LEGAL NOTICE

Town of: Hebron

Notice to Contractors:

Sealed bids for the construction of the following project will be received by the Town of Hebron at 15 Gilead St. Hebron, CT 06248 until January 6, 2026, until 11:00 AM, after which time no further bids will be accepted. NO EXCEPTIONS. The bids will be publicly opened and read in the Lower Level Conference Room at the Town Office Building, 15 Gilead Street, Hebron, CT 06248 at 11:00 A.M.

FEDERAL PROJECT

F.A.P. # 6066(004) Town of Hebron
State Project No. 0066-0110
Replacement of Bridge No. 04695, Old Colchester Road over Raymond Brook

The Town of Hebron (Municipality) hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, Disadvantaged Business Enterprises will be afforded full opportunity to submit bids in response to this invitation and that they will not be discriminated against on the grounds of race, color, national origin, sex, sexual orientation, mental retardation or physical disability, including but not limited to blindness, in consideration for an award.

"Bid Proposal Form", "Schedule of Prices", "Bid Bond", "Non-Collusion Affidavit" and "Bidder's Prequalification approval letter" signed by the CTDOT Contracts Manager must be completed and returned with the submitted bid. Failure to properly execute and include any one of these five documents in the bid submission will result in the bid not being read and the subsequent rejection of the bid.

Plans and Specifications for the above project may be examined and/or obtained at Advanced Reprographics, 50 Corporate Avenue, Plainville, CT 06062, (860) 410-1020. Plans and Specifications may be viewed and/or obtained by going to the Advanced Reprographics website www.advancedrepro.net Prospective bidders should access the "Planroom" on the website and go to the "Public Jobs" area, no log in information is necessary. Plans and Specifications may be picked up at the Advanced Reprographics office. Plans and specifications may also be ordered by calling the Advanced Reprographics number listed above. Bidders are responsible for all printing costs and shipping costs, as applicable.

Form 819 Standard Specifications and Supplemental Specifications may be obtained via the Connecticut Department of Transportation's website: Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 819. All Proposals must be on the form furnished by the Municipality and must be requested for the above-named project.

NOTE: Prospective bidders must have a current sworn Statement (CON-16) on file with the Connecticut Department of Transportation and be prequalified to perform Group No. 8 - Minor Bridges work. The Bidder's Prequalification approval letter signed by the CTDOT Contracts Manager shall be included as part of the bid package submitted to the Municipality.

NOTE: Any Contractor or Subcontractor engaged in surface preparation and/or coating application must be certified by the Steel Structures Painting Council.

NOTE: A Surety Company Bond, on the form furnished by the Municipality, for at least 30 percent of the amount of the bid must accompany each proposal. A certified check will not be accepted. The Municipality reserves the right to reject any and all bids.

CONTRACTORS that find discrepancies and/or errors in or between plans, specifications, quantities and other matters, must immediately notify Andrew J. Tierney, Hebron Town Manager in writing not less than ten days before the scheduled bid opening.

Date: November 25, 2025 Town of Hebron

BID PROPOSAL DOCUMENTS

CONTRACTOR'S FEDERAL
IDENTIFICATION NUMBER

_____

TOWN/CITY OF _____

B I D
PROPOSAL FORM

Proposal of .....
(Name)
.....
(Address)
to furnish all labor, materials, tools and appliances, required to complete the construction of the Project described elsewhere herein.

Proposals will be received at the office of .....
.....
until the hour and date set in the "Advertisement for Proposals".

To the .....
..... , Connecticut.

Sir:
In accordance with the advertisement of the City/Town of .....,
inviting proposals for the construction of the Project hereinafter names, and in conformity with the plans and specifications on file in the office of .....
.....

I/We certify that I am/we are the only person or persons interested in this proposal as principals, that it is made without collusion with any person, firm, or corporation; that an examination has been made of the Specifications and Contract Form, including the "Special Provisions" contained herein, also of the plans and of the Site of Work, and I/we propose to furnish all necessary machinery, equipment, tools, labor and other means of construction, and to furnish all materials specified in the manner and at the time prescribed, all in accordance with the Contract and Specifications and in conformity with Plans and the requirements of the City/Town of .....

I/We agree to accept the prices set forth herein for any additions or deductions caused by variations in quantities due to more accurate measurements, or by any changes or alterations in the plans or specifications during the progress of the work.

I/We further proposed to execute the form of contract and begin work within ten days from the day of the "Notice to Proceed" and to prosecute said work so as to complete the project and its appurtenances within the time limit stipulated; and to furnish a Performance Contract Bond in the required amount as security for the construction and completion of the Project and its appurtenances in accordance with Plans, Specifications and Contract, and a Payment Bond for the payment for all materials or labor, used or employed in the execution of the Contract.

Accompanying this proposal is (Surety Co. Bond) in the amount of .....
..... ($ .....),
as a proposal guarantee which it is understood will be forfeited in the event the Form of Contract is not executed if awarded to the undersigned.

Signed .....
(Legal name of person, firm or corporation)

Address .....
(Street, City State and Zip Code)

IMPORTANT – INSTRUCTIONS FOR SIGNATURE

1. If this BID PROPOSAL FORM is executed by an individual, it must be signed by the individual.
2. If executed by a Corporation, it must have the signature of a duly authorized officer or representative thereof, with his title, and the Corporate Seal, if any, must be affixed.

3. If executed by a partnership, the partnership name, if any, will be signed and each partner will sign as a co-partner, unless a power of attorney is attached authorizing one partner to execute the contract for all the partners.
4. If executed by an individual doing business under a trade name, it shall be signed by this individual doing a business as (as trade name).

SCHEDULE OF PRICES

ON 11’ X 17” SHEETS

NAME OF PRINCIPAL
(Contractor, Second Party, Etc.):

TOWN/CITY OF _____ _____
Project or Contract Identification

STANDARD BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That We, ...,
of .....,
hereinafter called the "Principal", as Principal, and .....
.....
a corporation organized and existing under the laws of the State of .....,
and duly authorized to transact a surety business in the State of Connecticut, hereinafter called the "Surety," as Surety, are held and firmly bound unto the Town/City of ....., as "Obligee," in the penal sum of **THIRTY PERCENT (30%) OF THE AMOUNT OF THE ATTACHED BID** in lawful money of the United States of America, for the payment of which, well and truly to be made to the Obligee, we bind ourselves, our heirs, successors, and assigns, jointly and severally, firmly by these presents.

Signed, sealed and delivered this …… day of……., 20…….

THE CONDITION OF THIS OBLIGATION is such, that whereas the said Principal has herewith submitted, his bid dated ..... 20___, for ……
.....
.....,
.....,
.....,
.....,
.....,

NOW, THEREFORE, if the Principal shall not withdraw its bid within sixty (60) days after the opening of the same, and if said bid shall be accepted and the contract awarded to said Principal, and the Principal shall, when required by the ....., or his authorized agent, execute and agreement in writing for the work bid upon, and deliver such surety bonds as shall be acceptable to said ..... for the performance of the work according to said written agreement and for the protection of person supplying labor or materials in the prosecution of said work, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void; otherwise the Principal and Surety hereto agree to pay unto the Obligee the difference between the amount of the bid of said Principal, submitted herewith, and the amount for which the Obligee may contract with another party to perform the work covered by the said bid of the Principal.

The Surety executing this Instrument hereby agrees that its obligation shall not be impaired by any extension(s) of the time for acceptance of the bid that the Principal may grant to the Obligee, notice of which extension(s) the Surety being hereby waived; provided that such waiver of notice shall apply only with respect to extensions aggregating not more than sixty (60) calendar days in addition to the period originally allowed for acceptance of the bid.

IN TESTIMONY WHEREOF, the said .....
.....
have caused these presents to be signed by their duly authorized representatives and their name and corporate seal to be hereunto affixed, the day and year first written.

SURETY

_____
Print Name

_____
Agent's Signature and date
enclose valid Power of Attorney

PRINCIPAL

_____
Print Name

_____
Signature and date of Authorized Representative

NON-COLLUSION AFFIDAVIT

This Affidavit must be completed, notarized and attached to your Bid Proposal. Failure to do so will result in the rejection of your Bid. A separate Affidavit must be submitted by each principal of a Joint Venture.

State Project No. _____
F.A. # _____
City/Town _____
Description of Project _____
_____

I, _____ , acting in behalf of _____
(Name of Party Signing Affidavit)

_____ of which
(person, firm, association, corporation or organization)
I am the _____ , submitting a bid for the above project, certify
(Title of Person)
and affirm in accordance with Section 112(c) of Title 23, U.S. Code Highways that the _____
_____
(person, firm, association, corporation or organization)
has neither directly or indirectly entered into any agreements, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with such bid. False statements made herein may be the subject of criminal prosecution.

_____
Name of Corporation or Firm

_____
Signature and 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 _____
_____ Secretary 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 corporate powers.

_____
(Corporate Seal) Signature of Person Certifying

Department _____

_____

_____Compliance Officer

Date_____

☐ APPROVED

☐ DISAPPROVED

☐ PENDING INVESTIGATION

☐ INVESTIGATION REQUESTED

STATE OF CONNECTICUT LABOR DEPARTMENT

EMPLOYER REPORT OF PERMANENT COMPLIANCE STAFFING

The following report is submitted as part consideration of the proposed contract dated_____ between the undersigned and the City/Town of _____

Name of Contracting Firm

_____

Address (No. and Street) (City) (State)

Type of Report

Prime Contractor

Subcontractor

EMPLOYEE INFORMATION

Total Employed	White	Black	Spanish Surname	Other (specify)

Does your firm have a collective bargaining agreement or other Contract or understanding with a labor organization or employment agency for the recruitment of labor?

YES ☐

If yes, list the name and address of the agency or organization.

Name Address (No. and Street, City, State)

NO ☐

If no, indicate the usual methods of recruitment.

☐ Connecticut State Employment Service
☐ Private Employment Agency
☐ Newspaper Advertisement
☐ Walk-in
☐ Other (specify)

The signer certifies that its practices and policies, including but not limited to matters concerning personnel, training, apprenticeship, membership, grievance and representation, and upgrading, do not discriminate on grounds of race, color, religious creed, age, sex, or national origin, or ancestry of any individual, and that the signer agrees it will affirmatively cooperate in the implementation of the policy and provisions of Executive Order Number Three, and consent and agreement is made that recruitment, employment and the terms and conditions of employment under the contract shall be in accordance with the purposes and provisions of Executive Order Number Three.

☐ Yes ☐ No Is firm in minority ownership? (51% of assets in control of minorities)

I certify that the above is correct to the best of my knowledge.

Employer_____ Date

Business Name

By _____

Signature Title

STATEMENT OF BIDDER'S QUALIFICATIONS

CITY/TOWN_____ PROJECT NO._____

All bidders are required to file this form, properly completed, WITH THEIR PROPOSAL. Failure of a bidder to answer any question or provide required information may be grounds for the awarding authority to disqualify and reject their bid. If a question or request for information does not pertain to your organization in any way, use the symbol "NA" (Not Applicable). Use additional 8½" x 11" sheets with your letterhead as necessary.

1. Indicate exactly the name by which this organization is known:

   Name _____

2. How many years has this organization been in business under its present business name?

   Years_____

3. How many years has this organization been in business as a General Contractor?

   Years_____

1. If this organization has not always been a General Contractor, list the trade(s) that your firm customarily performed prior to the time that you became a General Contractor:

   1._____

   2._____

   3._____

2. Indicate all other names by which this organization has been known and the length of time known by each name:

   1._____

   2._____

   3._____

3. This firm is a _____Corporation _____Partnership _____Sole Proprietorship

   _____Joint Venture _____Other.

4. Attach resumes of all supervisory personnel, such as Principals, Project Managers, and Superintendents, who will be directly involved with projects on which you are now a bidder. Indicate the number of years of construction experience and number of years of which they were in a supervisory capacity.

5. List all sub-trades which your firm customarily performs with own employees.

   1._____

   2._____

   3._____

6. Trade References: Names, addresses and telephone numbers of several firms with whom your organization has regular business dealings.

(Attach separate sheet)

10. All Construction Projects Your Organization has in Process:

TITLE & LOCATION	CONTR. AMOUNT	PRIME* OR SUB-CONTRACTOR	OWNER	DESIGNER	START DATE	FINISH DATE	ANY COMPLAINT AS TO QUALITY OR MANAGEMENT	NAME & PHONE OF OWNER'S REP	NAME & PHONE OF DESIGNER REP

Please attach a separate sheet explaining any negative entry in these three columns

Notes: Indicate "Prime" only if your organization performed 51% or greater of the total contract amount.

11. All Construction Projects Your Organization has completed in the past five years or the twenty projects most recently completed:

TITLE & LOCATION	CONTR. AMOUNT	PRIME* OR SUB-CONTRACTOR	OWNER	DESIGNER	START DATE	FINISH DATE	ANY COMPLAINT AS TO QUALITY OR MANAGEMENT	NAME & PHONE OF OWNER'S REP	NAME & PHONE OF DESIGNER REP

Please attach a separate sheet explaining any negative entry in these three columns

Notes: Indicate "Prime" only if your organization performed 51% or greater of the total contract amount.

12. Has your organization ever failed, or has any officer or partner of your organization ever been an officer or partner of another organization that failed to complete a contract in any jurisdiction. If so, indicate the circumstances leading to the project failure.

_____

_____

_____

13. List all legal or administrative proceedings currently pending or concluded adversely within the last five years which relate to procurement or performance of any public or private construction contracts in any jurisdiction.

1. _____ Attached 2. _____ N/A

Dated at _____

this _____ day of _____ 20_____.

Name of Organization:

_____

Signature _____(Seal)

(Print Name) _____

Title _____

Notary Statement:

Mr./Mrs./Ms. _____ being duly

sworn deposes and says that he/she is the _____
(Position or Title)

of _____, and that the answers to the foregoing questions and all statements therein
(Firm Name)

contained are true and correct.

Subscribed and sworn before me this _____ day of _____

_____ 20_____.

Notary Public: _____

My Commission Expires _____ 20 _____

DESIGN STATEMENT

FEDERAL PROJECT NO. 6066(004)

STATE PROJECT NO. 0066-0110

MUNICIPALITY: Town of Hebron

BRIDGE NO. 04695

LOCATION: Old Colchester Road over Raymond Brook

DISTRICT NO. 2

PROPOSED WORK: Bridge Replacement

FINAL MAINTENANCE RESPONSIBILITY: To be maintained by Town of Hebron

PUBLIC UTILITIES:
The Southern New England Telephone Company dba Frontier Communications of Connecticut
The Connecticut Light and Power Company dba Eversource Energy – Electric
Comcast of Connecticut, Inc.

SALVAGE: Signs, Metal Beam Rail panels, posts and hardware (See Notice to Contractor-Salvage)

PERMITS AND AGREEMENTS:
Flood Management Certification – Approval – Anticipated December 15, 2025
Town of Hebron Inland Wetlands and Watercourses – Permit – Approved October 10, 2025
USACE 404 Self Verification Notification (SV) – Pending – Submission upon receipt of Flood Management Certification.

MAINTENANCE AND PROTECTION OF TRAFFIC:
Traffic will be maintained by Detour

SPECIAL CONSIDERATIONS: Air Line State Park Trail shall remain open during construction. Endangered Species may be present on site.

CALENDAR DAYS: 244

PLAN DISTRIBUTION: Town of Hebron

Consultant Design Engineer: **McFARLAND JOHNSON, INC.**
Consultant Liaison Engineer: **VANASSE HANGEN BRUSTLIN, INC.**

Federal Project No. 6066(004)
State Project No. 0066-0110
Municipality: Town of Hebron

INDEX TO SPECIAL PROVISIONS

Note: This index 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 index shall not be considered part of the contract.

