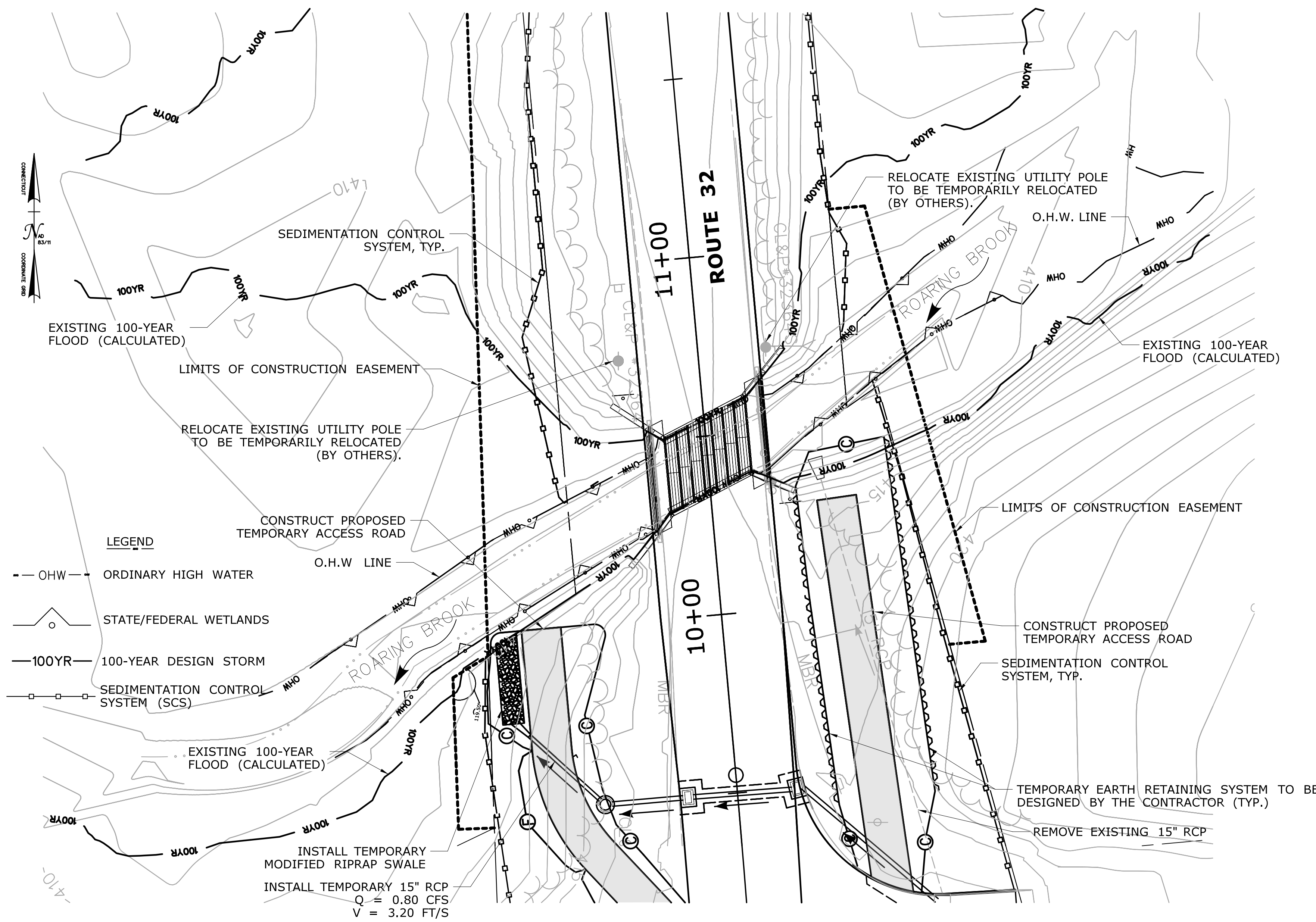
PROPOSED CONSTRUCTION SEQUENCE:

PRE-STAGE 1:

1. RELOCATE UTILITY POLES (BY OTHERS)

STAGE 1:

1. MOBILIZATION; ERECT CONSTRUCTION SIGNS
2. CLEARING AND GRUBBING AND INSTALL SEDIMENTATION & EROSION CONTROL
3. INSTALL TEMPORARY MODIFIED RIPRAP SWALE INCLUDING TEMPORARY 15" RCP.
4. INSTALL TEMPORARY SHEET PILING FOR TEMPORARY ACCESS ROAD CONSTRUCTION.
4. REMOVE EXISTING 15" RCP AND CONSTRUCT TEMPORARY ACCESS ROADS



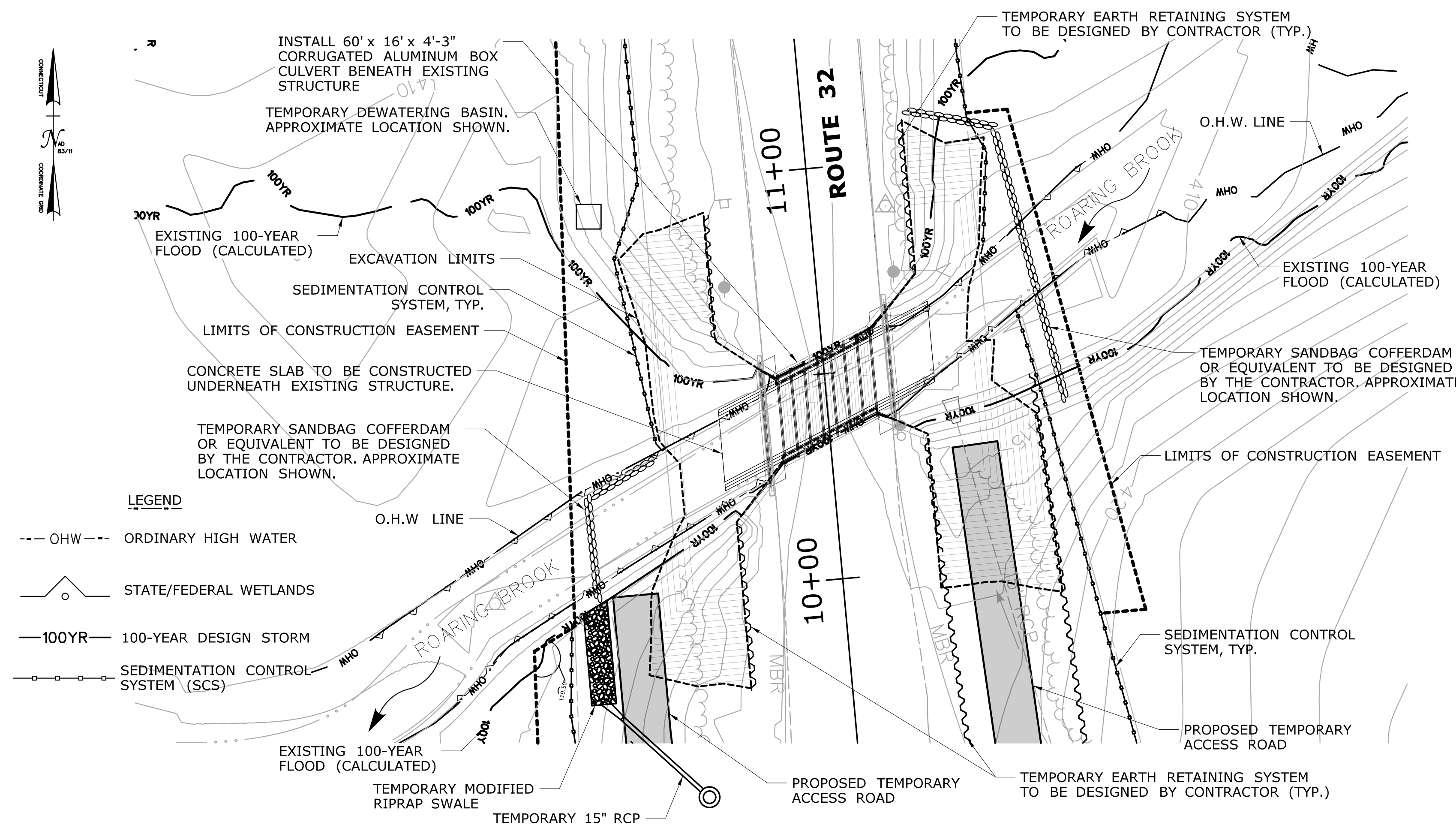
STAGE 1: INSTALLATION OF TEMPORARY DRAINAGE AND CONSTRUCTION OF ACCESS ROADS

SCALE: 1" = 20'

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 11, 2018**

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNER/DRAFTER: ZMK CHECKED BY: JJK SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147 DRAWING NO. PMT-04 SHEET NO.
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/14/2018	Filename: ...\\SB-160-147_P-04_Construction Sequence - 1.dgn	DRAWING TITLE: CONSTRUCTION SEQUENCE - 1	



STAGE 2: INSTALLATION OF WATER HANDLING, SITE EXCAVATION AND CONSTRUCTION OF CONCRETE SLAB

SCALE: 1" = 20'

TERS TO BE DESIGNED BY THE CONTRACTOR FOR SUPPORT OF THE ROADWAY

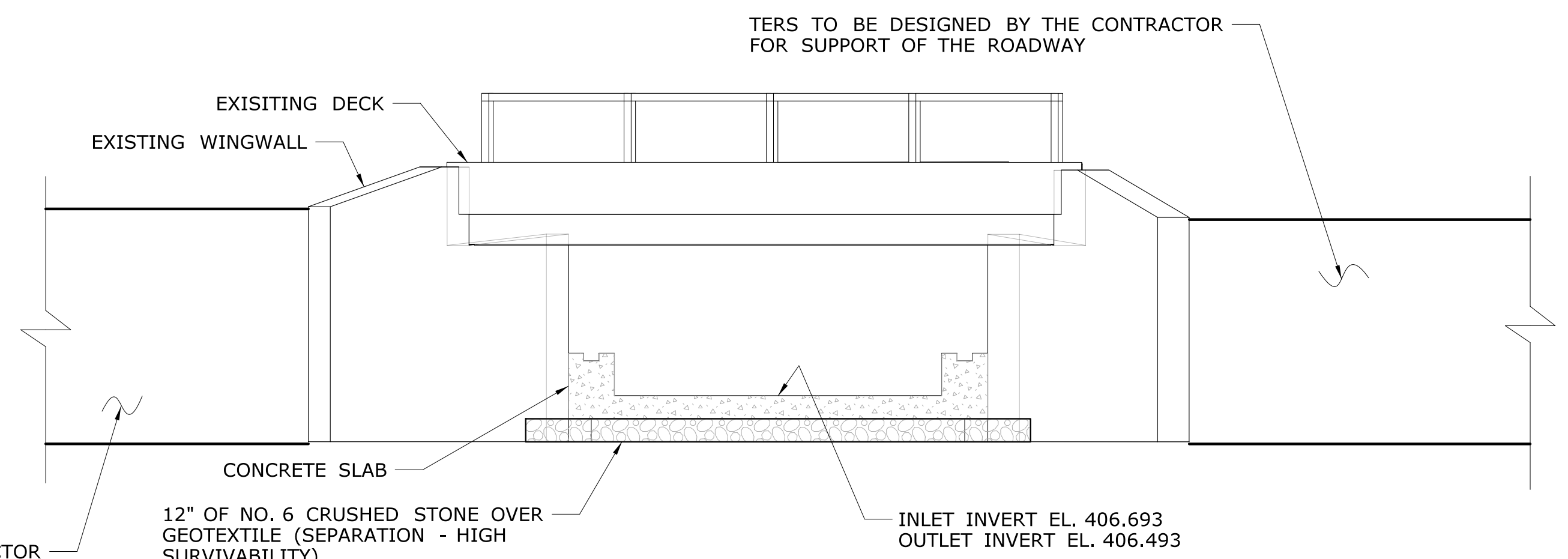
PROPOSED CONSTRUCTION SEQUENCE:

STAGE 2:

6. CONSTRUCT COFFERDAM AND INSTALL WATER HANDLING SYSTEM INCLUDING TEMPORARY DEWATERING BASIN.
7. INSTALL TERS FOR SUPPORT OF THE ROADWAY DURING EXCAVATION.
8. EXCAVATE EARTH FOR THE INSTALLATION OF THE CONCRETE INVERT SLAB.
9. PLACE 12" OF NO. 6 CRUSHED STONE OVER GEOTEXTILE FABRIC UP TO BOTTOM ELEVATION OF CONCRETE SLAB.
10. CONSTRUCT CONCRETE SLAB

WATER HANDLING NOTES:

1. A TEMPORARY DEWATERING BASIN AND PUMP SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR IN ORDER TO KEEP THE WORK SITE DRY THROUGHOUT CONSTRUCTION.
2. ALL WORK RELATING TO WATER HANDLING SHALL BE INCLUDED UNDER THE PAY ITEM "HANDLING WATER" (SEE SPECIAL PROVISION).
3. APPROXIMATE FINAL TOP TEMPORARY COFFERDAM ELEVATIONS GIVEN.

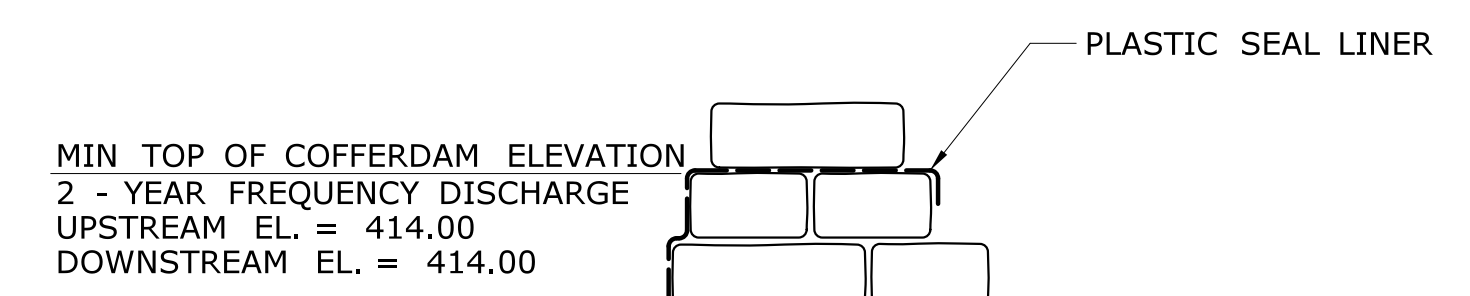


ELEVATION - STAGE 2 CONSTRUCTION

SCALE: 1" = 5'

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW	N.A. (DRY)
AVERAGE SPRING FLOW	0.1 CFS
2-YEAR FREQUENCY DISCHARGE	33 CFS (TOTAL 627 CFS FOR ROARING BROOK)*
TEMPORARY DESIGN DISCHARGE	33 CFS (TOTAL 627 CFS FOR ROARING BROOK)*
TEMPORARY DESIGN FREQUENCY	2 - YEAR
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	414.0 FT
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	N.A. (DRY)

*SHARED WITH BRIDGE NO. 00937



TEMPORARY SANDBAG COFFERDAM OR EQUIVALENT TO BE DESIGNED BY THE CONTRACTOR.

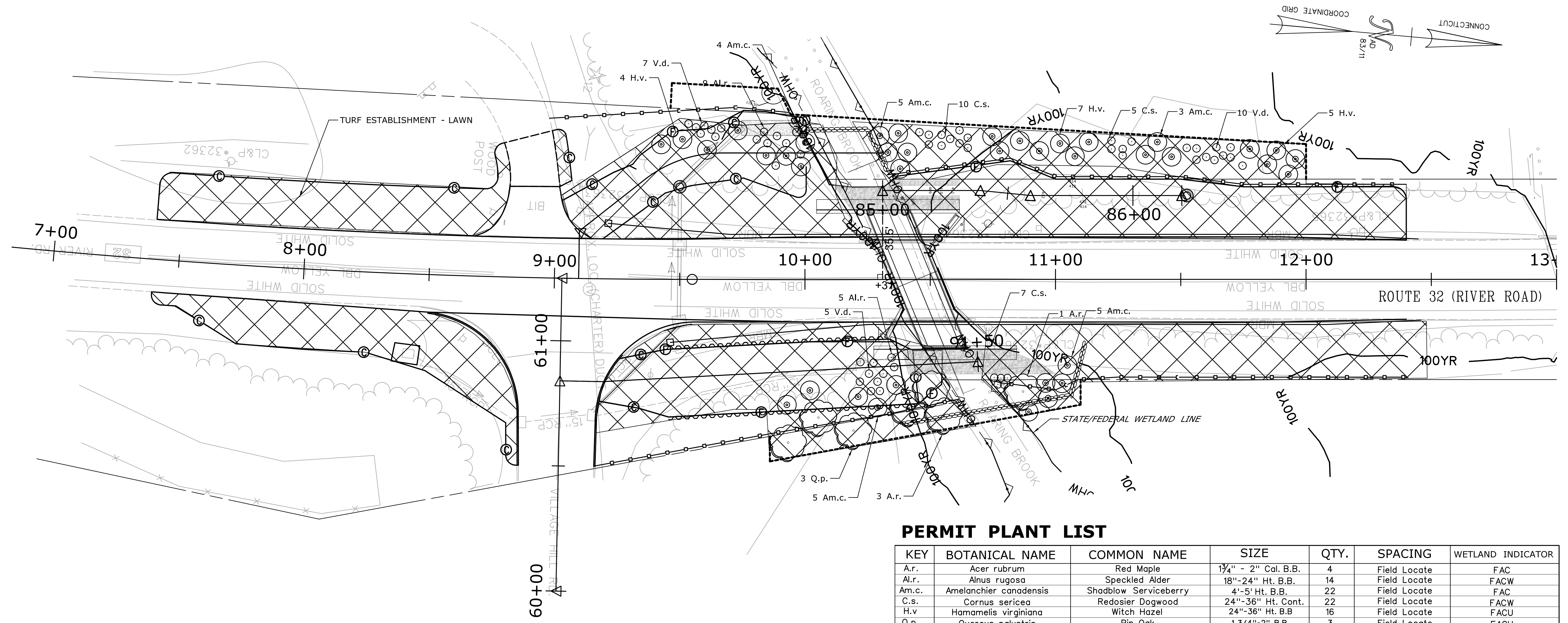
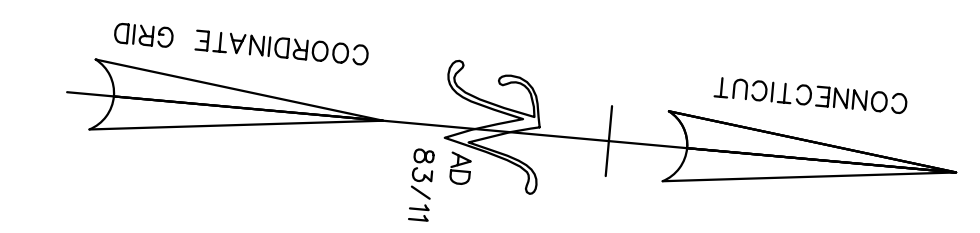
TEMPORARY COFFERDAM TYPICAL SECTION

NOT TO SCALE

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 11, 2018**

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK: 	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
	CHECKED BY: JJK		APPROVED BY: 		DRAWING TITLE: WATER HANDLING AND CONSTRUCTION SEQUENCE - 2	SHEET NO. PMT-05
REV. DATE REVISION DESCRIPTION SHEET NO. Plotted Date: 5/11/2018	SCALE AS NOTED	Filename: ...SB-160-147-P-05-Water Handling and Construction Sequence - 2.dgn				



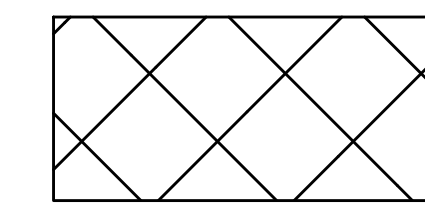
PERMIT PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	WETLAND INDICATOR
A.r.	<i>Acer rubrum</i>	Red Maple	1 3/4" - 2" Cal. B.B.	4	Field Locate	FAC
Al.r.	<i>Alnus rugosa</i>	Speckled Alder	18"-24" Ht. B.B.	14	Field Locate	FACW
Am.c.	<i>Amelanchier canadensis</i>	Shadblow Serviceberry	4'-5' Ht. B.B.	22	Field Locate	FAC
C.s.	<i>Cornus sericea</i>	Redosier Dogwood	24"-36" Ht. Cont.	22	Field Locate	FACW
H.v.	<i>Hamamelis virginiana</i>	Witch Hazel	24"-36" Ht. B.B.	16	Field Locate	FACU
Q.p.	<i>Quercus palustris</i>	Pin Oak	1 3/4"-2" B.B.	3	Field Locate	FACU
V.d.	<i>Viburnum dentatum</i>	Arrowwood Viburnum	18"-24" Ht. B.B.	22	Field Locate	FAC
	Turf Establishment - Lawn					
	Control and Removal of Invasive Vegetation					
	Conservation Seeding for Slopes					
	Wood Chip Mulch					

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. WOOD CHIP MULCH SHALL NOT BE PLACED IN THE WETLAND AREA.
3. 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 SPECIFIED.
4. ALL PLANTS SHALL BE STRAIGHT SPECIES. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.
5. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE COVERED WITH WOOD CHIP MULCH OR CONSERVATION SEED MIX FOR SLOPES UNLESS OTHERWISE NOTED.
6. THE EXACT QUANTITIES AND LIMITS FOR CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE FIELD DETERMINED.

KEY



CONTROL AND REMOVAL OF INVASIVE VEGETATION

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: APRIL 25, 2018

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: MV/MR	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:	PROJECT TITLE:	TOWN:	PROJECT NO.:
	CHECKED BY: MC		OFFICE OF ENGINEERING	REHABILITATION OF BRIDGE NO. 02259 ROUTE 32 OVER SOUTH BRANCH ROARING BROOK	WILLINGTON	160-147
SCALE IN FEET 0 20 40 SCALE 1"=20'	APPROVED BY:	FILENAME: ...VHW_MSH_0160-0147_LDS-02.dgn	DRAWING TITLE: PERMIT PLANTING PLAN	SHEET NO.: PMT-07		

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

Plotted Date: 5/16/2018

Attachment D: Site Photographs

Connecticut Addendum Army Corps of Engineers General Permit State of Connecticut (CT GP)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



Bridge No. 02559 Inlet



Bridge No. 02559 Outlet



Southern Inlet Wingwall



Northern Inlet Wingwall



Area Overview Looking Northbound



Area Overview Looking Southbound



Northern Outlet Wingwall



Southern Outlet Wingwall

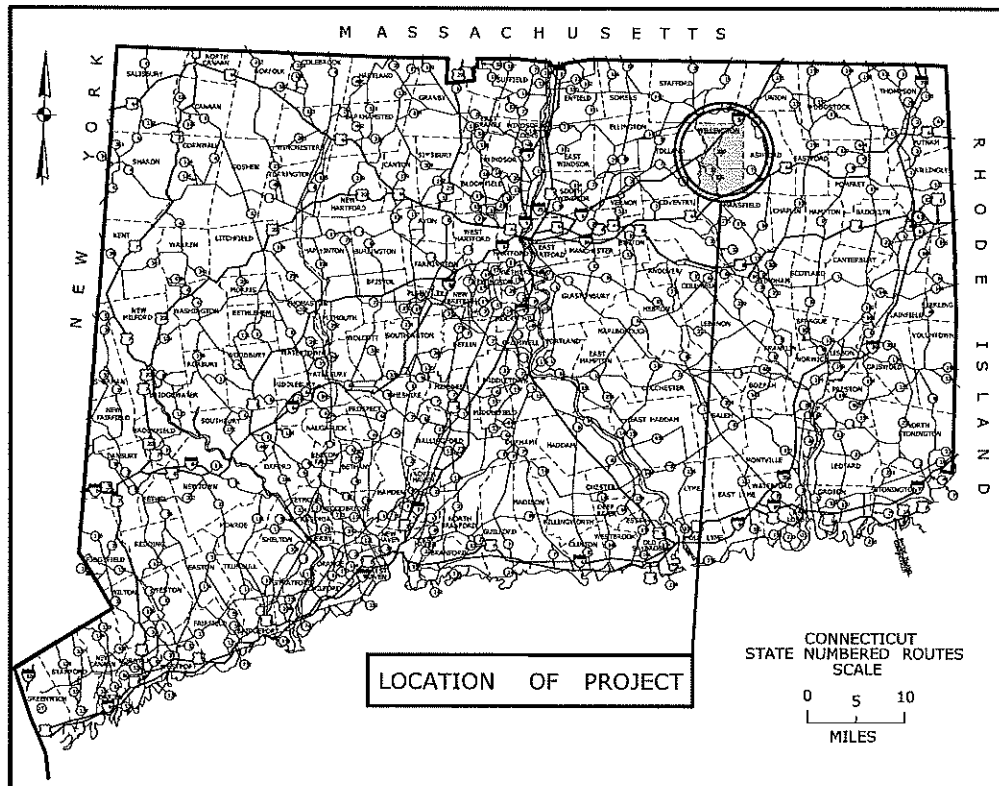


Deteriorating Bridge No. 02559 Superstructure

Attachment F: DEEP Fisheries and NDDB Coordination

Connecticut Addendum Army Corps of Engineers General Permit State of Connecticut (CT GP)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



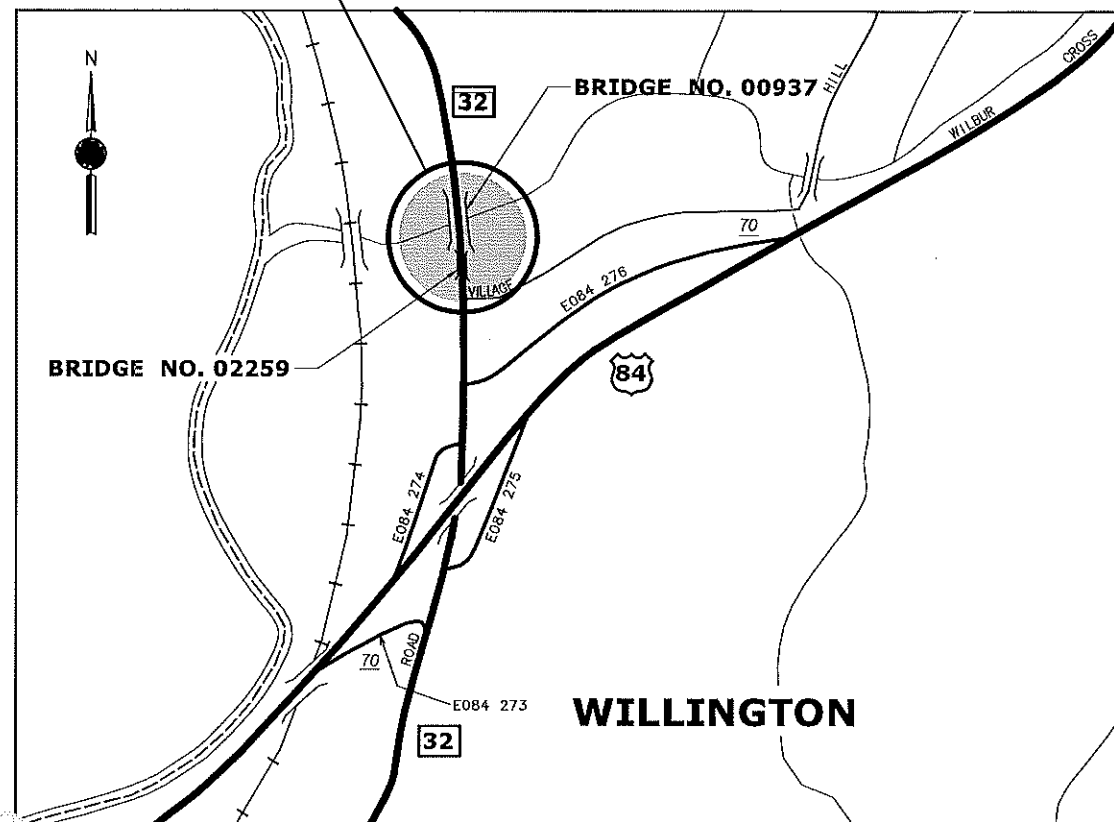
ALL ELEVATIONS BASED ON NGVD OF 1988
 COORDINATES BASED ON CONNECTICUT COORDINATE SYSTEM NAD 1983

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 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
STATE PROJECT NO. 160-147
REHABILITATION OF BRIDGE NO. 02259 CARRYING
ROUTE 32 OVER S. BRANCH ROARING BROOK
TOWN OF WILLINGTON

PROJECT LOCATION



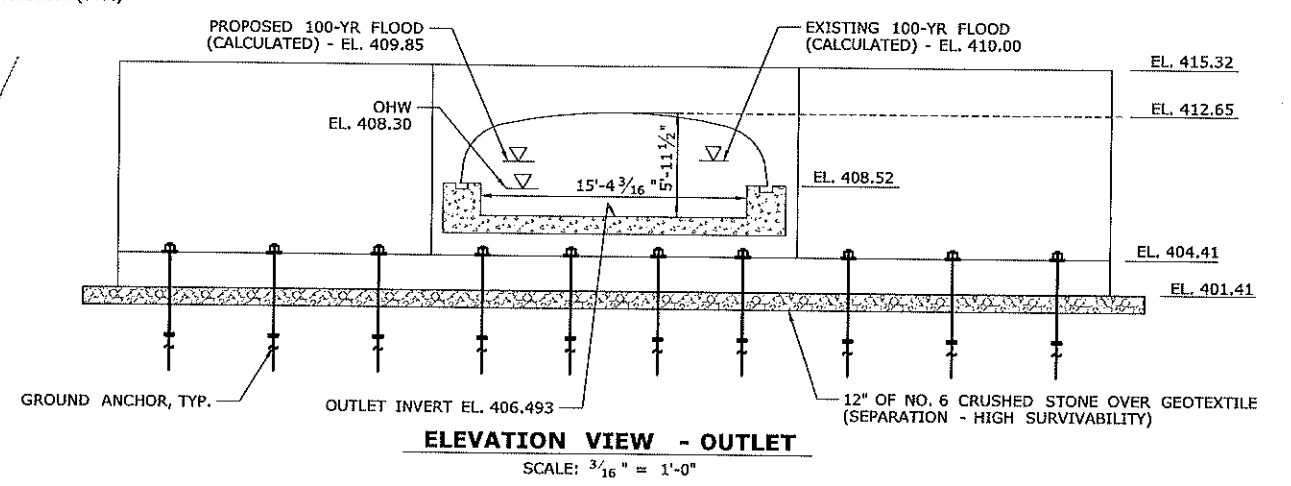
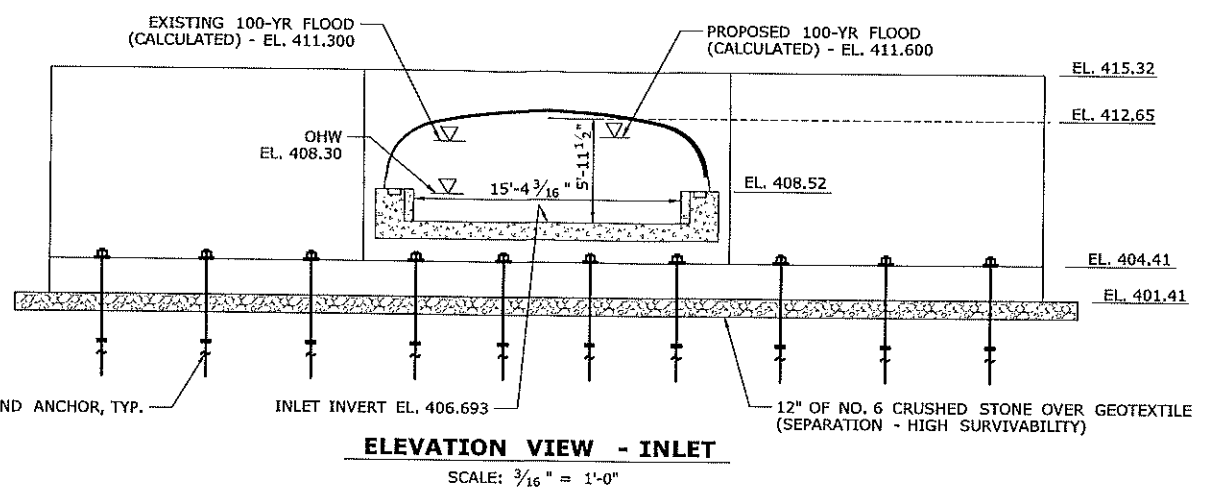
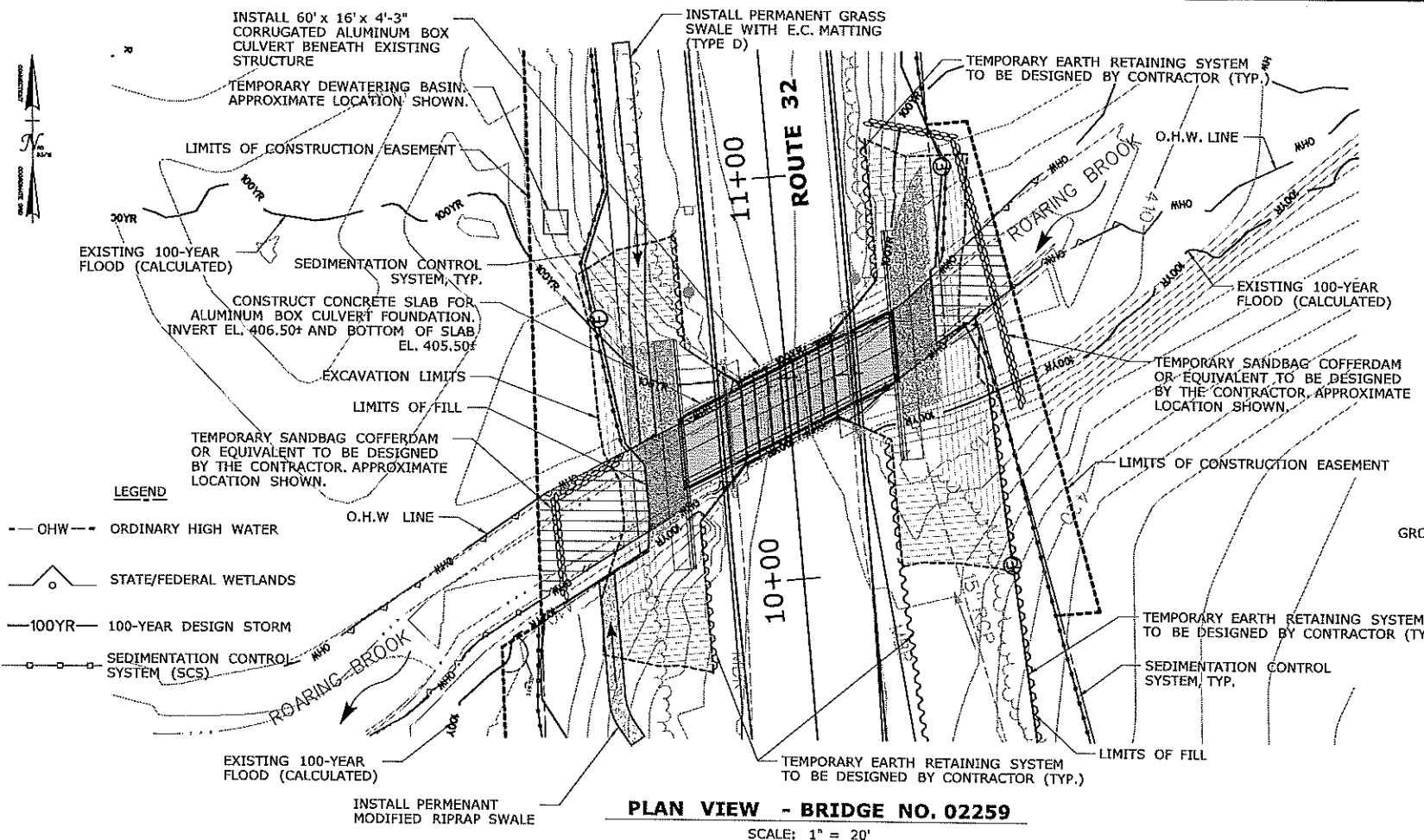
Brian D. Murphy
 Digitally signed by Brian D. Murphy
 Date: 2018.05.22 10:19:40 -04'00'

INDEX OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	CONSTRUCTION SEQUENCE - 1
PMT-05	WATER HANDLING AND CONSTRUCTION SEQUENCE - 2
PMT-06	CONSTRUCTION SEQUENCE - 3
PMT-07	PERMIT PLANTING PLAN

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: APRIL 12, 2018

DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
CHECKED BY: JJK		APPROVED BY:	DRAWING NO. PMT-01	DRAWING TITLE: PERMIT TITLE SHEET	SHEET NO.
SCALE AS NOTED	Plotted Date: 4/18/2018	Filename: ...\\SB-160-147_P-01_Attachment_B_Title_Sheet.dgn			

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



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 PER DRAWING NO. PMT-07 "PERMIT PLANTING PLAN".
 TEMPORARY IMPACT AREAS BELOW O.H.W. LIMITS SHALL BE RESTORED WITH NATURAL CHANNEL BOTTOM MATERIAL.