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2	Notice to Contractor – Federal Wage Determinations (Davis Bacon Act) (04/17/24)
3	Notice to Contractor – Bid Rejection
3	Notice to Contractor – Potential Modified Award Schedule
3	Notice to Contractor – Pre-Award Documents/Non-Responsive Bidder
3	Notice to Contractor – Insurance
4	Notice to Contractor – Supervision and Inspection
4	Notice to Contractor – Approvals and Inspection by the State
4	Notice to Contractor – Verification of Existing Conditions
5	Notice to Contractor – Rectangular Rapid Flashing Beacon (RRFB)
6	Notice to Contractor – Unanticipated Discovery of Cultural Resources
7	Notice to Contractor – Permits/Permit Applications
7	Notice to Contractor – Flood Contingency Plan Requirements
8	Notice to Contractor – Hazardous Materials Investigations
8	Notice to Contractor – Environmental Investigations
10	Notice to Contractor – Transmittal of Approved Drawings
10	Notice to Contractor – Membrane Waterproofing (Cold Liquid Elastomeric)
11	Notice to Contractor – Salvage
12	Notice to Contractor – Air Line Trail
12	Notice to Contractor – Construction Signs
13	Section 1.01 – Definitions of Terms and Permissible Abbreviations
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Federal Project No. 6066(004)
State Project No. 0066-0110
Municipality: Town of Hebron

INDEX TO SPECIAL PROVISIONS (Con't)

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Municipality: Town of Hebron

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DATE: August 13, 2025
FEDERAL PROJECT NO. 6066(004)
STATE PROJECT NO. 0066-0110

Replacement of Bridge No. 04695
Old Colchester Road over Raymond Brook
Town of Hebron

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 819, 2024, as revised by the Supplemental Specifications dated January 2025 (otherwise referred to collectively as "CTDOT Form 819") is hereby made part of this contract, as modified by the Special Provisions contained herein. Form 819 is available at the following DOT website link Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 819. 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 constructioncontractbidding-awardmanual.pdf. The Special Provisions relate in particular to the Replacement of Bridge No. 04695 in the Town of Hebron.

CONTRACT TIME AND LIQUIDATED DAMAGES

Two Hundred Forty-Four (244) calendar days will be allowed for completion of the work on this Contract, and the liquidated damages charge to apply will be Nine Hundred Dollars ($900.00) per calendar day.

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

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

Check Applicable WD# (DOT Use Only)	WD#	Construction Type	Counties
✓	CT1	Highway	Fairfield, Litchfield, Middlesex, New Haven, Tolland, Windham
	CT2	Highway	New London
	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 (SAM.gov | Wage Determinations) as may be revised 10 days prior to bid opening. The Department will no longer physically include revised

Federal wage rates in the bid documents or as part of addenda documents. These applicable Federal wage rates will be incorporated in the final contract document executed by both parties.

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

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

NOTICE TO CONTRACTOR - BID REJECTION

Bidders are hereby notified that until the award of the Contract, the Municipality reserves the right to reject any or all bids for any reason whatsoever and to waive technicalities as deemed to be in the best interests of the Municipality.

NOTICE TO CONTRACTOR – POTENTIAL MODIFIED AWARD SCHEDULE

The Contractor is hereby given notice that this Contract may not be awarded until all Federal and State financial approvals have been received. If all financial approvals are not received, this Contract may be withdrawn and readvertised at the direction of the Municipality, in consultation with the State. This shall not be the basis for any claims by any bidder.

NOTICE TO CONTRACTOR – PRE-AWARD DOCUMENTS/ NON-RESPONSIVE BIDDER

Bidders are hereby notified that all required pre-award submittals, properly executed on the forms provided by the Municipality shall be furnished by the determined low bidder to the Municipality NO LATER THAN FOURTEEN (14) calendar days after the bid opening. These documents include but are not limited to: Contractor's Proposed Progress Chart; Anticipated Source of Materials; Statement of Bidder's Qualifications.

The Municipality may reject a bid as non-responsive if the bidder does not make all required pre-award submittals within the herein stipulated calendar days.

NOTICE TO CONTRACTOR - INSURANCE

The insurance industry's standard ACORD Certificate of Liability Insurance will replace the CON-32 Form. All required levels ($) of insurance coverage governed by the Connecticut DOT's Standard Specifications (Form 819) Section 1.03.07, or as amended by special provision, shall be identified on the ACORD Form.

The ACORD Form shall identify the Municipality, with its official address, as the certificate holder. The project description together with the State Project number shall be included under "Description of Operations". The Municipality and the State shall be named as additional insured, as required in Section 1.03.07.

NOTICE TO CONTRACTOR – SUPERVISION AND INSPECTION

This project will be supervised and inspected by the Municipality or its authorized agent. The "Notice to Proceed", stipulating the date on which the Contractor will begin the construction and from which date the contract time will be charged, will be issued by the Municipality.

NOTICE TO CONTRACTOR – APPROVALS AND INSPECTION BY THE STATE

The Contractor is hereby notified that pursuant to an Agreement between the State and the Municipality for the construction, inspection and maintenance of this project, the Municipality is required to obtain written approvals from the State of Connecticut Department of Transportation for the following contract administration matters prior to the Municipality giving its approval to the Contractor:

- Award and Execution of Contract
- Changes in Scope of Work including Extra Work and Value Engineering Proposals
- Extensions of Contract Time

The Contractor is also hereby notified that pursuant to the aforementioned Agreement, the Department will provide certain services, including, but not limited to, materials testing, periodic construction inspection, and liaison services with other governmental agencies to ensure satisfactory adherence to state and federal requirements for this project.

NOTICE TO CONTRACTOR - VERIFICATION OF EXISTING CONDITIONS

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

NOTICE TO CONTRACTOR – RECTANGULAR RAPID FLASHING BEACON (RRFB)

The Contractor is hereby notified that certain conditions pertaining to the removal and relocation of existing RRFB equipment are required when relevant, as part of this contract.

Qualified/Unqualified Workers

U.S. Department of Labor
Occupational Safety & Health Administration (OSHA) www.osha.gov

Part Number	**1910**
Part Title	**Occupational Safety & Health Administration**
Subpart	**S**
Subpart Title	**Electrical**
Standard Number	**1910.333**
Title	**Selection and use of work practices**

Completion of this project will require Contractor employees to be near overhead utility lines. All workers and their activities when near utility lines shall comply with the above OSHA regulations. In general, unqualified workers are not allowed within 10 feet of overhead, energized lines. It is the Contractor's responsibility to ensure that workers in this area are qualified in accordance with OSHA regulations.

NOTICE TO CONTRACTOR - UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES

Cultural resources consist of a broad array of structures, features, and artifacts ranging from self-evident and even striking historic properties like remarkable older or unique buildings, to less apparent buried archaeological sites, to natural aspects of topography where important historical or cultural events may have transpired upon the landscape. Although every attempt is made to identify such properties in advance of transportation related undertakings, some resources particularly those of an archaeological nature are virtually impossible to completely account for beforehand. These properties are nonetheless protected by state and federal laws and must be respected.

Archaeological resources are minimally defined by federal regulations as material remains of 50 to 100 years of age or older. They typically consist of subsurface concentrations of bone, ceramic, shaped or flaked stone artifacts. They may also consist of features such as buried building foundations, trash-filled pits, linear or circular walls made of individual stones rather than concrete or cement, patches of burned earth, and/or distinct patterns of neatly circular or elliptical discolorations in newly exposed soil accompanied by the materials described above.

If any substantial concentrations of such materials or features or any sets of bone that could be human are unexpectedly encountered during construction or other project related activity, the contractor should immediately cease all construction activities in the vicinity of the find extending to the area that may reasonably be assumed to affect the resource. The Contractor or supervisor on site should immediately contact both his supervising engineer per Connecticut Department of Transportation (CTDOT)'s own Standard Specifications for Construction Form 819, Section 1.10.06, AND the CTDOT Office of Environmental Planning (OEP) who will arrange for a qualified OEP archaeologist to assess the find as soon as possible. Any historic properties discovered in this manner should be protected in situ pending identification by the OEP archaeologist. The specialist will attempt to determine whether or not the remains are historic, Native American, or are medico-legally relevant. If there is a possibility that the remains may have forensic significance, the OEP archaeologist will immediately arrange for authorities to be contacted per Connecticut General Statutes (CGS) Title 10, Chapter 184a, Section 10-388. In the event that such finds are deemed to be historically significant and/or subject to legal protections, the resources will be left in place long enough to allow for consultation among the project proponents, the State Historic Preservation Office, the State Archaeologist, Tribal Officials, and any other key stake holding parties, as appropriate. If the remains are deemed not to qualify as historic properties by the OEP archaeologist, he or she may give permission for the work to resume.

Any identified historic properties may be preserved in situ or mitigated on a case-by-case basis as determined through consultation with the Parties and the Tribes. No artifacts should be removed from the site unless approved by all parties. Notwithstanding anything to the contrary herein, the curation and disposition of any cultural resources shall be consistent with Connecticut Statutes and other applicable law. All artifacts removed from State land should be recovered and documented by a qualified professional archaeologist and transferred to the Connecticut State Museum of Natural History under the domain of the Office of the State Archaeologist per CGS Title 10,

Chapter 184a, Section 10-383. From there, any archaeological materials may be conserved or repatriated as determined to be appropriate among the consulting parties.

Human remains are protected by particularly stringent laws. If skeletal remains believed to be human are unexpectedly encountered during project construction, all work that could potentially affect the remains must stop, the remains protected in place and treated in a respectful manner, and the Chief Medical Examiner and the State Archaeologist must be contacted in accordance with CGS Title 10, Chapter 184a, Section 10-388. If the remains are determined to be Native American, the Native American Heritage Advisory Council shall be contacted to assist in the determination of how to proceed. No work may resume until authorized by both the Chief Medical Examiner and the State Archaeologist or five (5) days have passed from the time of notification of these authorities.

NOTICE TO CONTRACTOR – PERMITS/PERMIT APPLICATIONS

The Contractor is hereby notified that all permit approvals and permit applications (contained elsewhere in these specifications) shall be made a part of this Contract, and that the Contractor shall be bound to comply with all requirements of such permits and permit applications as though the Contractor were the permittee. If at the time the permit is received its contents differ from that which is outlined in the application, the permit shall govern.

Should the permit be received after the receipt of bids and the permit requirements significantly change the character of the work, adjustment will be made to the contract in accordance with the appropriate articles in Section 1.04. The requirements and conditions set forth in the permit and permit application shall be binding on the Contractor just as any other specification would be. In the case of a conflict between a provision of the environmental permit or permit application and another provision in the contract documents, the former shall govern.

NOTICE TO CONTRACTOR – FLOOD CONTINGENCY PLAN REQUIREMENTS

The Contractor is hereby made aware that under "Article 1.10.03 – Water Pollution Control" of Form 819, as amended by the Supplemental Specifications, the Contractor is required to submit a contingency plan for flood events, in writing, to the Municipality or its authorized agent for approval. The contingency plan must be submitted by the Contractor and approved by the Municipality or its authorized agent prior to the commencement of any Project construction in the waterway.

NOTICE TO CONTRACTOR – HAZARDOUS MATERIALS INVESTIGATIONS

A limited hazardous materials site investigation has been conducted for the replacement of Bridge No. 04695, Old Colchester Road over Raymond Brook, Hebron, CT. The scope of inspection was limited to the representative components projected for impact.

No painted surfaces were identified at Bridge No. 04695; therefore, no lead paint was identified.

Suspect asbestos black culvert mastic lining the interior of the metal corrugated culvert pipes was sampled and found to be a non-asbestos containing material.

No other hazardous/regulated items, bird/pigeon guano, or homeless activity/bloodborne pathogens were identified in the accessible areas of Bridge No. 04695.

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

- HazMat Inspection Letter, Replacement of Bridge No. 04695, Old Colchester Road over Raymond Brook, Hebron, Connecticut, TRC Environmental Corporation, June 30, 2025.

NOTICE TO CONTRACTOR – ENVIRONMENTAL INVESTIGATIONS

The following information provides guidance regarding the management of surplus soil generated during the Project. An estimated 883 cubic yards (CY) of soil have been designated as surplus for the Project, and the surplus soil volume is designated as Controlled Materials.

Historical investigations associated with roadway construction projects have shown consistency with finding low levels of semi-volatile organic compounds (SVOCs), extractable petroleum hydrocarbons (ETPH), pesticides, and metals within Project limit soils. Soil within the construction limits of Project 0066-0110 should be considered the same for surplus soil management purposes. Contaminants are expected to be at concentrations above the RCS-1 Acceptance Criteria for approved facilities under Policy #COMM-15-01 (Massachusetts Department of Environmental Protection (MassDEP) Interim Policy on the Re-Use of Soil for Large Reclamation Projects) or similar state policy. Actual contaminants and concentration levels found during construction may vary and such variations will not be considered a change in condition provided the material can still be disposed of as non-hazardous.

All excavated soils shall be reused within the Project limits to the maximum extent possible unless deemed unsuitable by the Engineer due to physical indications of contamination or the geotechnical characteristics of the material.

Excavated material that is suitable for reuse shall be managed at the point of origin for use as backfill. In instances where such soil cannot be reused directly at the point of origin or within

several days of excavation, the surplus material, excluding existing pavement structure (asphalt and subbase), rock, ledge, and concrete, shall be brought to the WSA. It is noted that the WSA's location will be designated by the Contractor and approved by the Engineer prior to Project commencement.

Material that has not been reused within the Project limits by the end of the project or is deemed unsuitable for reuse due to physical indications of contamination shall be disposed of at a Municipality-approved treatment, recycling, or disposal facility. The Contractor shall effectively manage the soil to reuse as much as possible, to minimize the need for off-site disposal.

Material sampling will be performed by a Municipality representative and the analytical data will be provided to the Contractor to secure appropriate disposal arrangements. A Municipality representative will aid in the Contractor's waste profile paperwork preparation and will sign disposal paperwork (e.g., waste profile, shipping papers, etc.) as Generator.

Worker health and safety protocols that address potential risks of exposure to site-specific contaminant hazards shall be incorporated in a site-specific Environmental Health and Safety Plan. This plan shall be updated to include Project worker protocols that protect against the referenced compounds anticipated to be found in soils.

In the event groundwater is encountered during construction, any dewatering associated with the construction shall be performed in accordance with the CTDEEP's "General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities" unless evidence of contamination (oily sheen, etc.) is observed by the Engineer.

The Sections which shall be reviewed by the Contractor include, but are not limited to, the following:

- Item No. 0101000A - Environmental Health and Safety
- Item No. 0101128A - Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area
- Item No. 0202315A - Disposal of Controlled Materials

NOTICE TO CONTRACTOR – TRANSMITTAL OF APPROVED DRAWINGS

The Contractor is hereby notified that, upon receipt of any and all approved shop drawings, and working drawings for permanent construction, the Contractor shall transmit one set of such approved drawings and product data to the Municipality, the oversight Construction District and Eliana V. Carlson, Connecticut Department of Transportation, Material Evaluation and Specification Unit, Division of Construction Operations, 280 West Street, Rocky Hill, Connecticut 06067, telephone (860) 258-0312.

NOTICE TO CONTRACTOR - MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)

The Contractor is hereby notified that changes have been made to the referenced Membrane Waterproofing special provision and that the Contractor shall comply with all requirements of such specification.

The major changes include the following:

- Addition of language to clarify the definition of a Manufacturer is as described in Article 1.06.01 of the Standard Specifications,

- Allowance for single pass application of 80 mil membrane thickness by hand application provided a demonstration on a test section shows the Applicator is able to meet the specified tolerances and is acceptable to the Engineer. Similar test section allowance requirements will apply to mechanical applicator systems,

- Addition of requirements for taking measurements of ambient air and dew point temperatures and that no primer or membrane applications shall be allowed if the difference between these two temperatures is 5º F or less, and

- Addition of language clarifying that all components shall be from the same batch as identified on original packaging (barrels, etc), or be discarded – no mixing of like material from different batches shall be allowed.

NOTICE TO CONTRACTOR - SALVAGE

As noted in the plans, the Contractor shall remove and salvage the following items that are currently located on the existing bridge and within the limits of the project:

Metal Beam Rail

The Contractor shall remove and salvage the following materials that have been inspected and determined to be salvageable by the Town of Hebron:

- approximately 180 linear feet of metal beam rail, posts and hardware.

Payment for the removal, loading, delivery and unloading of the salvaged posts, rail elements and miscellaneous hardware, if required, to the location referenced below shall be paid for under the item "Remove Metal Beam Rail".

Existing Signs

The Contractor shall remove and salvage all sheet metal signs and posts identified on the plan sheets to be removed.

Payment for the removal, loading, delivery and unloading of the salvaged posts and sheet metal signs, if required, to the location referenced below shall be paid for under the item "Removal of Existing Signing".

The Contractor shall coordinate with the Town of Hebron, Public Works Department representatives listed below a minimum of 48 hours in advance of the delivery of the salvaged materials.

Paul J. Forrest or Darren Norton
(860) 228-2871

Salvaged material shall be delivered to:

Town of Hebron
Public Works Department
550 Old Colchester Road
Amston, Connecticut 06231

NOTICE TO CONTRACTOR – AIR LINE TRAIL

The Air Line State Park Trail (a multi-use recreational trail) is located just north of the bridge. Access to this trail for recreational use must be maintained at all times. See special requirements for maintaining access in Section 1.08.04 – Prosecution and Progress and Item No. 0971200A - Maintenance Pedestrian Access.

NOTICE TO CONTRACTOR – CONSTRUCTION SIGNS

The Contractor shall furnish, install, and maintain Bipartisan Infrastructure Law project signs for the duration of the Contract. The Contractor shall also remove the signs upon completion of the work under the project. A special provision for these signs has been added to the Contract for Item No. 1220027A - Construction Signs.

SECTION 1.01

DEFINITIONS OF TERMS AND PERMISSIBLE ABBREVIATIONS

1.01.01—Definitions: is amended and supplemented as follows:

Substitute the word "Municipality" or "Municipal" for "Department" wherever "Department" appears in the definitions for each of the following terms: Award, Contract, Highway, Plans, and Project.

Substitute the word "Engineer" for "Commissioner" wherever "Commissioner" appears in the definitions for each of the following terms: Subcontractor and Sub-subcontractor.

Engineer: Delete the definition in its entirety and replace with the following:

The Municipality's Town Manager, acting directly or through a duly authorized representative.

Add the following:

Municipal: Of or relating to the Municipality.

Municipal Liaison: That individual identified by the Municipality to act as liaison with the State of Connecticut, Department of Transportation.

Municipality: Town of Hebron, Connecticut

SECTION 1.02
PROPOSAL REQUIREMENTS AND CONDITIONS

Section 1.02 is supplemented and amended as follows:

Throughout this Section, make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute "Engineer" for "Commissioner" and for "Division of Contracts."
Substitute "Municipality" or "Municipal" for "Department" and for "Contract Section".

1.02.01—Contract Bidding and Award: is amended as follows:

Add the following:

Should the Municipality NOT allow electronically submitted bids, then each paper bid proposal must be submitted in a sealed envelope large enough to hold the proposal documents (recommended size 10-1/2 x 13). **The envelope must clearly state the name and address of the firm submitting the bid, the name of the Town and Project Number for the bid.** The envelope must be delivered to the Municipality on or before the hour and date, and to the location, set forth in the bid advertisement for the opening of proposals, unless the bidder is otherwise directed.

On the date and at the time and place designated in the bid advertisement and in the related Notice to Contractor or addendum notice, the sealed paper bid proposals shall be publicly opened and read out loud. At the time that paper bid proposal is opened, it shall be checked for "responsiveness" in various respects, to determine if it complies with applicable statutes, regulations, and the Municipality's Specifications, including Connecticut DOT's Standard Specifications. Each bidder is required to include with its paper bid proposal the following documents: the completed paper bid proposal form (incl. the schedule of prices), the required bid bond, a non-collusion affidavit, Bidder's Prequalification approval letter signed by the CTDOT Contracts Manager and any other information required by the bid documents or by the bid advertisement. Each paper bid proposal shall be governed by the terms and conditions, as applicable, that are stipulated in the Connecticut DOT's Construction Bidding and Award Manual, for electronically submitted bids.

Prequalification by the State of Connecticut Department of Transportation is required for this project. Prospective bidders must have a current sworn Statement (CON-16) on file with the Connecticut Department of Transportation. The bidder's prequalification approval letter signed by the CTDOT Contracts Manager shall be included as part of the bid package submitted to the Municipality (see attached sample).

In accordance with the provisions of the Construction Contract Bidding and Award Manual, bidders must be prequalified for **Group No. 8 - Minor Bridges**, to be eligible to bid on this project. Bidders that are not prequalified for this work classification will not be approved to bid on this project.

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546

Phone: 860-594-3128

October 26, 2018

ABC Construction
Mr. Doe
123 Main St.
Santa Clara, Connecticut 06000

Re: Contractor's Prequalification
Statement (CON-16)

Dear Mr. Doe;

This is to notify you that your Firm's subject statement has been found to be satisfactory by this Department.

It will expire August 31, 2021

Your Maximum Capacity Rating is $60,000,000.00

Your Construction Classification is:

Group No. 1 Earthwork: Site Work
Group No. 2 Earthwork: Utility Work
Group No. 3 Concrete Restoration
Group No. 4 Specialized Concrete Repair
Group No. 5 Paving and Associated Construction
Group No. 6 Road Construction and Rehabilitation: Local Roads & Streets and non-freeways.
Group No. 7 Road Construction and Rehabilitation: Limited Access Highways, freeways, and major reconstruction of non-freeway state routes.
Group No. 8 Minor Bridges
Group No. 9 Intermediate Bridges
Group No. 10 Major Bridges
Group No. 11 Bridge Painting
Group No. 12 Marine repairs, Marine Construction or Salvaging
Group No. 13 Traffic Control & Illumination/Electrical
Group No. 14 Signing Delineation

Sample

Group No. 15 Intelligent Transportation Systems(ITS)
Group No. 16 Pavement Markings
Group No. 17 Incidental Construction: Fencing
Group No. 18 Incidental Construction: Guide Rail
Group No. 19 Incidental Construction: Bridge Joints & Membranes
Group No. 20 Incidental Construction: Temporary Traffic Control
Group No. 21 Railroad Construction
Group No. 22 Railroad Construction Electrical
Group No. 23 Landscaping/Environmental Improvements
Group No. 24 Environmental
Group No. 25A Vertical Construction
Group No. 25B Vertical Construction Includes Group 25 A
Group No. 25C Vertical Construction Includes Groups 25 A & B

A Proposal Request (Part "C") can be obtained via this link:
http://www.ct.gov/dot/lib/dot/documents/dcontractdev/partc.xls

No bidders that have mutual financial interests, or common ownership, directors, officers or principal shareholders (i.e., shareholders holding at least five percent [5%] of either the common or the preferred shares of the company's stock) may bid for the same Department contract. Such proscribed bidders shall include, but not be limited to, affiliates and subsidiaries of each other.

If any non-bidding party has an ownership interest in more than one bidder that is bidding for a given contract, either directly or through the former's ownership interests in another company, no matter how high up or far removed in a vertical or horizontal chain of ownership that party might be from the bidders, the bids of those bidders shall not be accepted.

In addition, with respect to any given Department contract that is advertised for bidding, no bidder owned by, or in the chain of ownership of, a company which provides surety bonds may bid against a bidder for whom a bond has been or will be provided by that company for the given contract bidding. All bids proscribed by the terms of this paragraph will be rejected by the Commissioner.

Please be aware that the Department, prior to the awarding of any contract, may require further financial and other information from any applicant who becomes the low bidder for that contract.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Gregory D. Straka

Gregory D. Straka
Contracts Manager
Division of Contracts Administration

Sample

1.02.03—Examination of Contract Documents and Work Site:

Delete the last paragraph and replace with the following:

"Bidders must inform the Municipality's Designer, at the earliest opportunity, in writing, of any and all omissions, errors, and/or discrepancies that the bidder discovers within or among the plans, specifications, and bidding documents. Information and inquiries concerning such matters, and any other information or inquiry concerning the conditions of bidding or award or the interpretation of contract documents must be transmitted in writing to:

Mr. Eugene McCarthy, P.E.
Senior Project Manager
McFarland Johnson, Inc.
53 Regional Drive
Concord, New Hampshire 03301-8500
gmcarthy@mjinc.com
(603) 931-3338

The Municipality and/or the Municipality's Designer cannot ensure a response to inquiries received later than ten (10) days prior to the scheduled bid opening of the related bid. When deemed warranted by the Municipality and/or the Municipality's Designer, responses to such inquiries that relate to changes in or interpretations of the Project documents (plans and specifications) will be issued to all bidders in the form of addenda and made a part of the Contract. Bidders are responsible for ensuring that they are aware of all addenda. Failure by the Municipality, Municipality's Designer or postal or other courier services to deliver addenda or other information regarding a Contract being bid does not release the bidder from any obligations under said addenda or the conditions of the bid."

SECTION 1.03
AWARD AND EXECUTION OF CONTRACT

Section 1.03 is supplemented and amended as follows:

Throughout this Section, except for Article 1.03.07, make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute "Engineer" for "Commissioner," for "Manager of Contracts" and for "Transportation Manager of Contracts".

Substitute "Municipality" for "Department" and "State".

1.03.07—Insurance: is amended as follows:

Substitute "State and Municipality" for "Department" and "State".

It is the intent of this Article to designate the State and Municipality as additional insured, as applicable.

SECTION 1.04
SCOPE OF WORK

Section 1.04 is supplemented and amended as follows:

Throughout this Section, make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute "Engineer" for "Department's Assistant District Engineer".
Substitute "Municipality" for "Department" and for "State".

1.04.05 – Extra Work: is amended as follows:

Add the following after the fourth sentence:

Bonding costs shall not be included in the contractor's compensation request. However, if the contractor incurs or will incur increased bonding costs related to the extra work, the contractor shall request separate compensation for such costs. The contractor's request shall be itemized and include a certified statement from the bonding company stating that the value of the work will require an increase in bonding coverage and shall detail the additional costs (within allowable contract amount limitations). If *satisfactory* substantiation is provided, a new item for increased bonding costs will be incorporated into the contract by means of a construction order.

Insert the following immediately following "Department's Assistant District Engineer" near the bottom of the paragraph: “and/or the Municipality's authorized representative".

SECTION 1.05
CONTROL OF THE WORK

Section 1.05 is supplemented and amended as follows:

Substitute "Municipality" for "Department" and/or "State" and "Engineer" for "Department's Assistant District Engineer".

1.05.02-1. Plans: Substitute "Municipality" for "Department.

Add the following sentence to the end of the Subarticle: "The Working Drawings, Shop Drawings and Product Data shall be submitted to the Designer as hereinafter noted; copies of transmittal letters shall be sent to the oversight District and the Municipality.

Designer

Mr. Eugene McCarthy, P.E.
Senior Project Manager
McFarland Johnson, Inc.
53 Regional Drive
Concord, New Hampshire 03301-8500
gmcarthy@mjinc.com
(603) 931-3338

Oversight District

Mr. Henry E. Fredericks, P.E.
Assistant District Engineer – District 2
171 Salem Turnpike
Norwich, CT 06360
Phone: (860) 823-3249

Municipality

Andrew J. Tierney
Town Manager
Town of Hebron
15 Gilead Street (Route 85)
Hebron, CT 06248
atierney@hebronct.com
(860) 228-5971, x 122

1.05.02-2. Working Drawings: Substitute "Municipality" for "Assistant District Engineer".

1.05.02-5. Submittal Preparation and Processing – Review Timeframes: Substitute "Designer" for "Department".

Add the following paragraphs:

"Prior to the submission of any working, shop or erection drawings, the Contractor shall prepare and submit to the Engineer, for approval, a schedule for all proposed working and shop drawings. This initial schedule should be submitted within thirty (30) days of contract award and must be submitted before the Notice to Proceed. The Contractor shall coordinate, schedule and control all submittals of working and shop drawings including those of his various subcontractors, suppliers and engineers to provide for an orderly and balanced distribution of the work.

Each Shop Drawing shall include the name and telephone number of the fabricator's contact person who is familiar with the drawing and who will be available to answer questions by the Engineer or Designer should any arise during the review process.

It is incumbent upon the Contractor to submit his shop drawings in accordance with the approved working and shop drawing schedule to facilitate expeditious review. Voluminous submittals of shop drawings at one time are discouraged and may result in increased review time. In no case will the Municipality accept liability for resulting delays, added costs and related damages when the time required for approval extends beyond the approximate times shown herein when the shop drawings are not submitted in conformance with the approved schedule."

1.05.02-5(a). Submissions: Substitute "oversight" for "administering" when citing the Construction District and add "and Municipality" to the end of the sentence.

1.05.02-5(b). Submissions: Substitute "Designer" for "Assistant District Engineer of the administering Construction District".

1.05.02-5(c). Submissions: Substitute "Designer" for "administering Construction District".

1.05.06 – Cooperation with Utilities (including railroads):

Add the following:

Within the project there may be public utility structures; and, notwithstanding any other clause or clauses of this Contract, the Contractor cannot proceed with his work until he has made diligent inquiry with the utility companies, municipal authorities or other utility owners to determine their exact location and notified "Call Before You Dig". The Contractor shall notify, in writing, the utility companies, municipalities or other owners involved of the nature and scope of the project and of his operations that may affect their facilities or property. Copies of such notices shall be sent to the Engineer.

SECTION 1.06
CONTROL OF MATERIALS

Section 1.06 is supplemented and amended as follows:

Throughout this Section, make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute “Department/Municipality” or “Municipal” for “Department”.

SECTION 1.07
LEGAL RELATIONS AND RESPONSIBILITIES

1.07.01—Laws to be Observed: is amended as follows:

In the second sentence of the first paragraph, after the word "State" add the words "and Municipality".

1.07.03—Proprietary Devices, Materials and Processes: is amended as follows:

After the word "State" add the words "and Municipality" throughout this Article.

1.07.04—Restoration of Surfaces Opened Pursuant to Permit or Contract: is amended as follows:

Replace the word "Department" with "Municipality" throughout this Article.

1.07.07—Safety and Public Convenience: is amended as follows:

In the penultimate paragraph, after the word "Department," add the words "or Municipality".

1.07.09—Protection and Restoration of Property: is supplemented and amended as follows:

Add the words "or Municipality" after the word "State" wherever the word "State" appears in this Article.

Add the phrase "or Municipality, as applicable" after the word "Department" wherever the word "Department" appears in this Article.

Add the following:

> The Contractor shall notify the Tree Warden of the Municipality in which the bridge project is located, five (5) days prior to flagging so that the Tree Warden may be present during the flagging.
>
> All trees scheduled to be removed outside of the proposed gutter or curb lines of the highway shall be visibly marked or flagged by the Contractor at least five (5) days prior to cutting of such trees.
>
> The Engineer will inspect the identified trees and verify the limits of tree removal prior to the Contractor proceeding with his cutting operation, should such an operation be required elsewhere in this contract.