WETLAND IMPACT AREAS (ABOVE O.H.W. LEVEL)	
TEMPORARY (S.F.)	0 (0.00 ACRES)
PERMANENT (S.F.)	0 (0.00 ACRES)
TOTAL (S.F.)	0 (0.00 ACRES)

STREAM IMPACT AREAS (BELOW O.H.W. LEVEL)	
TEMPORARY (S.F.)	1000 (0.023 ACRES)
PERMANENT (S.F.)	1400 (0.032 ACRES)
TOTAL (S.F.)	2400 (0.055 ACRES)

PERMANENT IMPACT AREA
 TEMPORARY IMPACT AREA
 THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

TOTAL WETLAND + STREAM IMPACT AREA = 2,400 (S.F.) (0.055 ACRES)

OPENNESS RATIO (OR):
 OR = OPEN AREA / CULVERT LENGTH
 OR = 80 S.F. / 60 FT = 1.33 FT
 1.33 FT > 0.82 FT (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):
 BFW = 15 FT EXISTING UPSTREAM (OHW)
 1.2 x BFW = 18 FT
 18 FT > 16 FT (PROPOSED CULVERT SPAN)

Digitally signed
 by Brian D. Murphy
 Date: 2018.05.22
 10:22:04 -04'00'

ENVIRONMENTAL PERMIT PLANS
 PLAN DATE: MAY 10, 2018

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: ZMK CHECKED BY: JJK SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION <small>Filename: ...SB_160-147_P-03_Environmental Impact Plan.dgn</small>	SIGNATURE/BLOCK: APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147 DRAWING NO. PMT-03 SHEET NO.
REV. DATE REVISION DESCRIPTION SHEET NO. Plotted Date: 5/15/2018						

Lisowitch, Ostap

From: Salter, Michael J
Sent: Monday, May 22, 2017 9:56 AM
To: Lisowitch, Ostap
Cc: Davis, Andrew H; Roise, Michelle A.; DOT-EPC; Blasi, Kevin; Basha, Sarwat A; Song, Won S.
Subject: FW: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Follow Up Flag: Follow up
Flag Status: Flagged

Ozzy,

Below is concurrence from DEEP Fisheries on the new structure type and removal of natural streambed material. Once we have more developed plans we will need to get them signed by DEEP Fisheries. Please let me know if you have any questions.

Thank you,
Mike

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov

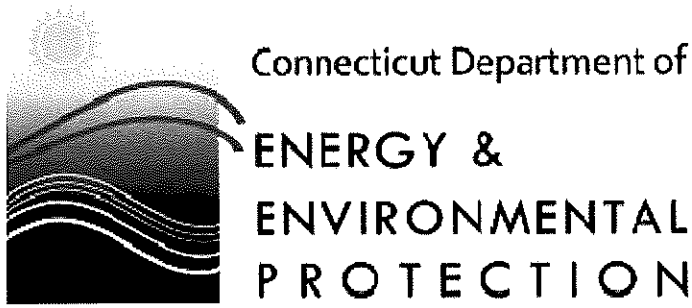
From: Murphy, Brian
Sent: Monday, May 22, 2017 9:32 AM
To: Salter, Michael J
Cc: Davis, Andrew H; DOT-EPC; Roise, Michelle A.
Subject: RE: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Hi Mike,

I'm in agreement with your assessment at this location, fish passage and habitat protection are not warranted. I can sign off on the redesigned plans once they come around for review.
Thanks.

Brian D. Murphy, Senior Fisheries Habitat Biologist
Fisheries Division
Habitat Conservation and Enhancement Program
Connecticut Department of Energy and Environmental Protection
Eastern District Headquarters

209 Hebron Road
Marlborough, CT 06447
P: 860.295-9523 | F: 860.295.8175 | brian.murphy@ct.gov



www.ct.gov/deep

***Conserving, improving and protecting our natural resources and environment;
Ensuring a clean, affordable, reliable, and sustainable energy supply.***

From: Salter, Michael J
Sent: Friday, May 19, 2017 1:45 PM
To: Murphy, Brian
Cc: Davis, Andrew H; DOT-EPC; Roise, Michelle A.
Subject: FW: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Brian,

The attached zip file contains the initial fisheries review package for DOT Project No. 160-147. There has been a change in the design of the project due to constructability concerns about undermining the existing footings during construction in order to install the aluminum base plate. The new proposed structure will replace the aluminum base plate with a concrete slab. This subject bridge is not a typical stream crossing. This crossing conveys stream flow only when the Roaring Brook flow, which is mainly conveyed by a bridge located to the north, is high enough to cause the diversion onto an upstream overbank area. This crossing is normally dry and occasionally may have standing water, possibly from the runoff associated with its drainage area of 13.8 acres. The ground profile at the crossing is such that it forms a low point or sag under the bridge. Thus, the storm water runoff from its drainage area will gather under the bridge and pond until it evaporates or infiltrates into the ground. The streamflow from the Roaring Brook can also get there, possibly once a year or so in our assessment. Nevertheless, it will not likely be a condition conducive to fish passage. DOT Staff didn't see a defined and continuous channel downstream of the bridge, though there may possibly be disconnected shallow swale sections according to LiDAR generated contours. Thus, the flow reaching and passing through the bridge will likely spread thin (shallow flow depth) over the floodplain on the downstream side where the path is typically covered with heavy vegetation, hindering and thus minimizing the fish passage potential. Only in high magnitude storm events when the flood significantly inundates the floodplains on both sides of Rte 32, it may allow fish passage. However, during such events, the flow depth through the crossing will be relatively greater compared to the upstream and downstream sides rendering the bottom material type irrelevant. Considering these conditions we are not proposing to include a natural bottom within the structure. Utilizing the concrete slab will result in less excavation, will not undermine the footings, will provide for a larger hydraulic opening, will structurally support the aluminum culvert, and we will be able to maintain traffic throughout construction. I have attached and updated elevation view and site photos. Please let me know if you have any questions or need any additional information.

Thank you,
Mike

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov

From: Salter, Michael J
Sent: Monday, April 03, 2017 9:05 AM
To: Gephard, Steve
Cc: Davis, Andrew H; Samorajczyk, Christopher W; Murphy, Brian; DOT-EPC; Roise, Michelle A.
Subject: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington

Steve,

Attached for review are the Fisheries Transmittal Form, location map, project description, site photos and preliminary plans for DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington. Please contact Chris Samorajczyk if you have any questions or need any additional information.

Thank you,

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov



Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

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Affirmative Action/Equal Opportunity Employer

April 11, 2017

Michael Salter
State Of Connecticut Department Of Transportation
2800 Berlin Tpke.
Newington, CT 06131-7546
michael.salter@ct.gov

Project: DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington
NDDDB Determination No.: 201703031

Dear Michael Salter,

I have reviewed Natural Diversity Database (NDDDB) maps and files regarding the area of work provided for the proposed rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington, Connecticut. I do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDDB. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits. This determination is good for two years. Please re-submit a new NDDDB Request for Review if the scope of work changes or if work has not begun on this project by April 11, 2019.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey, cooperating units of DEEP, landowners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDDB should not be substitutes for on-site surveys necessary for a thorough environmental impact assessment. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the database as it becomes available.

Please contact me if you have further questions at (860) 424-3378, or karen.zyko@ct.gov . Thank you for consulting the Natural Diversity Database.

Sincerely,

Karen Zyko
Environmental Analyst

Attachment G: Environmental Reports

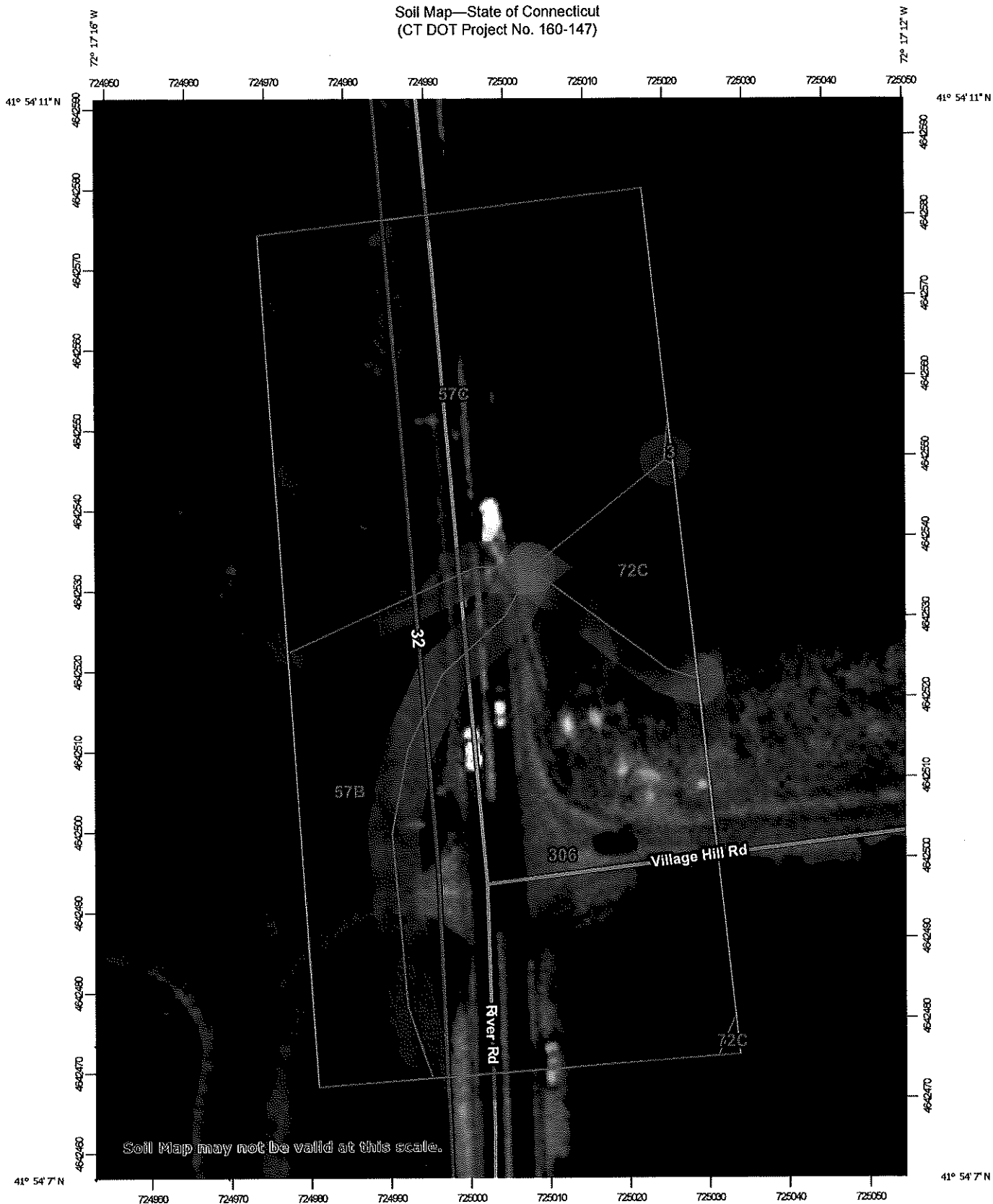
Connecticut Addendum Army Corps of Engineers General Permit State of Connecticut (CT GP)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

List of Attachments:

- USDA Soil Survey Map
- USDA Soils Report (Brief, Generated)
- Environmental Report – Functions and Values
- Army Corps Wetland Delineation Data Forms

Soil Map—State of Connecticut
(CT DOT Project No. 160-147)



Map Scale: 1:655 if printed on A portrait (8.5" x 11") sheet.

0 5 10 20 30 Meters

0 30 60 120 180 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

5/2/2018
Page 1 of 3

MAP LEGEND

- Area of Interest (AOI)
- Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points
- Special Point Features**
 - Blowout
 - Borrow Pit
 - Clay Spot
 - Closed Depression
 - Gravel Pit
 - Gravelly Spot
 - Landfill
 - Lava Flow
 - Marsh or swamp
 - Mine or Quarry
 - Miscellaneous Water
 - Perennial Water
 - Rock Outcrop
 - Saline Spot
 - Sandy Spot
 - Severely Eroded Spot
 - Sinkhole
 - Slide or Slip
 - Sodic Spot
- Water Features**
 - Streams and Canals
- Transportation**
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads
- Background**
 - Aerial Photography
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 16, Sep 15, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 14, 2011—Aug 27, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	0.0	0.1%
57B	Gloucester gravelly sandy loam, 3 to 8 percent slopes	0.2	16.2%
57C	Gloucester gravelly sandy loam, 8 to 15 percent slopes	0.5	40.2%
72C	Nipmuck-Brookfield complex, 3 to 15 percent slopes, very rocky	0.1	5.3%
306	Udorthents-Urban land complex	0.5	38.2%
Totals for Area of Interest		1.4	100.0%

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, provide information on the composition of map units and properties of their components.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

State of Connecticut

Map Unit: 3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony

Component: Ridgebury, extremely stony (40%)

The Ridgebury, extremely stony component makes up 40 percent of the map unit. Slopes are 0 to 8 percent. This component is on depressions on glaciated uplands. The parent material consists of coarse-loamy lodgment till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer, densic material, is 15 to 35 inches (depth from the mineral surface is 14 to 32 inches). The natural drainage class is poorly drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches (depth from the mineral surface is 2 inches) during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 95 percent. Below this thin organic horizon the organic matter content is about 10 percent. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Component: Leicester, extremely stony (35%)

The Leicester, extremely stony component makes up 35 percent of the map unit. Slopes are 0 to 8 percent. This component is on depressions on glaciated uplands. The parent material consists of coarse-loamy melt-out till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches (depth from the mineral surface is 2 inches) during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 95 percent. Below this thin organic horizon the organic matter content is about 10 percent. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Component: Whitman, extremely stony (17%)

The Whitman, extremely stony component makes up 17 percent of the map unit. Slopes are 0 to 3 percent. This component is on depressions on glaciated uplands. The parent material consists of coarse-loamy lodgment till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer, densic material, is 7 to 38 inches (depth from the mineral surface is 7 to 30 inches). The natural drainage class is very poorly drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, September, October, November, December. Organic matter content in the surface horizon is about 95 percent. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Component: Woodbridge, extremely stony (6%)

Generated brief soil descriptions are created for major soil components. The Woodbridge soil is a minor component.

Component: Swansea (2%)

Generated brief soil descriptions are created for major soil components. The Swansea soil is a minor component.

Map Unit: 57B—Gloucester gravelly sandy loam, 3 to 8 percent slopes

Component: Gloucester (80%)

The Gloucester component makes up 80 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on uplands. The parent material consists of sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 2s. This soil does not meet hydric criteria.

Component: Hinckley (5%)

Generated brief soil descriptions are created for major soil components. The Hinckley soil is a minor component.

Component: Canton (5%)

Generated brief soil descriptions are created for major soil components. The Canton soil is a minor component.

Component: Charlton (3%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Paxton (3%)

Generated brief soil descriptions are created for major soil components. The Paxton soil is a minor component.

Component: Leicester (2%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Sutton (2%)

Generated brief soil descriptions are created for major soil components. The Sutton soil is a minor component.

Map Unit: 57C—Gloucester gravelly sandy loam, 8 to 15 percent slopes

Component: Gloucester (80%)

The Gloucester component makes up 80 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on uplands. The parent material consists of sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Hinckley (5%)

Generated brief soil descriptions are created for major soil components. The Hinckley soil is a minor component.

Component: Canton (5%)

Generated brief soil descriptions are created for major soil components. The Canton soil is a minor component.

Component: Charlton (3%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Paxton (3%)

Generated brief soil descriptions are created for major soil components. The Paxton soil is a minor component.

Component: Sutton (2%)

Generated brief soil descriptions are created for major soil components. The Sutton soil is a minor component.

Component: Leicester (2%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Map Unit: 72C—Nipmuck-Brookfield complex, 3 to 15 percent slopes, very rocky

Component: Nipmuck (50%)

The Nipmuck component makes up 50 percent of the map unit. Slopes are 3 to 15 percent. This component is on bedrock controlled hills on uplands, bedrock controlled ridges on uplands. The parent material consists of loamy supraglacial meltout till derived from mica schist. Depth to a root restrictive layer, bedrock, lithic, is 20 to 39 inches (depth from the mineral surface is 20 to 35 inches). The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 67 percent. Below this thin organic horizon the organic matter content is about 7 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Brookfield (40%)

The Brookfield component makes up 40 percent of the map unit. Slopes are 3 to 15 percent. This component is on bedrock controlled hills on uplands, bedrock controlled ridges on uplands. The parent material consists of loamy supraglacial meltout till derived from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 70 percent. Below this thin organic horizon the organic matter content is about 9 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Brimfield (5%)

Generated brief soil descriptions are created for major soil components. The Brimfield soil is a minor component.

Component: Rock outcrop (5%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Map Unit: 306—Udorthents-Urban land complex

Component: Udorthents (50%)

The Udorthents component makes up 50 percent of the map unit. Slopes are 0 to 25 percent. This component is on urban land. The parent material consists of drift. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 59 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Urban land (35%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Unnamed, undisturbed soils (8%)

Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Udorthents, wet substratum (5%)

Generated brief soil descriptions are created for major soil components. The Udorthents soil is a minor component.

Component: Rock outcrop (2%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 16, Sep 15, 2017

ENVIRONMENTAL REPORT - WETLAND FUNCTIONS AND VALUES

STATE PROJECT 0160-0147

Rehabilitation of Bridge 02559, CT Route 32 over South Branch Roaring Brook Willington, Connecticut

Introduction

This project involves the rehabilitation of Bridge No. 02559, which carries CT Route 32 (River Road) over South Branch Roaring Brook in the Town of Willington. Originally built in 1914, the existing bridge consists of a single-span, multi-beam superstructure supported by stone masonry abutments and wingwalls with concrete caps. The curb-to-curb deck width is 30 feet and carries one lane of traffic with narrow shoulders in each direction and the bridge has a skew angle of 42 degrees. The existing superstructure is in serious condition and exhibits moderate to heavy rust with section loss in the girders.

Existing Conditions

The project is located within the Willimantic River sub regional drainage basin (CTDEEP #3100). Flows for South Branch Roaring brook are generally in a west to east direction through the project site. The existing structure functions as an overflow channel for Roaring Brook which crosses Route 32 approximately 250 feet north of Bridge No. 02559.

According to the June 15, 1982 Community Panel Number 090159 0004 A, Willington, CT, Tolland County Flood Insurance Rate Map, the project is not located within a FEMA floodzone.

According to the Connecticut Department of Energy & Environmental Protection (CT DEEP) Aquifer Protection Area maps, no Aquifer Protection Areas have been designated within or adjacent to the project site and the project is not located within a public water supply watershed. The site does fall within a mapped Natural Diversity Database area (December 2017 mapping)



Looking downstream towards Bridge 02559

Looking upstream towards Bridge 02559



and an NDDDB Determination Letter was received on April 11, 2017 indicating the project is not anticipated to have any negative impacts to state-listed species. Soils within the project area are depicted on the attached NRCS Soils Map and described in the attached NRCS Web Soil Survey Report. The bridge site is located north of the intersection of Route 32 and Village Hill Road. River Road Athletic Complex is located to the Southwest of the project area and Nye Holm State Forest is

located East of Bridge No 02559. Nye Holm State Forest is managed by the Connecticut Department of Energy and Environmental Protection. There are existing overhead utilities located on the East side of the structure and an existing 15-inch RCP which outlets East of Route 32 in the vicinity of the bridge.

Areas of state and federal wetlands are limited to the area below ordinary high water (OHW). There are no additional wetlands within the project area. The upland vegetated communities adjacent to the project area are forested and there are areas adjacent which are manicured turf associated with the existing transportation right-of-way and the adjacent sports complex to the Southwest. The canopy of the upland upstream community consists of eastern hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*), white oak (*Quercus alba*), red maple (*Acer rubrum*), white ash (*Fraxinus Americana*), and American sycamore (*Platanus occidentalis*) dominated by the eastern hemlock, eastern white pine and white oak. The shrub layer is dominated by white ash and red maple (*Acer rubrum*) saplings. There were no species present in the herb and woody vine strata. The canopy of the upland downstream community is comprised of white oak, American Sycamore, white ash, red maple, eastern hemlock and American elm (*Ulmus americana*), dominated by white oak and American sycamore. The shrub community is dominated by eastern white pine, eastern hemlock and red maple saplings and Japanese barberry* (*Berberis thunbergii*). The herbaceous community is dominated by Christmas fern (*Polystichum acrostichoides*) and eastern white pine and there were no woody vines present.

South Branch Roaring Brook has a contributing watershed of approximately 22 sq. mi. Upstream, the watercourse is approximately 10' to 15' wide and consists of primarily a cobble substrate with sands and gravels. The upstream banks are well relatively steep, vegetated and stable. The banks downstream are vegetated, gently sloped and stable. The channel downstream is generally wider than upstream and is as much as 20' wide. The downstream channel is primarily sands and gravels with some cobbles intermixed.

Functions and Values Assessments follow the US Army Corps of Engineers Highway Methodology Workbook. The primary functions of the system are floodflow alteration, groundwater recharge/discharge. Additional functions of the watercourse (overflow channel) include sediment/toxicant retention and wildlife habitat. The wildlife habitat function is more readily provided by the forested areas upstream and downstream of the project site and the existing structure is providing a suitable crossing for wildlife utilizing the upstream and downstream habitat. There are no values found in any significant form within the watercourse or adjacent uplands.

Proposed Conditions

The proposed rehabilitation includes installation of an aluminum box culvert founded on a slotted concrete invert slab within the existing structure opening. The installation involves placement of a concrete invert slab and foundations below the existing bridge, installation of the aluminum box culvert and pumping of flowable-fill in between the voids of the existing structure and the proposed aluminum box culvert. Concrete wingwalls and footings with vertical ground anchors will be cast at both the inlet and outlet. Intermediate riprap scour protection will be installed upstream and downstream of the structure. The rehabilitation also consists of widening of the existing curb-to-curb roadway width from 30 to 34 feet. Construction easements will be

acquired to provide access to the upstream and downstream ends of the bridge for installation of the aluminum box culvert.

Regulated Activities

The overall project impacts from the proposed activities are relatively limited in duration and scale. Permanent impacts are a result of embankment grading, riprap placement within the watercourse and installation of the proposed concrete slab, footings and aluminum box culvert. Permanent watercourse (below OHW) impacts amount to 1,000 sf (0.023 ac). Temporary impacts to the watercourse are a result of temporary water handling and access required for installation of the proposed box culvert. Temporary watercourse impacts amount to 1,400 sf (0.032 ac). The areas of temporary watercourse impact will be restored to existing conditions and natural streambed material will be placed in these areas. Areas of state and federal wetlands are limited to the area below ordinary high water within the project area. As such, the project will not result in any permanent or temporary impacts to wetlands.

During construction, impacts will be mitigated through the use of Best Management Practices (BMPs) stipulated in the Department's *Standard Specifications for Roads, Bridges, and Incidental Construction, Form 817*, Section 1.10, Environmental Compliance, Best Management Practices, and the implementation of an erosion and sediment control plan consistent with the *2002 CT Guidelines for Soil Erosion and Sediment Control*. All water handling will be done in accordance with the 2004 Stormwater Quality Manual. Native plantings are proposed for the impacted wetland areas and adjacent buffer areas to restore the vegetative communities. The proposed culvert lining will not have an impact on fisheries habitat or resources of the brook as determined by DEEP Inland Fisheries Division. District inspection personnel, as well as staff from the Office of Environmental Planning, will oversee construction during the construction activity.

Invasive Species

Invasive species will be controlled during construction through the use of the Department's *Control and Removal of Invasive Vegetation* specification within the project limits. Seeding and native plantings are proposed for all disturbed areas within the project limits. The proposed control methods and the subsequent native plantings should provide for native plant community establishment within the project limits for this short duration project.

Summary

The functions provided by South bank Roaring Brook will not be significantly impacted by the proposed activities. Wildlife habitat may be temporarily impacted by construction, but will return upon completion of construction. Impacts are limited and are mitigated through the use of BMPs, erosion and sediment controls, project oversight, invasive species control and the implementation of a native planting and stabilization plan following construction.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT DOT Project No. 160-147 City/County: Willington/Tolland Sampling Date: 4/11/2018
 Applicant/Owner: CTDOT State: CT Sampling Point: Upland 1
 Investigator(s): Michael Salter Section, Township, Range: Willington
 Landform (hillslope, terrace, etc.): terrace Local Relief (concave, convex, none): none
 Slope (%): 3% Lat: 41.902795 Long: -72.287598 Datum: NAD 83
 Soil Map Unit Name: Gloucester gravelly sandy loam NWI Classification: _____

Are Climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	If yes, optional Wetland Site ID:		
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: (Explain alternative procedures here or in a separate report)					
Soils were sampled from the upland area. The existing structure conveys an overflow channel for Roaring Brook and is a dry channel the majority of the year. The wetland limits at the project site are limited to the area below ordinary high water.					

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photographs, previous inspections), if available:	
Remarks:	

VEGETATION – Use scientific names of plants.

Sampling Point: Upland 1

Tree Stratum	(Plot Size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <i>Quercus alba</i>		20%	Yes	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>25%</u> (A/B)
2. <i>Platanus occidentalis</i>		15%	Yes	FACW	
3. <i>Fraxinus americana</i>		7%	No	FACU	
4. <i>Acer rubrum</i>		5%	No	FAC	
5. <i>Tsuga canadensis</i>		5%	No	FACU	
6. <i>Ulmus americana</i>		2%	No	FACW	
7.					
		54%	= Total Cover		Prevalence Test Worksheet: Total % Cover of _____ Multiply by _____ OBL Species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum	(Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Pinus strobus</i>		10%	Yes	FACU	
2. <i>Tsuga canadensis</i>		7%	Yes	FACU	
3. <i>Acer rubrum</i>		5%	Yes	FAC	
4. <i>Berberis thunbergii</i>		5%	Yes	FACU	
5.					
6.					
7.					
		27%	= Total Cover		
Herb Stratum	(Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <i>Polystichum acrostichoides</i>		5%	Yes	FACU	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Pinus strobus</i>		5%	Yes	FACU	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
		10%	= Total Cover		
Woody Vine Stratum	(Plot Size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:
1. None					Tree – Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vines – All woody vines greater than 3.28 ft in height.
2.					
3.					
4.					
		0%	= Total Cover		Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: (include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	7.5YR 4/2	100%					Sandy	
5-12	7.5YR 4/3	100%					Loamy/ Clayey	
12-18	7.5YR 4/4	100%					Loamy/ Clayey	
18+	7.5YR 3/3	100%					Loamy/ Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

- Hydric Soil Indicators:**
- Histosol (A1)
 - Histic Epipedon (A2)
 - Black Histic (A3)
 - Hydrogen Sulfide (A4)
 - Stratified Layers (A5)
 - Depleted Below Dark Surface (A11)
 - Thick Dark Surface (A12)
 - Sandy Mucky Mineral (S1)
 - Sandy Gleyed Matrix (S4)
 - Sandy Redox (S5)
 - Stripped Matrix (S6)
 - Dark Surface (S7) (LRR R, MLRA 149B)
 - Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
 - Thin Dark Surface (S9) (LRR R, MLRA 149B)
 - Loamy Mucky Mineral (F1) (LRR K, L)
 - Loamy Gleyed Matrix (F2)
 - Depleted Matrix (F3)
 - Redox Dark Surface (F6)
 - Depleted Dark Surface (F7)
 - Redox Depression (F8)
- Indicators for Problematic Hydric Soils³:**
- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
 - Coast Prairie Redox (A16) (LRR K, L, R)
 - 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
 - Dark Surface (S7) (LRR K, L)
 - Polyvalue Below Surface (S8) (LRR K, L)
 - Thin Dark Surface (S9) (LRR K, L)
 - Iron-Manganese Masses (F12) (LRR K, L, R)
 - Piedmont Floodplain Soils (F19) (MLRA 149B)
 - Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
 - Red Parent Material (F21)
 - Very Shallow Dark Surface (TF12)
 - Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

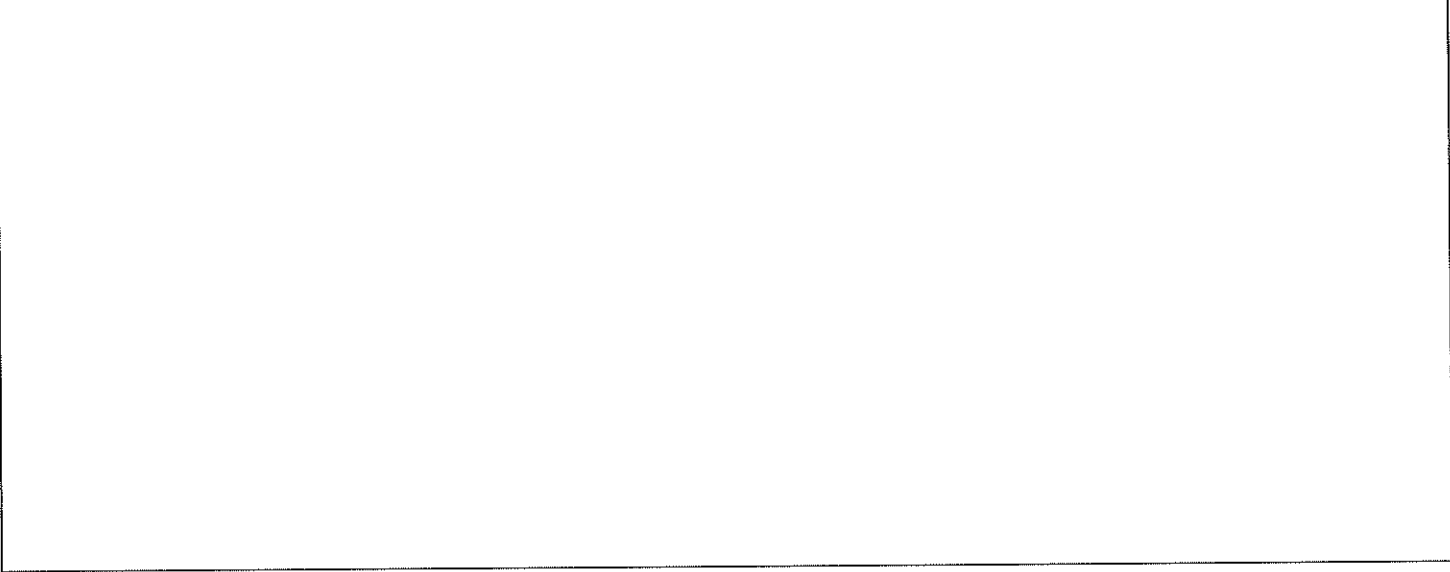
Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: _____



WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT DOT Project No. 160-147 City/County: Willington/Tolland Sampling Date: 4/11/2018
 Applicant/Owner: CTDOT State: CT Sampling Point: Upland 2
 Investigator(s): Michael Salter Section, Township, Range: Willington
 Landform (hillslope, terrace, etc.): terrace Local Relief (concave, convex, none): none
 Slope (%): 3% Lat: 41.902855 Long: -72.287371 Datum: NAD 83
 Soil Map Unit Name: Gloucester gravelly sandy loam NWI Classification: _____

Are Climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks: (Explain alternative procedures here or in a separate report)
 Soils were sampled from the upland area. The existing structure conveys an overflow channel for Roaring Brook and is a dry channel the majority of the year. The wetland limits at the project site are limited to the area below ordinary high water.

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: check all that apply)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	
Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	
Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ <small>(includes capillary fringe)</small>	

Describe Recorded Data (stream gauge, monitoring well, aerial photographs, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: Upland 2

<u>Tree Stratum</u> (Plot Size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <i>Tsuga canadensis</i>	20%	Yes	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>20%</u> (A/B)
2. <i>Pinus strobus</i>	10%	Yes	FACU	
3. <i>Quercus alba</i>	10%	Yes	FACU	
4. <i>Acer rubrum</i>	5%	No	FAC	
5. <i>Fraxinus americana</i>	5%	No	FACU	
6. <i>Platanus occidentalis</i>	5%	No	FACW	
7. _____				
<u>55%</u> = Total Cover				Prevalence Test Worksheet: _____ Total % Cover of _____ Multiply by _____ OBL Species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot Size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Fraxinus americana</i>	5%	Yes	FACU	
2. <i>Acer rubrum</i>	5%	Yes	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
<u>10%</u> = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>Herb Stratum</u> (Plot Size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>None</i>				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
<u>10%</u> = Total Cover				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vines – All woody vines greater than 3.28 ft in height.
<u>Woody Vine Stratum</u> (Plot Size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>None</i>				
2. _____				
3. _____				
4. _____				
<u>0%</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: (include photo numbers here or on a separate sheet.) 				

Attachment I: Interagency Coordination Meeting Notes

Connecticut Addendum Army Corps of Engineers General Permit State of Connecticut (CT GP)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

Interagency Coordination Meeting Notes

December 21, 2017

DOT Room 3130

Meeting Minutes:

The meeting notes for November were presented. No comments were made.

53-190 Glastonbury/Wethersfield Putnam Trail

12/21/2017 – The purpose of the proposed project is to provide a bike ped connection between Wethersfield and Glastonbury and repair the Putnam Bridge Walkway. The multi-use trail in Glastonbury was the subject of discussion in this meeting. The designer provided detailed information about Alternative 1 (cutting into the embankment and using a retaining wall along Route 3), Alternative 1A (moving the trail further from the roadway and using a fill slope to support the trail), and Alternative 4 (building the trail along the toe of slope).

Project Impacts:

	Alt 1	Alt 1A	Alt 4
Tree Clearing Area Acres	2.5	4.8	6.1
Erodible Surface Area Disturbance Acres	6.3	5.9	7.5
Wetland Impacts sq. ft.	3,417	17,603	29,888
Floodplain Impact C. Y. Fill	10,082	27,204	19,386
Floodway Impact C. Y. Fill	67	1,067	8,746

Permitting Requirements: Specific permit requirements will not be decided until an alternative is selected.

Agency Comments: DEEP Staff expressed concerns about floodplain impacts and how they will be compensated for. They also stated that Alternative 4 is likely unfeasible due to the amount of floodway impacts. DOT OEP staff asked if elements of Alternative 1 and 1A can be combined by using a retaining wall for some sections and a fill slope for others. DOT Engineering Staff said that they will investigate that possibility. Hydraulics and Drainage staff stated that net fill in the floodplain is “generally a no, no.”

Action Items: Provide more floodplain impact and cost analysis. Provide hydraulic analysis that indicates that proposed fill in the floodplain does not increase flood elevations. H&D and the design unit will investigate required floodplain compensation requirements.