1.07.10—Contractor's Duty to Indemnify the State Against Claims for Injury or Damage: is amended as follows:

Revise the title of this Article to read "Contractor's Duty to Indemnify the State and/or Municipality Against Claims for Injury or Damage."

In the first sentence, delete the words "the Department".

Replace the word "State" with "State and/or Municipality" throughout this Article.

Replace the word "Commissioner" with "Engineer" throughout this Article.

1.07.11—Opening of Section of Project to Traffic or Occupancy: is amended as follows:

Replace the word "State" with "Municipality" or "Municipal" throughout this Article.

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

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

Connecticut Light & Power Company dba Eversource Energy – Electric
Mr. Mark Bonjuklian
Manager – Distribution Projects and Programs
9 Tindall Avenue
Norwalk, CT 06851
Phone: (203) 845-3456
E-Mail: mark.bonjuklian@eversource.com

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

Comcast of Connecticut, Inc.
Mr. Christopher Simeone
Construction Manager CT/NY
222 New Park Drive
Berlin, CT 06037
Mobile: (860) 491-6701
E-Mail: Christopher_simeone@cable.comcast.com
Ryan_menard@cable.comcast.com (copy on all correspondence)

1.07.14—Personal Liability of Representatives of the State: is amended as follows:

Add the words "and Municipality" after the word "State".

1.07.15—No Waiver of Legal Rights: is amended as follows:

Replace the words "Commissioner" and "Department" with "Municipality" or "Municipal" throughout this Article.

1.07.16—Unauthorized Use of Area(s) within the Project Site: is amended as follows:

Replace the words "Commissioner" and "State" with "Municipality" throughout this Article.

Add the following new Subarticle:

1.07.19—Personal Liability of Representatives of the Municipality

In carrying out any of the provisions of these specifications, or in exercising any power or authority granted to them by or within the scope of the Contract, the Engineer and his authorized representatives, including consultant engineering firms and their employees, shall be subject to no liability, either personally or as officials of the Municipality, it being understood that in all such matters they act solely as agents and representatives of the Municipality.

SECTION 1.08
PROSECUTION AND PROGRESS

Section 1.08 is supplemented and amended as follows:

Throughout this Section, make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute "Municipality" or "Municipal" for "Department" and for "State".
Substitute "Engineer" for "Commissioner".

1.08.04—Limitation of Operations: is supplemented by the following:

Article 1.08.04 - Limitation of Operations - Add the following:

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

1. Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.
2. Saturday and Sunday, no work will be allowed without written permission from the Town of Hebron.

Old Colchester Road

Additional Restrictions:

A. The Contractor will be allowed to close Old Colchester Road at Raymond Brook (Bridge #04695) and detour traffic as shown in the plans for the duration of the project.

B. The Contractor shall notify the Engineer and the Town of Hebron at least two weeks prior to the Roadway Closure to ensure that ample time is provided to notify all Town Departments, Emergency Services, Buses and any other Entity that may be affected by the Detour.

Air Line State Park Trail

The Contractor shall maintain access to the Air Line State Park Trail at all times. Short term closures (no longer than 15 minutes) will be allowed for certain construction activities including beam erection, material deliveries, and movement of construction equipment, with prior approval of the Engineer.

All Other Roadways

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

Saturday and Sunday, no work will be allowed without written permission from the Town of Hebron.

Additional Lane Closure Restrictions

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

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

SECTION 1.09
MEASUREMENT AND PAYMENT

Section 1.09 is supplemented and amended as follows:

Throughout this Section, make the following substitutions for all occurrences of the word(s) identified below for substitution:

"Municipality" or "Municipal" for "Department" and for "State".

Substitute "Engineer" for "Commissioner".

Article 1.09.06—Partial Payments

Subarticle B. Payment for Stored Materials is amended as follows:

B. Payment for Stored Materials: Non-perishable materials that are required for Project construction and that the Contractor has produced or purchased specifically for incorporation into the Project, but which have not yet been so incorporated, may be included in a payment estimate if:

(i) the materials meet all applicable Contract specifications,
(ii) the materials have been delivered to the Project site or to another location approved by the Engineer, and
(iii) the Contractor has submitted to the Engineer, as evidence of the Contractor's purchase of the materials, copies of notarized receipted bills and a notarized Certificate of Title, lien waiver, and right of entry to the materials, in the form approved by the Department, duly executed by the Contractor, the Vendor and any other parties deemed necessary by the Engineer to satisfy proof of unencumbered ownership.

The Engineer will decide at what fair and appropriate fraction of the applicable Contract price such materials may be included in a payment estimate.

Offsite storage may be approved by the Engineer, provided that the materials proposed for payment are stored in a secure area, segregated from other materials, clearly labeled as being owned by the Department for use on the identified Project, otherwise handled in compliance with Article 1.06.03 and stored in accordance with the manufacturer’s recommendations. All such materials must be readily available for inventory and inspection by the Engineer. Storage outside of the State of Connecticut may be considered only when a representative of the Department is able to verify that the above requirements have been satisfied.

For items requiring extended fabrication, manufacturing or assembly time, the Contractor may propose to the Engineer a schedule of values for completely fabricated portions of the related material. If the Engineer accepts such a schedule of values, it shall become the Basis of Payment for the stored materials, so long as all other pertinent Contract requirements have been satisfied.

Generic materials having a use on many projects will be considered for payment prior to their incorporation into the Project only if stored in unopened packaging or in large lots stored at the project site.

Stock and raw materials will not be considered for such advance payment without the Engineer's prior written consent thereto.

In no case shall material payments exceed the Contract unit price or lump sum price less the actual value of the remaining work under the item, including but not limited to delivery and installation of the materials. If the proposed material costs do exceed such a price, the Engineer reserves the right to reduce any related payment accordingly. In such an instance the Contractor shall provide documentation of ownership and written acceptance of the amount to be paid in a form acceptable to the Engineer prior to any payments being made by the Engineer. Such reductions in payment shall in no way affect the Department's ownership interest in the stored materials or release the Contractor from any other requirements of the Contract.

SECTION 1.10
ENVIRONMENTAL COMPLIANCE

1.10.02—Compliance with Laws and Regulations: is amended as follows:

Replace the word "Department" with "Municipality" throughout this Article.

1.10.03—Water Pollution Control: is amended as follows:

Replace the word "Department" with "Municipality" throughout this Article.

Add the following sentence after the second sentence of the third paragraph:

> The following items may also be superseded by specific permits from the Connecticut Department of Energy and Environmental Protection (DEEP) and/or the appropriate local wetlands and watercourses regulatory authority.

In Paragraph No. 13, replace "State right-of-way" with "State or Municipal right-of-way."

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

Add the following after Required Best Management Practices Number 13:

14. The Contractor is hereby notified that one or more State and/or federally listed species of bat has been documented within the Project limits. In Connecticut, the Eastern small-footed bat (*Myotis leibii*), tri-colored bat (*Perimyotis subflavus*), little brown bat (*Myotis lucifugus*), Northern long-eared bat (*Myotis septentrionalis*) and the Indiana bat (*Myotis sodalis*) are listed as State endangered; while the silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*) and the red bat (*Lasiurus borealis*) are listed as State species of special concern. The Northern long-eared bat, tri-colored bat, and the Indiana bat are also federally listed endangered species. Bats are the only mammals capable of actual flight and are primarily nocturnal. During the daylight, bats roost in trees and caves, but many have now adapted to roost in or on buildings including barns, houses, tunnels, and bridges. Within the Project limits, bats will use the snags, cavities, and underside of bark to roost and raise young. **This Project will have a Time of Year restriction for tree clearing, trimming and removal to protect the bat species listed.**

    The Contractor shall, through the Engineer and at least 10 days prior to the commencement of any construction activities, arrange a meeting with the District Environmental Coordinator (DEC) and Office of Environmental Planning (OEP) (or their authorized delegate) to discuss proper protocol for maintaining environmental commitments made for the protection of these bat species and their habitat. OEP will provide oversight through the DEC and Engineer to ensure that the following protocols are followed and maintained during the Project:

    a. The Contractor, through the Engineer, shall arrange a pre-construction tree-clearing Site walk to review all trees proposed to be removed for the Project.

b. Clearing, trimming or removal of any tree three (3) inches diameter at breast height (DBH) or greater will be prohibited between April 15 and October 31.
c. This restriction shall also apply to invasive species removal work and shall be reflected in the Contractor's Invasive Vegetation Removal Plan, if applicable.

These practices will be applied to the entire Project unless a specified location is identified within the Project plans, which denotes specific areas of concern.

If any bats are observed in or around the Project area, the Engineer will notify the DEC to facilitate further coordination with OEP's Environmental Resource Compliance Unit. If the DEC is unable to be reached, notify OEP at Andrew.Piraneo@ct.gov or at Marilyn.Gould@ct.gov.

The OEP will be responsible for completing and submitting the Natural Diversity Data Base (NDDB) Vertebrate Sheet (Contribute Data to the NDDB). This completed document allows CTDEEP to update their database.

All listed bat species are protected by federal and/or State laws which prohibit killing, harming, taking, harassing, or keeping them in your possession. A CTDEEP fact sheet(s) for the listed bats noted above shall be posted in the Contractor's and Inspection field offices and can be downloaded at the link below.

CTDEEP's Fact Sheet for Bats:
Bat Fact Sheet

15. The Contractor is hereby notified that the State listed species of Special Concern spotted turtle (*Clemmys gutata*), is present within the Project limits. Spotted turtles are semi-aquatic in nature, which means they live both on terrestrial land and in-water environmental habitats including bogs, swamps, fens, woodland streams, wet pastures, and marshes. They sometimes also inhabit brackish streams influenced by tides. These reptiles always live in areas with slow moving water and soft soil and hibernate in shallow waters, burrows, and lodges. This species has been found to hibernate in groups of 5 to 12 individuals.

All construction activities taking place within the Project limits will need to be coordinated with the District Environmental Coordinator (DEC) and Office of Environmental Planning (OEP) through the Engineer. At least 10 days prior to the commencement of any construction activities, the Contractor shall, through the Engineer, arrange a meeting with the DEC and CTDOT Environmental Inspector from the OEP (or their authorized delegate) to discuss proper protocol for maintaining environmental commitments made for the protection of this species and habitat. OEP will provide oversight through the DEC and Engineer to ensure that the following protocols are followed and maintained during the Project.

During the spotted turtle's dormant period (November 1 to March 31):

- Construction activities will be allowed in upland areas.
- Work is not allowed in wetland/watercourse areas unless these areas were in active construction prior to November 1, and additionally, do not contain any areas of turtle habitat (no stream edge vegetation, stumps, or roots).

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

a. All areas within the Project limits must be surveyed to verify the presence of any active spotted turtle activity prior to commencement of the initial clearing and grubbing activities.

b. All construction personnel working within spotted turtle habitat must be apprised of the species description and the possible presence of this listed species.

c. Exclusionary practices will be required in order to prevent any spotted turtle to access construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.

d. Exclusionary fencing shall be at least 20" tall and must be secured to and remain in contact with the ground. The Contractor shall regularly inspect and maintain the fencing to prevent any gaps or openings at ground level. Silt fence with netting shall not be used.

e. The Contractor must search the work area each morning for the presence of this listed species prior to any work being done.

f. Any spotted turtles encountered within the Project shall be carefully moved outside of the excluded work area and the Engineer shall be immediately informed in order to contact DEC and OEP with the location.

   When a species is found, the OEP is responsible for completing and submitting the Natural Diversity Data Base (NDDB) Vertebrate Sheet (https://portal.ct.gov/DEEP/Endangered-Species/Contributing-Data). This completed document allows CTDEEP to update their database.

g. All staging and storage areas within the vicinity of the Project limits of the spotted turtle habitat must be submitted to the DEC and Engineer and receive written approval from the OEP.

h. The Contractor shall not park heavy machinery or vehicles within the spotted turtle habitat without submitting to the DEC and Engineer and receiving written approval from the OEP.

i. Exclusionary fencing shall be removed at the completion of the Project and when final stabilization has occurred to allow for reptile and amphibian passage to resume.

j. When felling trees adjacent to watercourses, they shall be cut to fall away from the waterway and not dragged across the waterway. Stumps shall be left in waterway banks where possible.

These practices will be applied to the entire project unless a specified location is identified within the Project plans, which denotes specific areas of concern.

If any spotted turtles are observed in or around the Project area, the Engineer will notify the DEC to facilitate further coordination with OEP's Environmental Resource Compliance Unit. If the DEC is unable to be reached, notify OEP at Andrew.Piraneo@ct.gov or at Marilyn.Gould@ct.gov.

This species is protected by State laws, which prohibit killing, harming, taking, or keeping them in your possession. A CTDEEP's fact sheet of the spotted turtle shall be posted in the Contractor's and Inspection field offices and can be downloaded at the link below.

CTDEEP's Fact Sheet for the Spotted Turtle:
Spotted Turtle Fact Sheet

16. The Contractor is hereby notified that the State listed species of Special Concern wood turtle (*Glyptemys insculpta*), is present within the Project limits. Wood turtles require riparian habitats bordered by floodplain, woodland, or meadows. Their summer habitat includes pastures, fields, woodlands, power line cuts, and railroad beds bordering or adjacent to streams and rivers. Wood turtles spend most of their summer on land and can use areas up to 1500 feet from the streams/rivers where they overwinter. They hibernate submerged in tangled tree roots along riverbanks or in deep pools.

All construction activities taking place within the Project limits will need to be coordinated with the District Environmental Coordinator (DEC) and Office of Environmental Planning (OEP) through the Engineer. At least 10 days prior to the commencement of any construction activities, the Contractor shall, through the Engineer, arrange a meeting with DEC and CTDOT Environmental Inspector from the OEP (or their authorized delegate) to discuss proper protocol for maintaining environmental commitments made for the protection of this species and habitat. OEP will provide oversight through DEC and Engineer to ensure that the following protocols are followed and maintained during the Project.

During the wood turtle's dormant period (November 1 to March 31):

- Construction activities will be allowed in upland areas.
- Work is not allowed in wetland/watercourse areas unless these areas were in active construction prior to November 1, and additionally, do not contain any areas of turtle habitat (no stream edge vegetation, stumps, or roots).

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

a. All areas within the Project limits must be surveyed to verify the presence of any active wood turtle activity prior to commencement of the initial clearing and grubbing activities.

b. All construction personnel working within wood turtle habitat must be apprised of the species description and the possible presence of this listed species.

c. Exclusionary practices will be required in order to prevent any wood turtle to access construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.

d. Exclusionary fencing shall be at least 20" tall and must be secured to and remain in contact with the ground. The Contractor shall regularly inspect and maintain the fencing to prevent any gaps or openings at ground level. Silt fence with netting shall not be used.

e. The Contractor must search the work area each morning for the presence of this listed species prior to any work being done.

f. Any wood turtles encountered within the Project shall be carefully moved outside of the excluded work area and the Engineer shall be immediately informed in order to contact the DEC and OEP with the location.

When a species is found, the OEP will be responsible for completing and submitting the Natural Diversity Data Base (NDDB) Vertebrate Sheet (https://portal.ct.gov/DEEP/Endangered-Species/Contributing-Data). This completed document allows CTDEEP to update their database.

g. All staging and storage areas within the vicinity of the Project limits of the wood turtle habitat must be submitted to the DEC and Engineer and receive written approval from the OEP.

h. The Contractor shall not park heavy machinery or vehicles within the wood turtle habitat without submitting to the DEC and Engineer and receiving written approval from the OEP.

i. Exclusionary fencing shall be removed at the completion of the Project and when final stabilization has occurred to allow for reptile and amphibian passage to resume.

j. When felling trees adjacent to watercourses, they shall be cut to fall away from the waterway and not dragged across the waterway. Stumps shall be left in waterway banks where possible.

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

If any wood turtles are observed in or around the Project area, the Engineer will notify the DEC to facilitate further coordination with OEP's Environmental Resource Compliance Unit. If the DEC is unable to be reached, notify OEP at Andrew.Piraneo@ct.gov or at Marilyn.Gould@ct.gov.

This species is protected by State laws, which prohibit killing, harming, taking, or keeping them in your possession. A CTDEEP's fact sheet of the wood turtle shall be posted in the Contractor's and Inspection field offices and can be downloaded at the link below.

CTDEEP's Fact Sheet for the Wood Turtle:
https://portal.ct.gov//media/DEEP/wildlife/pdf_files/outreach/fact_sheets/woodturtlepdf.pdf

17. The Contractor is hereby notified that the State listed species of Special Concern Eastern ribbon snake or common snake (*Thamnophis sauritus*), is present within the Project limits**.** The Eastern ribbon snake uses a variety of habitats including shallow water, marshy areas, grassy and shrubby areas that border streams and wooded swamps. Snakes cannot regulate their body temperature internally and can often been seen basking along the water's edge warming themselves in the sun. Eastern ribbon snakes want to avoid humans and their first line of defense is to flee. They may release musk when handled, rarely bite and are **NOT venomous**. Eastern ribbon snakes hibernate near streams and will use muskrat bank burrows or houses, ant mounds, crayfish burrows or vole burrows for dens.

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

During the Eastern ribbon snake's dormant (hibernation) period (October 1 to March 31):

a. For work to be allowed within the dormant period, exclusionary fencing must be installed within the work limits and the area inspected for the Eastern ribbon snake by the Engineer or Engineer's approved representative prior to October 1.

For any work done during Eastern ribbon snakes' active period (April 1 to September 30), the CTDOT will require precautionary measures to protect the Eastern ribbon snake and Eastern ribbon snake habitat:

a. All areas within the Project limits must be surveyed to verify the presence of any active Eastern ribbon snake's activity prior to commencement of the initial clearing and grubbing activities.

b. All construction personnel working within spotted turtle habitat must be apprised of the species description and the possible presence of this listed species.

c. Exclusionary practices will be required in order to prevent any Eastern ribbon snakes' to access construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.

d. Exclusionary fencing shall be at least 20" tall and must be secured to and remain in contact with the ground. The Contractor shall regularly inspect and maintain the

fencing to prevent any gaps or openings at ground level. Silt fence with netting shall not be used.

e. The Contractor must search the work area each morning for the presence of this listed species prior to any work being done.

f. Any Eastern ribbon snakes' encountered within the Project shall be carefully moved outside of the excluded work area and the Engineer shall be immediately informed in order to contact DEC and OEP with the location.

When a species is found, the OEP is responsible for completing and submitting the Natural Diversity Data Base (NDDB) Vertebrate Sheet (https://portal.ct.gov/DEEP/Endangered-Species/Contributing-Data). This completed document allows CTDEEP to update their database.

g. All staging and storage areas within the vicinity of the Project limits of the spotted turtle habitat must be submitted to the DEC and Engineer and receive written approval from the OEP.

h. The Contractor shall not park heavy machinery or vehicles within the Eastern ribbon snakes' habitat without submitting to the DEC and Engineer and receiving written approval from the OEP.

i. Exclusionary fencing shall be removed at the completion of the Project and when final stabilization has occurred to allow for reptile and amphibian passage to resume.

j. When felling trees adjacent to watercourses, they shall be cut to fall away from the waterway and not dragged across the waterway. Stumps shall be left in waterway banks where possible.

These practices will be applied to the entire project unless a specified location is identified within the Project plans, which denotes specific areas of concern.

If any Eastern ribbon snakes' are observed in or around the Project area, the Engineer will notify the DEC to facilitate further coordination with OEP's Environmental Resource Compliance Unit. If the DEC is unable to be reached, notify OEP at Andrew.Piraneo@ct.gov or at Marilyn.Gould@ct.gov.

This species is protected by State laws, which prohibit killing, harming, taking, or keeping them in your possession. A CTDEEP's fact sheet of the spotted turtle shall be posted in the Contractor's and Inspection field offices and can be downloaded at the link below.

CTDEEP's Fact Sheet for the Eastern Ribbon Snake: Common Ribbonsnake

The Contractor shall adhere to the mitigation plan for State-Listed Reptiles contained herein. The requirements of the mitigation plan will apply for the duration of the project. If a conflict exists between a Best Management Practice and a requirement of the mitigation plan, the mitigation plan shall prevail.

Mitigation Plan for State-listed Reptiles

Replacement of bridge #04695
Raymond Brook, Old Colchester Road, Hebron, CT

Prepared by: Hank J. Gruner
Consulting Herpetologist

(July 7, 2025)

INTRODUCTION

The proposed mitigation/protection plan focuses on three species of state-listed reptiles: spotted turtle (*Clemmys guttata*), wood turtle (*Glyptemys insculpta*), and ribbon snake (*Thamnophis s. saurita*). These reptiles are all listed as special concern under Connecticut's Endangered Species Act, and suitable habitat and/or documented occurrences of these species have been documented at, or within, the vicinity of the project area (CTDEEP-NDDB; Gruner and Quinn 2022).

Based on: (a) species' life history characteristics, (b) habitat suitability, (c) proposed project activities, and the area of disturbance associated with these activities, the primary conservation consideration relates to potential impacts to dispersing individuals during the construction period, with a focus on the wood turtle, which in addition to being state-listed, is currently under review by the United States Fish and Wildlife Service for potential listing under the Endangered Species Act.

The area of disturbance for the bridge replacement project extends along the immediate embankments of Raymond Brook, and within the stream channel, for a stretch of approximately 20-25 feet east and west of the bridge crossing, and approximately 90-100 feet north of the bridge, and 160-180 feet south of the bridge along Old Colchester Road. The area of disturbance along Old Colchester Road penetrates approximately 15-20 feet from the edge of the road (see Figure 1).



Figure 1: Location of the bridge replacement project and approximate area of disturbance along Raymond Brook

SPECIES ASSESSMENTS

Wood Turtle

Wood turtles are semi-aquatic riverine species that over-winter within rivers and streams, either tucked under embankments, among root tangles and fallen logs, or in deeper pools with accumulations of leaves and other organic matter. In the spring and fall, wood turtles typically remain close to the river, where they move along short stretches of the river frequently basking among protected open areas along the embankments. Because of the wood turtle's close association with the river from late September through May, careful assessment of the characteristics of the habitat along a particular stretch of river (i.e., potential seasonal use by turtles), and consideration of any disturbances occurring within, and along the banks of the river (typically within 300 feet) is important in determining the potential for negative impacts of a proposed project, and for guiding decisions related to the seasonal timing of any activities.

Potential overwintering habitat: The physical characteristics of the brook within the immediate construction zone are not suitable for overwintering (i.e., lack undercut banks, have a mostly rocky bottom, lack woody debris, etc.). A study of over-wintering sites utilized by wood turtles in rivers in eastern Connecticut identified typical microhabitat features as: areas of relatively low flow velocity, located within a meter of the river bank, and with bottom substrates dominated by silt/muck/organic deposits. A strong correlation with submerged root tangles and undercut banks was also noted (Gruner, unpublished data).

Early spring and fall Seasonal basking habitat: Patches of open canopy, shrub and herbaceous habitat located along streambanks provide important habitat for turtles to bask and thermoregulate during early and late season periods. The immediate area surrounding the

brook within the project area is forested and rocky with no suitable basking habitat present to attract turtles.

Suitable over-wintering and seasonal basking habitat are located along Raymond Brook beginning approximately 130 feet east of the bridge, where forested floodplain habitat lies adjacent to the brook, extending through a significant area of emergent floodplain habitat located approximately 415 feet to the east where the course of the brook becomes "braided." (see Figure 2).

West of the bridge, suitable habitat is located along the brook within the Hibbert Open Space parcel, approximately 200 feet from the bridge. Several reverting old fields located adjacent to the brook, to the north, provide important nesting and forging habitat as well (see Figure 2).

Seasonal turtle activity and nesting habitat: Wood turtles begin to disperse away from the immediate river environs to their summer habitat in the surrounding floodplain and upland areas in late spring. Therefore, a primary consideration within the construction zone is the installation of exclusionary fencing to prevent dispersing turtles from moving into areas of disturbance. This is especially important to prevent female turtles from nesting in disturbed areas from late May through early July. Female wood turtles are attracted to open areas of bare, or sparsely vegetated soil to deposit their eggs. Areas such as this are often created by site clearing during construction projects. Location of this project along a road may result in the creation of disturbances that expose nesting females and/or hatchlings to mortality unless these areas are excluded from access during the construction period, and planted, or allowed to naturally revegetate post-construction.

Beyond consideration of potential impacts associated with the project's immediate construction zone, careful consideration of potential impacts associated with locating and preparing staging areas for the project need to be taken into consideration. Wood turtles disperse to various habitats surrounding the river. Areas extending from 300 feet to as much as 1,000 feet from each river embankment into surrounding floodplain and upland habitats are considered important conservation zones for wood turtles based on studies of their seasonal movements (Northeast Wood Turtle Working Group, GLIN_Mapping_Guidelines_2017 (northeastturtles.org). In addition to the forested floodplain, early successional herbaceous or shrub dominated habitats, edges of agricultural and hay fields, and sand/gravel pits, all provide important habitat during the spring-fall activity season. Areas of critical habitat within the immediate surrounding area of the construction project need to be identified and should be avoided when considering locations for staging areas, including stock-piling fill.

Spotted Turtle

Spotted turtles are a semi-aquatic species that seasonally inhabits wetlands and watercourses, including: vernal pools, shrub swamps, marshes, and slow-moving streams, as well as surrounding upland forest habitat. Individual turtles often move significant distances between habitats throughout the active season for various life history-related functions (i.e., overwintering= wetlands, foraging=wetlands, aestivation= forest, egg-laying= early successional uplands) – [see Klemens et.al 2021]. Within the immediate construction zone, no critical seasonal habitat for spotted turtles is present. The more distant suitable habitat areas described

earlier in the wood turtle assessment, especially, the large emergent floodplain wetlands located east of the bridge, provide suitable habitat for spotted turtles (see Figure 2).

Ribbon snake

Ribbon snakes are primarily associated with open canopy, herbaceous and shrub wetlands and vernal pools, and upland habitats that are adjacent to these wetlands. Within the immediate construction zone, no critical seasonal habitat for ribbon snakes is present. The more distant suitable habitat areas described earlier in the wood turtle assessment, especially, the large emergent floodplain wetlands located east of the bridge, provide suitable habitat for ribbon snakes (see Figure 2). Habitat surrounding a permanent impoundment located south of the rail trail is also suitable, and ribbon snakes may also be attracted to the upland habitat features located along the edges of the trail, which traverses the wetlands.

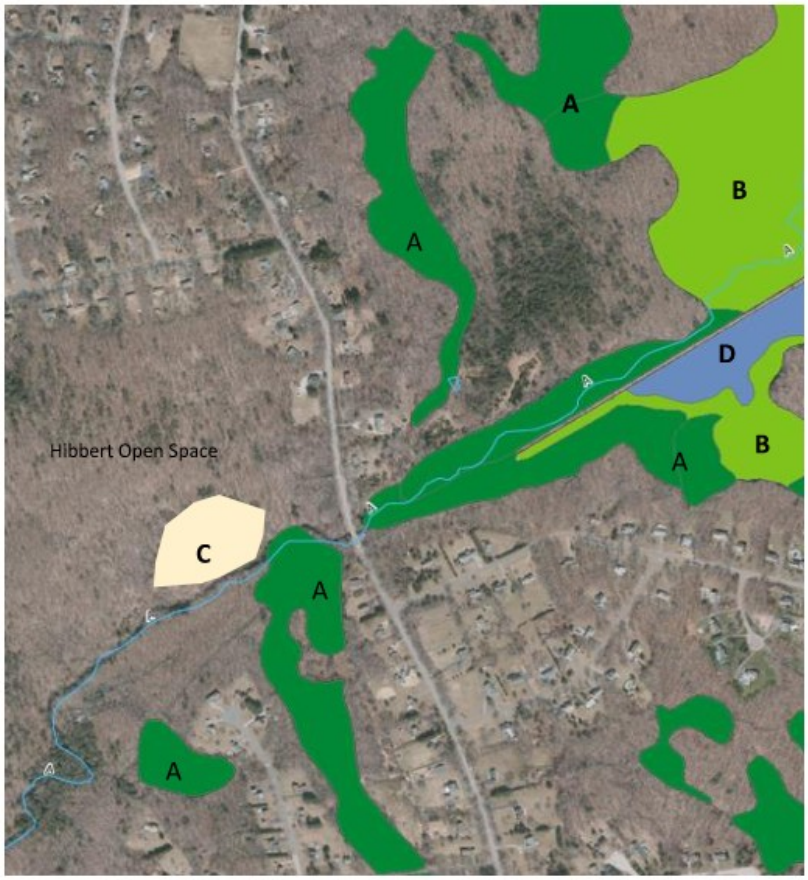


Figure 2: Important habitat areas along Raymond Brook. (A): Forested wetland, (B): Emergent wetland, (C): Early successional fields, (D): Ponded impoundment.

*Wetlands mapping from National Wetlands Inventory, 2010.

GOALS, OBJECTIVES, AND PHASING OF THE REPTILE MITIGATION PLAN

The *primary goal* of the mitigation plan is to avoid inadvertent injury/mortality of individual reptiles, especially turtles, that may be dispersing through the area over the course of their spring - fall active seasons. A *secondary goal* is to prevent the establishment of conditions along the roadway that will attract turtles to nest, exposing both adults and hatchlings to road mortality. Because there is no critical seasonal habitat for any of the reptiles present within, or immediately adjacent to, the project area of disturbance, no loss or alteration of habitat is anticipated.

The proposed mitigation plan consists of three phases: (1) pre-construction including site clearing/grubbing and the installation of sediment basins and cofferdams, (2) active construction monitoring, and (3) post-construction and site restoration.

The objectives of the **pre-construction phase** are:

(a) identify appropriate locations for staging construction equipment, temporary construction office trailers, work crew parking, and stock-piling of materials including fill, (b) identify areas where exclusionary fencing will be required, (c) guide installation of the exclusion fencing, (e) provide construction personnel with information on the species and what to do if they encounter them, (f) conduct sweeps of the project area and monitor site clearing and grubbing activities when heavy equipment is in use, and (g) complete regular inspections and repairs as necessary to maintain the integrity of the exclusion fencing.

The objectives of the **construction phase** are:

(a) conduct regular on-site monitoring to ensure integrity of the exclusion fencing and relocate any animals encountered to suitable habitat outside of the project area, (b) conduct sweeps (aquatic and/or terrestrial searches as necessary) of work areas, or where heavy machinery is in use to relocate any reptiles encountered to suitable habitat away from the project area, and (c) provide construction personnel with information on the species and what to do if they encounter them during the project

The objectives of the **post-construction restoration phase** focus on:

(a) restoration of areas that were disturbed during the project, including staging areas, and (b) removal of the exclusionary fencing once the disturbed areas are stabilized, (c) conduct a site inspection to review the restored areas to ensure that no hazards remain for turtles (i.e., “ecological traps” – see Klemens et.al).