102-358 Route 15/7 Interchange Improvement, Norwalk

12/21/2017 – This project was put on hold due to legal action in 2009. The purpose of this project is to improve system linkage, increase mobility for all modes of transportation, and improve safety in the vicinity of the interchanges. The intersections and interchanges will be redesigned using ramps with new alignments and additional traffic signals. A wetland delineation and report for this project was done in Fall 2016. To the north of the project site there are mitigation sites from previous DOT projects.

Project impacts: Due to the removal of a dam on the Norwalk River the project site will have river herring on site which would require a Time of Year Restriction during construction. All alternatives explored will result in FEMA 100-year floodplain impacts.

**DEEP /USACE/ DOT
Interagency Coordination Meeting 12/21/2017
Project Meeting Notes**

Permitting Requirements: Permitting Requirements will be determined at the conclusion of the NEPA/CEPA study.

Agency Comments: Hydraulics and Drainage Staff stated that the FEMA map for this area is out of date and inaccurate, a map revision will be necessary. The consultant replied that the analysis is currently being performed. DEEP Fisheries Staff stated that they will be removing a dam that creates a back water upstream to Glover Ave. DOT OEP requested to be sent the plans for the dam removal. DEEP Fisheries Staff mentioned, if mitigation is necessary Davis Pond Dam would benefit from a new fishway.

Action Items: Continue the NEPA/CEPA study.

160-147 Bridge 02259, Route 32 over South Branch Roaring Brook, Willington

12/21/2017 – Bridge 02259 has a curb to curb width of 30 feet and a span length of 27 feet. The existing masonry abutments were built in 1914. That fascia beams have become badly deteriorated. The proposed rehabilitation for this structure consists of placing an aluminum box with a concrete footing between the existing abutments. The designers intend to keep the bridge open during construction. This branch of Roaring Brook experiences very little flow except during flood events, fisheries has stated that they are not concerned with this structure.

Project Impacts: The proposed project will result in 2940 sq. ft. of wetland impacts, 1559 sq. ft. of impacts below Ordinary High Water, 5216 sq. ft. of FEMA floodplain impacts, 0.2 acres of tree clearing, and 0.88 erodible surface disturbances.

Permitting Requirements: The federal permitting requirement for this project is an ACOE Pre-Construction Notice. State permitting requirements for this project are a PGP Addendum and a GP for Water Resource Construction activities. Flood Management will not be required for this project due to the size of the drainage area.

Agency Comments: DOT OEP staff asked if it is possible to obtain a Self-Verification for this project instead of a Pre-Construction Notice. ACOE staff replied that this project will require a Pre-Construction Notice due to this project being a bridge lining project, it does not meet the criteria for a Self-Verification. DEEP Regulatory staff stated that they have no concerns if DEEP fisheries is satisfied with the chosen structure and signs off on the permit plan set.

Action Items: Develop permits and submit them to OEP for review.

Attachment J: FEMA Maps & Final Hydraulics Report

Connecticut Addendum Army Corps of Engineers General Permit State of Connecticut (CT GP)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

*Final Hydraulics Report provided through attached DVD

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



memorandum

subject: Permit Attachment

Project No.: 160-147

F.A.P. No.: n/k

Rehabilitation of Bridge No. 02259

Rte 32 over Roaring Brook Overflow Path

Town of Willington

date: April 24, 2018

to: Mary E. Baker
Transportation Principal Engineer
Bureau of Engineering and Construction

from: Michael E. Masayda *Michael Masayda*
Transportation Principal Engineer
Hydraulics & Drainage
Bureau of Engineering and Construction

Michael Masayda,
P.E.
2018.04.24
08:27:27-04'00'

The Hydraulics and Drainage Section has prepared the following permit attachments for the DEEP Inland Wetland Permit application for the subject project.

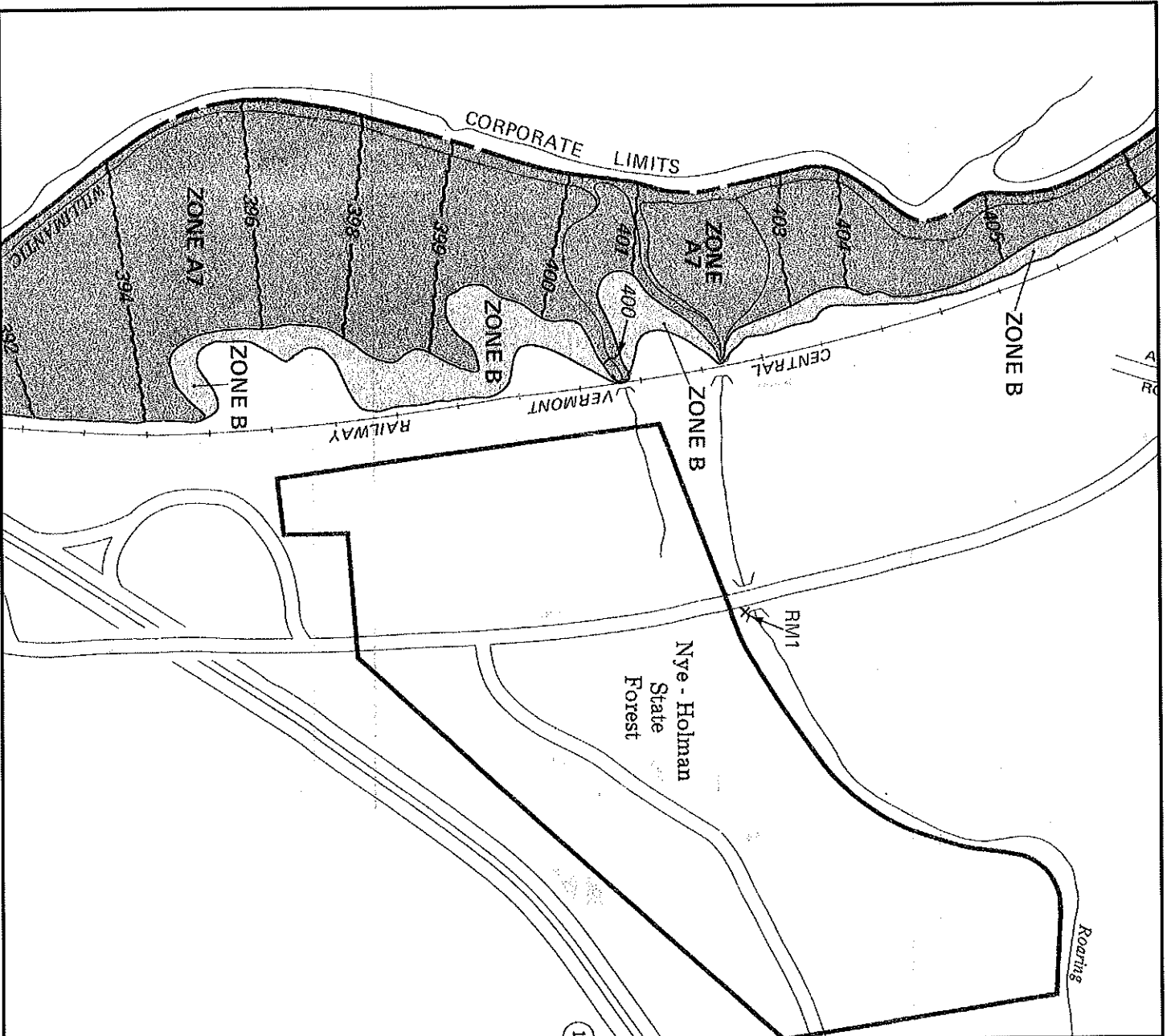
Document	Description/Comment
Engineering Report	An electronic copy of the Final Hydraulic Report (<u>HY 02259 Hydraulic Report 160-147 April 2018.pdf</u>) has been placed under: <u>X:\0160-0147\Hydro\Final</u> The folder also includes a supplemental data file (<u>HY 02259 Hydraulic Report 160-147 April 2018_DATA.zip</u>) associated with the report.
Attachment H, Part 1	Engineering Documentation: Engineering Reports Checklist – The Stormwater Management section for the proposed drainage systems and the Soil Erosion and Sediment Control Plan section are to be completed by your or Highway Design office.
Attachment H, Part 2	Engineering Documentation: Hydrologic and Hydraulic Consistency Worksheets – Section I: Floodplain Management (Not regulated; but required for work in a watercourse)

When submitting the Hydraulic Report to DEEP, please ensure that the associated data file is also included in the same file folder location (electronic submission) or on a DVD (paper submission), which has a relatively large file size.

Please contact Won Song at extension 3236 should you have any questions or require additional information.

Won Song/ws
Attachments

cc: Theodore H. Nezames - Michael E. Masayda – Michael E. Hogan – Won S. Song
Michael N. Calabrese
Kevin V. Blasi - Sarwat A. Basha
Andrew H. Davis
David W. Harms



APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
WILLINGTON,
CONNECTICUT
TOLLAND COUNTY

PANEL 4 OF 20

(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY PANEL NUMBER
090159 0004 A

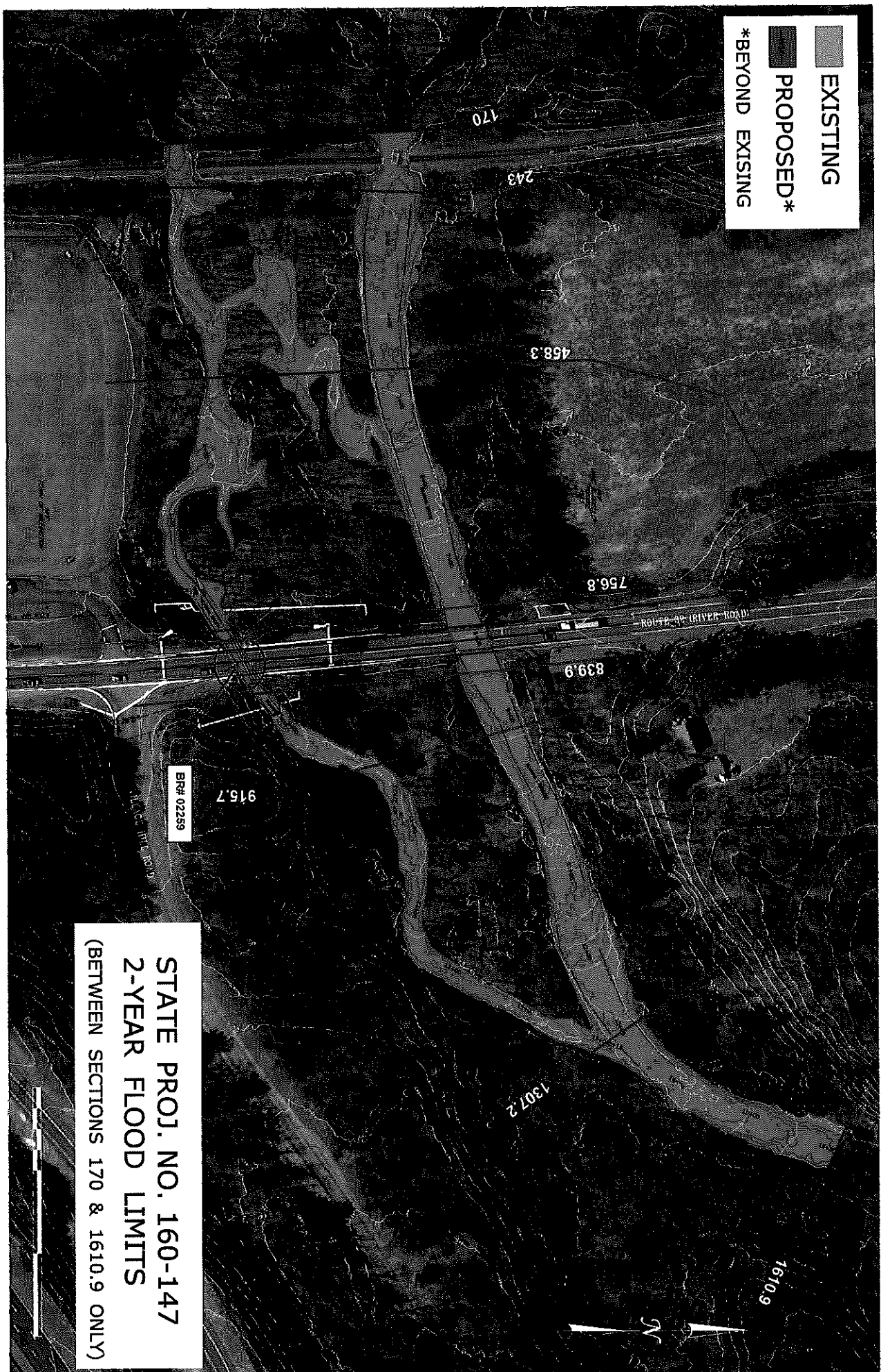
EFFECTIVE DATE:
JUNE 15, 1982



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

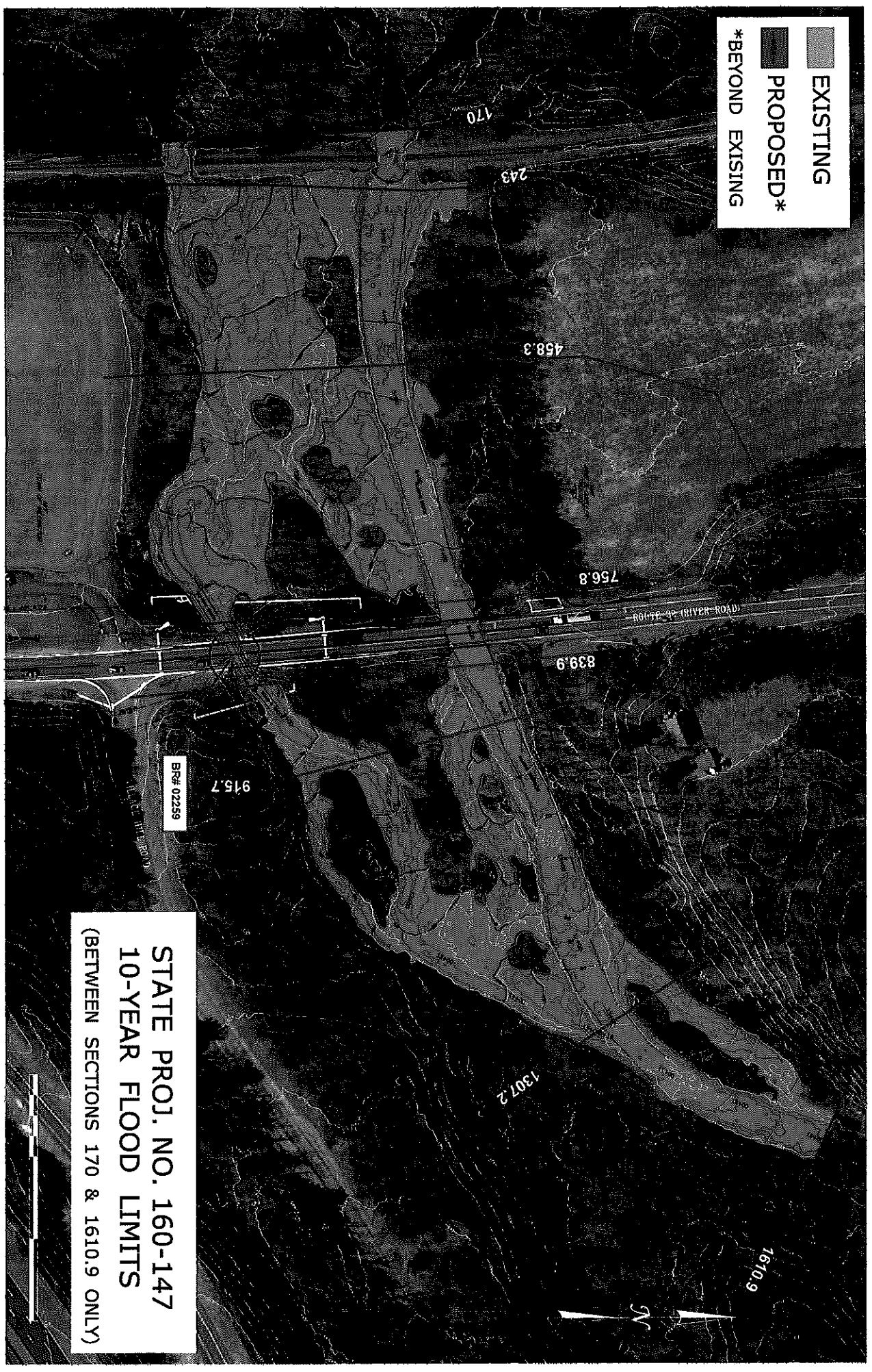
EXISTING
 PROPOSED*
 *BEYOND EXISTING



STATE PROJ. NO. 160-147
2-YEAR FLOOD LIMITS
 (BETWEEN SECTIONS 170 & 1610.9 ONLY)

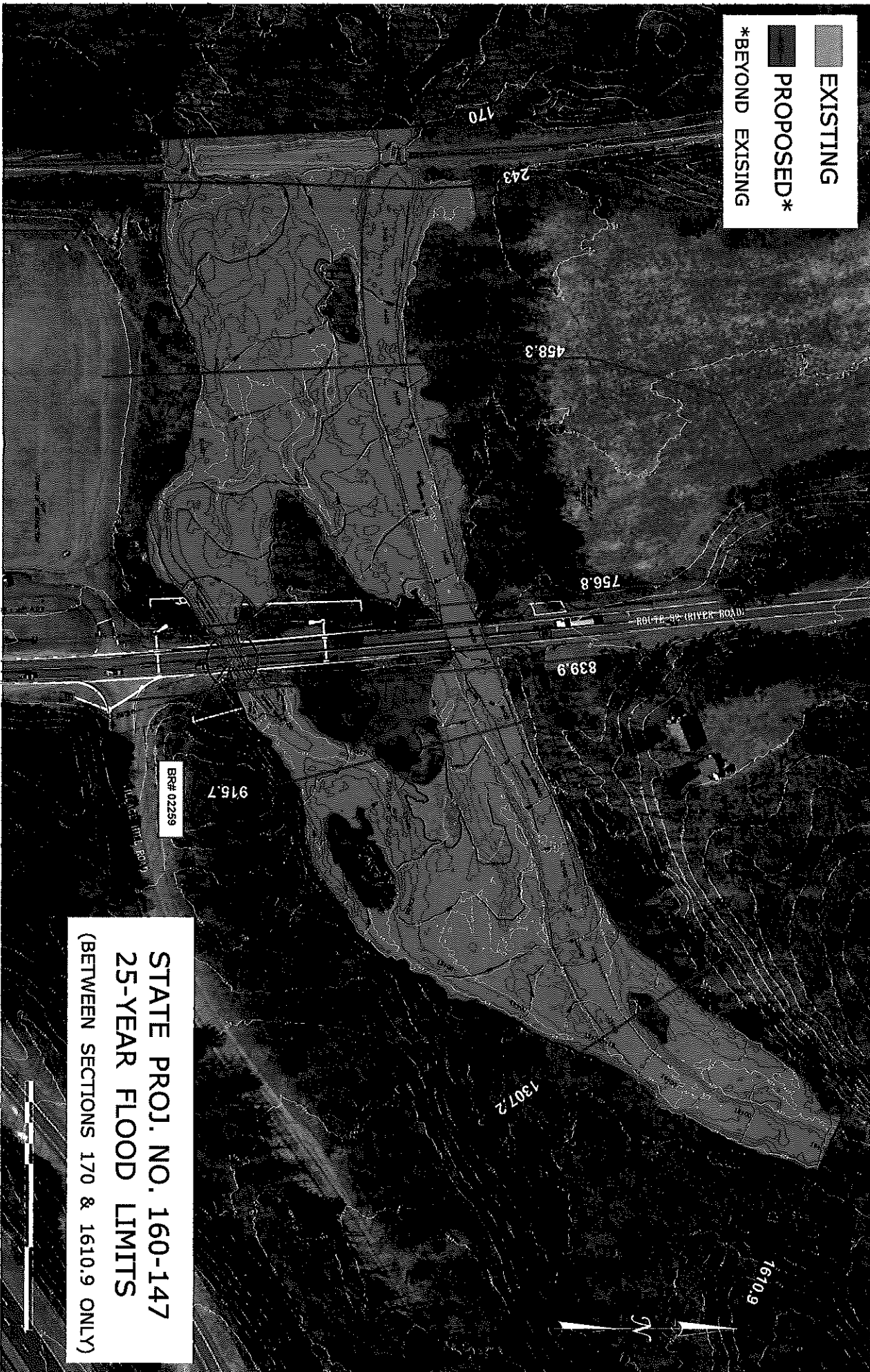


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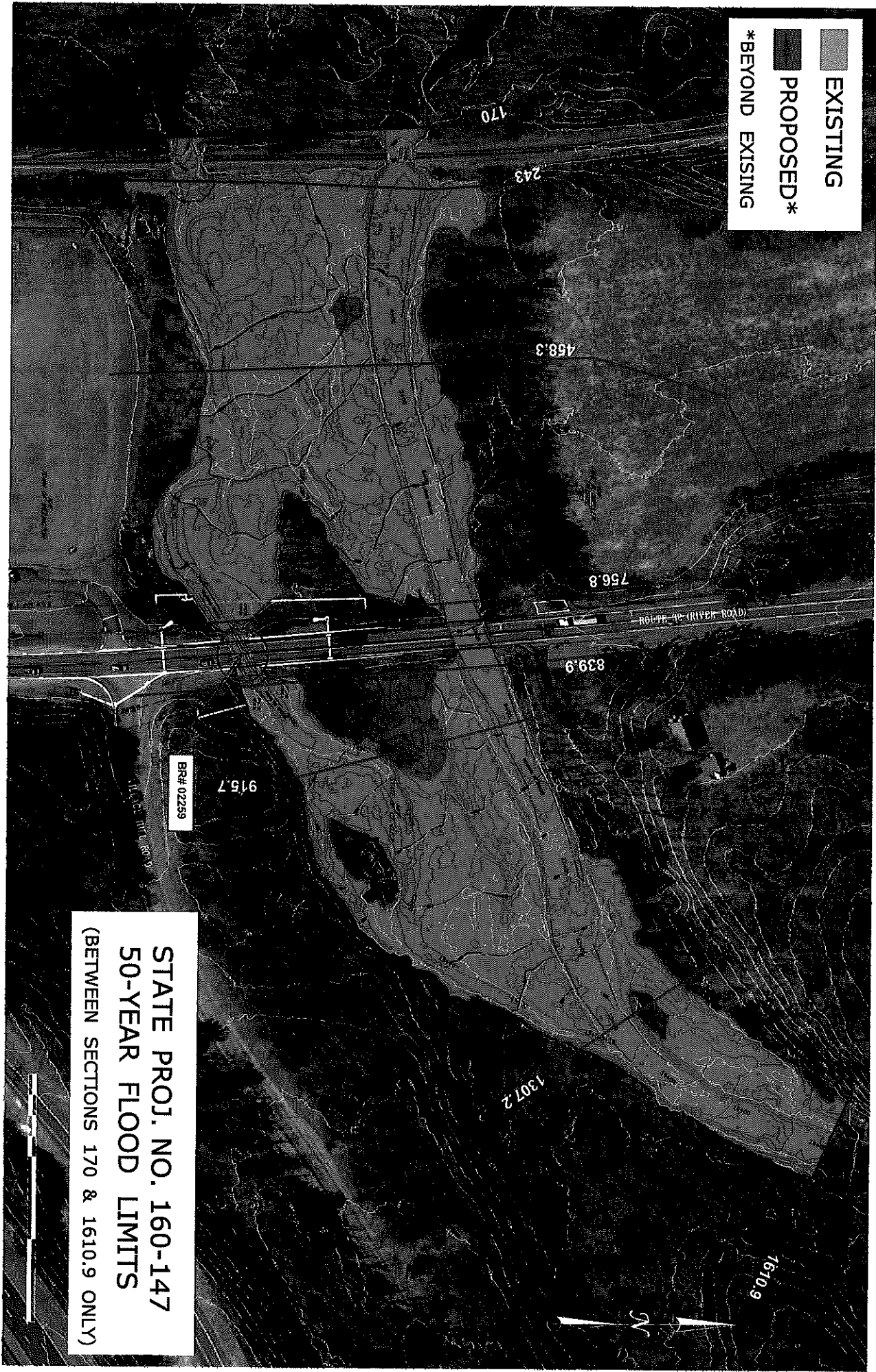
STATE PROJ. NO. 160-147
10-YEAR FLOOD LIMITS
 (BETWEEN SECTIONS 170 & 1610.9 ONLY)

EXISTING
 PROPOSED*
 *BEYOND EXISTING



STATE PROJ. NO. 160-147
25-YEAR FLOOD LIMITS
 (BETWEEN SECTIONS 170 & 1610.9 ONLY)

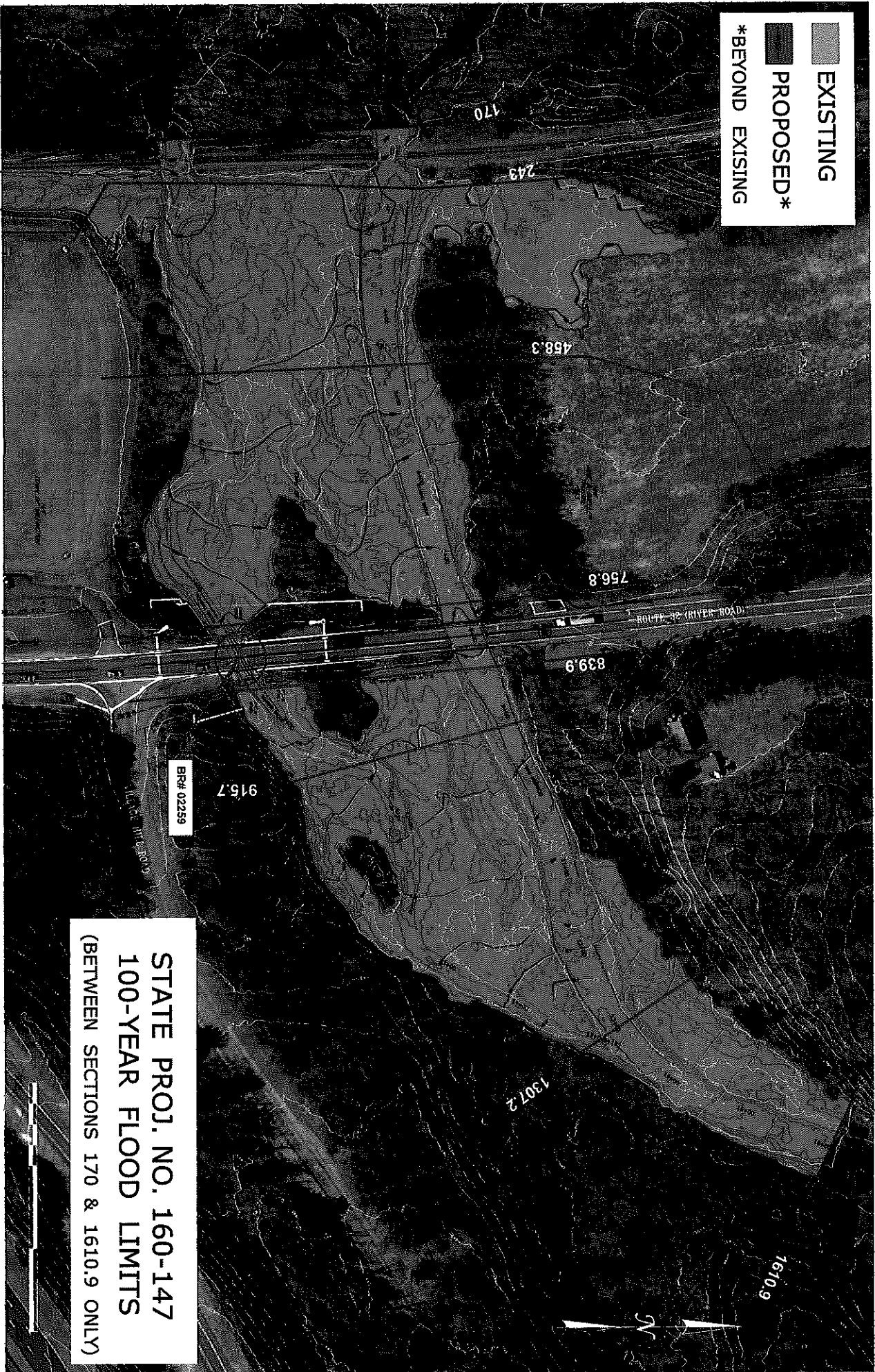
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STATE PROJ. NO. 160-147
50-YEAR FLOOD LIMITS
 (BETWEEN SECTIONS 170 & 1610.9 ONLY)



EXISTING
PROPOSED*
*BEYOND EXISTING



STATE PROJ. NO. 160-147
100-YEAR FLOOD LIMITS
(BETWEEN SECTIONS 170 & 1610.9 ONLY)



Attachment K: Copy of ACOE Application

Connecticut Addendum Army Corps of Engineers General Permit State of Connecticut (CT GP)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

860-594-2931

Ms. Susan Lee
U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742-2751

Subject: State Project No. 160-147
Rehabilitation of Bridge No. 02559 Carrying Route 32 over S. Branch
Roaring Brook
Willington, CT

Dear Ms. Lee:

Enclosed please find the Section 404 Pre-Construction Notification (PCN) permit application for your review and approval. 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 Lesay
Transportation Assistant Planning Director
Bureau of Policy and Planning

Attachments

cc: Nathan Margason – USEPA

bcc: Kimberly C. Lesay
Andrew H. Davis – Christopher W. Samorajczyk – Michael J. Salter
Mary E. Baker – Kevin Blasi – Jonathan J. Kempf – Zoltan M. Kanyo
Donald Ward

U.S. Army Corps of Engineers (USACE)
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
 33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved -
OMB No. 0710-0003
Expires: 01-08-2018

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at . Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website:

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
--------------------	----------------------	------------------	------------------------------

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Middle - Last - Company - State of Connecticut, Department of Transportation E-mail Address - kimberly.lesay@ct.gov	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Middle - Last - Company - E-mail Address -
6. APPLICANT'S ADDRESS: Address- 2800 Berlin Turnpike, P.O. Box 317546 City - Newington State - CT Zip - 06111 Country - USA	9. AGENT'S ADDRESS: Address- City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE a. Residence b. Business c. Fax (860)594-2931	10. AGENTS PHONE NOs. w/AREA CODE a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT

DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions) State Project No. 160-147, Rehabilitation of Bridge No. 02259 Carrying Route 32 over S. Branch Roaring Brook	
13. NAME OF WATERBODY, IF KNOWN (if applicable) S. Branch Roaring Brook	14. PROJECT STREET ADDRESS (if applicable) Address Route 32
15. LOCATION OF PROJECT Latitude: °N 41° 54' 9.93" Longitude: °W 72° 17' 14.78"	City - Willington State- CT Zip- 06279
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Municipality Section - Township - Range -	

17. DIRECTIONS TO THE SITE

From I-84 WB, take Exit 70 (Route 32 Willington/Willimantic); Turn right at the bottom of the ramp onto Route 32 and go North; Travel 0.2 miles to Bridge No. 02259 (There is no bridge number on the bridge, but there is a tributary sign for "Roaring Brook").

18. Nature of Activity (Description of project, include all features)

Bridge 02259 was constructed in 1914 to carry Route 32 over South Branch Roaring Brook. The single-span, multi-beam superstructure is supported by stone masonry abutments and wingwalls with concrete caps. The deck consists of two concrete slab sections on the outside of each fascia beam and 7 bays consisting of arch pan stay-in-place forms. The curb to curb deck width is 30 feet and carries one lane of traffic with narrow shoulders in each direction. The structure has a skew angle of 22 degrees and an overall length of 31 feet, with a maximum span of 27 feet. The existing 27 foot span will be rehabilitated by inserting an aluminum box culvert liner inside the existing structure and filling the voids between the existing structure and the liner by pumping concrete flowable fill. The aluminum box culvert will be founded on a concrete slab and have cast-in-place concrete wing walls and footings with vertical ground anchors. This rehabilitation will include widening the road to provide a curb to curb roadway width of 34 feet which will contain a 12 ft lane width and a 1 ft shoulder in each direction. Temporary access roads will be built to facilitate the construction of the new structure. All disturbed areas will be re-vegetated with native plantings. Modified and intermediate riprap swales and a grass swale will be constructed for the permanent condition.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The latest bridge inspection report dated July 19, 2016 states that the superstructure is in a serious condition (rating 3) and exhibits moderate to heavy rust with loss of section in girders. All remaining components of the bridge are in a satisfactory condition (rating 6) or better. New permanent drainage will be installed on the outlet side, and the roadway will be widened to a curb to curb width of 34 feet. In order to correct the deficiencies in the existing structure, a new aluminum box culvert founded on a culvert invert slab is being inserted underneath the existing structure. The roadway widening to 34 feet is required to provide sufficient lane and shoulder widths across Bridge No. 02259.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Permanent impacts to the wetlands and watercourse are the result of grading and rip-rap placement in the brook and the installation of a new aluminum box culvert that will be founded on a concrete invert slab. Additionally, this permanent impact also includes the placement of fill along Route 32 for the support of the roadway as well as permanent drainage to the West of the structure. Temporary impacts in the wetland and watercourse are the result of the water handling measures which will be required to divert flows away from the construction site if a storm event takes place during construction operations.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
See attached		

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres See attached
or
Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See attached

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- Connecticut Department of Energy and Environmental Protection, 79 Elm Street

City - Hartford State - CT Zip - 06106

b. Address- Town of Willington, 40 Old Farms Road

City - Willington State - CT Zip - 06279

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
CT DEEP	IWRD General	TBD	Post ACOE Approval	TBD	
CT DEEP	PGP Addendum	TBD	Concurrently	TBD	

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

Block 21, 22 and 23

Application for Department of the Army Permit

Applicant: State of Connecticut, Department of Transportation
Project No. 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S. Branch
Roaring Brook
Willington, CT

21. Types of Material Being Discharged and the Amount of Each Type in C.Y.

Natural Streambed Material	20
Intermediate Riprap	55
No. 6 Crushed Stone	50
Granular fill	10
Concrete	110

22. Surface Area in Acres of Wetlands or Other Waters Filled

Permanent impacts to the wetlands and watercourse are the result of grading and rip-rap placement in the brook and the installation of a new aluminum box culvert founded on a concrete invert slab. Additionally, this permanent impact also includes the placement of fill along Route 32 for the support of the roadway as well as permanent drainage to the West of the structure. Temporary impacts in the wetland and watercourse are the result of the water handling measures which will be required to divert flows away from the construction site if a storm event takes place during construction operations. Temporary access roads will be built in order to facilitate construction.

	Permanent *	Temporary *	Total *
Wetland	0 (0.000)	0 (0.000)	0 (0.000)
Watercourse	1400 (0.032)	1000 (0.023)	2400 (0.055)
Total	1400 (0.032)	1000 (0.023)	2400 (0.055)

*Impact values shown within parentheses are in acres. All other values shown are in square feet.

The water handling facilities during construction will consist of sandbag cofferdam or equivalent at the inlet and outlet ends. A pump system shall be provided by the Contractor for the purpose of keeping the site dry during construction and to handle potential groundwater.

23. Description of Avoidance, Minimization, and Compensation

Impacts to the stream will be minimized through adherence to the Form 817, Section 1.10 Best Management Practices (BMP's) and the 2004 Storm water Quality Manual. Traffic will be maintained on Route 32 throughout the duration of construction in order to have the least adverse effect to the traveling public during the rehabilitation. During construction, proper water handling measures will be implemented to allow work to occur in the areas confined within those water handling devices. Sedimentation and Erosion Control Systems will be installed as necessary to limit disturbance to protect

the wetlands and watercourses through adherence of the 2002 Erosion and Sedimentation Guideline Manual.