REQUIREMENTS OF THE PROTECTION PLAN

<u>pre-construction phase including site clearing/grubbing, and installation of cofferdams</u>

Ideally the preconstruction phase of the project will be completed prior to the onset of the primary activity season for reptiles (by April 1st). The planned project schedule is to begin construction in April 2026, with the completion of site preparation, clearing/grubbing, re-location of utilities, installation of cofferdams, and installation of the exclusionary fencing by March 31, 2026. The bridge replacement and project restoration will be completed during the period April-November 2026. The start of work coincides with the over-wintering season for all the focal

reptile species. Typically, potential impacts to over-wintering individuals during preconstruction clearing and grubbing is an important consideration, however none of the three reptile species over-winter in habitat associated within the project area of disturbance.

Requirement #1: Avoid important habitat, within or outside, of the primary construction zone by locating appropriate staging areas for the project:

Once a location(s) for staging has been identified by the contractor, the site(s) should be reviewed by the project herpetologist to determine if there is a need to conduct sweeps for any of the target species.

Requirement #2: Identify areas requiring the installation of exclusionary fencing and appropriately install the fencing:

Exclusionary fencing at least 20 inches in height (above ground level) should be installed at the limits of disturbance within the construction zone. The fencing should be staked (12 inches into the ground) at appropriate distances to maintain rigidity (6-10 feet intervals), and the fencing buried at least 4 inches into the ground and back-filled. Standard erosion control/silt fencing (geotextile) can be used, but not fencing with a wider nylon mesh lining, which can entangle snakes (WI DNR 2015).

The terminus of each length of fencing should be angled back away from the road to divert animals moving along the exterior of the fence back into undisturbed habitat to discourage them from moving around the fence. Installation of each length of fence should be coordinated with the project herpetologist to determine the best angle and placement depending upon the location, topography, and surrounding habitat. In general, a "J-hook" loop design with an interior width of no more than 18 inches, and return length of fencing of approximately 10 feet should be used (see Figure 3). The exclusionary fencing must be tied in to the cofferdam to prevent turtles from accessing the work area in the river from the embankments.

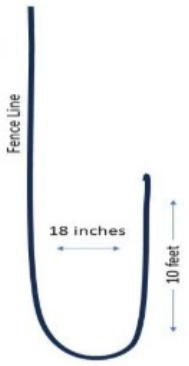


Figure 3: "J-hook" loop design for the end points of the exclusion fencing.

The existing grassy swale that borders the west shoulder of the road, along the Hibbert Open Space parcel, is a likely parking/staging area for the project. It is important to prevent any

reptiles dispersing in/out of this area from entering the roadway along this stretch. To prevent this, the exclusionary fencing should extend approximately 310 feet (to the chained trail head) along both the east and west sides of Old Colchester Road North of the bridge. The project area mapped on the "highway plan" north of the bridge currently extends for approximately 90-100 feet along the road, thus this represents an extension of the area that needs to be protected. Along this extension, fencing on the west side of the road can follow the existing forest line which will enable the grassy swale along the road to be utilized for parking/staging. On the east side of the road the extension can be placed tight to the road to avoid the need for clearing. Figure 4 depicts the approximate locations for installation of exclusionary fencing.

Exclusionary fencing may also be required to be installed around other staging areas for the project, depending upon their location and the habitat present. The project herpetologist should be consulted to review the selected areas.

Installation of the exclusionary fencing by April 1st is critical to preventing reptiles (especially turtles) from entering the construction zone. If installation is delayed, additional steps to survey for, and relocate any individuals within the construction zone may be required.

If so, a qualified herpetologist must conduct surveys of the construction zone and relocate any reptiles encountered to appropriate habitat outside of the construction zone, and within a distance representative of the species typical home range based on published studies. The sweeps must be conducted on the same day that the construction activity is occurring, and the herpetologist should work directly with the contractors mowing, or clearing areas to guide these activities based on the type and density of vegetation.



Figure 4. Approximate location of reptile exclusion fencing. Note terminal loops at end points, and extension of fencing beyond the original project area north of the bridge.

The focus of protection strategies during the construction phase of the project center around maintaining the integrity of the exclusion fencing, and conducting sweeps to relocate any individual turtles or snakes to appropriate habitat outside of the construction area. This is especially important in the case of the two species of turtles. Turtles have evolved a reproductive life history that depends upon high survivorship in the adult stage. Loss of individuals, especially adult females, can contribute to local population declines.

Requirement #3: Inform construction personnel on what to do if they encounter any of the reptile species: (Note: this requirement applies to the preconstruction phase as well if the exclusionary fencing is not installed prior to April 1st.)

An informal "construction team meeting" should be convened in the field to provide information on the target species, including, identification, and what to do if any individuals are encountered. This will also be an opportunity to summarize the components and goals of the protection plan for the work crew. It is also important to stress to construction personnel that any turtles encountered should not be removed. Not infrequently, spotted or wood turtles encountered by individuals are taken from the wild and brought home as pets. Collection of wild turtles can be a significant contributing factor in population declines. Another key message, especially for operators of trucks or other heavy machinery that will be regularly moving along Old Colchester Road, is to be aware of the likely presence of turtles crossing the road from mid-May through early July (nesting season). The information session should be presented by a qualified herpetologist and coordinated with the construction project manager.

Requirement #4: Conduct regular monitoring of the exclusionary fencing.

It is important to monitor the integrity of the exclusion fencing on a regular basis to ensure that animals are not able to enter active construction areas. This is especially important during the turtle nesting season when females are actively moving around seeking appropriate sites in which to deposit their eggs. The exclusionary fencing should be inspected weekly from March 1-May 14 and from July 16-October 15. During the turtle nesting season, which stretches from May 15-July 15, fencing should be inspected bi-weekly.

Installation of exclusionary fencing within or adjacent to habitats sometimes results in individuals encountered moving along the exterior of the fence and being directed linearly along the fence for some distance (Gruner pers. obs.). This can expose them to predation. Thus, it is important that a qualified herpetologist conduct the inspections, as they are capable of capturing, and relocating any individuals encountered to appropriate habitat within the area that would fall within the species typical home range, yet safely away from the project.

Following any heavy rain events or wind storms it is imperative that the fencing be inspected within 24 hours, and any necessary repairs made. These events often lead to fencing being pulled away from stakes, and branches falling down on the fence creating gaps.

Requirement #5: Conduct sweeps of any areas to be cleared, or where heavy machinery will be in use throughout the duration of the project:

Prior to clearing any areas, including any temporary staging areas, a qualified herpetologist should conduct visual sweeps to capture and relocate any animals that may be encountered. Sweeps should also be conducted each morning in any areas where heavy machinery will be in use during the period April 1-October 15.

Post-construction Restoration Phase

The focus of mitigation strategies during the post-construction phase of the project is on restoration of areas disturbed during the project, including any staging areas, as well as the removal of the exclusionary fencing.

Requirement #6: Restore disturbed areas in a manner that avoids impacts to surrounding habitat or individual animals:

All open areas with bare, or sparsely vegetated soil that remain in the construction zone should be seeded and/or planted. A conservation seed mix that utilizes natural species should be used to avoid the spread of non-native, invasive plants into surrounding habitat. Because of the location of disturbances along a roadway (Old Colchester Road), it is important to eliminate any potential areas that may attract turtles to nest. Consultation with the project herpetologist is recommended in reviewing these areas of disturbance during the restoration phase of the project.

Requirement #7: Remove all exclusionary fencing:

At the completion of the project, and once areas of disturbance are stabilized the exclusionary fencing should be removed from all areas, including the staging areas, to avoid impeding the dispersal of animals.

REFERENCES CITED

Gruner and Quinn, 2022. *Amphibian and Reptile Management Considerations, Bernstein and Hibbert Open Space Properties, Hebron, CT.* Unpublished Report, CT-ERT, June 16, 2022.

Klemens, M.W., H.J. Gruner, D.P. Quinn, and E. R. Davison. 2021. *Conservation of Amphibians and Reptiles in Connecticut*. Revision to State Geological and Natural History Survey Bulletin 112. Department of Energy and Environmental Protection, Hartford, CT.

Northeast Wood Turtle Working Group. Wood turtle Site Mapping Guidelines. Appendix X, *Conservation Plan for the Wood Turtle in the Northeastern United States* (Jones, Robert, and Wiley 2018): GLIN_Mapping_Guidelines_2017 (northeastturtles.org).

(WI DNR) 2015. Amphibian and reptile exclusion fencing protocols. Wisconsin Department of Natural Resources, Endangered Resources Review Program. Revised February 2015.

1.10.07—Controlled and Hazardous Materials: is amended as follows:

Replace the word "Department" with "Municipality" throughout this Article.

SECTION 1.11
CLAIMS

Section 1.11 is supplemented and amended as follows:

Throughout this Section make the following substitutions for all occurrences of the word(s) identified below for substitution:

Substitute "Chief Administrative Official of the Municipality" for "Commissioner".
Substitute "Municipality" or "Municipal" for "Department".

CODE OF ETHICS

The Contractor shall comply with the provisions contained in Section 1-86e of the Connecticut General Statutes, which provides as follows:

(a) No person hired by the state as a Contractor or independent contractor shall:

(1) Use the authority provided to the person under the contract, or any confidential information acquired in the performance of the contract, to obtain financial gain for the person, an employee of the person or a member of the immediate family of any such person or employee;
(2) Accept another state contract which would impair the independent judgment of the person in the performance of the existing contract; or
(3) Accept anything of value to a person hired by the state as a Contractor or independent contractor based on an understanding that the actions of the Contractor or independent contractor on behalf of the state would be influenced.

(b) No person shall give anything of value to a person hired by the state as a Contractor or independent contractor based on an understanding that the actions of the Contractor or independent contractor on behalf of the state would be influenced.

The following clause is applicable to those contracts with a value of Five Hundred Thousand Dollars ($500,000) or more:

The Contractor shall comply with the Code of Ethics for Public Officials, Conn. Gen. Stat. §§ 1-79 *et seq*., and Code of Ethics for Lobbyists, Conn. Gen. Stat. §§ 1-91 *et seq*., when and where applicable. Insofar as state contractors are concerned, a summary of the most relevant provisions of the Codes of Ethics is contained in the Summary of State Ethics Laws for Current and Potential State Contractors. The Contractor acknowledges receiving such Summary, which is incorporated herein by reference. The Summary may change from time to time and may be accessed via the Internet at www.ethics.state.ct.us.

The Contractor agrees that the above clause will also be incorporated in all of its contracts with its subcontractors and consultants.

The Contractor agrees that any instance of its violating the Code of Ethics or the Department of Transportation Ethics Policy will be sufficient cause for the Department to terminate any or all of the Contractor's pending contracts with the Department.

In addition, the Contractor hereby acknowledges and agrees to comply with the policies enumerated in "Connecticut Department of Transportation Policy Statement Policy No. F&A-10, Subject: Code of Ethics Policy", dated June 1, 2007, a copy of which is attached hereto and made a part hereof.

CONNECTICUT DEPARTMENT OF TRANSPORTATION

POLICY STATEMENT

POLICY NO. F&A-10
June 1, 2007

SUBJECT: Code of Ethics Policy

The purpose of this policy is to establish and maintain high standards of honesty, integrity, and quality of performance for all employees of the Department of Transportation ("DOT" or "Department"). Individuals in government service have positions of significant trust and responsibility that require them to adhere to the highest ethical standards. Standards that might be acceptable in other public or private organizations are not necessarily acceptable for the DOT.

It is expected that all DOT employees will comply with this policy as well as the Code of Ethics for Public Officials, and strive to avoid even the appearance of impropriety in their relationships with members of the public, other agencies, private vendors, consultants, and contractors. This policy is, as is permitted by law, in some cases stricter than the Code of Ethics for Public Officials. Where that is true, employees are required to comply with the more stringent DOT policy.

The Code of Ethics for Public Officials is State law and governs the conduct of all State employees and public officials regardless of the agency in which they serve. The entire Code, as well as a summary of its provisions, may be found at the Office of State Ethics' web site: www.ct.gov/ethics/site/default.asp. For formal and informal interpretations of the Code of Ethics, DOT employees should contact the Office of State Ethics or the DOT's Ethics Compliance Officer or her designee.

All State agencies are required by law to have an ethics policy statement. Additionally, all State agencies are required by law to have an Ethics Liaison or Ethics Compliance Officer. The DOT, because of the size and scope of its procurement activities, has an Ethics Compliance Officer who is responsible for the Department's: development of ethics policies; coordination of ethics training programs; and monitoring of programs for agency compliance with its ethics policies and the Code of Ethics for Public Officials. At least annually, the Ethics Compliance Officer shall provide ethics training to agency personnel involved in contractor selection, evaluation, and supervision. A DOT employee who has a question or is unsure about the provisions of this policy, or who would like assistance contacting the Office of State Ethics, should contact the Ethics Compliance Officer or her designee.

The DOT Ethics Compliance Officer is:

Denise Rodosevich, Managing Attorney
Office of Legal Services

For questions, contact the Ethics Compliance Officer's Designee:

Alice M. Sexton, Principal Attorney
Office of Legal Services
2800 Berlin Turnpike
Newington, CT 06131-7546
Tel. (860) 594-3045

To contact the Office of State Ethics:

Office of State Ethics
20 Trinity Street, Suite 205
Hartford, CT 06106
Tel. (860) 566-4472
Facs. (860) 566-3806
Web: www.ethics.state.ct.us

Enforcement

The Department expects that all employees will comply with all laws and policies regarding ethical conduct. Violations of the law may subject an employee to sanctions from agencies or authorities outside the DOT. Whether or not another agency or authority imposes such sanctions, the Department retains the independent right to review and respond to any ethics violation or alleged ethics violation by its employees. Violations of this policy or ethics statutes, as construed by the DOT, may result in disciplinary action up to and including dismissal from State service.

Prohibited Activities

1. ***Gifts:*** DOT employees (and in some cases their family members) are prohibited by the Code of Ethics and this Policy from accepting a gift from anyone who is: (1) doing business with, or seeking to do business with, the DOT; (2) directly regulated by the DOT; (3) prequalified as a contractor pursuant to Conn. Gen. Stat. §4a-100 by the Commissioner of the Department of Administrative Services (DAS); or (4) known to be a registered lobbyist or a lobbyist's representative. These four categories of people/entities are referred to as "restricted donors." A list of registered lobbyists can be found on the web site of the Office of State Ethics (www.ct.gov/ethics/site/default.asp). A list of prequalified consultants and contractors, *i.e.,* those seeking to do business with the DOT, can be found on the DOT's Internet site under "Consultant Information" and "Doing Business with ConnDOT," respectively.

   The term "gift" is defined in the Code of Ethics for Public Officials, Conn. Gen. Stat. §1-79(e), and has numerous exceptions. For example, one exception permits the acceptance of food and/or beverages valued up to $50 per calendar year from any one donor and consumed on an occasion or occasions while the person paying or his representative is present. Therefore, such food and/or beverage is not a "gift." Another exception permits the acceptance of items having a value up to ten dollars ($10) provided the aggregate value of all things provided by the donor to the recipient during a calendar year does not exceed fifty dollars ($50). Therefore, such items are not a "gift." Depending on the circumstances, the "donor" may be an individual if the individual is bearing the expense, or a donor may be the individual's employer/group if the individual is passing the expense back to the employer/group he/she represents.

   This policy requires DOT employees to immediately return any gift (as defined in the Code of Ethics) that any person or entity attempts to give to the employee(s). If any such gift or other item of value is received by other than personal delivery from the subject person or entity, the item shall be taken to the Office of Human Resources along with the name and address of the person or entity who gave the item. The Office of Human Resources, along with the recipient of the item of value, will arrange for the donation of the item to a local charity (e.g., Foodshare, local soup kitchens, etc.). The Office of Human Resources will then send a letter to the gift's donor advising the person of the item's donation to charity and requesting that no such gifts be given to DOT employees in the future.

2. ***Contracting for Goods or Services for Personal Use With Department Contractors, Consultants, or Vendors:*** Executive Order 7C provides that: "Appointed officials and state employees in the Executive Branch are prohibited from contracting for goods and services, for personal use, with any person doing business with or seeking business with his or her agency, unless the goods or services are readily available to the general public for the price which the official or state employee paid or would pay."

3. ***Gift Exchanges Between Subordinates and Supervisors/Senior Staff:*** A recent change in the Code of Ethics prohibits exchanges of gifts valued at $100 or more between (*i.e.,* to and from) supervisors and employees under their supervision. The Citizen's Ethics Advisory Board has advised that: (1) the monetary limit imposed by this provision is a per-gift amount; (2) gifts given between supervisors and subordinates (or *vice versa)* in celebration of a "major life event," as defined in the Code of Ethics, need not comply with the $100 limit; and (3) the limitations imposed by this provision apply to a direct supervisor and subordinate *and to any individual up or down the chain of command.* The Citizen's Ethics Advisory Board has also advised that supervisors or subordinates may not pool their money to give a collective or group gift valued at $100 or more, even though each of the individual contributions is less than $100.

4. ***Acceptance of Gifts to the State:*** A recent change to the Code of Ethics for Public Officials modified the definition of the term "gift" to limit the application of the so-called "gift to the State" exception. In general, "gifts to the State" are goods or services given to a State agency for use on State property or to support an event and which facilitate State action or functions. Before accepting any benefit as a "gift to the State," DOT employees should contact the Ethics Compliance Officer.

5. ***Charitable Organizations and Events:*** No DOT employee shall knowingly accept any gift, discount, or other item of monetary value for the benefit of a charitable organization from any person or entity seeking official action from, doing or seeking business with, or conducting activities regulated by, the Department.

6. ***Use of Office/Position for Financial Gain:*** DOT employees shall not use their public office, position, or influence from holding their State office/position, nor any information gained in the course of their State duties, for private financial gain (or the prevention of financial loss) for themselves, any family member, any member of their household, nor any "business with which they are associated." In general, a business with which one is associated includes any entity of which a DOT employee or his/her immediate family member is a director, owner, limited or general partner, beneficiary of a trust, holder of 5 percent or more stock, or an officer (president, treasurer, or executive or senior vice president).

   DOT employees shall not use or distribute State information (except as permitted by the Freedom of Information Act), nor use State time, personnel, equipment, or materials, for other than State business purposes.

7. ***Other Employment:*** DOT employees shall not engage in, nor accept, other employment that will either impair their independence of judgment with regard to their State duties or require or induce them to disclose confidential information gained through their State duties.

   Any DOT employee who engages in or accepts other employment (including as an independent contractor), or has direct ownership in an outside business or sole proprietorship, shall complete an Employment/Outside Business Disclosure Form (see attached) and submit it to the Department's Human Resources Administrator. Disclosure of other employment to the DOT Human Resources Administrator shall *not* constitute approval of the other employment for purposes of the Code of Ethics for Public Officials.

   Inquiries concerning the propriety of a DOT employee's other employment shall be directed to the Office of State Ethics to assure compliance with the Code of Ethics for Public Officials. Employees anticipating accepting other employment as described above should give ample time (at least one month) to the Office of State Ethics to respond to such outside employment inquiries.

No employee of the DOT shall allow any private obligation of employment or enterprise to take precedence over his/her responsibility to the Department.

8. ***Outside Business Interests:*** Any DOT employee who holds, directly or indirectly, a financial interest in any business, firm, or enterprise shall complete an Employment/Outside Business Disclosure Form (see attached) and submit it to the Department's Human Resources Administrator. An indirect financial interest includes situations where a DOT employee's spouse has a financial interest in a business, firm, or enterprise. A financial interest means that the employee or his spouse is an owner, member, partner, or shareholder in a non-publicly traded entity. Disclosure of such outside business interests to the DOT Human Resources Administrator shall *not* constitute approval of the outside business interest under this Policy or the Code of Ethics for Public Officials. DOT employees shall not have a financial interest in any business, firm, or enterprise which will either impair their independence of judgment with regard to their State duties or require or induce them to disclose confidential information gained through their State duties**.** Inquiries concerning the propriety of a DOT employee's outside business interests shall be directed to the Office of State Ethics to assure compliance with the Code of Ethics for Public Officials.

9. ***Contracts With the State***: DOT employees, their immediate family members, and/or a business with which a DOT employee is associated, may not enter into a contract with the State, other than pursuant to a court appointment, valued at $100 or more unless the contract has been awarded through an open and public process.

10. ***Sanctioning Another Person's Ethics Violation*****:** No DOT official or employee shall counsel, authorize, or otherwise sanction action that violates any provision of the Code of Ethics.

11. ***Certain Persons Have an Obligation to Report Ethics Violations:*** If the DOT Commissioner, Deputy Commissioner, or "person in charge of State agency procurement" and contracting has reasonable cause to believe that a person has violated the Code of Ethics or any law or regulation concerning ethics in State contracting, he/she *must* report such belief to the Office of State Ethics. All DOT employees are encouraged to disclose waste, fraud, abuse, and corruption about which they become aware to the appropriate authority (see also Policy Statement EX.O.-23 dated March 31, 2004), including, but not limited to, their immediate supervisor or a superior of their immediate supervisor, the DOT Office of Management Services, the Ethics Compliance Officer, the Auditors of Public Accounts, the Office of the Attorney General, or the Office of the Chief State's Attorney.

12. ***Post-State Employment Restrictions:*** In addition to the above-stated policies of the Department, DOT employees are advised that the Code of Ethics for Public Officials bars certain conduct by State employees ***after they leave State service. Upon leaving State service:***

    - ***Confidential Information***: DOT employees must never disclose or use confidential information gained in State service for the financial benefit of any person.

    - ***Prohibited Representation***: DOT employees must *never* represent anyone (other than the State) concerning any "particular matter" in which they participated personally and substantially while in State service and in which the State has a substantial interest.

      DOT employees also must not, for one year after leaving State service, represent anyone other than the State for compensation before the DOT concerning a matter in which the State has a substantial interest. In this context, the term "represent" has been very broadly defined. Therefore, any former DOT employee contemplating post-State employment work that might involve interaction with any bureau of DOT (or any Board or Commission administratively under the DOT) within

their first year after leaving State employment should contact the DOT Ethics Compliance Officer and/or the Office of State Ethics.

- ***Employment With State Vendors:*** DOT employees who participated substantially in, or supervised, the negotiation or award of a State contract valued at $50,000 or more must not accept employment with a party to the contract (other than the State) for a period of one year after resigning from State service, if the resignation occurs within one year after the contract was signed.

13. ***Ethical Considerations Concerning Bidding and State Contracts:*** DOT employees also should be aware of various provisions of Part IV of the Code of Ethics that affect any person or firm who: (1) is, or is seeking to be, prequalified by DAS under Conn. Gen. Stat. §4a-100; (2) is a party to a large State construction or procurement contract, or seeking to enter into such a contract, with a State agency; or (3) is a party to a consultant services contract, or seeking to enter into such a contract, with a State agency. These persons or firms shall not:

    - With the intent to obtain a competitive advantage over other bidders, solicit any information from an employee or official that the contractor knows is not and will not be available to other bidders for a large State construction or procurement contract that the contractor is seeking;

    - Intentionally, willfully, or with reckless disregard for the truth, charge a State agency for work not performed or goods not provided, including submitting meritless change orders in bad faith with the sole intention of increasing the contract price, as well as falsifying invoices or bills or charging unreasonable and unsubstantiated rates for services or goods to a State agency; and

    - Intentionally or willfully violate or attempt to circumvent State competitive bidding and ethics laws.

    Firms or persons that violate the above provisions may be deemed a nonresponsible bidder by the DOT.

    In addition, no person with whom a State agency has contracted to provide consulting services to plan specifications for any contract, and no business with which such person is associated, may serve as a consultant to any person seeking to obtain such contract, serve as a contractor for such contract, or serve as a subcontractor or consultant to the person awarded such contract.

    DOT employees who believe that a contractor or consultant may be in violation of any of these provisions should bring it to the attention of their manager.

Training for DOT Employees

A copy of this policy will be posted throughout the Department, and provided to each employee either in hard copy or by e-mail. As set forth above, State law requires that certain employees involved in contractor/consultant/vendor selection, evaluation, or supervision must undergo annual ethics training coordinated or provided by the Ethics Compliance Officer. If you believe your duties meet these criteria, you should notify your Bureau Chief to facilitate compilation of a training schedule. In addition, the DOT Ethics Compliance Officer can arrange for periodic ethics training provided by the Office of State Ethics. Finally, the Department will make available, on its web site or otherwise, a copy of this policy to all vendors, contractors, and other business entities doing business with the Department.

Important Ethics Reference Materials

It is strongly recommended that every DOT employee read and review the following:

- Code of Ethics for Public Officials, Chapter 10, Part 1, Conn. General Statutes Sections 1-79 through 1-89a found at: www.ct.gov/ethics/site/default.asp

- Ethics Regulations Sections 1-81-14 through 1-81-38, found at: www.ct.gov/ethics/site/default.asp

- The Office of State Ethics web site includes summaries and the full text of formal ethics advisory opinions interpreting the Code of Ethics, as well as summaries of previous enforcement actions: www.ct.gov/ethics/site/default.asp. DOT employees are strongly encouraged to contact the Department's Ethics Compliance Officer or her designee, or the Office of State Ethics with any questions or concerns they may have.

(This Policy Statement supersedes Policy Statement No. F&A-10 dated January 6, 2006)

Ralph J. Carpenter
COMMISSIONER

Attachment

List 1 and List 3
(Managers and supervisors are requested to distribute a copy of this Policy Statement to all employees under their supervision.)

cc: Office of the Governor, Department of Administrative Services, Office of State Ethics

Emp&discForm 5/07

Department of Transportation
Employment & Outside Business
Disclosure Form

In accordance with Department of Transportation (Department) Policy Statement No. F&A-10, Code of Ethics Policy, I am hereby advising the Department that in addition to my current DOT position, I have other employment and/or a direct or indirect financial interest in an outside business as follows:

1. Full name of outside employer, or entity in which I or my spouse have a financial interest (e.g., ownership or member/partner):
_____

2. Location of Employer/Entity disclosed above: _____

3. Nature of my/my spouse's relationship to employer/entity disclosed above (check at least one):
_____ Employee or Independent Contractor (circle one)
_____ Owner/Member/Partner/etc.
_____ Family Member of Owner/Member/Partner/etc.

4. State agency(ies) with which above employer/entity is doing business or seeking Business (write "N/A" if not applicable): _____

5. Job Title at Outside Employer: _____

6. Job Responsibilities at Outside Employer: _____
_____
_____

7. Current State Title: _____

8. Current State Job Responsibilities: _____
_____
_____

9. Name/Title of Current State Supervisor: _____

I understand that the filing of this Disclosure with the DOT Human Resources Administrator does not relieve me of any obligations I have to comply with the Code of Ethics for Public Officials, and does not constitute approval of my outside employment and/or financial interests under the Code of Ethics for Public Officials. *Employees engaging in outside employment are strongly urged to seek written approval of their outside employment from the Office of State Ethics, 20 Trinity Street, Hartford, CT 06106.* I also understand that if either my State or outside employment/financial interest changes in location or function I am required to notify the Department immediately.

Signed: _____ Date: _____
Printed Name: _____

ITEM #0101000A - ENVIRONMENTAL HEALTH AND SAFETY

Description:

Under this item, the Contractor shall establish protocols and provide procedures to protect the health and safety of its employees and subcontractors as related to the proposed construction activities performed within the project limits. Work under this Item consists of the development and implementation of a written HASP that addresses the relative risk of exposure to documented hazards present within the project limits. The HASP shall establish health and safety protocols that address the relative risk of exposure to regulated substances in accordance with 29 CFR 1910.120 and 29 CFR 1926.65. Such protocols shall only address those concerns directly related to site conditions.

Note: The Engineer will prepare a site-specific health and safety plan which is compatible with the Contractor's plan and will be responsible for the health and safety of all project Inspectors, Municipal employees, and consulting engineers.

Materials:

The Contractor must provide chemical protective clothing (CPC) and personal protective equipment (PPE) as stipulated in the Contractor's HASP during the performance of work in areas identified as potentially posing a risk to worker health and safety for workers employed by the Contractor and all subcontractors.

Construction Methods:

1-Existing Information: Historical investigations associated with roadway construction projects have shown consistency with finding low levels of semi-volatile organic compounds (SVOCs), extractable petroleum hydrocarbons (ETPH), pesticides, and metals within project limit soils. Soils within the project limits of Project 0066-0110 should be considered the same for health and safety purposes. Additionally, while these conditions have been typically found along roadway soils, it is hereby noted that the above-referenced contaminant list should neither be considered exhaustive nor meant to imply encountered soil contaminant concentrations will fall within a specific range. The Contractor shall utilize all available information and existing records and data pertaining to chemical and physical hazards associated with any of the regulated substances identified to develop the HASP.

2-General: The requirements set forth herein pertain to the provision of workers' health and safety as it relates to proposed Project activities when performed in the presence of hazardous or regulated materials or otherwise environmentally sensitive conditions. THE PROVISION OF WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS POSED TO CONTRACTOR EMPLOYEES IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The Contractor shall be responsible for the development, implementation and oversight of the HASP throughout the performance of work within the project limits, as identified in the Contract Documents, and in other areas identified by the Engineer or by the HASP where site conditions may pose a risk to worker health and safety and/or the environment. **No physical aspects of the work within the project limits shall begin until the HASP is reviewed by the Engineer and is determined to meet the requirements of the specifications. However, the Contract time, in accordance with Article 1.03.08, will begin on the date stipulated in the Notice to Proceed.**

3-Regulatory Requirements: All construction related activities performed by the Contractor within the project limits where site conditions may pose a risk to worker health and safety and/or the environment shall be performed in conformance with 29 CFR 1926, Safety and Health Regulations for Construction and 29 CFR 1910, Safety and Health Regulations for General Industry. Conformance to 29 CFR 1910.120, Hazardous Waste Site Operations and Emergency Response (HAZWOPER) may also be required, where appropriate.

4-Submittals: Three copies of the HASP shall be submitted to the Engineer within four (4) weeks after the Award of Contract or four (4) weeks prior to the start of any work in the project limits, whichever is first, but not before the Award of the Contract.

The HASP shall be developed by a qualified person designated by the Contractor. This qualified person shall be a Certified Industrial Hygienist (CIH), Certified Hazardous Material Manager (CHMM), or a Certified Safety Professional (CSP). He/she shall have review and approval authority over the HASP and be identified as the Health and Safety Manager (HSM). The HASP shall bear the signature of said HSM indicating that the HASP meets the minimum requirements of 29 CFR 1910.120 and 29 CFR 1926.65.