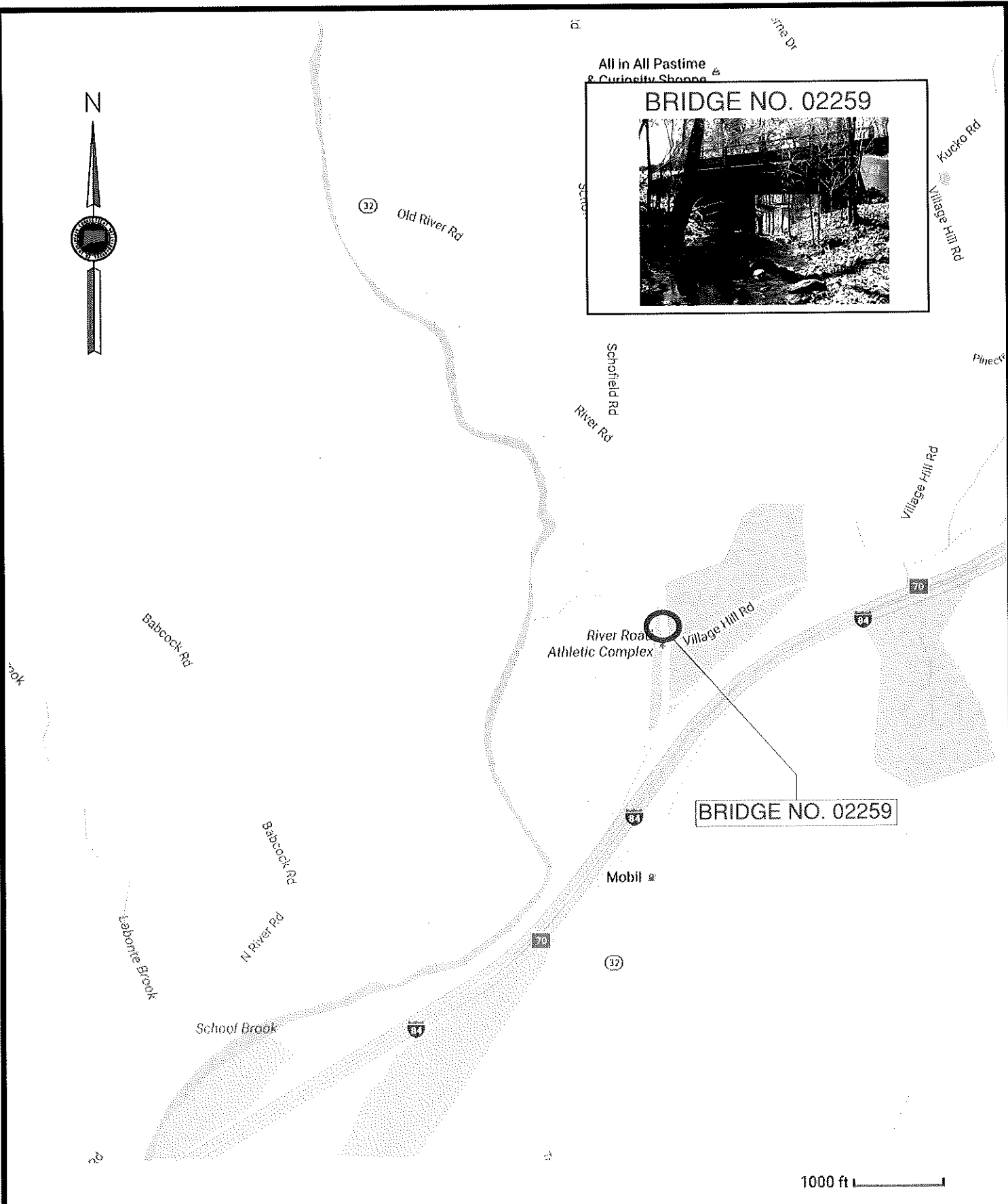
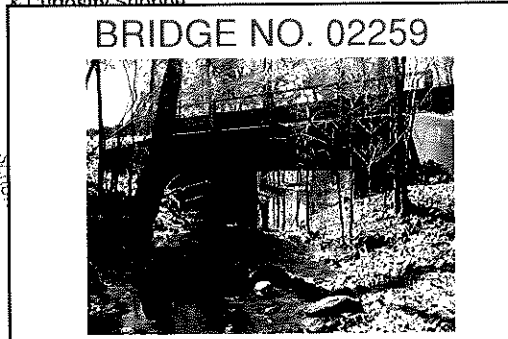
- Installation, use and maintenance of combined silt fencing and hay bale erosion and sedimentation control around other work areas.
- Storage of construction materials outside of wetlands.
- Vehicle re-fueling and servicing at a location outside of the wetland and watercourse.
- Proper care and maintenance of vehicles and equipment.
- Installation of a debris shield to protect the existing channel.
- Provide a dewatering basin to treat any water pumped out of the site prior to it re-entering the watercourse.

In order to avoid potential erosion, the use of slopes steeper than those specified on the plans shall not be permitted unless approved by the design engineer. Invasive species will be controlled during construction through the use of the Department's *Control and Removal of Invasive Vegetation* specification within the project limits. The areas of temporary watercourse impact will be restored to existing condition with natural streambed material. Native plantings and seeding are proposed for the impacted wetland areas and adjacent buffer areas to restore the vegetative community of the streambank at the inlet and outlet. Please see Permit Planting Plan for limits of invasive vegetation removal and for proposed planting and restoration plan.

Attachment A: Location Map

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



BRIDGE NO. 02259

STATE PROJECT NO.:

0160-0147

CITY/TOWN:

Town of Willington



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

LOCATION MAP

BRIDGE NO. 02259

Route 32 over South Branch Roaring Brook



OFFICE OF
ENGINEERING



DATE:

09/20/2016

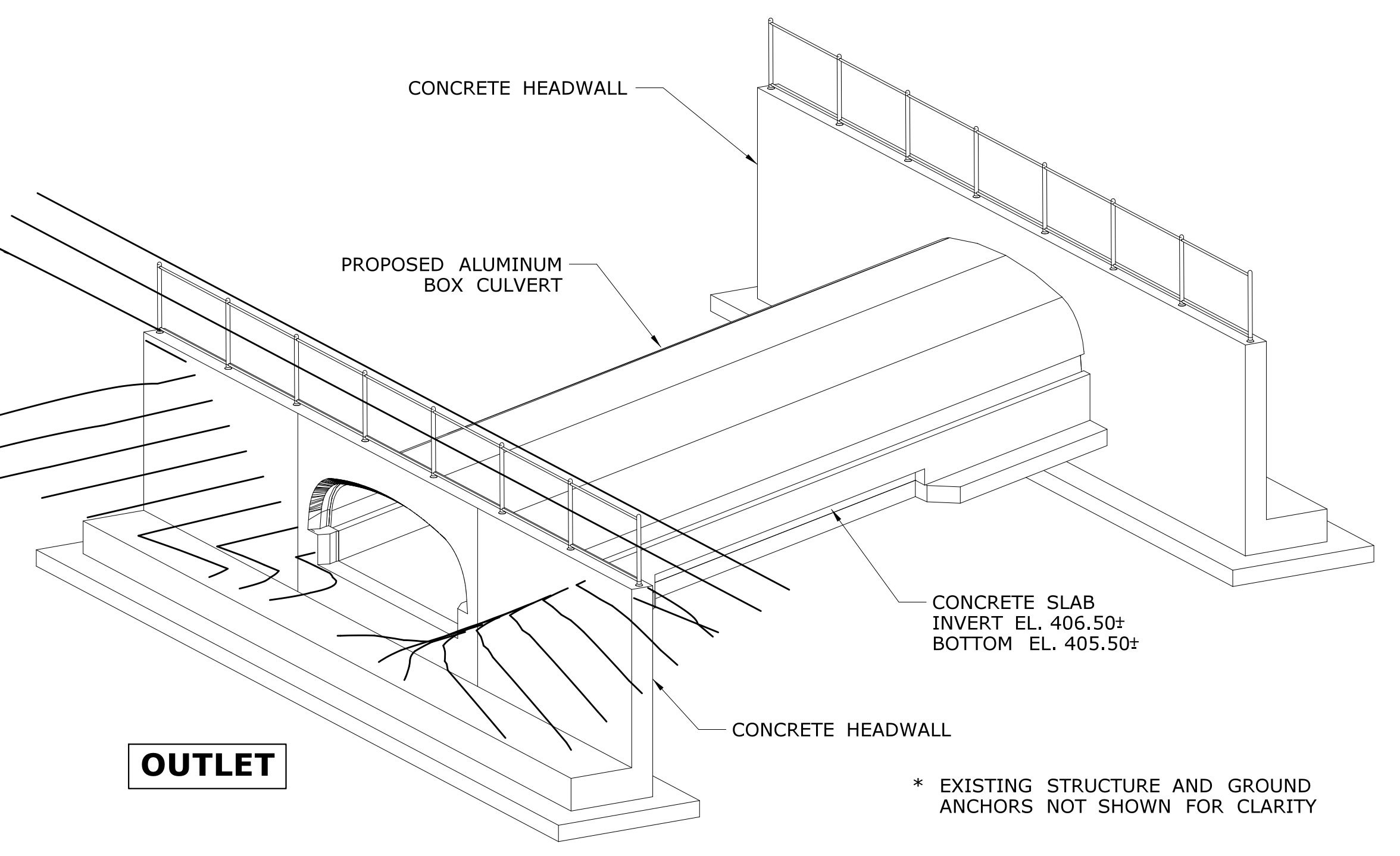
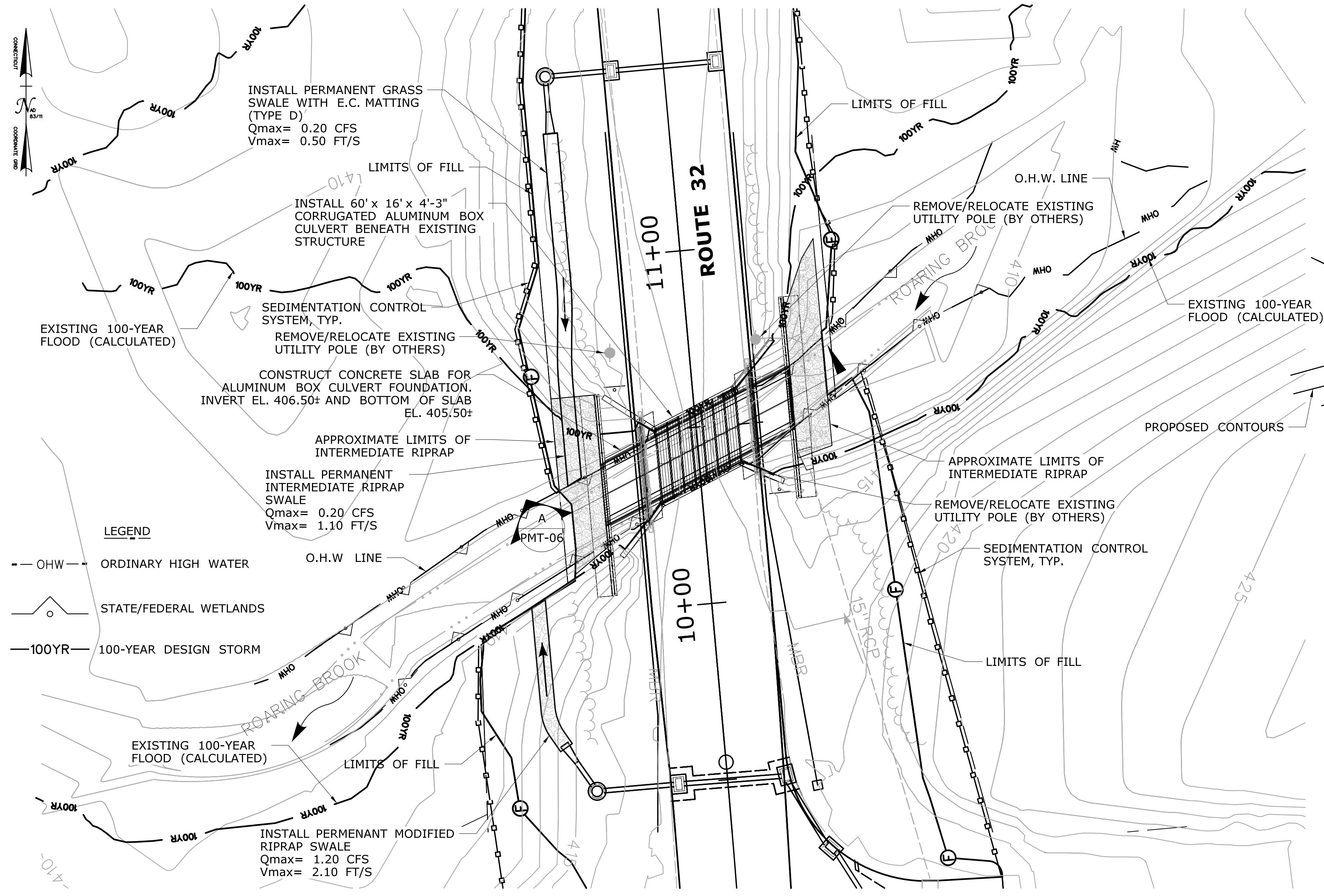
Attachment B: Permit Plans

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

List of Plan Sheets and Drawings

Sheet 1	Title Sheet
Sheet 2	General Plan
Sheet 3	Wetland/Watercourse Impact Plan
Sheet 4	Construction Sequence - I
Sheet 5	Construction Sequence - II
Sheet 6	Construction Sequence - III
Sheet 7	Permit Planting Plan



PLAN VIEW - BRIDGE NO. 02259
SCALE: 1" = 20'

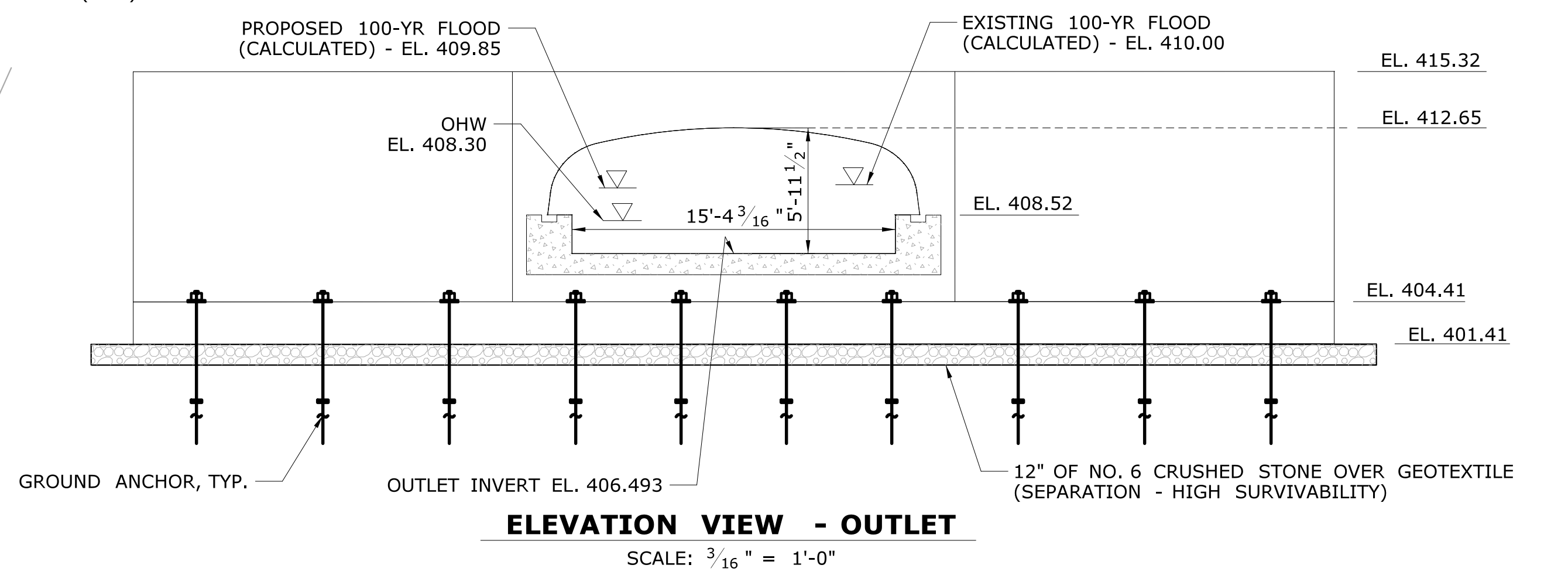
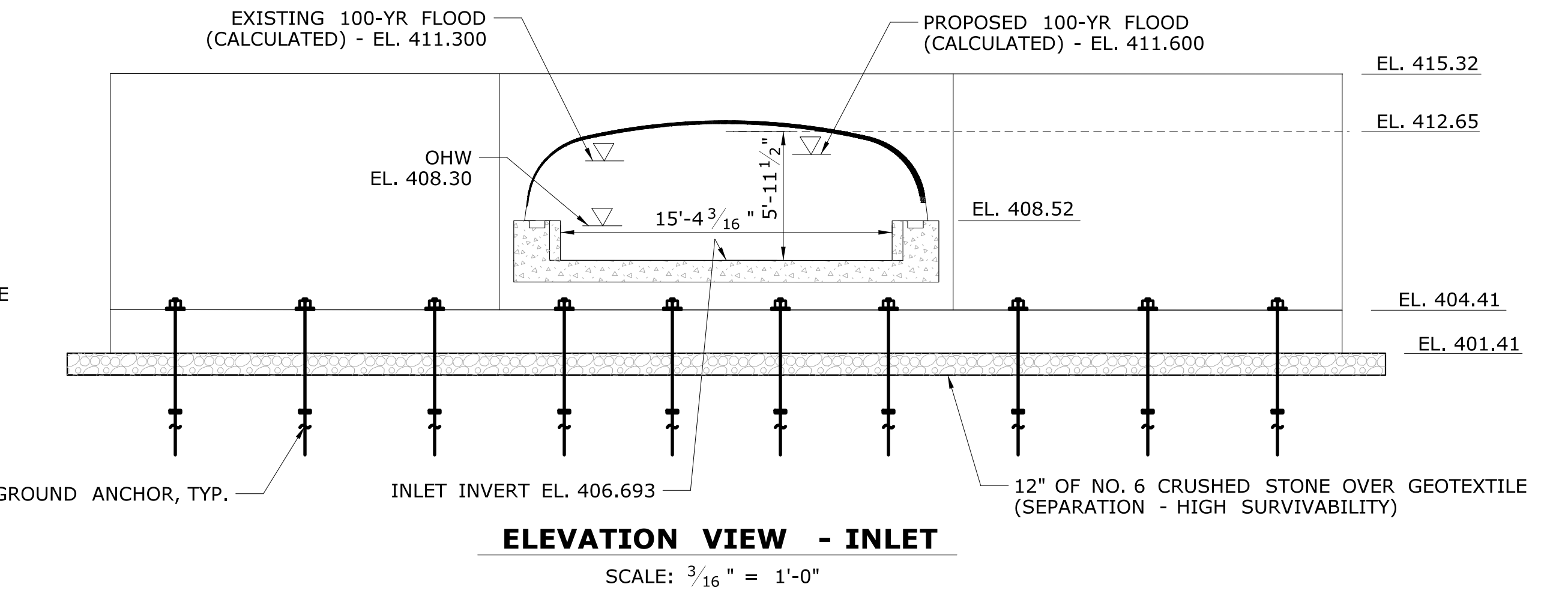
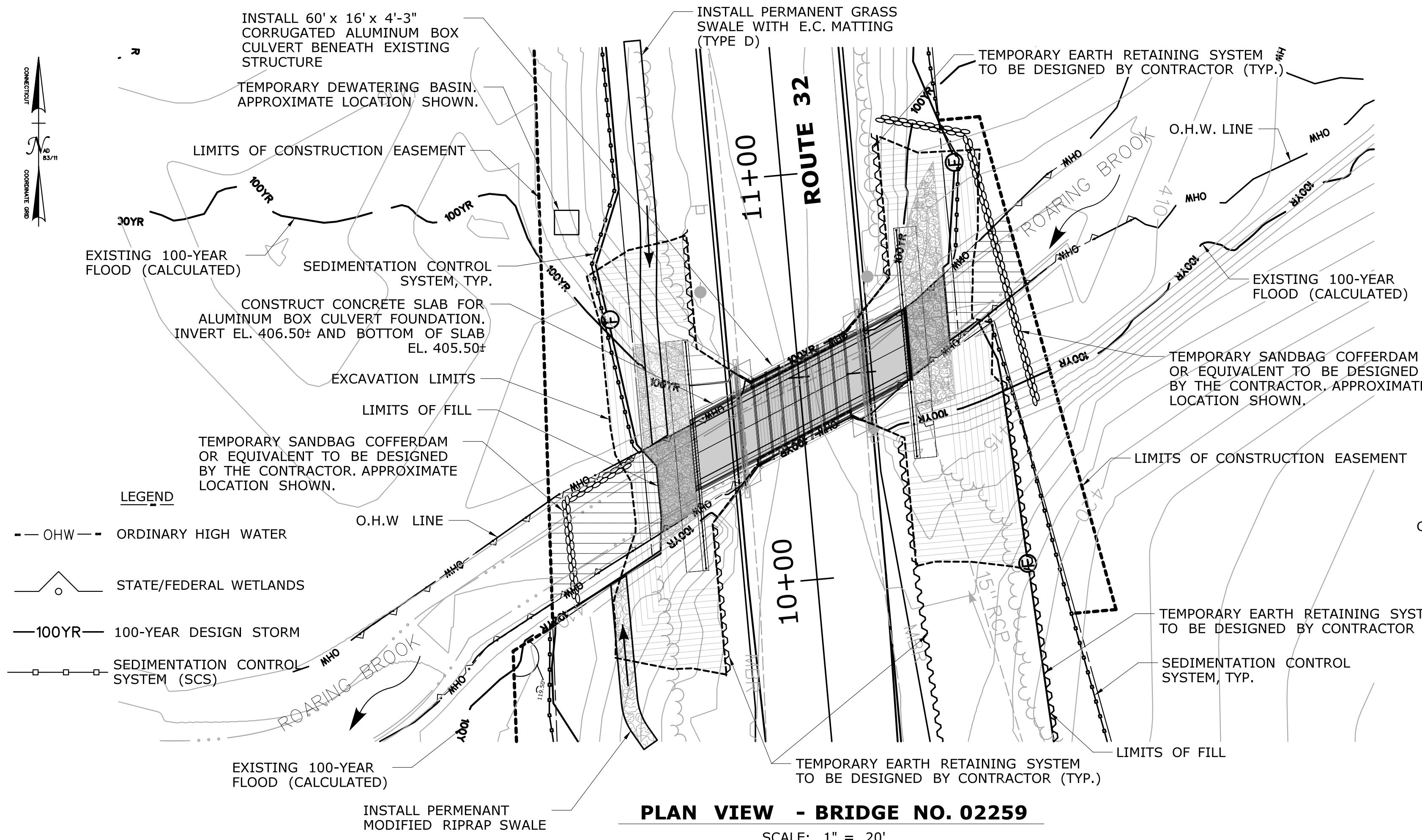
HYDRAULIC DATA TABLE - BRIDGE NO. 02259

DRAINAGE AREA	22 SQ. MI.
DESIGN FREQUENCY	100 - YEAR
DESIGN DISCHARGE	405 CFS (2460 CFS*)
AVERAGE DAILY FLOW EL. (ESTIMATED)	N.A. (DRY)
UPSTREAM DESIGN WATER SURFACE ELEVATION	411.6 FT +
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	410.0 FT +

* SHARED WITH BRIDGE NO. 00937

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: MAY 11, 2018

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:	OFFICE OF ENGINEERING REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
	CHECKED BY: JJK		APPROVED BY:		DRAWING TITLE: GENERAL PLAN	DRAWING NO. PMT-02
SCALE AS NOTED Plotted Date: 5/14/2018 Filename: ... \SB_160-147_P-02_General Plan.dgn					SHEET NO.	



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 PER DRAWING NO. PMT-07 "PERMIT PLANTING PLAN".

TEMPORARY IMPACT AREAS BELOW OHW LIMITS SHALL BE RESTORED WITH NATURAL CHANNEL BOTTOM MATERIAL.

WETLAND IMPACT AREAS (ABOVE O.H.W. LEVEL)	
TEMPORARY (S.F.)	0 (0.00 ACRES)
PERMANENT (S.F.)	0 (0.00 ACRES)
TOTAL (S.F.)	0 (0.00 ACRES)

STREAM IMPACT AREAS (BELOW O.H.W. LEVEL)	
TEMPORARY (S.F.)	1000 (0.023 ACRES)
PERMANENT (S.F.)	1400 (0.032 ACRES)
TOTAL (S.F.)	2400 (0.055 ACRES)

- PERMANENT IMPACT AREA
- TEMPORARY IMPACT AREA

THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

TOTAL WETLAND + STREAM IMPACT AREA = 2,400 (S.F.) (0.055 ACRES)

OPENNESS RATIO (OR):

OR = OPEN AREA / CULVERT LENGTH
 OR = 80 S.F. / 60 FT = 1.33 FT
 1.33 FT > 0.82 FT (RECOMMENDED MINIMUM)

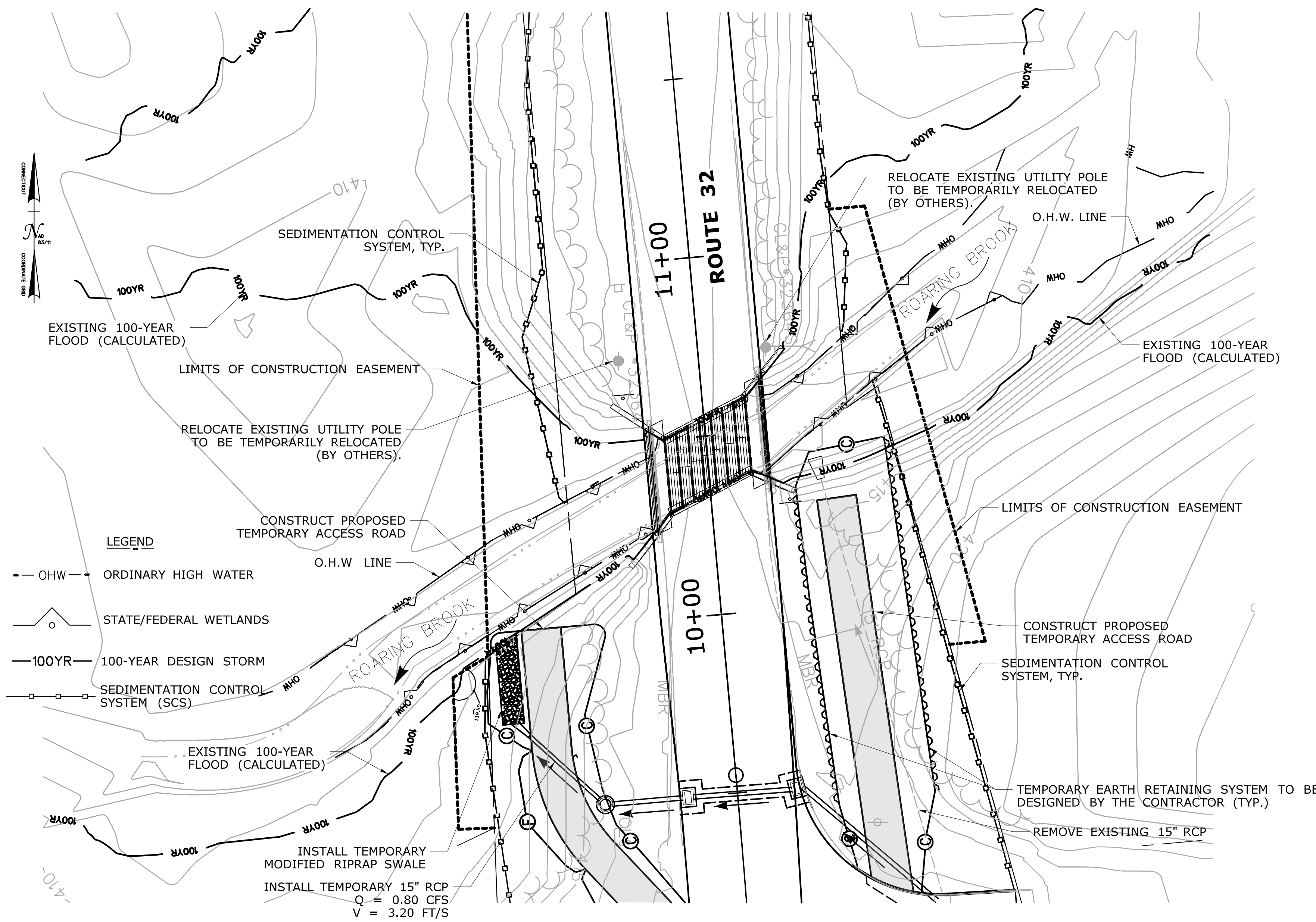
BANKFULL WIDTH (BFW):

BFW = 15 FT EXISTING UPSTREAM (OHW)
 1.2 x BFW = 18 FT
 18 FT > 16 FT (PROPOSED CULVERT SPAN)

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 10, 2018**

	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: ZMK CHECKED BY: JJK SCALE AS NOTED	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147 DRAWING NO. PMT-03 SHEET NO.
REV. DATE REVISION DESCRIPTION SHEET NO. Plotted Date: 5/15/2018	FILENAME: ... \SB-160-147_P-03_Environmental Impact Plan.dgn						



STAGE 1: INSTALLATION OF TEMPORARY DRAINAGE AND CONSTRUCTION OF ACCESS ROADS

SCALE: 1" = 20'

PROPOSED CONSTRUCTION SEQUENCE:

PRE-STAGE 1:

1. RELOCATE UTILITY POLES (BY OTHERS)

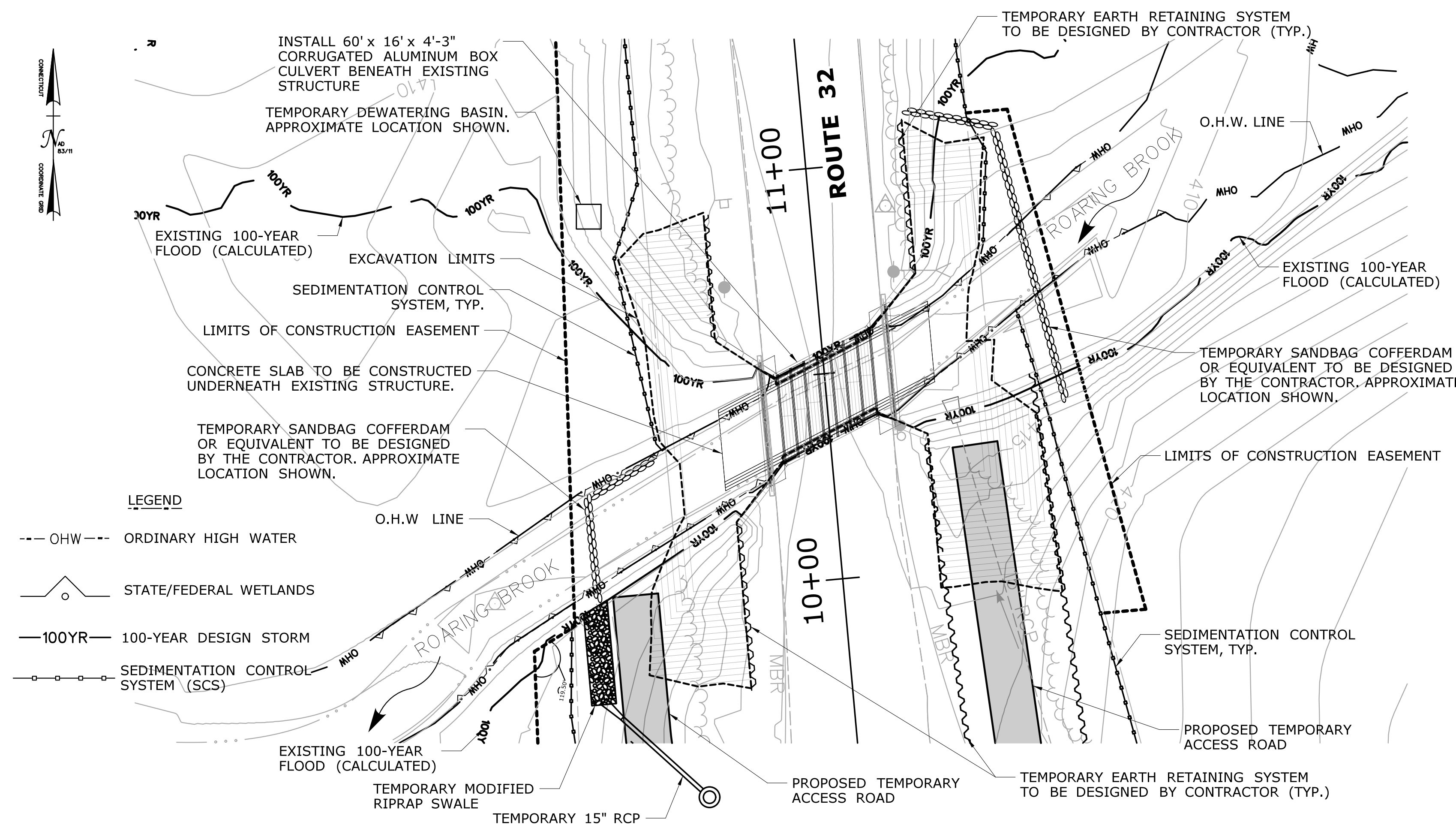
STAGE 1:

1. MOBILIZATION; ERECT CONSTRUCTION SIGNS
2. CLEARING AND GRUBBING AND INSTALL SEDIMENTATION & EROSION CONTROL
3. INSTALL TEMPORARY MODIFIED RIPRAP SWALE INCLUDING TEMPORARY 15" RCP.
4. INSTALL TEMPORARY SHEET PILING FOR TEMPORARY ACCESS ROAD CONSTRUCTION.
4. REMOVE EXISTING 15" RCP AND CONSTRUCT TEMPORARY ACCESS ROADS

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 11, 2018**

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNER/DRAFTER: ZMK CHECKED BY: JJK SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147 DRAWING NO. PMT-04 SHEET NO.
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/14/2018	Filename: ...\\SB-160-147_P-04_Construction Sequence - 1.dgn	DRAWING TITLE: CONSTRUCTION SEQUENCE - 1	



STAGE 2: INSTALLATION OF WATER HANDLING, SITE EXCAVATION AND CONSTRUCTION OF CONCRETE SLAB

SCALE: 1" = 20'

TERS TO BE DESIGNED BY THE CONTRACTOR FOR SUPPORT OF THE ROADWAY

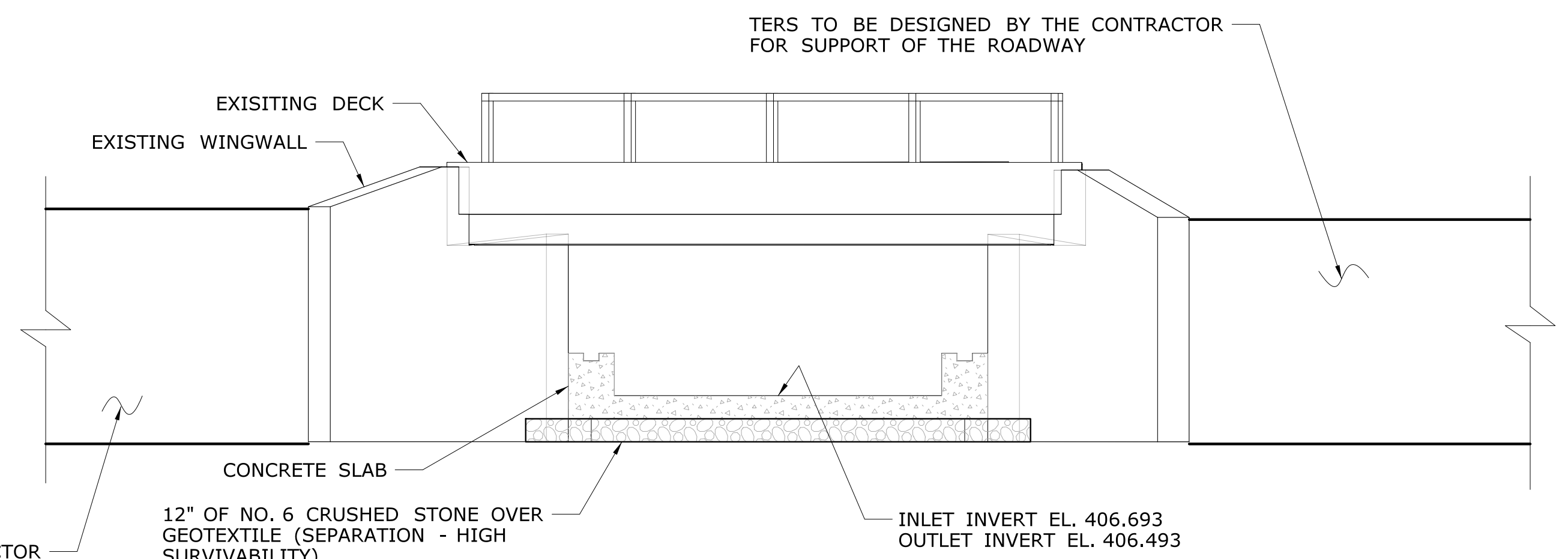
PROPOSED CONSTRUCTION SEQUENCE:

STAGE 2:

6. CONSTRUCT COFFERDAM AND INSTALL WATER HANDLING SYSTEM INCLUDING TEMPORARY DEWATERING BASIN.
7. INSTALL TERS FOR SUPPORT OF THE ROADWAY DURING EXCAVATION.
8. EXCAVATE EARTH FOR THE INSTALLATION OF THE CONCRETE INVERT SLAB.
9. PLACE 12" OF NO. 6 CRUSHED STONE OVER GEOTEXTILE FABRIC UP TO BOTTOM ELEVATION OF CONCRETE SLAB.
10. CONSTRUCT CONCRETE SLAB

WATER HANDLING NOTES:

1. A TEMPORARY DEWATERING BASIN AND PUMP SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR IN ORDER TO KEEP THE WORK SITE DRY THROUGHOUT CONSTRUCTION.
2. ALL WORK RELATING TO WATER HANDLING SHALL BE INCLUDED UNDER THE PAY ITEM "HANDLING WATER" (SEE SPECIAL PROVISION).
3. APPROXIMATE FINAL TOP TEMPORARY COFFERDAM ELEVATIONS GIVEN.

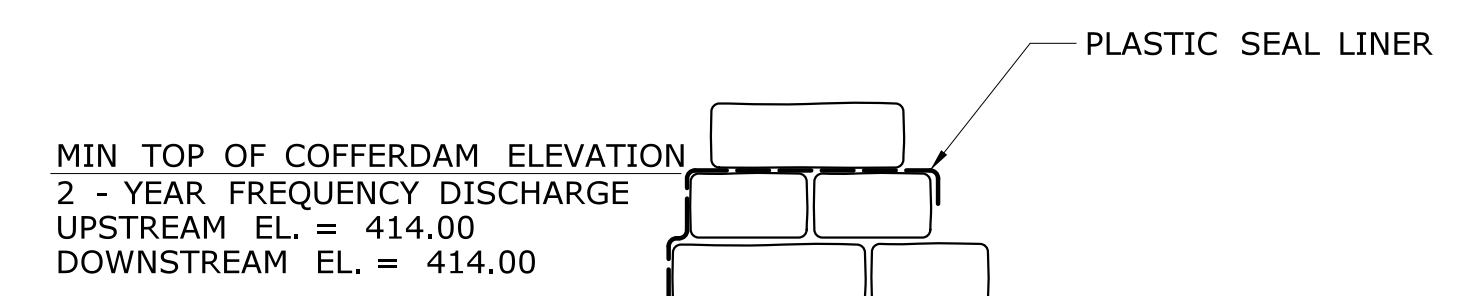


ELEVATION - STAGE 2 CONSTRUCTION

SCALE: 1" = 5'

TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW	N.A. (DRY)
AVERAGE SPRING FLOW	0.1 CFS
2-YEAR FREQUENCY DISCHARGE	33 CFS (TOTAL 627 CFS FOR ROARING BROOK)*
TEMPORARY DESIGN DISCHARGE	33 CFS (TOTAL 627 CFS FOR ROARING BROOK)*
TEMPORARY DESIGN FREQUENCY	2 - YEAR
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	414.0 FT
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	N.A. (DRY)

*SHARED WITH BRIDGE NO. 00937



TEMPORARY SANDBAG COFFERDAM OR EQUIVALENT TO BE DESIGNED BY THE CONTRACTOR.

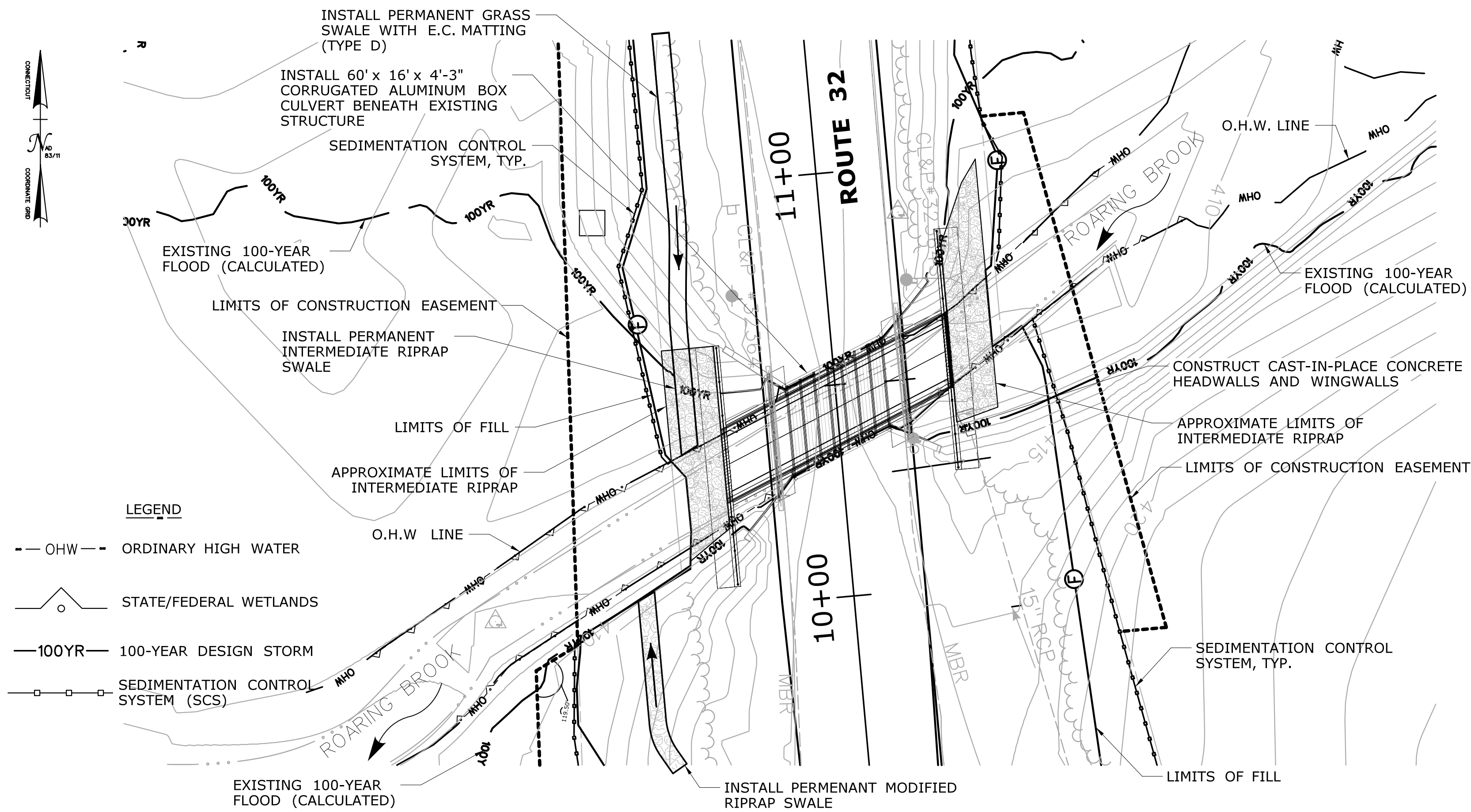
TEMPORARY COFFERDAM TYPICAL SECTION

NOT TO SCALE

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: **MAY 11, 2018**

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK:	OFFICE OF ENGINEERING REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
	CHECKED BY: JJK		APPROVED BY:		DRAWING NO. PMT-05	
REV. DATE REVISION DESCRIPTION SHEET NO. Plotted Date: 5/11/2018	SCALE AS NOTED	Filename: ...SB-160-147-P-05-Water Handling and Construction Sequence - 2.dgn			DRAWING TITLE: WATER HANDLING AND CONSTRUCTION SEQUENCE - 2	SHEET NO.



LEGEND

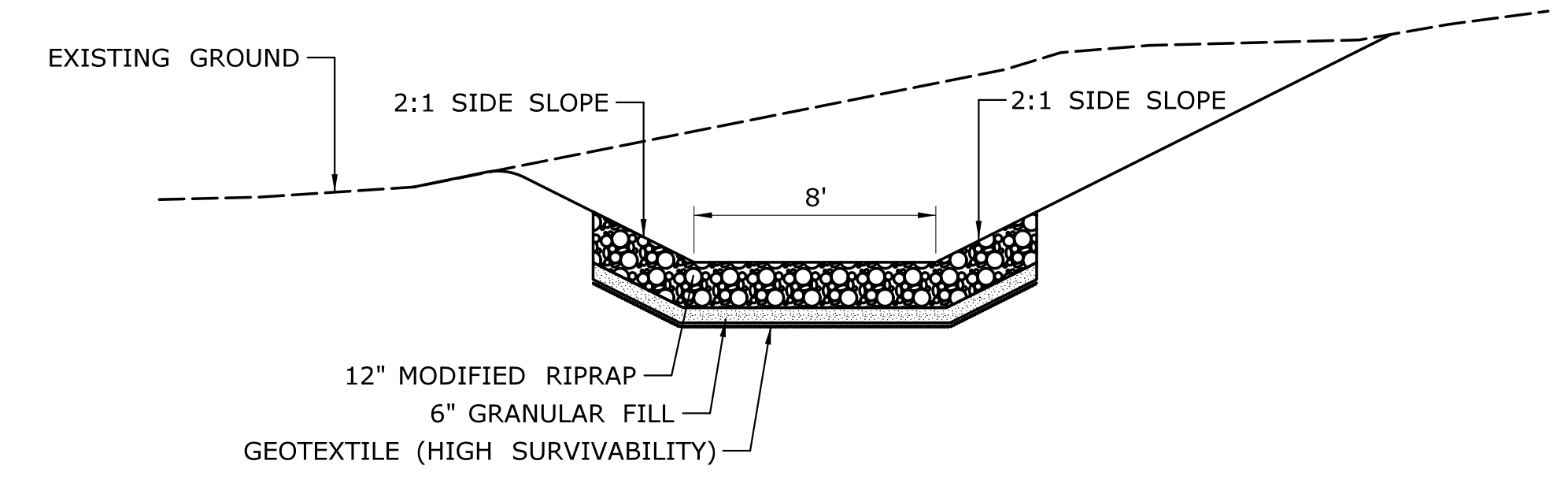
- OHW --- ORDINARY HIGH WATER
- STATE/FEDERAL WETLANDS
- 100YR 100-YEAR DESIGN STORM
- SCS SEDIMENTATION CONTROL SYSTEM (SCS)

STAGE 3: INSTALLATION OF ALUMINUM BOX CULVERT AND CONSTRUCTION OF CONCRETE HEADWALLS, AND WINGWALLS

SCALE: 1" = 20'

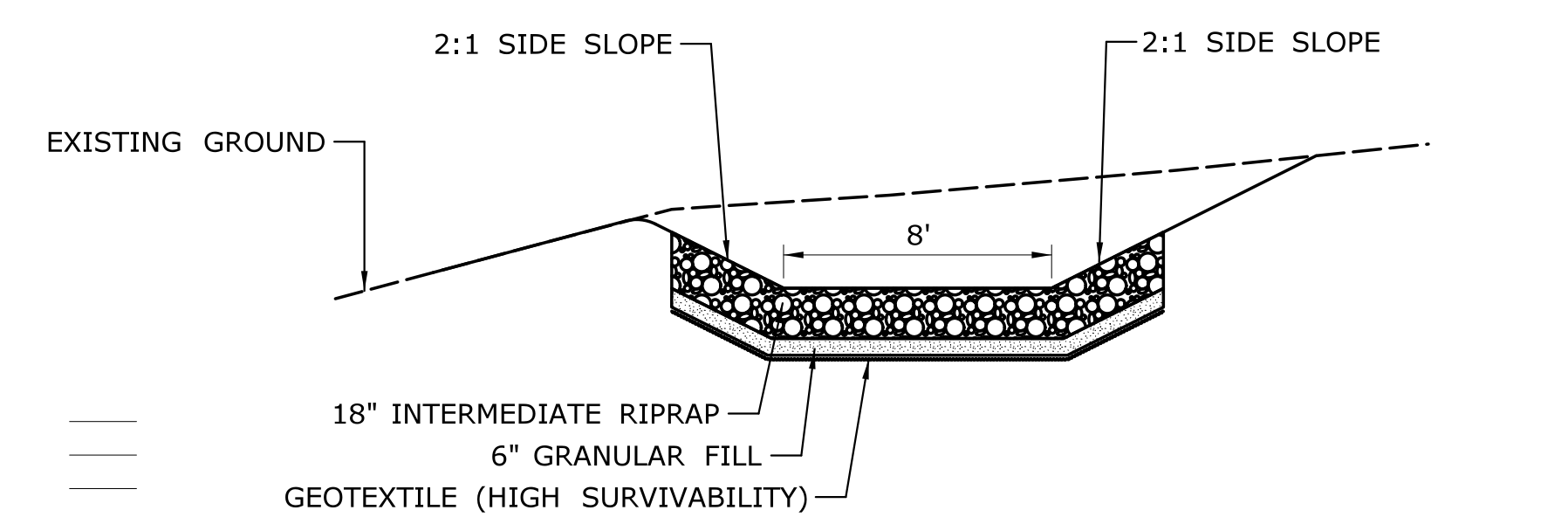
PROPOSED CONSTRUCTION SEQUENCE:

- STAGE 3:
11. IF NECESSARY IMPLEMENT ONE-WAY SINGLE LANE ALTERNATING TRAFFIC, INCLUDING CONSTRUCTION BARRICADES
 12. INSTALL ALUMINUM BOX CULVERT AT THE PROPOSED LOCATION
 13. INSTALL AND TEST VERTICAL GROUND ANCHORS.
 14. FORM, POUR, AND CURE CONCRETE HEADWALLS, WINGWALLS, AND FOOTINGS.
 15. INSTALL PERMANENT GRASS SWALE WITH E.C. MATTING (TYPE D), PERMANENT INTERMEDIATE RIPRAP SWALE AND PERMANENT MODIFIED RIPRAP SWALE.
 16. BACKFILL AND FINALIZE GRADING AND INSTALL INTERMEDIATE RIPRAP. NATURAL STREAMBED MATERIAL SHALL BE PLACED TO RESTORE TEMPORARILY IMPACTED AREAS WITHIN THE WATERCOURSE.
 17. REMOVE COFFERDAMS AND WATER HANDLING DEVICES.
 18. REMOVE TEMPORARY ACCESS ROADS, TEMPORARY EARTH RETAINING SYSTEMS, AND TEMPORARY MODIFIED RIPRAP SWALE.
 19. RECONSTRUCT ROADWAY AND MODIFY DECK FOR WIDENING
 20. INSTALL PROTECTIVE FENCE & METAL BEAM RAIL
 21. PREPARE FOR FULL DEPTH PAVEMENT RECONSTRUCTION.
 22. REMOVE SEDIMENTATION CONTROL SYSTEM UPON PERMANENT STABILIZATION.



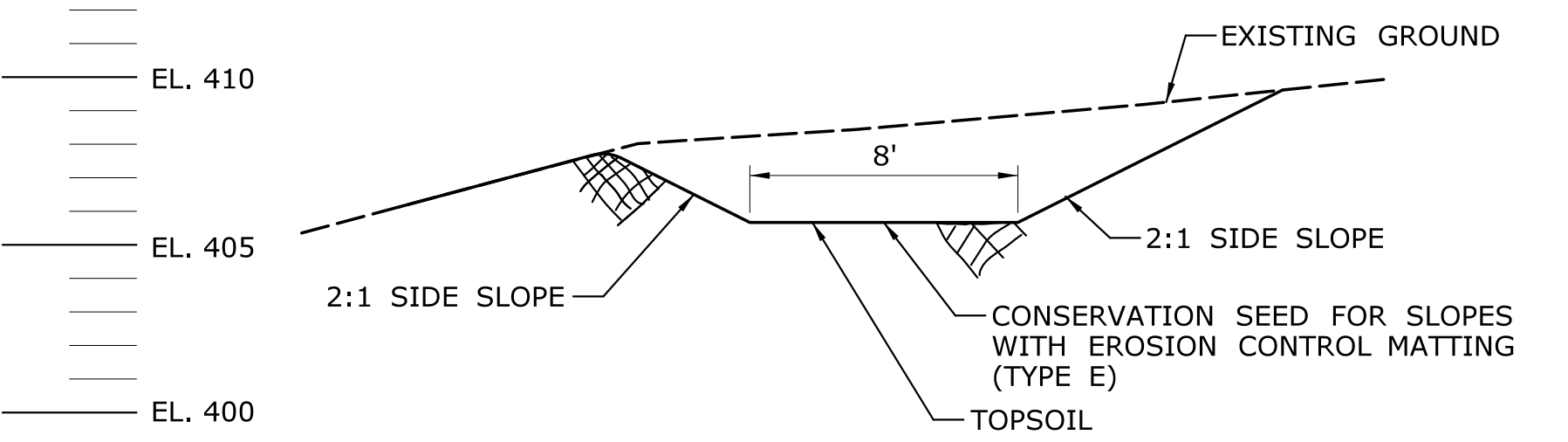
TYPICAL MODIFIED RIPRAP SWALE

SCALE: 1" = 5'



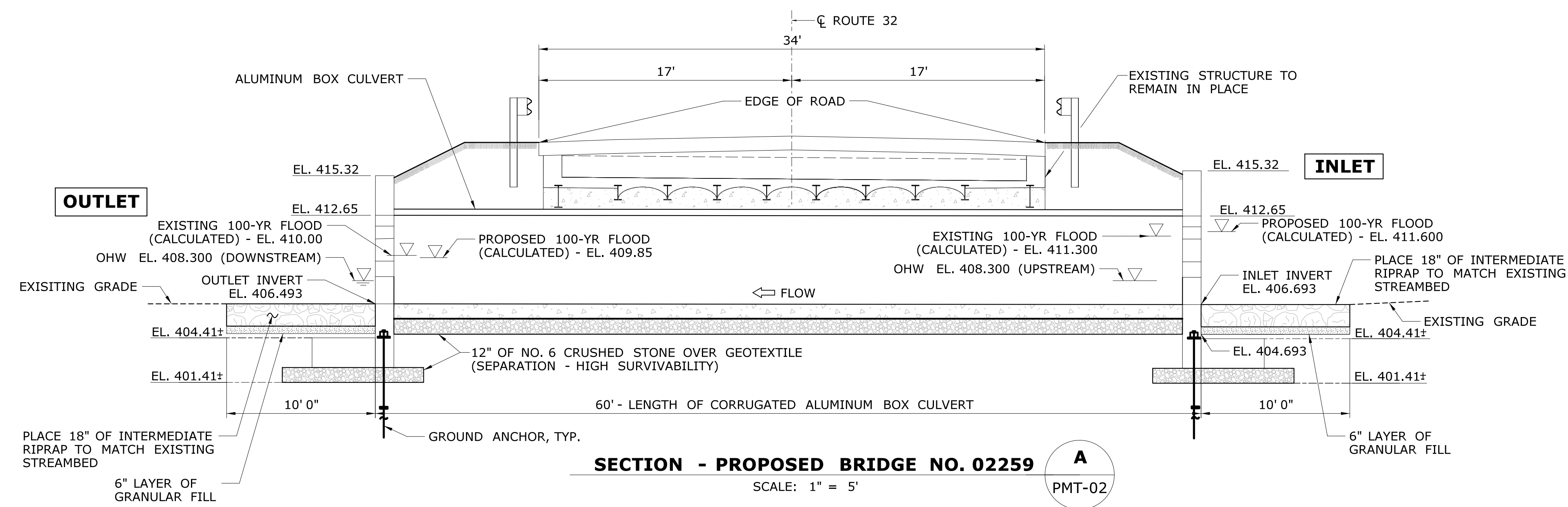
TYPICAL INTERMEDIATE RIPRAP SWALE

SCALE: 1" = 5'



TYPICAL GRASS SWALE

SCALE: 1" = 5'

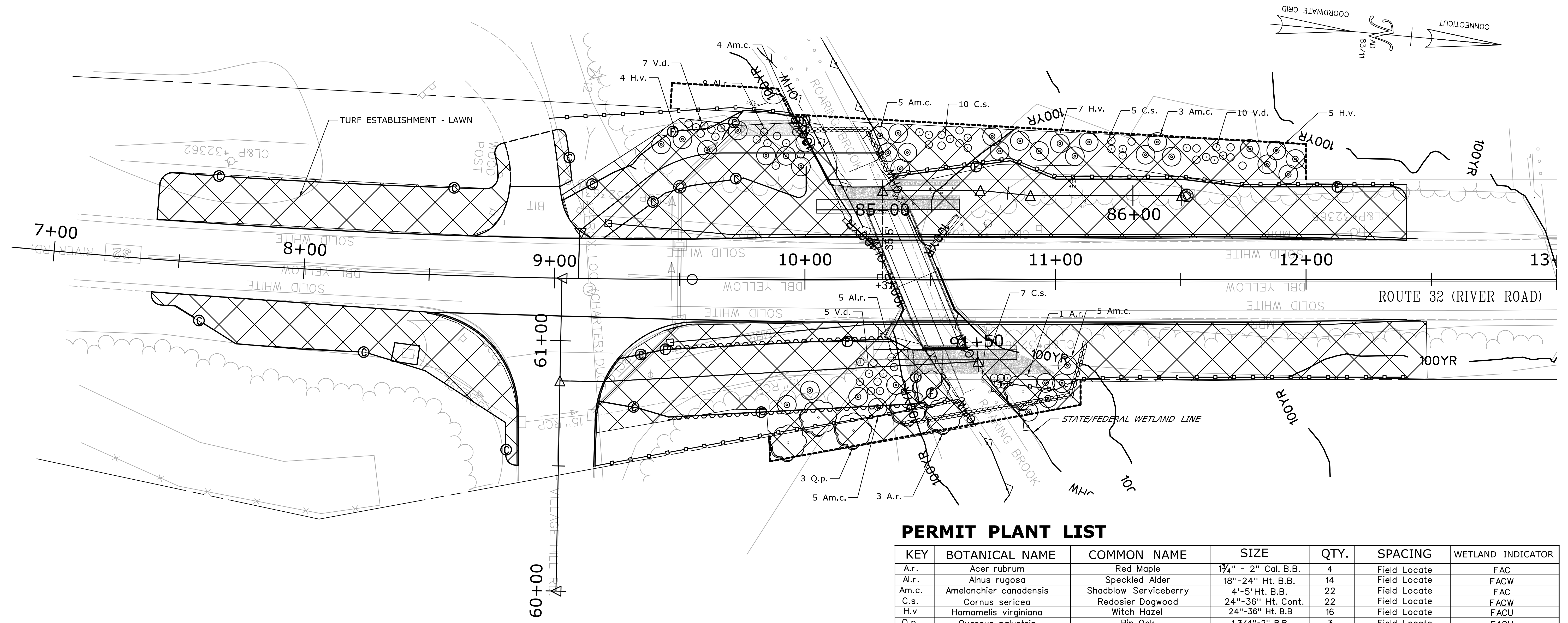
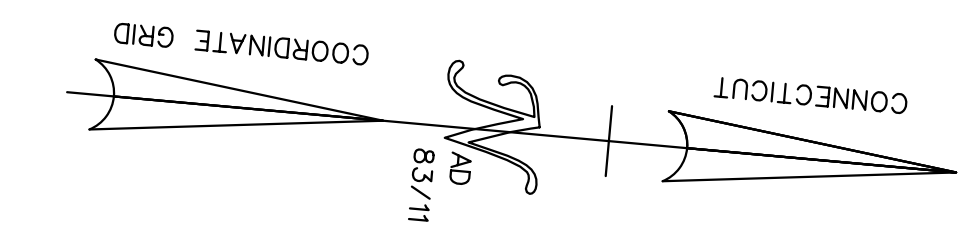


A
 PMT-02

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: MAY 11, 2018

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNER/DRAFTER: ZMK CHECKED BY: JJK SCALE AS NOTED	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION Filename: ...SB-160-147_P-06_Construction Sequence - 3.dgn	SIGNATURE/BLOCK: OFFICE OF ENGINEERING APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147 DRAWING NO. PMT-06 SHEET NO.
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 5/22/2018			



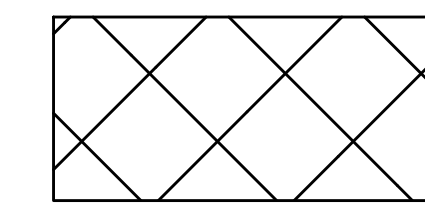
PERMIT PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	WETLAND INDICATOR
A.r.	<i>Acer rubrum</i>	Red Maple	1 3/4" - 2" Cal. B.B.	4	Field Locate	FAC
Al.r.	<i>Alnus rugosa</i>	Speckled Alder	18"-24" Ht. B.B.	14	Field Locate	FACW
Am.c.	<i>Amelanchier canadensis</i>	Shadblow Serviceberry	4'-5' Ht. B.B.	22	Field Locate	FAC
C.s.	<i>Cornus sericea</i>	Redosier Dogwood	24"-36" Ht. Cont.	22	Field Locate	FACW
H.v.	<i>Hamamelis virginiana</i>	Witch Hazel	24"-36" Ht. B.B.	16	Field Locate	FACU
Q.p.	<i>Quercus palustris</i>	Pin Oak	1 3/4"-2" B.B.	3	Field Locate	FACU
V.d.	<i>Viburnum dentatum</i>	Arrowwood Viburnum	18"-24" Ht. B.B.	22	Field Locate	FAC
	Turf Establishment - Lawn					
	Control and Removal of Invasive Vegetation					
	Conservation Seeding for Slopes					
	Wood Chip Mulch					

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. WOOD CHIP MULCH SHALL NOT BE PLACED IN THE WETLAND AREA.
3. 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 SPECIFIED.
4. ALL PLANTS SHALL BE STRAIGHT SPECIES. NO VARIETIES OR CULTIVARS WILL BE ACCEPTED.
5. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE COVERED WITH WOOD CHIP MULCH OR CONSERVATION SEED MIX FOR SLOPES UNLESS OTHERWISE NOTED.
6. THE EXACT QUANTITIES AND LIMITS FOR CONTROL AND REMOVAL OF INVASIVE VEGETATION SHALL BE FIELD DETERMINED.

KEY



CONTROL AND REMOVAL OF INVASIVE VEGETATION

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: APRIL 25, 2018

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: MV/MR	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:	PROJECT TITLE:	TOWN:	PROJECT NO.:	
	CHECKED BY: MC		OFFICE OF ENGINEERING	REHABILITATION OF BRIDGE NO. 02259 ROUTE 32 OVER SOUTH BRANCH ROARING BROOK	WILLINGTON	160-147	
Plotted Date: 5/16/2018	SCALE IN FEET 0 20 40 SCALE 1"=20'	FILENAME: ...VHW_MSH_0160-0147_LDS-02.dgn	APPROVED BY:		DRAWING TITLE:	DRAWING NO.:	
					PERMIT PLANTING PLAN	PMT-07	
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	SHEET NO.			

Attachment C: Site Photographs

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



Bridge No. 02559 Outlet



Bridge No. 02559 Inlet



Southern Outlet Wingwall



Northern Outlet Wingwall



Northern Inlet Wingwall



Southern Inlet Wingwall



Area Overview Looking Northbound



Area Overview Looking Southbound

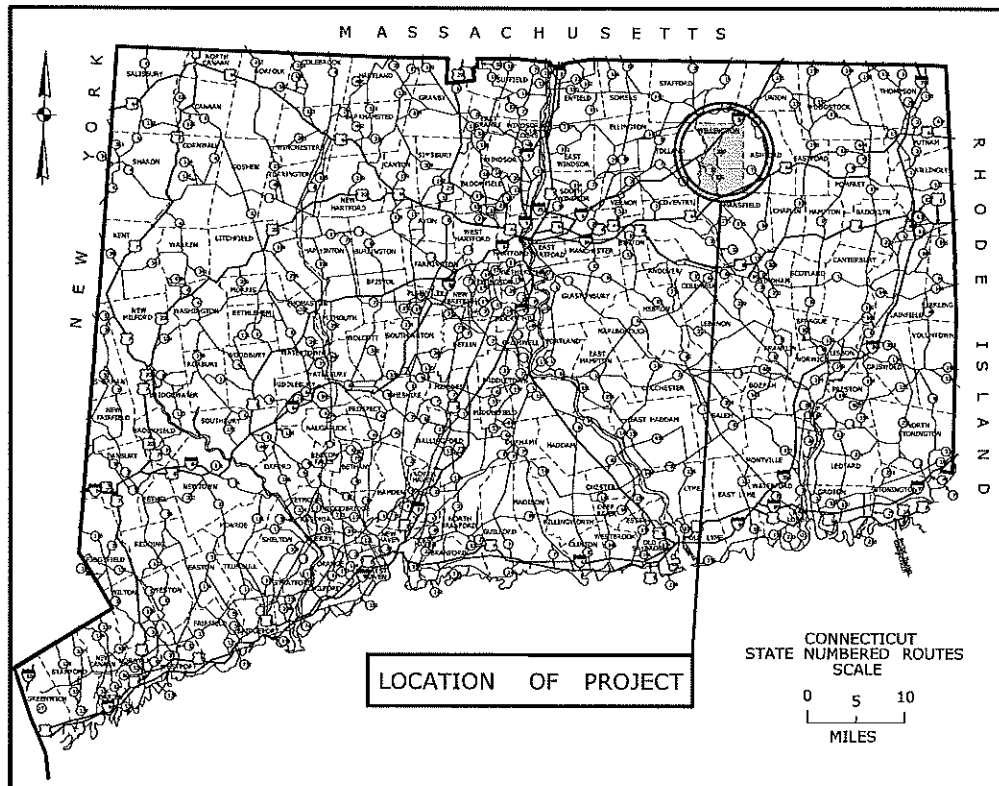


Deteriorating Bridge No. 02559 Superstructure

Attachment D: DEEP Fisheries and NDDB Coordination

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



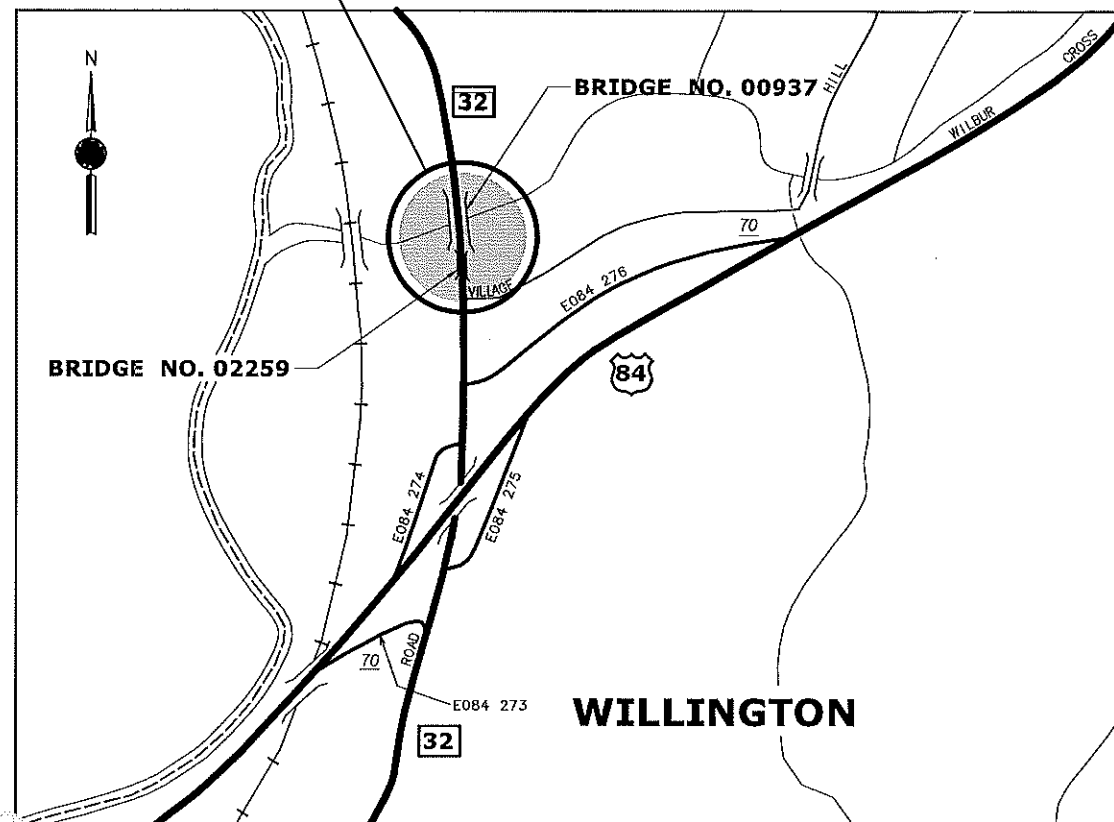
ALL ELEVATIONS BASED ON NGVD OF 1988
 COORDINATES BASED ON CONNECTICUT COORDINATE SYSTEM NAD 1983

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 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
STATE PROJECT NO. 160-147
REHABILITATION OF BRIDGE NO. 02259 CARRYING
ROUTE 32 OVER S. BRANCH ROARING BROOK
TOWN OF WILLINGTON

PROJECT LOCATION



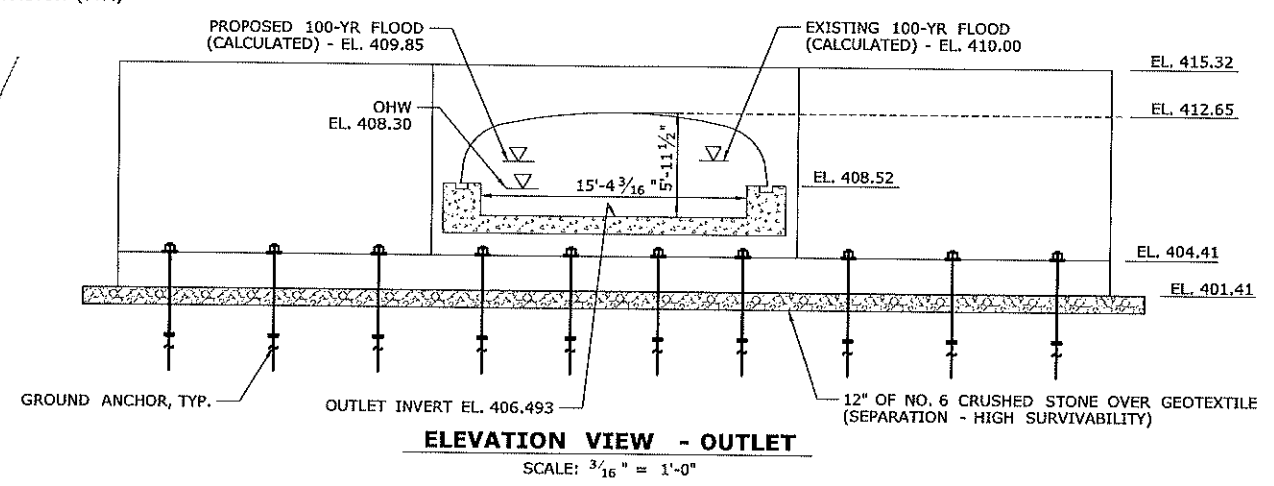
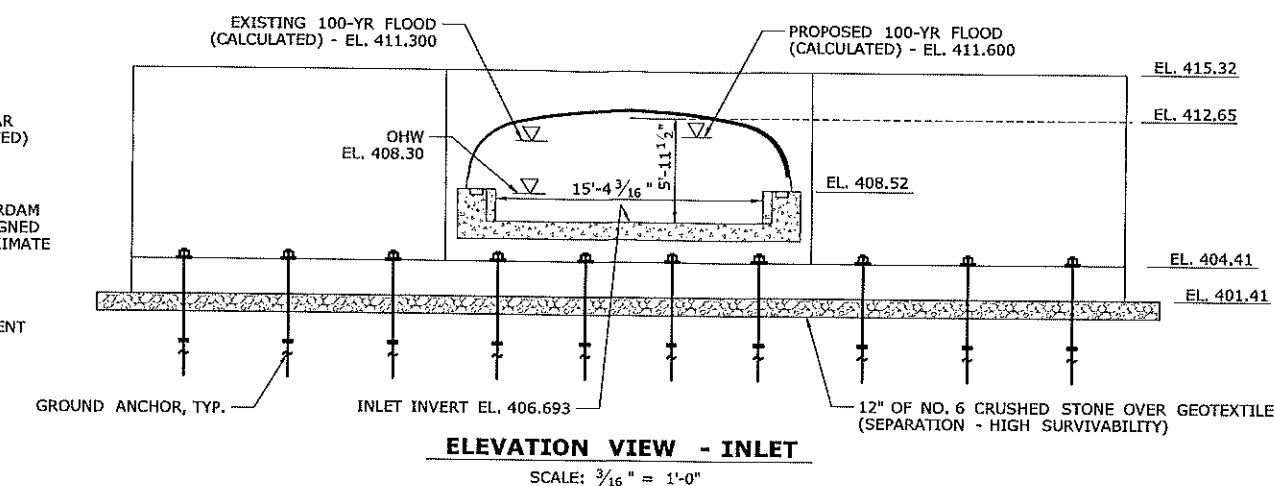
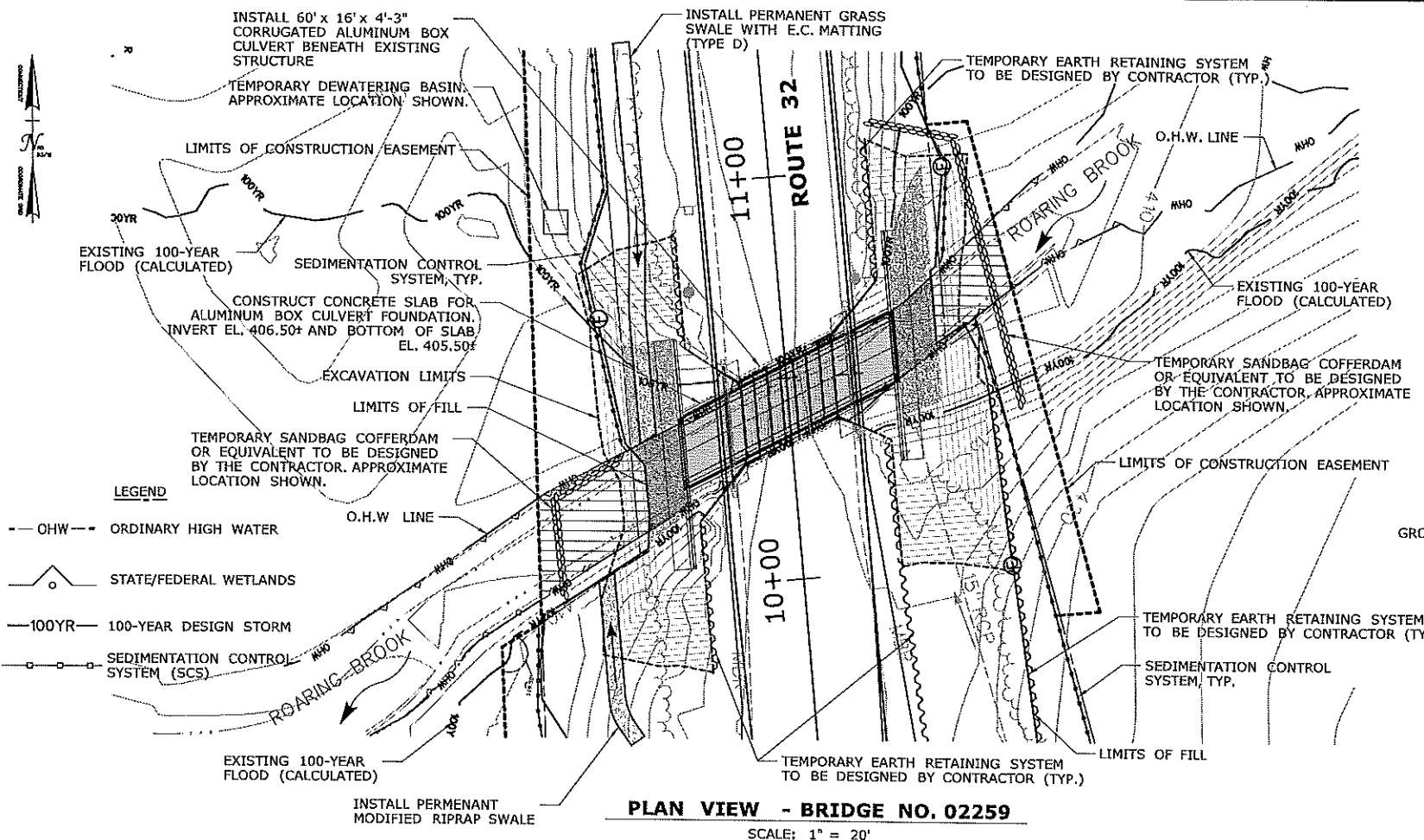
Brian D. Murphy
 Digitally signed by Brian D. Murphy
 Date: 2018.05.22 10:19:40 -04'00'

INDEX OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	CONSTRUCTION SEQUENCE - 1
PMT-05	WATER HANDLING AND CONSTRUCTION SEQUENCE - 2
PMT-06	CONSTRUCTION SEQUENCE - 3
PMT-07	PERMIT PLANTING PLAN

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: APRIL 12, 2018

DESIGNER/DRAFTER: ZMK	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/BLOCK: OFFICE OF ENGINEERING	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
CHECKED BY: JJK		APPROVED BY:	DRAWING NO. PMT-01	DRAWING TITLE: PERMIT TITLE SHEET	SHEET NO.
SCALE AS NOTED	Plotted Date: 4/18/2018	Filename: ...\\SB-160-147_P-01_Attachment_B_Title_Sheet.dgn			

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



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 PER DRAWING NO. PMT-07 "PERMIT PLANTING PLAN".
 TEMPORARY IMPACT AREAS BELOW OHW LIMITS SHALL BE RESTORED WITH NATURAL CHANNEL BOTTOM MATERIAL.

WETLAND IMPACT AREAS (ABOVE O.H.W. LEVEL)	
TEMPORARY (S.F.)	0 (0.00 ACRES)
PERMANENT (S.F.)	0 (0.00 ACRES)
TOTAL (S.F.)	0 (0.00 ACRES)

STREAM IMPACT AREAS (BELOW O.H.W. LEVEL)	
TEMPORARY (S.F.)	1000 (0.023 ACRES)
PERMANENT (S.F.)	1400 (0.032 ACRES)
TOTAL (S.F.)	2400 (0.055 ACRES)

PERMANENT IMPACT AREA
 TEMPORARY IMPACT AREA
 THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO THE DEEP FOR CHANGES TO THE DESIGN THAT WILL EFFECT THE NOTED REGULATED AREAS.

TOTAL WETLAND + STREAM IMPACT AREA = 2,400 (S.F.) (0.055 ACRES)

OPENNESS RATIO (OR):
 OR = OPEN AREA / CULVERT LENGTH
 OR = 80 S.F. / 60 FT = 1.33 FT
 1.33 FT > 0.82 FT (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):
 BFW = 15 FT EXISTING UPSTREAM (OHW)
 1.2 x BFW = 18 FT
 18 FT > 16 FT (PROPOSED CULVERT SPAN)

Digitally signed
 by Brian D. Murphy
 Date: 2018.05.22
 10:22:04 -04'00'

ENVIRONMENTAL PERMIT PLANS
 PLAN DATE: MAY 10, 2018

REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plated Date: 5/15/2018	DESIGNER/DRAFTER: ZMK	CHECKED BY: JJK	SCALE AS NOTED	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION Filename: ...SB-160-147_P-03_Environmental Impact Plan.dgn	SIGNATURE/BLOCK: OFFICE OF ENGINEERING	APPROVED BY:	PROJECT TITLE: REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	TOWN: WILLINGTON	PROJECT NO. 160-147
								 OFFICE OF ENGINEERING REHABILITATION OF BRIDGE NO. 02259 CARRYING ROUTE 32 OVER S. BRANCH ROARING BROOK	DRAWING TITLE: WETLAND/WATERCOURSE IMPACT PLAN		DRAWING NO. PMT-03	SHEET NO.	

Lisowitch, Ostap

From: Salter, Michael J
Sent: Monday, May 22, 2017 9:56 AM
To: Lisowitch, Ostap
Cc: Davis, Andrew H; Roise, Michelle A.; DOT-EPC; Blasi, Kevin; Basha, Sarwat A; Song, Won S.
Subject: FW: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Follow Up Flag: Follow up
Flag Status: Flagged

Ozzy,

Below is concurrence from DEEP Fisheries on the new structure type and removal of natural streambed material. Once we have more developed plans we will need to get them signed by DEEP Fisheries. Please let me know if you have any questions.

Thank you,
Mike

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov

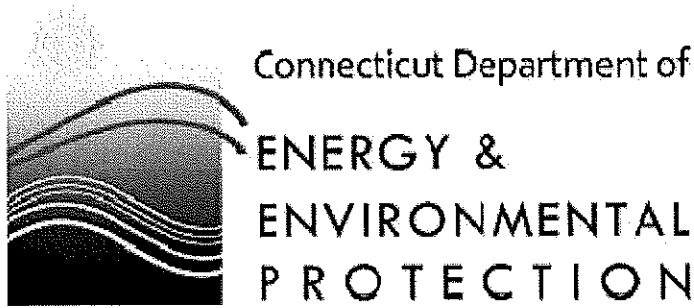
From: Murphy, Brian
Sent: Monday, May 22, 2017 9:32 AM
To: Salter, Michael J
Cc: Davis, Andrew H; DOT-EPC; Roise, Michelle A.
Subject: RE: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Hi Mike,

I'm in agreement with your assessment at this location, fish passage and habitat protection are not warranted. I can sign off on the redesigned plans once they come around for review.
Thanks.

Brian D. Murphy, Senior Fisheries Habitat Biologist
Fisheries Division
Habitat Conservation and Enhancement Program
Connecticut Department of Energy and Environmental Protection
Eastern District Headquarters

209 Hebron Road
 Marlborough, CT 06447
 P: 860.295-9523 | F: 860.295.8175 | brian.murphy@ct.gov



www.ct.gov/deep

*Conserving, improving and protecting our natural resources and environment;
 Ensuring a clean, affordable, reliable, and sustainable energy supply.*

From: Salter, Michael J
Sent: Friday, May 19, 2017 1:45 PM
To: Murphy, Brian
Cc: Davis, Andrew H; DOT-EPC; Roise, Michelle A.
Subject: FW: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington (UPDATED)

Brian,

The attached zip file contains the initial fisheries review package for DOT Project No. 160-147. There has been a change in the design of the project due to constructability concerns about undermining the existing footings during construction in order to install the aluminum base plate. The new proposed structure will replace the aluminum base plate with a concrete slab. This subject bridge is not a typical stream crossing. This crossing conveys stream flow only when the Roaring Brook flow, which is mainly conveyed by a bridge located to the north, is high enough to cause the diversion onto an upstream overbank area. This crossing is normally dry and occasionally may have standing water, possibly from the runoff associated with its drainage area of 13.8 acres. The ground profile at the crossing is such that it forms a low point or sag under the bridge. Thus, the storm water runoff from its drainage area will gather under the bridge and pond until it evaporates or infiltrates into the ground. The streamflow from the Roaring Brook can also get there, possibly once a year or so in our assessment. Nevertheless, it will not likely be a condition conducive to fish passage. DOT Staff didn't see a defined and continuous channel downstream of the bridge, though there may possibly be disconnected shallow swale sections according to LiDAR generated contours. Thus, the flow reaching and passing through the bridge will likely spread thin (shallow flow depth) over the floodplain on the downstream side where the path is typically covered with heavy vegetation, hindering and thus minimizing the fish passage potential. Only in high magnitude storm events when the flood significantly inundates the floodplains on both sides of Rte 32, it may allow fish passage. However, during such events, the flow depth through the crossing will be relatively greater compared to the upstream and downstream sides rendering the bottom material type irrelevant. Considering these conditions we are not proposing to include a natural bottom within the structure. Utilizing the concrete slab will result in less excavation, will not undermine the footings, will provide for a larger hydraulic opening, will structurally support the aluminum culvert, and we will be able to maintain traffic throughout construction. I have attached and updated elevation view and site photos. Please let me know if you have any questions or need any additional information.

Thank you,
Mike

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov

From: Salter, Michael J
Sent: Monday, April 03, 2017 9:05 AM
To: Gephard, Steve
Cc: Davis, Andrew H; Samorajczyk, Christopher W; Murphy, Brian; DOT-EPC; Roise, Michelle A.
Subject: Fisheries Review Request, CT DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington

Steve,

Attached for review are the Fisheries Transmittal Form, location map, project description, site photos and preliminary plans for DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington. Please contact Chris Samorajczyk if you have any questions or need any additional information.

Thank you,

Michael J. Salter
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
Phone: (860) 594-2933
Email: michael.salter@ct.gov



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April 11, 2017

Michael Salter
State Of Connecticut Department Of Transportation
2800 Berlin Tpke.
Newington, CT 06131-7546
michael.salter@ct.gov

Project: DOT Project No. 160-147, Rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington
NDDDB Determination No.: 201703031

Dear Michael Salter,

I have reviewed Natural Diversity Database (NDDDB) maps and files regarding the area of work provided for the proposed rehabilitation of Bridge No. 02259, Route 32 over South Branch Roaring Brook in Willington, Connecticut. I do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDDB. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits. This determination is good for two years. Please re-submit a new NDDDB Request for Review if the scope of work changes or if work has not begun on this project by April 11, 2019.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey, cooperating units of DEEP, landowners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDDB should not be substitutes for on-site surveys necessary for a thorough environmental impact assessment. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the database as it becomes available.

Please contact me if you have further questions at (860) 424-3378, or karen.zyko@ct.gov . Thank you for consulting the Natural Diversity Database.

Sincerely,

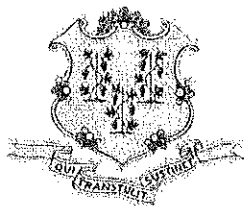
A handwritten signature in cursive script, appearing to read "Karen Zyko".

Karen Zyko
Environmental Analyst

Attachment E: SHPO Determination for Historic Properties

Pre-Construction Notification (PCN)

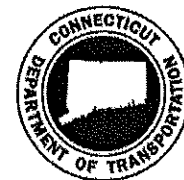
Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



STATE OF CONNECTICUT

DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546



Determination of Exemption
for Historic Properties

Table with 2 columns: Field Name and Value. Fields include Author (Mark McMillan), Date (May 26, 2017), Project (State No., F.A.P. No., Project Title, Town), and Category of Exemption (Appendix B "Screened Undertakings...").

Description of Activity

Using federal and state funds, the Connecticut Department of Transportation (CTDOT) proposes to replace Bridge #02259, which carries Route 32 over the south branch of Roaring Brook in Willington. Recent inspections by CTDOT's Bridge Safety and Evaluation unit have determined that structure is in Serious condition due to the deterioration of its superstructure. Because the subject bridge has an overall sufficiency rating of 22%, it is recommended for full replacement.

The proposed replacement structure is an aluminum box culvert, though the structure type and overall size is still being developed pending hydraulic and drainage analysis. It is anticipated that the work can be completed with only minor construction easements from adjacent properties. Construction is scheduled to begin in 2018 and be completed within one season. Temporary one-way alternating traffic patterns will be utilized to allow the road to remain open throughout construction.

Technical Review of Project

Bridge #02259 consists of a single span multi-beam steel and concrete superstructure supported on masonry abutments (Image 1). Spanning between each of the lower flanges of the beams are arches of corrugated metal that support the bridge's concrete slab deck (Image 2). The bridge substructure is composed of masonry abutments and concrete wing walls. Atop the deck is a single rail beam and post parapet. This feature is largely obscured by modern W-profile guiderails.

The bridge was constructed in 1914 and there are no records of additional work or alterations being performed. While the steel post parapets appear to be a later addition to the bridge, research by CTDOT staff did not discover the date of their installation or the design of the element that they replaced. The subject bridge is categorized as Not Eligible for the National Register of Historic Places in CTDOT's statewide bridge inventory. Following research and a field assessment of the project site, CTDOT's cultural resource staff concur with this.

Bridge #02259 is situated in a rural section of Willington approximately 1,000 feet north of I-84 and 1,000 feet east of the Willimantic River. The New London, Willimantic, and Palmer (NLW&P) railroad line runs roughly parallel to Route 32 between the roadway and east side of the river. The Nye-Holman State Forest abuts the east side of Route 32.

The Area of Potential Effect (APE) has a rectangular footprint that is approximately 700 feet long and 400 feet wide. The APE has Bridge #02259 at its center and follows the alignment of Route 32. Beyond the existing road right of way, there are four parcels within the APE, none of which is privately owned or developed (Image 4).

Nye-Holman State Forest (Block 13, Lot 0A)

Bordering the eastern side of the APE is the Nye-Holman State Forest. This 19.8 acre parcel is owned by the State of Connecticut. It had previously been farmland owned by the Nye family, who donated it to the state in 1931. In the 1930s the Civilian Conservation Corps planted evergreens on the former farm fields to create a demonstration forest.

Block 13, Lot 00 (River Road)

Bordered by Village Hill Road, River Road and I-84 is a 5-acre parcel of vacant land that is owned by the State of Connecticut. It is part of the Nye-Holman State Forest. It is moderately wooded but not considered forest land.

River Road Athletic Complex (511 River Road)

River Road Athletic Complex is an 8.11 acre sports field owned by the Town of Willington. It is bordered by the south branch of Roaring Brook to the north; Route 32 to the east; the I-84 right of way to the south and the NLW&P railroad line to the west. The parcel features a baseball diamond, paved basketball court, tennis court, and an open soccer or football field. Surrounding the parcel is a gravel running path. There is a gravel parking lot at the south end of the parcel. On the site are three sheds and a covered gazebo with picnic tables.

There is the potential that a portion of the parking lot may be used during construction for a job trailer or equipment staging. The park will remain open and accessible to the public.

Block 6, Lot 0B (River Road)

Abutting the west side of the subject bridge is a 4.99 acre parcel that is owned by the Town of Willington. The parcel is bordered by Route 32 and the NLW&P railroad line. It is moderately wooded but not considered forest land and has no structures built within it.

There are two basic types of soils within the project's area of potential effect. To the west of Route 32 the sediments are classified as Gloucester Gravelly Sandy Loam. To the east of Route 32 are Ridgebury, Leicester, and Whitman Soils and Charlton-Chatfield Complex soils. The soils on the east are described as "very rocky" or extremely stony". There are two known archaeological sites near the APE.

Site #160-14 is the abutments of a former bridge that spanned the Willimantic River. Known as "Nye's Bridge", this structure was built in 1727 and connected the towns of Tolland and Willington across the Willimantic River. The bridge was destroyed in the 1938 flood and the road discontinued. Today, masonry abutments remain (Image 5). This site is beyond the APE of Project #160-147 and will not be impacted by the proposed work.

Site #160-15 is listed on the National Register of Historic Places as an archaeological district.¹ The address/location of archaeological districts are restricted in order to protect the site. Staff from CTDOT's Office of Environmental Planning (OEP) have reviewed the Eldredge Mills' NRHP Inventory Form and verified that it is located outside this project's APE. They affirmed that there is over ½ mile distance and intervening properties and landscape features that would prevent impacts to this NRHP-listed site.

Soils in proximity to the bridge have been previously disturbed by road and bridge construction. The APE extends just outside the bridge and road limits. Given the previous known disturbances created by the installation of utility poles along the road and the introduction of fill soils to elevate the roadbed, it is highly unlikely intact, eligible archaeological resources are present within the project area.

Staff from OEP's cultural resources unit has conducted background research on the subject bridge and the properties within the APE. The Willington property records, National Register of Historic Places, and files of the State Archaeologist were reviewed, as were the project's design drawings. Staff from the OEP conducted a field assessment of the subject bridge and the APE. They noted that the APE consists largely of properties that have been undeveloped beyond their past farming use and later forestation. They noted that Route 32 had been built on fill soils that raise the roadbed approximately 10-12 feet above the natural topography.

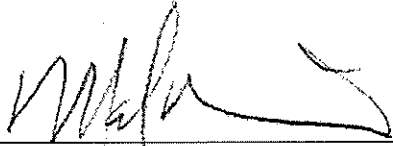
Based on the information gathered, the project poses minimal potential to impact historic properties. However, any use of the State Forest land and/or public park would present a Section 4(f) issue under the National Transportation Act. For this reason, we recommend avoidance or minimization of use of these properties. Additional coordination regarding Section 4(f) may be required.

¹ National Park Service, *Eldredge Mills Archaeological District (NPS #00000938)*, listed on October 20, 2000.

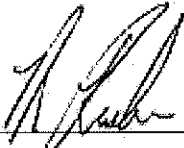
Determination

As proposed, this project has minimal potential to cause effects to properties eligible for the National Register. The bridge and its area of potential effect are not located within the boundaries of an eligible or listed historic district, nor are there any known cultural resources in the vicinity of the project. Because the undertaking will impact a bridge that is not eligible for the National Register of Historic Places, it can be classified as "Bridge/Culvert Related Projects" of Appendix B *Screened Undertakings Not Requiring Connecticut CTSHPO Review*. No further consultation with the SHPO is required.

A copy of this finding will be included in the quarterly report of Minor Transportation Projects that is submitted to the SHPO. It will also be sent to FHWA, who will consult with federally recognized tribes, for their review and comment.



Mark McMillan
National Register Specialist
Office of Environmental Planning
Connecticut Department of Transportation



Mandy Ranslow
Archaeologist
Office of Environmental Planning
Connecticut Department of Transportation

Attachment F: THPO Determination for Tribal Properties

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

Lisowitch, Ostap

From: McMillan, Mark J.
Sent: Friday, May 26, 2017 3:24 PM
To: Lisowitch, Ostap; Blasi, Kevin
Subject: Project #160-147 Willington
Attachments: EMAIL_RE Tribal Consultation Project #160-147 Willington (Bridge #02259 replacement, Route 32 over Roaring Brook).pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Ozzy,

FHWA has informed me that tribal consultation will not be required for Project #160-147 in Willington. This completes the Section 106 review for this undertaking. The determination that this is a Minor Transportation Project and exempt from Section 106 review stands.

I've attached a copy of FHWA's letter for your records.

Mark

Mark McMillan

National Register Specialist
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131
☎ (860) 594-2135
☎ (860) 594-3028 - Fax
✉ mark.mcmillan@ct.gov

From: Hansen, Christopher (FHWA) <christopher.hansen@dot.gov>
Sent: Friday, May 26, 2017 3:02 PM
To: McMillan, Mark J.; Powell, Eloise (FHWA)
Subject: RE: Tribal Consultation: Project #160-147 Willington (Bridge #02259 replacement, Route 32 over Roaring Brook)

Hi Mark,

I have carefully reviewed CTDOT's proposed project #160-147 for bridge #02259 replacement. As per email and documentation sent May 26, 2017, I understand that the project primarily occurs in previously disturbed right-of-way with a small footprint. As per the THPO Section 106 Agreements with FHWA-CT Division, dated January 4, 2012 and May 14, 2013, this project would generally fall within the category of "resurfacing or repair of existing ramps or roadways within the previously disturbed right-of-way".

With this email, and taking all these items into consideration, the FHWA-CT Division has determined that tribal consultation would not be required for this project. Should any changes be made to the scope of work for this project that would involve additional ground disturbance beyond what is currently proposed, tribal consultation would have to be reconsidered.

Thanks

Chris Hansen

Environmental Protection Specialist
Federal Highway Administration
628-2 Hebron Avenue, Suite 303
Glastonbury, CT 06033
860.494.7577
christopher.hansen@dot.gov

From: McMillan, Mark J. [<mailto:Mark.McMillan@ct.gov>]
Sent: Friday, May 26, 2017 1:06 PM
To: Hansen, Christopher (FHWA) <christopher.hansen@dot.gov>; Powell, Eloise (FHWA) <Eloise.Powell@dot.gov>
Subject: Tribal Consultation: Project #160-147 Willington (Bridge #02259 replacement, Route 32 over Roaring Brook)


Chris, Eloise,


Attached is a Determination of Exemption letter for State Project #160-147 in Willington. This bridge is located just off I-84 and is sandwiched between a town-owned sports park and State Forest land. The undertaking has a small footprint (see attached construction plans). Given this, and the previous disturbances caused by the installation of utility poles and the introduction of fill on to create the roadway, I do not think that tribal consultation is warranted.


Mark

Mark McMillan

National Register Specialist
Office of Environmental Planning
Connecticut Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131

 (860) 594-2135

 (860) 594-3028 - Fax

 mark.mcmillan@ct.gov

Attachment G: Environmental Reports

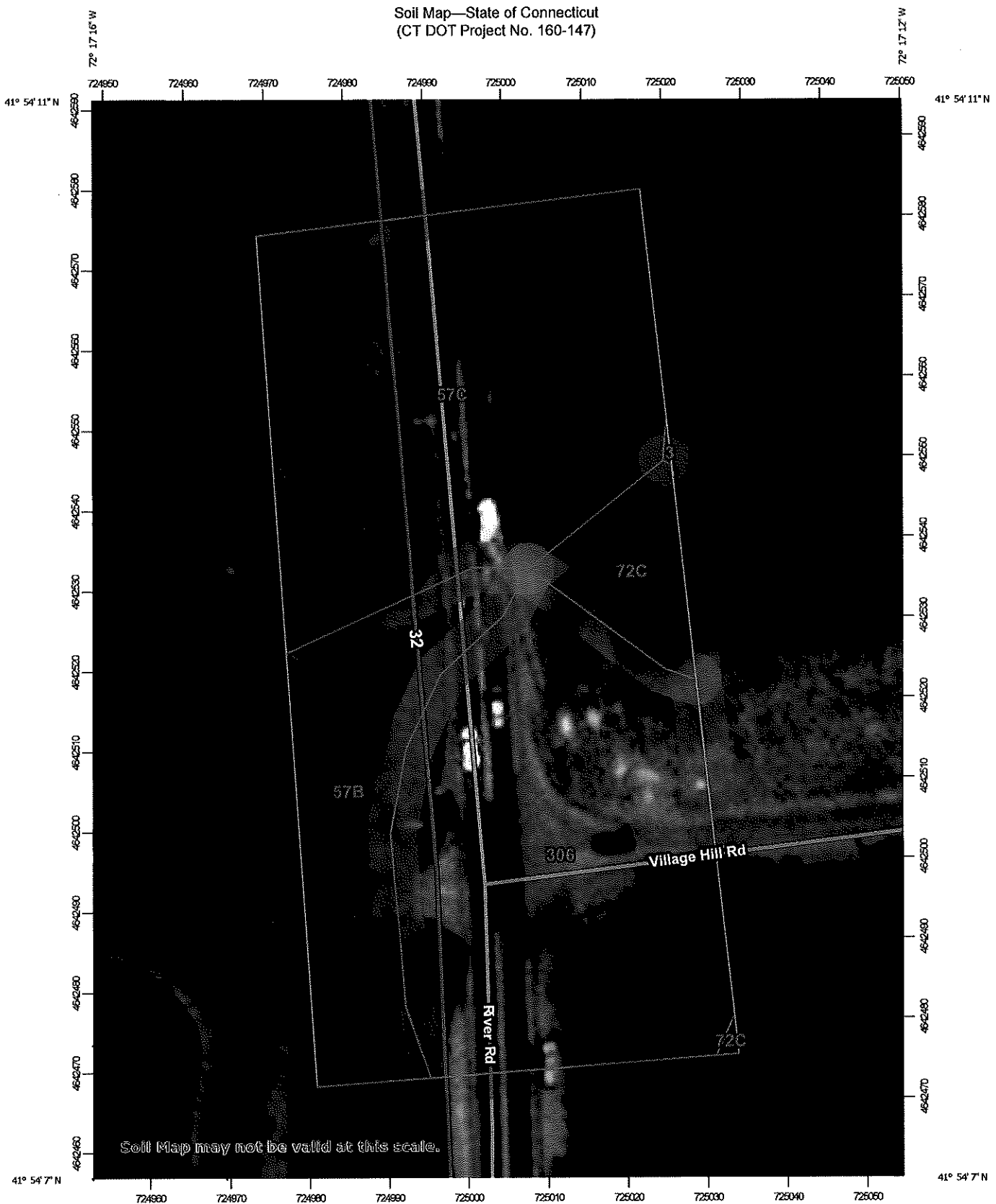
Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

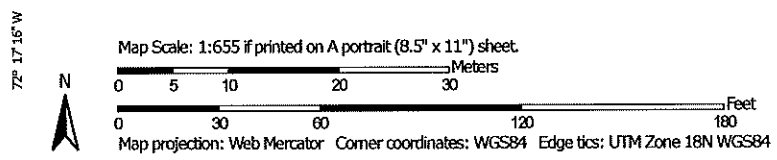
List of Attachments:

- USDA Soil Survey Map
- USDA Soils Report (Brief, Generated)
- Environmental Report – Functions and Values
- Army Corps Wetland Delineation Data Forms

Soil Map—State of Connecticut
(CT DOT Project No. 160-147)



Soil Map may not be valid at this scale.



MAP LEGEND

- Area of Interest (AOI)
- Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points
- Special Point Features**
 - Blowout
 - Borrow Pit
 - Clay Spot
 - Closed Depression
 - Gravel Pit
 - Gravelly Spot
 - Landfill
 - Lava Flow
 - Marsh or swamp
 - Mine or Quarry
 - Miscellaneous Water
 - Perennial Water
 - Rock Outcrop
 - Saline Spot
 - Sandy Spot
 - Severely Eroded Spot
 - Sinkhole
 - Slide or Slip
 - Sodic Spot
- Water Features**
 - Streams and Canals
- Transportation**
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads
- Background**
 - Aerial Photography
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 16, Sep 15, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 14, 2011—Aug 27, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	0.0	0.1%
57B	Gloucester gravelly sandy loam, 3 to 8 percent slopes	0.2	16.2%
57C	Gloucester gravelly sandy loam, 8 to 15 percent slopes	0.5	40.2%
72C	Nipmuck-Brookfield complex, 3 to 15 percent slopes, very rocky	0.1	5.3%
306	Udorthents-Urban land complex	0.5	38.2%
Totals for Area of Interest		1.4	100.0%

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, provide information on the composition of map units and properties of their components.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

State of Connecticut

Map Unit: 3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony

Component: Ridgebury, extremely stony (40%)

The Ridgebury, extremely stony component makes up 40 percent of the map unit. Slopes are 0 to 8 percent. This component is on depressions on glaciated uplands. The parent material consists of coarse-loamy lodgment till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer, densic material, is 15 to 35 inches (depth from the mineral surface is 14 to 32 inches). The natural drainage class is poorly drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches (depth from the mineral surface is 2 inches) during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 95 percent. Below this thin organic horizon the organic matter content is about 10 percent. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Component: Leicester, extremely stony (35%)

The Leicester, extremely stony component makes up 35 percent of the map unit. Slopes are 0 to 8 percent. This component is on depressions on glaciated uplands. The parent material consists of coarse-loamy melt-out till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches (depth from the mineral surface is 2 inches) during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 95 percent. Below this thin organic horizon the organic matter content is about 10 percent. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Component: Whitman, extremely stony (17%)

The Whitman, extremely stony component makes up 17 percent of the map unit. Slopes are 0 to 3 percent. This component is on depressions on glaciated uplands. The parent material consists of coarse-loamy lodgment till derived from gneiss, granite, and/or schist. Depth to a root restrictive layer, densic material, is 7 to 38 inches (depth from the mineral surface is 7 to 30 inches). The natural drainage class is very poorly drained. Water movement in the most restrictive layer is very low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, September, October, November, December. Organic matter content in the surface horizon is about 95 percent. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Component: Woodbridge, extremely stony (6%)

Generated brief soil descriptions are created for major soil components. The Woodbridge soil is a minor component.

Component: Swansea (2%)

Generated brief soil descriptions are created for major soil components. The Swahsea soil is a minor component.

Map Unit: 57B—Gloucester gravelly sandy loam, 3 to 8 percent slopes

Component: Gloucester (80%)

The Gloucester component makes up 80 percent of the map unit. Slopes are 3 to 8 percent. This component is on hills on uplands. The parent material consists of sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 2s. This soil does not meet hydric criteria.

Component: Hinckley (5%)

Generated brief soil descriptions are created for major soil components. The Hinckley soil is a minor component.

Component: Canton (5%)

Generated brief soil descriptions are created for major soil components. The Canton soil is a minor component.

Component: Charlton (3%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Paxton (3%)

Generated brief soil descriptions are created for major soil components. The Paxton soil is a minor component.

Component: Leicester (2%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Component: Sutton (2%)

Generated brief soil descriptions are created for major soil components. The Sutton soil is a minor component.

Map Unit: 57C—Gloucester gravelly sandy loam, 8 to 15 percent slopes

Component: Gloucester (80%)

The Gloucester component makes up 80 percent of the map unit. Slopes are 8 to 15 percent. This component is on hills on uplands. The parent material consists of sandy and gravelly melt-out till derived from granite and/or schist and/or gneiss. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Hinckley (5%)

Generated brief soil descriptions are created for major soil components. The Hinckley soil is a minor component.

Component: Canton (5%)

Generated brief soil descriptions are created for major soil components. The Canton soil is a minor component.

Component: Charlton (3%)

Generated brief soil descriptions are created for major soil components. The Charlton soil is a minor component.

Component: Paxton (3%)

Generated brief soil descriptions are created for major soil components. The Paxton soil is a minor component.

Component: Sutton (2%)

Generated brief soil descriptions are created for major soil components. The Sutton soil is a minor component.

Component: Leicester (2%)

Generated brief soil descriptions are created for major soil components. The Leicester soil is a minor component.

Map Unit: 72C—Nipmuck-Brookfield complex, 3 to 15 percent slopes, very rocky

Component: Nipmuck (50%)

The Nipmuck component makes up 50 percent of the map unit. Slopes are 3 to 15 percent. This component is on bedrock controlled hills on uplands, bedrock controlled ridges on uplands. The parent material consists of loamy supraglacial meltout till derived from mica schist. Depth to a root restrictive layer, bedrock, lithic, is 20 to 39 inches (depth from the mineral surface is 20 to 35 inches). The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 67 percent. Below this thin organic horizon the organic matter content is about 7 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Brookfield (40%)

The Brookfield component makes up 40 percent of the map unit. Slopes are 3 to 15 percent. This component is on bedrock controlled hills on uplands, bedrock controlled ridges on uplands. The parent material consists of loamy supraglacial meltout till derived from mica schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 70 percent. Below this thin organic horizon the organic matter content is about 9 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Brimfield (5%)

Generated brief soil descriptions are created for major soil components. The Brimfield soil is a minor component.

Component: Rock outcrop (5%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Map Unit: 306—Udorthents-Urban land complex

Component: Udorthents (50%)

The Udorthents component makes up 50 percent of the map unit. Slopes are 0 to 25 percent. This component is on urban land. The parent material consists of drift. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 59 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Urban land (35%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Unnamed, undisturbed soils (8%)

Generated brief soil descriptions are created for major soil components. The Unnamed soil is a minor component.

Component: Udorthents, wet substratum (5%)

Generated brief soil descriptions are created for major soil components. The Udorthents soil is a minor component.

Component: Rock outcrop (2%)

Generated brief soil descriptions are created for major soil components. The Rock outcrop soil is a minor component.

Data Source Information

Soil Survey Area: State of Connecticut
Survey Area Data: Version 16, Sep 15, 2017

**ENVIRONMENTAL REPORT - WETLAND FUNCTIONS AND VALUES
STATE PROJECT 0160-0147**

***Rehabilitation of Bridge 02559, CT Route 32 over South Branch Roaring Brook
Willington, Connecticut***

Introduction

This project involves the rehabilitation of Bridge No. 02559, which carries CT Route 32 (River Road) over South Branch Roaring Brook in the Town of Willington. Originally built in 1914, the existing bridge consists of a single-span, multi-beam superstructure supported by stone masonry abutments and wingwalls with concrete caps. The curb-to-curb deck width is 30 feet and carries one lane of traffic with narrow shoulders in each direction and the bridge has a skew angle of 42 degrees. The existing superstructure is in serious condition and exhibits moderate to heavy rust with section loss in the girders.

Looking upstream towards Bridge 02559



Existing Conditions

The project is located within the Willimantic River sub regional drainage basin (CTDEEP #3100). Flows for South Branch Roaring brook are generally in a west to east direction through the project site. The existing structure functions as an overflow channel for Roaring Brook which crosses Route 32 approximately 250 feet north of Bridge No. 02559.

According to the June 15, 1982 Community Panel Number 090159 0004 A, Willington, CT, Tolland County Flood Insurance Rate Map, the project is not located within a FEMA floodzone.

According to the Connecticut Department of Energy & Environmental Protection (CT DEEP) Aquifer Protection Area maps, no Aquifer Protection Areas have been designated within or adjacent to the project site and the project is not located within a public water supply watershed. The site does fall within a mapped Natural Diversity Database area (December 2017 mapping)



Looking downstream towards Bridge 02559

and an NDDDB Determination Letter was received on April 11, 2017 indicating the project is not anticipated to have any negative impacts to state-listed species. Soils within the project area are depicted on the attached NRCS Soils Map and described in the attached NRCS Web Soil Survey Report. The bridge site is located north of the intersection of Route 32 and Village Hill Road. River Road Athletic Complex is located to the Southwest of the project area and Nye Holm State Forest is

located East of Bridge No 02559. Nye Holm State Forest is managed by the Connecticut Department of Energy and Environmental Protection. There are existing overhead utilities located on the East side of the structure and an existing 15-inch RCP which outlets East of Route 32 in the vicinity of the bridge.

Areas of state and federal wetlands are limited to the area below ordinary high water (OHW). There are no additional wetlands within the project area. The upland vegetated communities adjacent to the project area are forested and there are areas adjacent which are manicured turf associated with the existing transportation right-of-way and the adjacent sports complex to the Southwest. The canopy of the upland upstream community consists of eastern hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*), white oak (*Quercus alba*), red maple (*Acer rubrum*), white ash (*Fraxinus Americana*), and American sycamore (*Platanus occidentalis*) dominated by the eastern hemlock, eastern white pine and white oak. The shrub layer is dominated by white ash and red maple (*Acer rubrum*) saplings. There were no species present in the herb and woody vine strata. The canopy of the upland downstream community is comprised of white oak, American Sycamore, white ash, red maple, eastern hemlock and American elm (*Ulmus americana*), dominated by white oak and American sycamore. The shrub community is dominated by eastern white pine, eastern hemlock and red maple saplings and Japanese barberry* (*Berberis thunbergii*). The herbaceous community is dominated by Christmas fern (*Polystichum acrostichoides*) and eastern white pine and there were no woody vines present.

South Branch Roaring Brook has a contributing watershed of approximately 22 sq. mi. Upstream, the watercourse is approximately 10' to 15' wide and consists of primarily a cobble substrate with sands and gravels. The upstream banks are well relatively steep, vegetated and stable. The banks downstream are vegetated, gently sloped and stable. The channel downstream is generally wider than upstream and is as much as 20' wide. The downstream channel is primarily sands and gravels with some cobbles intermixed.

Functions and Values Assessments follow the US Army Corps of Engineers Highway Methodology Workbook. The primary functions of the system are floodflow alteration, groundwater recharge/discharge. Additional functions of the watercourse (overflow channel) include sediment/toxicant retention and wildlife habitat. The wildlife habitat function is more readily provided by the forested areas upstream and downstream of the project site and the existing structure is providing a suitable crossing for wildlife utilizing the upstream and downstream habitat. There are no values found in any significant form within the watercourse or adjacent uplands.

Proposed Conditions

The proposed rehabilitation includes installation of an aluminum box culvert founded on a slotted concrete invert slab within the existing structure opening. The installation involves placement of a concrete invert slab and foundations below the existing bridge, installation of the aluminum box culvert and pumping of flowable-fill in between the voids of the existing structure and the proposed aluminum box culvert. Concrete wingwalls and footings with vertical ground anchors will be cast at both the inlet and outlet. Intermediate riprap scour protection will be installed upstream and downstream of the structure. The rehabilitation also consists of widening of the existing curb-to-curb roadway width from 30 to 34 feet. Construction easements will be

acquired to provide access to the upstream and downstream ends of the bridge for installation of the aluminum box culvert.

Regulated Activities

The overall project impacts from the proposed activities are relatively limited in duration and scale. Permanent impacts are a result of embankment grading, riprap placement within the watercourse and installation of the proposed concrete slab, footings and aluminum box culvert. Permanent watercourse (below OHW) impacts amount to 1,000 sf (0.023 ac). Temporary impacts to the watercourse are a result of temporary water handling and access required for installation of the proposed box culvert. Temporary watercourse impacts amount to 1,400 sf (0.032 ac). The areas of temporary watercourse impact will be restored to existing conditions and natural streambed material will be placed in these areas. Areas of state and federal wetlands are limited to the area below ordinary high water within the project area. As such, the project will not result in any permanent or temporary impacts to wetlands.

During construction, impacts will be mitigated through the use of Best Management Practices (BMPs) stipulated in the Department's *Standard Specifications for Roads, Bridges, and Incidental Construction, Form 817*, Section 1.10, Environmental Compliance, Best Management Practices, and the implementation of an erosion and sediment control plan consistent with the *2002 CT Guidelines for Soil Erosion and Sediment Control*. All water handling will be done in accordance with the 2004 Stormwater Quality Manual. Native plantings are proposed for the impacted wetland areas and adjacent buffer areas to restore the vegetative communities. The proposed culvert lining will not have an impact on fisheries habitat or resources of the brook as determined by DEEP Inland Fisheries Division. District inspection personnel, as well as staff from the Office of Environmental Planning, will oversee construction during the construction activity.

Invasive Species

Invasive species will be controlled during construction through the use of the Department's *Control and Removal of Invasive Vegetation* specification within the project limits. Seeding and native plantings are proposed for all disturbed areas within the project limits. The proposed control methods and the subsequent native plantings should provide for native plant community establishment within the project limits for this short duration project.

Summary

The functions provided by South bank Roaring Brook will not be significantly impacted by the proposed activities. Wildlife habitat may be temporarily impacted by construction, but will return upon completion of construction. Impacts are limited and are mitigated through the use of BMPs, erosion and sediment controls, project oversight, invasive species control and the implementation of a native planting and stabilization plan following construction.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT DOT Project No. 160-147 City/County: Willington/Tolland Sampling Date: 4/11/2018
 Applicant/Owner: CTDOT State: CT Sampling Point: Upland 1
 Investigator(s): Michael Salter Section, Township, Range: Willington
 Landform (hillslope, terrace, etc.): terrace Local Relief (concave, convex, none): none
 Slope (%): 3% Lat: 41.902795 Long: -72.287598 Datum: NAD 83

Soil Map Unit Name: Gloucester gravelly sandy loam NWI Classification: _____
 Are Climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks).
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Remarks: (Explain alternative procedures here or in a separate report)
 Soils were sampled from the upland area. The existing structure conveys an overflow channel for Roaring Brook and is a dry channel the majority of the year. The wetland limits at the project site are limited to the area below ordinary high water.

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	
Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	
Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photographs, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: Upland 1

Tree Stratum	(Plot Size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <i>Quercus alba</i>		20%	Yes	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>25%</u> (A/B)
2. <i>Platanus occidentalis</i>		15%	Yes	FACW	
3. <i>Fraxinus americana</i>		7%	No	FACU	
4. <i>Acer rubrum</i>		5%	No	FAC	
5. <i>Tsuga canadensis</i>		5%	No	FACU	
6. <i>Ulmus americana</i>		2%	No	FACW	
7. _____					
		<u>54%</u>	= Total Cover		Prevalence Test Worksheet: Total % Cover of _____ Multiply by _____ OBL Species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum	(Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Pinus strobus</i>		10%	Yes	FACU	
2. <i>Tsuga canadensis</i>		7%	Yes	FACU	
3. <i>Acer rubrum</i>		5%	Yes	FAC	
4. <i>Berberis thunbergii</i>		5%	Yes	FACU	
5. _____					
6. _____					
7. _____					
		<u>27%</u>	= Total Cover		
Herb Stratum	(Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <i>Polystichum acrostichoides</i>		5%	Yes	FACU	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <i>Pinus strobus</i>		5%	Yes	FACU	
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
		<u>10%</u>	= Total Cover		
Woody Vine Stratum	(Plot Size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Definitions of Vegetation Strata:
1. <i>None</i>					Tree – Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vines – All woody vines greater than 3.28 ft in height.
2. _____					
3. _____					
4. _____					
		<u>0%</u>	= Total Cover		Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: (include photo numbers here or on a separate sheet.) 					

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	7.5YR 4/2	100%					Sandy	
5-12	7.5YR 4/3	100%					Loamy/ Clayey	
12-18	7.5YR 4/4	100%					Loamy/ Clayey	
18+	7.5YR 3/3	100%					Loamy/ Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depression (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: CT DOT Project No. 160-147 City/County: Willington/Tolland Sampling Date: 4/11/2018
 Applicant/Owner: CTDOT State: CT Sampling Point: Upland 2
 Investigator(s): Michael Salter Section, Township, Range: Willington
 Landform (hillslope, terrace, etc.): terrace Local Relief (concave, convex, none): none
 Slope (%): 3% Lat: 41.902855 Long: -72.287371 Datum: NAD 83
 Soil Map Unit Name: Gloucester gravelly sandy loam NWI Classification: _____

Are Climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks).
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (if needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point location, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	If yes, optional Wetland Site ID:		
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			

Remarks: (Explain alternative procedures here or in a separate report)
 Soils were sampled from the upland area. The existing structure conveys an overflow channel for Roaring Brook and is a dry channel the majority of the year. The wetland limits at the project site are limited to the area below ordinary high water.

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
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<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present?	Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	
Water Table Present?	Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____	

Describe Recorded Data (stream gauge, monitoring well, aerial photographs, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: Upland 2

<p>Tree Stratum (Plot Size: <u>30'</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;">1.</td> <td style="width:65%;"><i>Tsuga canadensis</i></td> <td style="width:10%;">20%</td> <td style="width:10%;">Yes</td> <td style="width:10%;">FACU</td> </tr> <tr> <td>2.</td> <td><i>Pinus strobus</i></td> <td>10%</td> <td>Yes</td> <td>FACU</td> </tr> <tr> <td>3.</td> <td><i>Quercus alba</i></td> <td>10%</td> <td>Yes</td> <td>FACU</td> </tr> <tr> <td>4.</td> <td><i>Acer rubrum</i></td> <td>5%</td> <td>No</td> <td>FAC</td> </tr> <tr> <td>5.</td> <td><i>Fraxinus americana</i></td> <td>5%</td> <td>No</td> <td>FACU</td> </tr> <tr> <td>6.</td> <td><i>Platanus occidentalis</i></td> <td>5%</td> <td>No</td> <td>FACW</td> </tr> <tr> <td>7.</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p style="text-align: right;">55% = Total Cover</p>	1.	<i>Tsuga canadensis</i>	20%	Yes	FACU	2.	<i>Pinus strobus</i>	10%	Yes	FACU	3.	<i>Quercus alba</i>	10%	Yes	FACU	4.	<i>Acer rubrum</i>	5%	No	FAC	5.	<i>Fraxinus americana</i>	5%	No	FACU	6.	<i>Platanus occidentalis</i>	5%	No	FACW	7.					<p>Dominance Test Worksheet:</p> <p>Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u>5</u> (B)</p> <p>Percent of Dominant Species That are OBL, FACW, or FAC: <u>20%</u> (A/B)</p>																									
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Column Totals:	_____ (A)	_____ (B)																																																											
Prevalence Index = B/A = _____																																																													
<p>Herb Stratum (Plot Size: <u>5'</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;">1.</td> <td style="width:65%;">None</td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td>2.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>8.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>9.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>10.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>11.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>12.</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p style="text-align: right;">10% = Total Cover</p>	1.	None				2.					3.					4.					5.					6.					7.					8.					9.					10.					11.					12.					<p>Hydrophytic Vegetation Indicators:</p> <p><input type="checkbox"/> Rapid Test for Hydrophytic Vegetation</p> <p><input type="checkbox"/> Dominance Test is >50%</p> <p><input type="checkbox"/> Prevalence Index is $\leq 3.0^1$</p> <p><input type="checkbox"/> Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</p> <p><input type="checkbox"/> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p>¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>
1.	None																																																												
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<p>Woody Vine Stratum (Plot Size: <u>30'</u>)</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;">1.</td> <td style="width:65%;">None</td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td>2.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4.</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p style="text-align: right;">0% = Total Cover</p>	1.	None				2.					3.					4.					<p>Definitions of Vegetation Strata:</p> <p>Tree – Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height</p> <p>Sapling/shrub – Woody plants less than 3in. DBH and greater than 3.28 ft (1m) tall.</p> <p>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p>Woody Vines – All woody vines greater than 3.28 ft in height.</p>																																								
1.	None																																																												
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<p>Remarks: (include photo numbers here or on a separate sheet.)</p>		<p>Hydrophytic Vegetation Present?</p> <p style="text-align: center;">Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>																																																											

Attachment H: Interagency Coordination Meeting Notes

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT

Interagency Coordination Meeting Notes

December 21, 2017

DOT Room 3130

Meeting Minutes:

The meeting notes for November were presented. No comments were made.

53-190 Glastonbury/Wethersfield Putnam Trail

12/21/2017 – The purpose of the proposed project is to provide a bike ped connection between Wethersfield and Glastonbury and repair the Putnam Bridge Walkway. The multi-use trail in Glastonbury was the subject of discussion in this meeting. The designer provided detailed information about Alternative 1 (cutting into the embankment and using a retaining wall along Route 3), Alternative 1A (moving the trail further from the roadway and using a fill slope to support the trail), and Alternative 4 (building the trail along the toe of slope).

Project Impacts:

	Alt 1	Alt 1A	Alt 4
Tree Clearing Area Acres	2.5	4.8	6.1
Erodible Surface Area Disturbance Acres	6.3	5.9	7.5
Wetland Impacts sq. ft.	3,417	17,603	29,888
Floodplain Impact C. Y. Fill	10,082	27,204	19,386
Floodway Impact C. Y. Fill	67	1,067	8,746

Permitting Requirements: Specific permit requirements will not be decided until an alternative is selected.

Agency Comments: DEEP Staff expressed concerns about floodplain impacts and how they will be compensated for. They also stated that Alternative 4 is likely unfeasible due to the amount of floodway impacts. DOT OEP staff asked if elements of Alternative 1 and 1A can be combined by using a retaining wall for some sections and a fill slope for others. DOT Engineering Staff said that they will investigate that possibility. Hydraulics and Drainage staff stated that net fill in the floodplain is “generally a no, no.”

Action Items: Provide more floodplain impact and cost analysis. Provide hydraulic analysis that indicates that proposed fill in the floodplain does not increase flood elevations. H&D and the design unit will investigate required floodplain compensation requirements.

102-358 Route 15/7 Interchange Improvement, Norwalk

12/21/2017 – This project was put on hold due to legal action in 2009. The purpose of this project is to improve system linkage, increase mobility for all modes of transportation, and improve safety in the vicinity of the interchanges. The intersections and interchanges will be redesigned using ramps with new alignments and additional traffic signals. A wetland delineation and report for this project was done in Fall 2016. To the north of the project site there are mitigation sites from previous DOT projects.

Project Impacts: Due to the removal of a dam on the Norwalk River the project site will have river herring on site which would require a Time of Year Restriction during construction. All alternatives explored will result in FEMA 100-year floodplain impacts.

**DEEP /USACE/ DOT
Interagency Coordination Meeting 12/21/2017
Project Meeting Notes**

Permitting Requirements: Permitting Requirements will be determined at the conclusion of the NEPA/CEPA study.

Agency Comments: Hydraulics and Drainage Staff stated that the FEMA map for this area is out of date and inaccurate, a map revision will be necessary. The consultant replied that the analysis is currently being performed. DEEP Fisheries Staff stated that they will be removing a dam that creates a back water upstream to Glover Ave. DOT OEP requested to be sent the plans for the dam removal. DEEP Fisheries Staff mentioned, if mitigation is necessary Davis Pond Dam would benefit from a new fishway.

Action Items: Continue the NEPA/CEPA study.

160-147 Bridge 02259, Route 32 over South Branch Roaring Brook, Willington

12/21/2017 – Bridge 02259 has a curb to curb width of 30 feet and a span length of 27 feet. The existing masonry abutments were built in 1914. That fascia beams have become badly deteriorated. The proposed rehabilitation for this structure consists of placing an aluminum box with a concrete footing between the existing abutments. The designers intend to keep the bridge open during construction. This branch of Roaring Brook experiences very little flow except during flood events, fisheries has stated that they are not concerned with this structure.

Project Impacts: The proposed project will result in 2940 sq. ft. of wetland impacts, 1559 sq. ft. of impacts below Ordinary High Water, 5216 sq. ft. of FEMA floodplain impacts, 0.2 acres of tree clearing, and 0.88 erodible surface disturbances.

Permitting Requirements: The federal permitting requirement for this project is an ACOE Pre-Construction Notice. State permitting requirements for this project are a PGP Addendum and a GP for Water Resource Construction activities. Flood Management will not be required for this project due to the size of the drainage area.

Agency Comments: DOT OEP staff asked if it is possible to obtain a Self-Verification for this project instead of a Pre-Construction Notice. ACOE staff replied that this project will require a Pre-Construction Notice due to this project being a bridge lining project, it does not meet the criteria for a Self-Verification. DEEP Regulatory staff stated that they have no concerns if DEEP fisheries is satisfied with the chosen structure and signs off on the permit plan set.

Action Items: Develop permits and submit them to OEP for review.

Attachment I: USFWS Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Pre-Construction Notification (PCN)

Applicant: State of Connecticut, Department of Transportation
Project: 0160-0147 – Rehabilitation of Bridge No. 02259 Carrying Route 32 over S.
Branch Roaring Brook
Willington, CT



Date July 16, 2018

Diane M. Ray, Chief
Regulatory and Enforcement Branch B
U.S. Army Corps of Engineers
New England District
CENAE-RDB
696 Virginia Road
Concord, MA 01742-2751

Thomas Maziarz
Bureau Chief of Policy Planning
State of Connecticut Department of Transportation
2800 Berlin Turnpike, P.O. Box 317546
Newington, CT 06131-7546

SUBJECT: DEEP License #: 201807893-PGP
Rehabilitation of Bridge #02559, Route 32 over South Branch Roaring Brook, Willington

Dear Mr. Maziarz:

Please find attached a copy of your subject license and relevant enclosures which are being issued pursuant to your application of June 6, 2018. Your attention is directed to the conditions of the license. All work must conform to that which is specifically authorized.

Any work in regulated areas of the State which has not been authorized by a valid license is a violation of state law and subject to enforcement action by the Department of Energy & Environmental Protection and the Office of the Attorney General.

Your initiation of authorized activities will be relied upon as your agreement to comply with the terms and conditions of the license.

If you have not already done so, you should contact your local Planning and Zoning Office and the U. S. Army Corps of Engineers to determine local and federal permit requirements on your project, if any. Write the Corps' New England District, Regulatory Branch, 696 Virginia Road, Concord, MA 01742-2751; <http://www.nae.usace.army.mil/> or call 1-800-343-4789.

If you should have any questions or concerns, please contact me at (860) 424-3233, or john.natale@ct.gov.

Sincerely,

John Natale, Analyst
Land & Water Resources Division
Bureau of Water Protection & Land Reuse

Encl(s): License # 201807893-PGP

cc: File 201807893-PGP

cc (via email): Kimberly Lesay, CT DOT: Kimberly.Lesay@ct.gov

Christina Mailhos, Willington First Selectman: cmailhos@willingtonct.org

Steve Gephard, CT DEEP Fisheries Division: steve.gephard@ct.gov



Connecticut Department of Energy and Environmental Protection License*

USACE CT GP - Pre-Construction Notification Approval

Licensee(s): CT DOT

Licensee Address(s): 2800 Berlin Turnpike
Newington, CT 06131-7546

License Number(s): 201807893-PGP

Municipality: Willington

Project Description: Rehabilitation of bridge No. 02259

Project Address/Location: Route 32 over South Branch, Roaring Brook

Waters: South Branch Roaring Brook

**Authorizing CT Statute(s)
and/or Federal Law:** Section 401 CWA (33 USC 1341)

**Applicable Regulations of
CT State Agencies:** 22a-426-1 to 9

Agency Contact: Land & Water Resources Division,
Bureau of Water Protection & Land Reuse, 860-424-3019

License Expiration: Upon expiration of the U.S. Army Corps of Engineers Section 404 permit for the same activity.

Project Site Plan Set: *Environmental Permit Plans, State Project No. 160-147, Rehabilitation of Bridge No. 02259 Carrying Route 32 Over S. Branch, Roaring Brook, Town of Willington, 7 sheets, prepared by the State of Connecticut Department of Transportation; with sheet PMT-01 dated April 12, 2018; sheet PMT-03 dated May 10, 2018; sheets PMT-02, PMT-04, PMT-05, and PMT-06 dated May 11, 2018; and sheet PMT-07 dated April 25, 2018.*

License Enclosures: WQC CT GP Conditions

*Connecticut's Uniform Administrative Procedure Act defines License to include, "the whole or part of any agency permit, certificate, approval, registration, charter or similar form of permission required by law . . ."

Authorized Activities:

The Licensee is hereby authorized to conduct the following work as described in application # 201807893-PGP:

1. Rehabilitate Bridge No. 02259 by inserting an aluminum box culvert liner through the existing bridge opening and pumping flowable fill between the voids, and constructing a concrete slab base with new concrete headwalls, wingwalls, and footings with vertical ground anchors.

Failure to comply with the terms and conditions of this license shall subject the Licensee and / or the Licensee's contractor(s) to enforcement actions and penalties as provided by law.

This license is subject to the following Terms and Conditions:

1. **License Enclosure(s) and Conditions.** The Licensee shall comply with all applicable terms and conditions as may be stipulated within the License Enclosure(s) listed above.

Issued under the authority of the Commissioner of Energy and Environmental Protection on:

July 16, 2018
Date



Brian P. Thompson
Division Director
Land & Water Resources Division

**Section 401 Water Quality Certification Conditions for Department of the Army (Corps of Engineers)
General Permits for the State of Connecticut**

1. **Rights.** This certificate is subject to and does not derogate any present or future property rights or other rights or powers of the State of Connecticut, and conveys no property rights in real estate or material nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state, or local laws or regulations pertinent to the property or activity affected hereby. This certification does not comprise the permits or approvals as may be required by Chapters 440, 446i, 446j and 446k of the Connecticut General Statutes.
2. **Expiration of Certificate.** The Section 401 Water Quality Certifications contained herein shall be valid until such time as the Department of the Army General Permits for the State of Connecticut expires or is modified, suspended, revoked or reissued.
3. **Compliance with Certificate.** All work and all activities authorized herein conducted by the permittee at the site shall be consistent with the terms and conditions of this certificate. Any regulated activities carried out at the site, including but not limited to, construction of any structure, excavation, fill, obstruction, or encroachment, that are not specifically identified and authorized herein shall constitute a violation of this certificate and may result in its modification, suspension, or revocation. In carrying out the certified discharge(s) authorized herein, the permittee shall not store equipment or construction material, or discharge any material including without limitation, fill, construction materials or debris in any wetland or watercourse on or off site unless specifically authorized by this certificate. Upon initiation of the activities authorized herein, the permittee thereby accepts and agrees to comply with the terms and conditions of this certificate.
4. **Transfer of Certificate.** This authorization is not transferable without the written consent of the Commissioner.
5. **Reliance on Application.** In evaluating the permittee's application, the Commissioner has relied on information provided by the permittee. If such information subsequently proves to be false, deceptive, incomplete or inaccurate, this certificate may be modified, suspended or revoked.
6. **Best Management Practices.** In constructing or maintaining the activities authorized herein, the permittee shall employ best management practices, consistent with the terms and conditions of this certificate, to control storm water discharges and erosion and sedimentation and to prevent pollution. Such practices to be implemented by the permittee at the site include, but are not necessarily limited to:
 - a. Prohibiting dumping of any quantity of oil, chemicals or other deleterious material on the ground;
 - b. Immediately informing the Commissioner's Oil and Chemical Spill Response Division at (860) 424-3338 (24 hours) of any adverse impact or hazard to the environment, including any discharges, spillage, or loss of oil or petroleum or chemical liquids or solids, which occurs or is likely to occur as the direct or indirect result of the activities authorized herein;
 - c. Separating staging areas at the site from the regulated areas by silt fences or straw/hay bales at all times;
 - d. Prohibiting storage of any fuel and refueling of equipment within twenty-five (25) feet from any wetland or watercourse;

- e. Preventing pollution of wetlands and watercourses in accordance with the document "Connecticut Guidelines for Soil Erosion and Sediment Control" as revised. Said controls shall be inspected by the permittee for deficiencies at least once per week and immediately after each rainfall and at least daily during prolonged rainfall. The permittee shall correct any such deficiencies within 48 hours of said deficiencies being found;
- f. Stabilizing disturbed soils in a timely fashion to minimize erosion. If a grading operation at the site will be suspended for a period of thirty (30) or more consecutive days, the permittee shall, within the first seven (7) days of that suspension period, accomplish seeding and mulching or take such other appropriate measures to stabilize the soil involved in such grading operation. Within seven (7) days after establishing final grade in any grading operation at the site the permittee shall seed and mulch the soil involved in such grading operation or take such other appropriate measures to stabilize such soil until seeding and mulching can be accomplished.
- g. Prohibiting the storage of any materials at the site which are buoyant, hazardous, flammable, explosive, soluble, expansive, radioactive, or which could in the event of a flood be injurious to human, animal or plant life, below the elevation of the five hundred (500) year flood. Any other material or equipment stored at the site below said elevation by the permittee or the permittee's contractor must be firmly anchored, restrained or enclosed to prevent flotation. The quantity of fuel stored below such elevation for equipment used at the site shall not exceed the quantity of fuel that is expected to be used by such equipment in one day.
- h. Immediately informing the Commissioner's Inland Water Resources Division at (860) 424-3019 and the U.S. Army Corps of Engineers at (978) 318-8879, of the occurrence of pollution or other environmental damage resulting from construction or maintenance of the authorized activity or any construction associated therewith in violation of this certificate. The permittee shall, no later than 48 hours after the permittee learns of a violation of this certificate, report same in writing to the Commissioner. Such report shall contain the following information:
 - (i) the provision(s) of this certificate that has been violated;
 - (ii) the date and time the violation(s) was first observed and by whom;
 - (iii) the cause of the violation(s), if known
 - (iv) if the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and times(s) it was corrected;
 - (v) if the violation(s) has not ceased, the anticipated date when it will be corrected;
 - (vi) steps taken and steps planned to prevent a reoccurrence of the violation(s) and the date(s) such steps were implemented or will be implemented;
 - (vii) the signatures of the permittee and of the individual(s) responsible for actually preparing such report, each of whom shall certify said report in accordance with condition 7 of this certificate.

For information and technical assistance, contact the DEEP Land and Water Resources Division at (860) 424-3019.

7. Unconfined Instream Work; Installation and Removal of Confining Structures.

- Unconfined instream work is limited to the period June 1 through September 30.
- Confinement of a work area by cofferdam techniques using sand bag placement, sheet pile installation (vibratory method only), portadam, or similar confinement devices is allowed any time of the year unless specifically prohibited by a permit condition.

- The removal of such confinement devices is allowed any time of the year unless specifically prohibited by a permit condition.
- The confinement technique used shall completely isolate and protect the confined area from all flowing water. The use of silt boom/curtain or similar technique as a means for confinement is prohibited.
- Once a work area has been confined, in-water work within the confined area is allowed any time of the year.

8. **Certification of Documents.** Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this certificate shall be signed by the permittee, a responsible corporate officer of the permittee, a general partner of the permittee, or a duly authorized representative of the permittee and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachments may be punishable as a criminal offense in accordance with Section 22a-6 under Section 53a-157 of the Connecticut General Statutes."

9. **Submission of Documents.** The date of submission to the Commissioner of any document required by this certificate shall be the date such document is received by the Commissioner. Except as otherwise specified in this certificate, the word "day" as used in this certificate means the calendar day. Any document or action which falls on a Saturday, Sunday, or legal holiday shall be submitted or performed by the next business day thereafter.

Any document or notice required to be submitted to the Commissioner under this certificate shall, unless otherwise specified in writing by the Commissioner, be directed to:

Director, Land and Water Resources Division
Bureau of Water Protection and Land Reuse
Department of Environmental Protection
79 Elm Street
Hartford, Connecticut 06106-5127

**Construction Contracts - Required Contract Provisions
(FHWA Funded Contracts)**

Index

1. Federal Highway Administration (FHWA) Form 1273 (Revised May 1, 2012)
2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements
3. Contractor Work Force Utilization (Federal Executive Order 11246) / Specific Equal Employment Opportunity
4. Requirements of Title 49, CFR, Part 26, Participation by DBEs
5. Contract Wage Rates
6. Americans with Disabilities Act of 1990, as Amended
7. Connecticut Statutory Labor Requirements
 - a. Construction, Alteration or Repair of Public Works Projects; Wage Rates
 - b. Debarment List - Limitation on Awarding Contracts
 - c. Construction Safety and Health Course
 - d. Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited
 - e. Residents Preference in Work on Other Public Facilities (Not Applicable to Federal Aid Contracts)
8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)
9. Executive Orders (State of CT)
10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised)
11. Whistleblower Provision
12. Connecticut Freedom of Information Act
 - a. Disclosure of Records
 - b. Confidential Information
13. Service of Process
14. Substitution of Securities for Retainages on State Contracts and Subcontracts
15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)
16. Forum and Choice of Law
17. Summary of State Ethics Laws

18. Audit and Inspection of Plants, Places of Business and Records
19. Campaign Contribution Restriction
20. Tangible Personal Property
21. Bid Rigging and/or Fraud – Notice to Contractor
22. Consulting Agreement Affidavit
23. Federal Cargo Preference Act Requirements (46 CFR 381.7(a)-(b))

Index of Exhibits

- EXHIBIT A – FHWA Form 1273 (Begins on page 14)
- EXHIBIT B – Title VI Contractor Assurances (page 34)
- EXHIBIT C – Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity (page 36)
- EXHIBIT D – Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 43)
- EXHIBIT E - Campaign Contribution Restriction (page 51)
- EXHIBIT F – Federal Wage Rates (Attached at the end)
- EXHIBIT G - State Wage Rates (Attached at the end)

1. Federal Highway Administration (FHWA) Form 1273

The Contractor shall comply with the Federal Highway Administration (FHWA), Form 1273 attached at Exhibit A, as revised, which is hereby made part of this contract. The Contractor shall also require its subcontractors to comply with the FHWA – Form 1273 and include the FHWA – Form 1273 as an attachment to all subcontracts and purchase orders.

2. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements

The Contractor shall comply with Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000 et seq.), all requirements imposed by the regulations of the United States Department of Transportation (49 CFR Part 21) issued in implementation thereof, and the Title VI Contractor Assurances attached hereto at Exhibit B, all of which are hereby made a part of this Contract.

3. Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity

- (a) The Contractor shall comply with the Contractor Work Force Utilization (Federal Executive Order 11246) / Equal Employment Opportunity requirements attached at Exhibit C and hereby made part of this Contract, whenever a contractor or subcontractor at any tier performs construction work in excess of \$10,000. These goals shall be included in each contract and subcontract. Goal achievement is calculated for each trade using the hours worked under each trade.
- (b) Companies with contracts, agreements or purchase orders valued at \$10,000 or more will develop and implement an Affirmative Action Plan utilizing the ConnDOT Affirmative Action Plan Guideline. This Plan shall be designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex or national origin, and to promote the full realization of equal employment opportunity through a positive continuation program. Plans shall be updated as required by ConnDOT.

4. Requirements of Title 49, Code of Federal Regulations (CFR), Part 26, Participation by DBEs, as may be revised.

Pursuant to 49 CFR 26.13, the following paragraph is part of this Contract and shall be included in each subcontract the Contractor enters into with a subcontractor:

“The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26, Participation by DBEs, in the award and administration of U.S. DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this contract or such other remedy as ConnDOT (recipient) deems appropriate, which may include, but is not limited to: (1) Withholding monthly progress payments, (2) Assessing sanctions, (3) Liquidated damages; and/or, (4) Disqualifying the contractor from future bidding as non-responsible.”

5. Contract Wage Rates

The Contractor shall comply with:

The Federal and State wage rate requirements indicated in Exhibits F and G hereof, as revised, are hereby made part of this Contract. The Federal wage rates (Davis-Bacon Act) applicable to this Contract shall be the Federal wage rates that are current on the US Department of Labor website (<http://www.wdol.gov/dba.aspx>) as may be revised 10 days prior to bid opening. These applicable Federal wage rates will be physically incorporated in the final contract document executed by both parties. The Department will no longer physically include revised Federal wage rates in the bid documents or as part of addenda documents, prior to the bid opening date. During the bid advertisement period, bidders are responsible for obtaining the appropriate Federal wage rates from the US Department of Labor website.

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

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

Prevailing Wages for Work on State Highways; Annual Adjustments. With respect to contracts for work on state highways and bridges on state highways, the Contractor shall comply with the provisions of Section 31-54 and 31-55a of the Connecticut General Statutes, as revised.

As required by Section 1.05.12 (Payrolls) of the State of Connecticut, Department of Transportation’s Standard Specification for Roads, Bridges and Incidental Construction (FORM 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.

6. Americans with Disabilities Act of 1990, as Amended

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

7. Connecticut Statutory Labor Requirements

(a) Construction, Alteration or Repair of Public Works Projects; Wage Rates. The Contractor shall comply with Section 31-53 of the Connecticut General Statutes, as revised. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i)

of section 31-53 of the Connecticut General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

(b) Debarment List. Limitation on Awarding Contracts. The Contractor shall comply with Section 31-53a of the Connecticut General Statutes, as revised.

(c) Construction Safety and Health Course. The Contractor shall comply with section 31-53b of the Connecticut General Statutes, as revised. The contractor shall furnish proof to the Labor Commissioner with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 of the Connecticut General Statutes, as revised, on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

Any employee required to complete a construction safety and health course as required that has not completed the course, shall have a maximum of fourteen (14) days to complete the course. If the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

(d) Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited. The Contract is subject to Section 31-57b of the Connecticut General Statutes, as revised.

(e) Residents Preference in Work on Other Public Facilities. NOT APPLICABLE TO FEDERAL AID CONTRACTS. Pursuant to Section 31-52a of the Connecticut General Statutes, as revised, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the state who are, and continuously for at least six months prior to the date hereof have been, residents of this state, and if no such person is available, then to residents of other states

8. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)

The Contractor shall comply with Chapter 219 of the Connecticut General Statutes pertaining to tangible personal property or services rendered that is/are subject to sales tax. The Contractor is responsible for determining its tax liability. If the Contractor purchases materials or supplies pursuant to the Connecticut Department of Revenue Services' "Contractor's Exempt Purchase Certificate (CERT-141)," as may be revised, the Contractor acknowledges and agrees that title to such materials and supplies installed or placed in the project will vest in the State simultaneously with passage of title

from the retailers or vendors thereof, and the Contractor will have no property rights in the materials and supplies purchased.

Forms and instructions are available anytime by:

Internet: Visit the DRS website at www.ct.gov/DRS to download and print Connecticut tax forms; or Telephone: Call 1-800-382-9463 (Connecticut calls outside the Greater Hartford calling area only) and select Option 2 or call 860-297-4753 (from anywhere).

9. Executive Orders

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of the contract as if they had been fully set forth in it. The contract may also be subject to Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services and to Executive Order No. 49 of Governor Dannel P. Malloy, promulgated May 22, 2015, mandating disclosure of certain gifts to public employees and contributions to certain candidates for office. If Executive Order No. 14 and/or Executive Order No. 49 are applicable, they are deemed to be incorporated into and are made a part of the contract as if they had been fully set forth in it. At the Contractor's request, the Department shall provide a copy of these orders to the Contractor.

10. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised): References to "minority business enterprises" in this Section are not applicable to Federal-aid projects/contracts. Federal-aid projects/contracts are instead subject to the Federal Disadvantaged Business Enterprise Program.

(a) For purposes of this Section, the following terms are defined as follows:

- i. "Commission" means the Commission on Human Rights and Opportunities;
- ii. "Contract" and "contract" include any extension or modification of the Contract or contract;
- iii. "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;
- iv. "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.
- v. "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;
- vi. "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;
- vii. "marital status" means being single, married as recognized by the State of Connecticut, widowed, separated or divorced;

- viii. "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;
- ix. "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
- x. "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, including, but not limited to, a municipality, (2) a quasi-public agency, as defined in Conn. Gen. Stat. Section 1-120, (3) any other state, including but not limited to any federally recognized Indian tribal governments, as defined in Conn. Gen. Stat. Section 1-267, (4) the federal government, (5) a foreign government, or (6) an agency of a subdivision, agency, state or government described in the immediately preceding enumerated items (1), (2), (3), (4) or (5).

- (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, 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, 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.”

The Nondiscrimination Certifications can be found at the Office of Policy and Management website.

<http://www.ct.gov/opm/cwp/view.asp?a=2982&Q=390928>

11. Whistleblower Provision

The following clause is applicable if the Contract has a value of Five Million Dollars (\$5,000,000) or more.

Whistleblowing. This Contract may be subject to the provisions of Section 4-61dd of the Connecticut General Statutes. In accordance with this statute, if an officer, employee or appointing authority of the Contractor takes or threatens to take any personnel action against any employee of the Contractor in retaliation for such employee's disclosure of information to any employee of the contracting state or quasi-public agency or the Auditors of Public Accounts or the Attorney General under the provisions of subsection (a) of such statute, the Contractor shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of this Contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation, each calendar day's continuance of the violation shall be deemed to be a separate and distinct offense. The State may request that the Attorney General bring a civil action in the Superior Court for the Judicial District of Hartford to seek imposition and recovery of such civil penalty. In accordance with subsection (f) of such statute, each large state contractor, as defined in the statute, shall post a notice of the provisions of the statute relating to large state contractors in a conspicuous place which is readily available for viewing by the employees of the Contractor.

12. Connecticut Freedom of Information Act

- (a) Disclosure of Records.** This Contract may be subject to the provisions of section 1-218 of the Connecticut General Statutes. In accordance with this statute, each contract in excess of two million five hundred thousand dollars between a public agency and a person for the performance of a governmental function shall (a) provide that the public agency is entitled to receive a copy of records and files related to the performance of the governmental function, and (b) indicate that such records and files are subject to FOIA and may be disclosed by the public agency pursuant to FOIA. No request to inspect or copy such records or files shall be valid unless the request is made to the public agency in accordance with FOIA. Any complaint by a person who is denied the right to inspect or copy such records or files shall be brought to the Freedom of Information Commission in accordance with the provisions of sections 1-205 and 1-206 of the Connecticut General Statutes.
- (b) Confidential Information.** The State will afford due regard to the Contractor's request for the protection of proprietary or confidential information which the State receives from the Contractor. However, all materials associated with the Contract are subject to the terms of the FOIA and all corresponding rules, regulations and interpretations. In making such a request, the Contractor may not merely state generally that the materials are proprietary or confidential in nature and not, therefore, subject to release to third parties. Those particular sentences, paragraphs, pages or sections that the Contractor believes are exempt from disclosure under the FOIA must be specifically identified as such. Convincing explanation

and rationale sufficient to justify each exemption consistent with the FOIA must accompany the request. The rationale and explanation must be stated in terms of the prospective harm to the competitive position of the Contractor that would result if the identified material were to be released and the reasons why the materials are legally exempt from release pursuant to the FOIA. To the extent that any other provision or part of the Contract conflicts or is in any way inconsistent with this section, this section controls and shall apply and the conflicting provision or part shall not be given effect. If the Contractor indicates that certain documentation is submitted in confidence, by specifically and clearly marking the documentation as “CONFIDENTIAL,” DOT will first review the Contractor’s claim for consistency with the FOIA (that is, review that the documentation is actually a trade secret or commercial or financial information and not required by statute), and if determined to be consistent, will endeavor to keep such information confidential to the extent permitted by law. See, *e.g.*, Conn. Gen. Stat. §1-210(b)(5)(A-B). The State, however, has no obligation to initiate, prosecute or defend any legal proceeding or to seek a protective order or other similar relief to prevent disclosure of any information that is sought pursuant to a FOIA request. Should the State withhold such documentation from a Freedom of Information requester and a complaint be brought to the Freedom of Information Commission, the Contractor shall have the burden of cooperating with DOT in defense of that action and in terms of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall the State have any liability for the disclosure of any documents or information in its possession which the State believes are required to be disclosed pursuant to the FOIA or other law.

13. Service of Process

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

14. Substitution of Securities for Retainages on State Contracts and Subcontracts

This Contract is subject to the provisions of Section 3-112a of the General Statutes of the State of Connecticut, as revised.

15. Health Insurance Portability and Accountability Act of 1996 (HIPAA)

The Contractor shall comply, if applicable, with the Health Insurance Portability and Accountability Act of 1996 and, pursuant thereto, the provisions attached at Exhibit D, and hereby made part of this Contract.

16. Forum and Choice of Law

Forum and Choice of Law. The parties deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be

brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Contractor waives any objection which it may now have or will have to the laying of venue of any Claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

17. Summary of State Ethics Laws

Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes, the summary of State ethics laws developed by the State Ethics Commission pursuant to section 1-81b of the Connecticut General Statutes is incorporated by reference into and made a part of the Contract as if the summary had been fully set forth in the Contract.

18. Audit and Inspection of Plants, Places of Business and Records

- (a) The State and its agents, including, but not limited to, the Connecticut Auditors of Public Accounts, Attorney General and State's Attorney and their respective agents, may, at reasonable hours, inspect and examine all of the parts of the Contractor's and Contractor Parties' plants and places of business which, in any way, are related to, or involved in, the performance of this Contract. For the purposes of this Section, "Contractor Parties" means the Contractor's members, directors, officers, shareholders, partners, managers, principal officers, representatives, agents, servants, consultants, employees or any one of them or any other person or entity with whom the Contractor is in privity of oral or written contract and the Contractor intends for such other person or entity to Perform under the Contract in any capacity.
- (b) The Contractor shall maintain, and shall require each of the Contractor Parties to maintain, accurate and complete Records. The Contractor shall make all of its and the Contractor Parties' Records available at all reasonable hours for audit and inspection by the State and its agents.
- (c) The State shall make all requests for any audit or inspection in writing and shall provide the Contractor with at least twenty-four (24) hours' notice prior to the requested audit and inspection date. If the State suspects fraud or other abuse, or in the event of an emergency, the State is not obligated to provide any prior notice.
- (d) The Contractor shall keep and preserve or cause to be kept and preserved all of its and Contractor Parties' Records until three (3) years after the latter of (i) final payment under this Agreement, or (ii) the expiration or earlier termination of this Agreement, as the same may be modified for any reason. The State may request an audit or inspection at any time during this period. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all Records until all Claims or audit findings have been resolved.
- (e) The Contractor shall cooperate fully with the State and its agents in connection with an audit or inspection. Following any audit or inspection, the State may conduct and the Contractor shall cooperate with an exit conference.
- (f) The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

19. Campaign Contribution Restriction

For all State contracts, defined in Conn. Gen. Stat. §9-612(f)(1) as having a value in a calendar year of \$50,000 or more, or a combination or series of such agreements or contracts having a value of \$100,000 or more, the authorized signatory to this contract expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice, as set forth in "Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations," a copy of which is attached hereto and hereby made a part of this contract, attached as Exhibit E.

20. Tangible Personal Property

- (a) The Contractor on its behalf and on behalf of its Affiliates, as defined below, shall comply with the provisions of Conn. Gen. Stat. §12-411b, as follows:
- (1) For the term of the Contract, the Contractor and its Affiliates shall collect and remit to the State of Connecticut, Department of Revenue Services, any Connecticut use tax due under the provisions of Chapter 219 of the Connecticut General Statutes for items of tangible personal property sold by the Contractor or by any of its Affiliates in the same manner as if the Contractor and such Affiliates were engaged in the business of selling tangible personal property for use in Connecticut and had sufficient nexus under the provisions of Chapter 219 to be required to collect Connecticut use tax;
 - (2) A customer's payment of a use tax to the Contractor or its Affiliates relieves the customer of liability for the use tax;
 - (3) The Contractor and its Affiliates shall remit all use taxes they collect from customers on or before the due date specified in the Contract, which may not be later than the last day of the month next succeeding the end of a calendar quarter or other tax collection period during which the tax was collected;
 - (4) The Contractor and its Affiliates are not liable for use tax billed by them but not paid to them by a customer; and
 - (5) Any Contractor or Affiliate who fails to remit use taxes collected on behalf of its customers by the due date specified in the Contract shall be subject to the interest and penalties provided for persons required to collect sales tax under chapter 219 of the general statutes.
- (b) For purposes of this section of the Contract, the word "Affiliate" means any person, as defined in section 12-1 of the general statutes, that controls, is controlled by, or is under common control with another person. A person controls another person if the person owns, directly or indirectly, more than ten per cent of the voting securities of the other person. The word "voting security" means a security that confers upon the holder the right to vote for the election of members of the board of directors or similar governing body of the business, or that is convertible into, or entitles the holder to receive, upon its exercise, a security that confers such a right to vote. "Voting security" includes a general partnership interest.
- (c) The Contractor represents and warrants that each of its Affiliates has vested in the Contractor plenary authority to so bind the Affiliates in any agreement with the State of Connecticut. The Contractor on its own behalf and on behalf of its Affiliates shall also provide, no later than 30 days after receiving a request by the State's contracting authority, such information as the State may require to ensure, in the State's sole determination, compliance with the provisions of Chapter 219 of the Connecticut General Statutes, including, but not limited to, §12-411b.

21. Bid Rigging and/or Fraud – Notice to Contractor

The Connecticut Department of Transportation is cooperating with the U.S. Department of Transportation and the Justice Department in their investigation into highway construction contract bid rigging and/or fraud.

A toll-free "HOT LINE" telephone number 800-424-9071 has been established to receive information from contractors, subcontractors, manufacturers, suppliers or anyone with knowledge of bid rigging and/or fraud, either past or current. The "HOT LINE" telephone number will be available during normal working hours (8:00 am – 5:00 pm EST). Information will be treated confidentially and anonymity respected.

22. Consulting Agreement Affidavit

The Contractor shall comply with Connecticut General Statutes Section 4a-81(a) and 4a-81(b), as revised. Pursuant to Public Act 11-229, after the initial submission of the form, if there is a change in the information contained in the form, a contractor shall submit the updated form, as applicable, either

(i) not later than thirty (30) days after the effective date of such change or (ii) prior to execution of any new contract, whichever is earlier.

The Affidavit/Form may be submitted in written format or electronic format through the Department of Administrative Services (DAS) website.

23. Cargo Preference Act Requirements (46 CFR 381.7(a)-(b)) – Use of United States Flag Vessels

The Contractor agrees to comply with the following:

(a) ***Agreement Clauses.***

- (1) Pursuant to Pub. L. 664 ([43 U.S.C. 1241\(b\)](#)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.
- (2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(b) ***Contractor and Subcontractor Clauses.*** The contractor agrees—

- (1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
- (2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
- (3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

EXHIBIT A

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

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

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

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

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

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

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

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

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

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

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

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

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of

such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

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

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

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

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

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

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

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

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

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

- a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.
- b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
- c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.
- d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

- a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.
- b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

- a. The requirements of 49 CFR Part 26, and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

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

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

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

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

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

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

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

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

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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

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

2. Withholding

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

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

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

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

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

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

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

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

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

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the

provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

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

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

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

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

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

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible

therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

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

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

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

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

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

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

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out

the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

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

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

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

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

Shall be fined under this title or imprisoned not more than 5 years or both."

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

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

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

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

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

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

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

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

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

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

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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

participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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

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

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

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

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

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

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

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

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

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

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

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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

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

* * * * *

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

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

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

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

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

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

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

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

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

EXHIBIT B**TITLE VI CONTRACTOR ASSURANCES
APPENDIX A**

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor will comply with the Regulations relative to nondiscrimination in federally assisted programs of the United States Department of Transportation Federal Highway Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, disability, income or Limited English Proficiency in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor will so certify to the Recipient or the Federal Highway Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Non-compliance:** In the event of the contractor's non-compliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - a. withholding contract payments to the contractor under the contract until the contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for

noncompliance. Provided, that if the contractor becomes involved in, or is threatened with, litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

TITLE VI CONTRACTOR ASSURANCES APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. § 2000d et seq.), (prohibits discrimination on the basis of race, color, national origin), as implemented by 49 C.F.R. § 21.1 et seq. and 49 C.F.R. part 303;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973 (23 U.S.C. § 324 et seq.) (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794 et seq.) (prohibits discrimination on the basis of disability); and 49 C.F.R. part 27;
- The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 et seq.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (Pub. L. 97-248 (1982)), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (102 Stat. 28) ("*... which restore[d] the broad scope of coverage and to clarify the application of Title IX of the Education Amendments of 1972, section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and Title VI of the Civil Rights Act of 1964.*");
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 --12189), as implemented by Department of Justice regulations at 28 C.F.R. parts 35 and 36, and Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. § 1681 et seq).

EXHIBIT C**CONTRACTOR WORKFORCE UTILIZATION (FEDERAL EXECUTIVE ORDER 11246) /
EQUAL EMPLOYMENT OPPORTUNITY
(Federal - FHWA)****1. Project Workforce Utilization Goals:**

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted or funded) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where the work is actually performed.

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

The goals for minority and female utilization are expressed in percentage terms for the contractor's aggregate work-force in each trade on all construction work in the covered area, are referenced in the attached Appendix A.

2. Executive Order 11246

The Contractor's compliance with Executive Order 11246 and 41-CFR Part 60-4 shall be based on its implementation of the specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(A) and its efforts to meet the goals established for the geographical area where the contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hour performed.

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

The Contractor shall implement the specific affirmative action standards provided in a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in

which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs (OFCCP) Office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

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

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

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

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites; and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason thereafter; along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the Union or Unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other

information that the Union referral process has impeded the Contractor's efforts to meet its obligations.

- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO Policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company EEO Policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment, decisions including specific Foreman, etc. prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO Policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work-force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and

employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

- n. Ensure that all facilities and company activities are non-segregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review at least annually of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

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

A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of Executive Order 11246 if a particular group is employed in a substantially disparate manner, (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under utilized).

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

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

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

The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in these

specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

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

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

The Director of the Office of Federal Contract Compliance Programs, from time to time, shall issue goals and timetables for minority and female utilization which shall be based on appropriate workforce, demographic or other relevant data and which shall cover construction projects or construction contracts performed in specific geographical areas. The goals, which shall be applicable to each construction trade in a covered contractor's or timetables, shall be published as notices in the Federal Register, and shall be inserted by the Contracting officers and applicants, as applicable, in the Notice required by 41 CFR 60-4.2.

FEDERALLY FUNDED OR ASSISTED PROJECTS
APPENDIX A
(Labor Market Goals)

Standard Metropolitan Statistical Area (SMSA)

Female

Minority

Bridgeport – Stamford – Norwalk – Danbury	10.2%
6.9%	

Bethel	Bridgeport	Brookfield	Danbury
Darien	Derby	Easton	Fairfield
Greenwich	Milford	Monroe	New Canaan
New Fairfield	Newton	Norwalk	Redding
Shelton	Stamford	Stratford	Trumbull
Weston	Westport	Wilton	

Hartford – Bristol – New Britain	6.9%
6.9%	

Andover	Avon	Berlin	Bloomfield
Bolton	Bristol	Burlington	Canton
Colchester	Columbia	Coventry	Cromwell
East Granby	East Hampton	East Hartford	East Windsor
Ellington	Enfield	Farmington	Glastonbury
Granby	Hartford	Hebron	Manchester
Marlborough	New Britain	New Hartford	Newington
Plainville	Plymouth	Portland	Rocky Hill
Simsbury	South Windsor	Southington	Stafford
Suffield	Tolland	Vernon	West Hartford
Wethersfield	Willington	Windsor	Windsor Locks

New Haven – Waterbury – Meriden	9.0%
6.9%	

Beacon Falls	Bethany	Branford	Cheshire
Clinton	East Haven	Guilford	Hamden
Madison	Meriden	Middlebury	Naugatuck
New Haven	North Branford	North Haven	Orange
Prospect	Southbury	Thomaston	Wallingford
Waterbury	Watertown	West Haven	Wolcott
Woodbridge	Woodbury		

New London – Norwich	4.5%
6.9%	

Bozrah	East Lyme	Griswold	Groton
Ledyard	Lisbon	Montville	New London
Norwich	Old Lyme	Old Saybrook	Preston
Sprague	Stonington	Waterford	

Non SMSA

Female

Minority

Litchfield – Windham			5.9%
6.9%			
Abington	Ashford	Ballouville	Bantam
Barkhamsted	Bethlehem	Bridgewater	Brooklyn
Canaan	Canterbury	Central Village	Cahplin
Colebrook	Cornwall	Cornwall Bridge	Danielson
Dayville	East Canaan	East Killingly	East Woodstock
Eastford	Falls Village	Gaylordsville	Goshen
Grosvenor Dale	Hampton	Harwinton	Kent
Killigly	Lakeside	Litchfield	Moosup
Morris	New Milford	New Preston	New Preston Marble Dale
Norfolk	North Canaan	No. Grosvenordale	North Windham
Oneco	Pequabuck	Pine Meadow	Plainfield
Pleasant Valley	Pomfret	Pomfret Center	Putnam
Quinebaug	Riverton	Rogers	Roxbury
Salisbury	Scotland	Sharon	South Kent
South Woodstock	Sterling	Taconic	Terryville
Thompson	Torrington	Warren	Warrenville
Washington	Washington Depot	Wauregan	West Cornwall
Willimantic	Winchester	Winchester Center	Windham
Winsted	Woodstock	Woodstock Valley	

EXHIBIT D**Health Insurance Portability and Accountability Act of 1996 (“HIPAA”).**

- (a) If the Contactor is a Business Associate under the requirements of the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), the Contractor must comply with all terms and conditions of this Section of the Contract. If the Contractor is not a Business Associate under HIPAA, this Section of the Contract does not apply to the Contractor for this Contract.
- (b) The Contractor is required to safeguard the use, publication and disclosure of information on all applicants for, and all clients who receive, services under the Contract in accordance with all applicable federal and state law regarding confidentiality, which includes but is not limited to HIPAA, more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E; and
- (c) The State of Connecticut Agency named on page 1 of this Contract (hereinafter the “Department”) is a “covered entity” as that term is defined in 45 C.F.R. § 160.103; and
- (d) The Contractor, on behalf of the Department, performs functions that involve the use or disclosure of “individually identifiable health information,” as that term is defined in 45 C.F.R. § 160.103; and
- (e) The Contractor is a “business associate” of the Department, as that term is defined in 45 C.F.R. § 160.103; and
- (f) The Contractor and the Department agree to the following in order to secure compliance with the HIPAA, the requirements of Subtitle D of the Health Information Technology for Economic and Clinical Health Act (hereinafter the HITECH Act), (Pub. L. 111-5, sections 13400 to 13423), and more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E.
- (g) Definitions
 - (1) “Breach shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(1))
 - (2) “Business Associate” shall mean the Contractor.
 - (3) “Covered Entity” shall mean the Department of the State of Connecticut named on page 1 of this Contract.
 - (4) “Designated Record Set” shall have the same meaning as the term “designated record set” in 45 C.F.R. § 164.501.
 - (5) “Electronic Health Record” shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(5))

- (6) "Individual" shall have the same meaning as the term "individual" in 45 C.F.R. § 160.103 and shall include a person who qualifies as a personal representative as defined in 45 C.F.R. § 164.502(g).
 - (7) "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 C.F.R. part 160 and parts 164, subparts A and E.
 - (8) "Protected Health Information" or "PHI" shall have the same meaning as the term "protected health information" in 45 C.F.R. § 160.103, limited to information created or received by the Business Associate from or on behalf of the Covered Entity.
 - (9) "Required by Law" shall have the same meaning as the term "required by law" in 45 C.F.R. § 164.103.
 - (10) "Secretary" shall mean the Secretary of the Department of Health and Human Services or his designee.
 - (11) "More stringent" shall have the same meaning as the term "more stringent" in 45 C.F.R. § 160.202.
 - (12) "This Section of the Contract" refers to the HIPAA Provisions stated herein, in their entirety.
 - (13) "Security Incident" shall have the same meaning as the term "security incident" in 45 C.F.R. § 164.304.
 - (14) "Security Rule" shall mean the Security Standards for the Protection of Electronic Protected Health Information at 45 C.F.R. part 160 and parts 164, subpart A and C.
 - (15) "Unsecured protected health information" shall have the same meaning as the term as defined in section 13402(h)(1)(A) of HITECH. Act. (42 U.S.C. §17932(h)(1)(A)).
- (h) Obligations and Activities of Business Associates.
- (1) Business Associate agrees not to use or disclose PHI other than as permitted or required by this Section of the Contract or as Required by Law.
 - (2) Business Associate agrees to use appropriate safeguards to prevent use or disclosure of PHI other than as provided for in this Section of the Contract.
 - (3) Business Associate agrees to use administrative, physical and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic protected health information that it creates, receives, maintains, or transmits on behalf of the Covered Entity.
 - (4) Business Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of PHI by Business Associate in violation of this Section of the Contract.

- (5) Business Associate agrees to report to Covered Entity any use or disclosure of PHI not provided for by this Section of the Contract or any security incident of which it becomes aware.
- (6) Business Associate agrees to insure that any agent, including a subcontractor, to whom it provides PHI received from, or created or received by Business Associate, on behalf of the Covered Entity, agrees to the same restrictions and conditions that apply through this Section of the Contract to Business Associate with respect to such information.
- (7) Business Associate agrees to provide access, at the request of the Covered Entity, and in the time and manner agreed to by the parties, to PHI in a Designated Record Set, to Covered Entity or, as directed by Covered Entity, to an Individual in order to meet the requirements under 45 C.F.R. § 164.524.
- (8) Business Associate agrees to make any amendments to PHI in a Designated Record Set that the Covered Entity directs or agrees to pursuant to 45 C.F.R. § 164.526 at the request of the Covered Entity, and in the time and manner agreed to by the parties.
- (9) Business Associate agrees to make internal practices, books, and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by, Business Associate on behalf of Covered Entity, available to Covered Entity or to the Secretary in a time and manner agreed to by the parties or designated by the Secretary, for purposes of the Secretary determining Covered Entity's compliance with the Privacy Rule.
- (10) Business Associate agrees to document such disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (11) Business Associate agrees to provide to Covered Entity, in a time and manner agreed to by the parties, information collected in accordance with clause h. (10) of this Section of the Contract, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder. Business Associate agrees at the Covered Entity's direction to provide an accounting of disclosures of PHI directly to an individual in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (12) Business Associate agrees to comply with any state or federal law that is more stringent than the Privacy Rule.
- (13) Business Associate agrees to comply with the requirements of the HITECH Act relating to privacy and security that are applicable to the Covered Entity and with the requirements of 45 C.F.R. sections 164.504(e), 164.308, 164.310, 164.312, and 164.316.

- (14) In the event that an individual requests that the Business Associate (a) restrict disclosures of PHI; (b) provide an accounting of disclosures of the individual's PHI; or (c) provide a copy of the individual's PHI in an electronic health record, the Business Associate agrees to notify the covered entity, in writing, within two business days of the request.
- (15) Business Associate agrees that it shall not, directly or indirectly, receive any remuneration in exchange for PHI of an individual without (1) the written approval of the covered entity, unless receipt of remuneration in exchange for PHI is expressly authorized by this Contract and (2) the valid authorization of the individual, except for the purposes provided under section 13405(d)(2) of the HITECH Act,(42 U.S.C. § 17935(d)(2)) and in any accompanying regulations
- (16) Obligations in the Event of a Breach
- A. The Business Associate agrees that, following the discovery of a breach of unsecured protected health information, it shall notify the Covered Entity of such breach in accordance with the requirements of section 13402 of HITECH (42 U.S.C. 17932(b) and the provisions of this Section of the Contract.
- B. Such notification shall be provided by the Business Associate to the Covered Entity without unreasonable delay, and in no case later than 30 days after the breach is discovered by the Business Associate, except as otherwise instructed in writing by a law enforcement official pursuant to section 13402 (g) of HITECH (42 U.S.C. 17932(g)) . A breach is considered discovered as of the first day on which it is, or reasonably should have been, known to the Business Associate. The notification shall include the identification and last known address, phone number and email address of each individual (or the next of kin of the individual if the individual is deceased) whose unsecured protected health information has been, or is reasonably believed by the Business Associate to have been, accessed, acquired, or disclosed during such breach.
- C. The Business Associate agrees to include in the notification to the Covered Entity at least the following information:
1. A brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known.
 2. A description of the types of unsecured protected health information that were involved in the breach (such as full name, Social Security number, date of birth, home address, account number, or disability code).
 3. The steps the Business Associate recommends that individuals take to protect themselves from potential harm resulting from the breach.
 4. A detailed description of what the Business Associate is doing to investigate the breach, to mitigate losses, and to protect against any further breaches.
 5. Whether a law enforcement official has advised either verbally or in writing the Business Associate that he or she has determined that notification or notice to

individuals or the posting required under section 13402 of the HITECH Act would impede a criminal investigation or cause damage to national security and; if so, include contact information for said official.

- D. Business Associate agrees to provide appropriate staffing and have established procedures to ensure that individuals informed by the Covered Entity of a breach by the Business Associate have the opportunity to ask questions and contact the Business Associate for additional information regarding the breach. Such procedures shall include a toll-free telephone number, an e-mail address, a posting on its Web site and a postal address. Business Associate agrees to include in the notification of a breach by the Business Associate to the Covered Entity, a written description of the procedures that have been established to meet these requirements. Costs of such contact procedures will be borne by the Contractor.
 - E. Business Associate agrees that, in the event of a breach, it has the burden to demonstrate that it has complied with all notifications requirements set forth above, including evidence demonstrating the necessity of a delay in notification to the Covered Entity.
- (i) Permitted Uses and Disclosure by Business Associate.
- (1) General Use and Disclosure Provisions Except as otherwise limited in this Section of the Contract, Business Associate may use or disclose PHI to perform functions, activities, or services for, or on behalf of, Covered Entity as specified in this Contract, provided that such use or disclosure would not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity.
 - (2) Specific Use and Disclosure Provisions
 - (A) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate.
 - (B) Except as otherwise limited in this Section of the Contract, Business Associate may disclose PHI for the proper management and administration of Business Associate, provided that disclosures are Required by Law, or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as Required by Law or for the purpose for which it was disclosed to the person, and the person notifies Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.
 - (C) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI to provide Data Aggregation services to Covered Entity as permitted by 45 C.F.R. § 164.504(e)(2)(i)(B).
- (j) Obligations of Covered Entity.

- (1) Covered Entity shall notify Business Associate of any limitations in its notice of privacy practices of Covered Entity, in accordance with 45 C.F.R. § 164.520, or to the extent that such limitation may affect Business Associate's use or disclosure of PHI.
 - (2) Covered Entity shall notify Business Associate of any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.
 - (3) Covered Entity shall notify Business Associate of any restriction to the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 C.F.R. § 164.522, to the extent that such restriction may affect Business Associate's use or disclosure of PHI.
- (k) Permissible Requests by Covered Entity. Covered Entity shall not request Business Associate to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if done by the Covered Entity, except that Business Associate may use and disclose PHI for data aggregation, and management and administrative activities of Business Associate, as permitted under this Section of the Contract.
- (l) Term and Termination.
- (1) Term. The Term of this Section of the Contract shall be effective as of the date the Contract is effective and shall terminate when the information collected in accordance with clause h. (10) of this Section of the Contract is provided to the Covered Entity and all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such information, in accordance with the termination provisions in this Section.
 - (2) Termination for Cause Upon Covered Entity's knowledge of a material breach by Business Associate, Covered Entity shall either:
 - (A) Provide an opportunity for Business Associate to cure the breach or end the violation and terminate the Contract if Business Associate does not cure the breach or end the violation within the time specified by the Covered Entity; or
 - (B) Immediately terminate the Contract if Business Associate has breached a material term of this Section of the Contract and cure is not possible; or
 - (C) If neither termination nor cure is feasible, Covered Entity shall report the violation to the Secretary.
 - (3) Effect of Termination
 - (A) Except as provided in (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

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(g)(2), as amended by P.A. 10-1, 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. 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 fund-raising 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 or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

“Subcontractor” means any person, business entity or nonprofit organization that contracts to perform part or all of the obligations of a state contractor's state contract. Such person, business entity or nonprofit organization shall be deemed to be a subcontractor until December thirty first of the year in which the subcontract terminates. “Subcontractor” does not include (i) a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or (ii) an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

“Principal of a subcontractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a subcontractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a subcontractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a subcontractor, which is not a business entity, or if a subcontractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any subcontractor who has managerial or discretionary responsibilities with respect to a subcontract with a state contractor, (v) the spouse or a dependent child who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the subcontractor.

EXHIBIT F

(federal wage rate package will be inserted here for final executed contract only. Refer to NTC – Federal Wage Determinations)

EXHIBIT G

(state wages will be inserted here)

Project: Rehabilitation Of Bridge Number 02259 On Route 32S Branch Roaring Brook

**Minimum Rates and Classifications
for Heavy/Highway Construction**

**Connecticut Department of Labor
Wage and Workplace Standards Division**

ID#: H 25593

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number:

Project Town: Willington

FAP Number:

State Number: 160-147

Project: Rehabilitation Of Bridge Number 02259 On Route 32S Branch Roaring Brook

CLASSIFICATION

Hourly Rate

Benefits

01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 5 and 7**

1) Boilermaker	33.79	34% + 8.96
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1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	33.48	31.66
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2) Carpenters, Piledrivermen	32.60	25.34
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2a) Diver Tenders	32.60	25.34
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3) Divers	41.06	25.34
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03a) Millwrights	33.14	25.74
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4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	49.75	21.05
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4a) Painters: Brush and Roller	33.62	21.05
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4b) Painters: Spray Only	36.62	21.05
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4c) Painters: Steel Only	35.62	21.05
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4d) Painters: Blast and Spray	36.62	21.05
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4e) Painters: Tanks, Tower and Swing	35.62	21.05
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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	25.97+3% of gross wage
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6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	35.47	35.14 + 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)	42.62	31.21
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---LABORERS----

8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	30.05	20.10
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9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	30.30	20.10
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10) Group 3: Pipelayers	30.55	20.10
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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	30.55	20.10
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12) Group 5: Toxic waste removal (non-mechanical systems)	32.05	20.10
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13) Group 6: Blasters	31.80	20.10
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Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	31.05	20.10
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Group 8: Traffic control signalmen	16.00	20.10
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Group 9: Hydraulic Drills	29.30	18.90
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---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	32.22	20.10 + a
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13b) Brakemen, Trackmen	31.28	20.10 + a
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---CLEANING, CONCRETE AND CAULKING TUNNEL----

14) Concrete Workers, Form Movers, and Strippers	31.28	20.10 + a
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15) Form Erectors	31.60	20.10 + a
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---ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL
IN FREE AIR:----

16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	31.28	20.10 + a
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17) Laborers Topside, Cage Tenders, Bellman	31.17	20.10 + a
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18) Miners	32.22	20.10 + a
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---TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED
AIR: ----

18a) Blaster	38.53	20.10 + a
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19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	38.34	20.10 + a
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20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	36.41	20.10 + a
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21) Mucking Machine Operator	39.11	20.10 + a
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---TRUCK DRIVERS---(*see note below)

Two axle trucks	29.13	23.33 + a
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Three axle trucks; two axle ready mix	29.23	23.33 + a
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Three axle ready mix	29.28	23.33 + a
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Four axle trucks, heavy duty trailer (up to 40 tons)	29.33	23.33 + a
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Four axle ready-mix	29.38	23.33 + a
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Heavy duty trailer (40 tons and over)	29.58	23.33 + a
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Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	29.38	23.33 + a
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---POWER EQUIPMENT OPERATORS---		
<hr/>		
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)	39.55	24.30 + a
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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)	39.23	24.30 + a
<hr/>		
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)	38.49	24.30 + a
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Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	38.10	24.30 + a
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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)	37.51	24.30 + a
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Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	37.51	24.30 + a
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Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	37.20	24.30 + a
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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).	36.86	24.30 + a
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Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	36.46	24.30 + a
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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).	36.03	24.30 + a
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Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc. 33.99 24.30 + a

Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment. 33.99 24.30 + a

Group 12: Wellpoint Operator. 33.93 24.30 + a

Group 13: Compressor Battery Operator. 33.35 24.30 + a

Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain). 32.21 24.30 + a

Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator. 31.80 24.30 + a

Group 16: Maintenance Engineer/Oiler 31.15 24.30 + a

Project: Rehabilitation Of Bridge Number 02259 On Route 32S Branch Roaring Brook

Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	35.46	24.30 + a
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Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	33.04	24.30 + a
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**NOTE: SEE BELOW

---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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Project: Rehabilitation Of Bridge Number 02259 On Route 32S Branch Roaring Brook

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---

24) Driver Groundmen	30.92	6.5% + 9.70
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25) Groundmen	22.67	6.5% + 6.20
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26) Heavy Equipment Operators	37.10	6.5% + 10.70
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27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
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Project: Rehabilitation Of Bridge Number 02259 On Route 32S Branch Roaring Brook

28) Material Men, Tractor Trailer Drivers, Equipment Operators 35.04 6.5% + 10.45

Project: Rehabilitation Of Bridge Number 02259 On Route 32S Branch Roaring Brook

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.

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.

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Project: Rehabilitation Of Bridge Number 02259 On Route 32S Branch Roaring Brook

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, January 18, 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 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

- a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

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. PILEDIVERMEN. 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. 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;
- (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