The Engineer will review the HASP within four (4) weeks of submittal and provide written comments as to deficiencies in and/or exceptions to the plan(s), if any, to assure consistency with the specifications, applicable standards, policies and practices and appropriateness given potential or known site conditions. Items identified in the HASP which do not conform to the specifications will be brought to the attention of the Contractor, and the Contractor shall revise the HASP to correct the deficiencies and resubmit it to the Engineer for determination of compliance with this item. The Contractor shall not be allowed to commence work activities within the project limits, or where site conditions exist which may pose a risk to worker health and safety and/or the environment, until the HASP has been reviewed and accepted by the Engineer. No claim for delay in the progress of work will be considered for the Contractor's failure to submit a HASP that conforms to the requirements of the Contract.

5-HASP Provisions:

(a) General Requirements: The Contractor shall prepare a HASP covering all Project site work regulated by 29 CFR 1910.120(b)/ 1926.65(b) to be performed by the Contractor and all subcontractors under this Contract. The HASP shall establish in detail, the protocols necessary for the recognition, evaluation, and control of all hazards associated with each task performed under this Contract. The HASP shall address site-specific safety and health

hazards of each phase of site operation and include the requirements and procedures for employee protection. The level of detail provided in the HASP shall be tailored to the type of work, complexity of operations to be performed, and hazards anticipated. Details about some activities may not be available when the initial HASP is prepared and submitted. Therefore, the HASP shall address, in as much detail as possible, all anticipated tasks, their related hazards and anticipated control measures.

The HASP shall interface with the Contractor's Safety and Health Program. Any portions of the Safety and Health Program that are referenced in the HASP shall be included as appendices to the HASP. All topics regulated by the 29 CFR 1910.120(b)(4) and those listed below shall be addressed in the HASP. Where the use of a specific topic is not applicable to the Project, the HASP shall include a statement to justify its omission or reduced level of detail and establish that adequate consideration was given the topic.

(b) Elements:

(i) Site Description and Contamination Characterization: The Contractor shall provide a site description and contaminant characterization in the HASP that meets the requirements of 29 CFR 1910.120/1926.65.

(ii) Safety and Health Risk Analysis/Activity Hazard Analysis: The HASP shall address the safety and health hazards on this site for every operation to be performed. The Contractor shall review existing records and data to identify potential chemical and physical hazards associated with the site and shall evaluate their impact on field operations. Sources, concentrations (if known), potential exposure pathways, and other factors as noted in CFR 1910.120/126.65, paragraph (c)(7) employed to assess risk shall be described. The Contractor shall develop and justify action levels for implementation of engineering controls and personal protective equipment upgrades and downgrades for controlling worker exposure to the identified hazards. If there is no permissible exposure limit (PEL) or published exposure level for an identified hazard, available information from other published studies may be used as guidance. Any modification of an established PEL must be fully documented.

The HASP shall include a comprehensive section that discusses the tasks and objectives of the site operations and logistics and resources required to complete each task. The hazards associated with each task shall be identified. Hazard prevention techniques, procedures and/or equipment shall be identified to mitigate each of the hazards identified.

(iii) Staff Organization, Qualifications and Responsibilities: The HASP shall include a list of personnel expected to be engaged in site activities and certify that said personnel have completed the educational requirements stipulated in 29 CFR 1910.120 and 29 CFR 1926.65, are currently monitored under a medical surveillance program in compliance with those regulations, and that they are fit for work under "level C" conditions.

The Contractor shall assign responsibilities for safety activities and procedures. An outline or flow chart of the safety chain of command shall be provided in the HASP. Qualifications, including education, experience, certifications, and training in safety and health for all personnel engaged in safety and health functions shall be documented in the HASP. Specific duties of each on-site team member should be identified. Typical team members include but are not limited to Team Leader, Scientific Advisor, Site Safety Officer, Public Information Officer, Security Officer, Record Keeper, Financial Officer, Field Team Leader, and Field Team members.

The HASP shall also include the name and qualifications of the individual proposed to serve as Health and Safety Officer (HSO). The HSO shall have full authority to carry out and ensure compliance with the HASP. The Contractor shall provide a competent HSO 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 HSO shall include completion of OSHA 40-hour HAZWOPER training and 8-hour HAZWOPER supervisory training; a minimum of one year of working experience with the regulated compounds that have been documented to exist within Project limits; 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.

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

(A) Directing and implementing the 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 (29 CFR 1926.21). All personnel shall be adequately trained in procedures outlined in the Contractor's written 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 HSM and the Engineer immediately upon the issuance of a Stop Work order when the HSO has made the determination of an imminent health and safety concern.

(E) Authorizing work to resume, upon approval from the Contractor's HSM.

(F) Directing activities, as defined in the Contractor's written HASP, during

emergency situations; and

(G) Providing personal monitoring where applicable, and as identified in the HASP.

(iv) Employee Training Assignments: The Contractor shall develop a training program to inform employees, supplier's representatives, and official visitors of the special hazards and procedures (including PPE, its uses and inspections) to control these hazards during field operations. Official visitors include but are not limited to Federal Agency Representatives, State Agency Representatives, Municipal Agency Representatives, Contractors, subcontractors, etc. This program shall be consistent with the requirements of 29 CFR 1910.120 and 29 CFR 1926.65.

(v) Personal Protective Equipment: The plan shall include the requirements and procedures for employee protection and should include a detailed section on respiratory protection. The Contractor shall describe in detail and provide appropriate personal protective equipment (PPE) to insure that workers are not exposed to levels greater than the action level for identified hazards for each operation stated for each work zone. The level of protection shall be specific for each operation and shall be in compliance with all requirements of 29 CFR 1910 and 29 CFR 1926. The Contractor shall provide, maintain, and properly dispose of all PPE.

(vi) Medical Surveillance Program: All on-site Contractor personnel engaged in 29 CFR 1910.120/1926.65 operations shall have medical examinations meeting the requirements of 29 CFR 1910.120(f) prior to commencement of work.

The HASP shall include certification of medical evaluation and clearance by the physician for each employee engaged in 29 CFR 1910.120/1926.65 operations at the site.

(vii) Exposure Monitoring/Air Sampling Program: The Contractor shall submit an Air Monitoring Plan as part of the HASP which is consistent with 29 CFR 1910.120, paragraphs (b)(4)(ii)(E), (c)(6), and (h). The Contractor shall identify specific air sampling equipment, locations, and frequencies in the air-monitoring plan. Air and exposure monitoring requirements shall be specified in the Contractor's HASP. The Contractor's CIH shall specify exposure monitoring/air sampling requirements after a careful review of the contaminants of concern and planned site activities.

(viii) Site Layout and Control: The HASP shall include a map, work zone delineation (support, contamination, reduction and exclusion), on/off-site communications, site access controls, and security (physical and procedural).

(ix) Communications: Written procedures for routine and emergency communications procedures shall be included in the Contractor's HASP.

(x) Personal Hygiene, Personal Decontamination and Equipment Decontamination: Decontamination facilities and procedures for personnel protective equipment, sampling equipment, and heavy equipment shall be discussed in detail in the HASP.

(xi) Emergency Equipment and First Aid Requirements: The Contractor shall provide appropriate emergency first aid kits and equipment suitable to treat exposure to the hazards identified, including chemical agents. The Contractor will provide personnel that have certified first aid/CPR training on-site at all times during site operations.

(xii) Emergency Response Plan and Spill Containment Program: The Contractor shall establish procedures in order to take emergency action in the event of immediate hazards (i.e., a chemical agent leak or spill, fire or personal injury). Personnel and facilities supplying support in emergency procedures will be identified. The emergency equipment to be present on-site and the Emergency Response Plan procedures, as required 29 CFR 1910.120, paragraph (1)(1)(ii) shall be specified in the Emergency Response Plan. The Emergency Response Plan shall be included as part of the HASP. This Emergency Response Plan shall include written directions to the closest hospital as well as a map showing the route to the hospital.

(xiii) Logs, Reports and Record Keeping: The Contractor shall maintain safety inspections, logs, and reports, accident/incident reports, medical certifications, training logs, monitoring results, etc. All exposure and medical monitoring records are to be maintained according to 29 CFR 1910 and 29 CFR 1926. The format of these logs and reports shall be developed by the Contractor to include training logs, daily logs, weekly reports, safety meetings, medical surveillance records, and a phase-out report. These logs, records, and reports shall be maintained by the Contractor and be made available to the Engineer.

The Contractor shall immediately notify the Engineer of any accident/ incident. Within two working days of any reportable accident, the Contractor shall complete and submit to the Engineer an accident report.

(xiv) Confined space entry procedures: Confined space entry procedures, both permit required and non permit required, shall be discussed in detail.

(xv) Pre-entry briefings: The HASP shall provide for pre-entry briefings to be held prior to initiating any site activity and at such other times as necessary to ensure that employees are apprised of the HASP and that this plan in being followed.
(xvi) Inspections/audits: The HSM or HSO shall conduct Inspections or audits to determine the effectiveness of the HASP. The Contractor shall correct any deficiencies in the effectiveness of the HASP.

6-HASP Implementation: The Contractor shall implement and maintain the HASP throughout the performance of work. In areas identified as having a potential risk to worker health and safety, and in any other areas deemed appropriate by the HSO, the Contractor shall be prepared to

immediately implement the appropriate health and safety measures, including but not limited to the use of personal protective equipment (PPE), and engineering and administrative controls.

If the Engineer observes deficiencies in the Contractor's operations with respect to the HASP, they shall be assembled in a written field directive and given to the Contractor. The Contractor shall immediately correct the deficiencies and respond, in writing, as to how each was corrected. Failure to bring the work area(s) and implementation procedures into compliance will result in a Stop Work Order and a written directive to discuss an appropriate resolution(s) to the matter. When the Contractor demonstrates compliance, the Engineer shall remove the Stop Work Order. If a Stop Work Order has been issued for cause, no delay claims on the part of the Contractor will be honored.

Disposable CPC/PPE, i.e. disposable coveralls, gloves, etc., which come in direct contact with hazardous or potentially hazardous material shall be placed into 55-gallon USDOT 17-H drums and disposed of in accordance with Federal, State, and local regulations. The drums shall be temporarily staged and secured within the WSA until the material is appropriately disposed.

7-HASP Revisions: The HASP shall be maintained on-site by the Contractor and shall be kept current with construction activities and site conditions under this Contract. The HASP shall be recognized as a flexible document which shall be subject to revisions and amendments, as required, in response to actual site conditions, changes in work methods and/or alterations in the relative risk present. All changes and modifications shall be signed by the Contractor's HSM and shall require the review and acceptance by the Engineer prior to the implementation of such changes.

Should any unforeseen hazard become evident during the performance of the work, the HSO shall bring such hazard to the attention of the Contractor and the Engineer as soon as possible. In the interim, the Contractor shall take action, including Stop Work Orders and/or upgrading PPE as necessary to re-establish and maintain safe working conditions and to safeguard on-site personnel, visitors, the public and the environment. The HASP shall then be revised/amended to reflect the changed condition.

Method of Measurement:

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

(a) The development costs associated with preparing the HASP in accordance with these Specifications.
(b) The cost per month for the duration of the Project to implement the HASP and provide the services of the HSM and the HSO.

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

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

(a) The lump sum development cost will be certified for payment.

(b) The Contractor shall demonstrate to the Engineer monthly that the HASP has been kept current and is being implemented and the monthly cost will be certified for payment.

(c) Any month where the HASP is found not to be current or is not implemented, the monthly payment for the Environmental Health and Safety Item shall be deferred to the next monthly payment estimate. If the HASP is not current or being implemented for more than thirty calendar days, there will be no monthly payment.

(d) Failure of the Contractor to implement the HASP in accordance with this Specification shall result in the withholding of all Contract payments.

Basis of Payment:

This work will be paid for at the Contract lump sum price for "Environmental Health and Safety" which price shall include all materials, tools, equipment and labor incidental to the completion of this item for the duration of the Project to maintain, revise, monitor and implement the HASP. Such costs include providing the services of the HSM and HSO, Contractor employee training, chemical protective clothing (CPC), personal protective equipment (PPE), disposal of PPE and CPC, medical surveillance, decontamination facilities, engineering controls, monitoring and all other HASP protocols and procedures established to protect the Health and Safety for all on-site workers.

Pay Item	Pay Unit
Environmental Health and Safety	L.S.

ITEM #0101128A - SECURING, CONSTRUCTION AND DISMANTLING OF A WASTE STOCKPILE AND TREATMENT AREA

Description:

Work under this Item shall consist of the securing, construction and dismantling of a temporary Waste Stockpile Area (WSA) at a location to be determined by the Contractor and approved by the Engineer prior to Project commencement. All surplus soils (Controlled Materials) excavated during construction activities shall be stockpiled in the WSA. The WSA is to be used exclusively for temporary stockpiling of surplus excavated soils from the Project limits for determination of disposal classification.

Materials:

The required materials are detailed on the Project Plans. All materials shall conform to the requirements of the Contract.

Construction blocks shall be solid precast rectangular concrete six feet in length, three in height, and two feet in depth.

Polyethylene plastic sheeting for underlayment shall be a thickness of 30 mil and minimum width of ten feet.

Sand bags used to secure polyethylene sheeting soil covers shall have a minimum weight of thirty pounds.

Bedding sand shall conform to Article M.08.03 of the Specifications.

Processed Aggregate Base shall conform to Section 3.04 of the Specifications.

Hay bales shall conform to the requirements of Section 2.18 of the Specifications.

Bituminous Concrete shall conform to Section 4.06 of the Specifications.

Roll-off/Storage Containers shall be of watertight, steel-body construction, of the size specified and able to handle the storage and subsequent transportation of material to the disposal facility.

Temporary Precast Concrete Barrier Curb shall conform to Section 8.22 of the Specifications.

Construction Methods:

Construction of the WSA shall be completed prior to the initiation of construction activities generating Controlled Materials. The Contractor is responsible for the maintenance and

protection of all utilities potentially affected during WSA construction. The Contractor shall locate and mark all existing utilities potentially affected prior to initiating WSA construction.

The proposed location of the WSA shall be cleared of any debris and vegetation as directed by the Engineer. Any objectionable materials, which may result in damage to the polyethylene sheeting underlayment, shall be removed prior to stockpiling excavated controlled materials.

The Contractor shall comply with the terms and conditions of the DEEP "General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)", including the General Operating Conditions and the Specific Operating Conditions, except that the Engineer will conduct all soil/sediment characterization and perform all record keeping. In particular, the Contractor shall:

1. Construct and repair the WSA in conformance with the requirements of the General Permit.
2. Prevent unauthorized entry onto the stockpiles by the use of fences, gates, or other natural or artificial barriers.
3. Install anti-tracking measures at the WSA to ensure the vehicles do not track soil from the WSA onto a public roadway at any time.
4. Post and maintain a sign that is visible from a distance of at least 25' at the WSA identifying the name of the permittee (Municipality), the Municipality field office phone number, the hours of operation for the WSA, and the phrase, "Temporary Soil Staging Area". Lettering shall be at least one inch (1") high with a minimum overall sign dimension of four (4) feet wide by two (2) feet high. Such sign is only required if the capacity of the WSA is equal to or greater than 1,000 cubic yards. If initially the WSA capacity is less than 1,000 c.y. and the WSA capacity is subsequently increased, the Contractor shall post and maintain the required sign at no additional cost to the Municipality, prior to stockpiling the additional material.

Following the removal of all stockpiled material, the Contractor shall use dry decontamination procedures for all surfaces of the WSA as directed by the Engineer. Residual materials shall be disposed of as Controlled Materials. If the results from dry methods are unsatisfactory to the Engineer, the Contractor shall modify decontamination procedures as required.

The Contractor shall be responsible for the collection and treatment/recycling/disposal of any liquid wastes that may be generated by its decontamination activities in accordance with applicable regulations.

Upon completion of the Project and following removal of all residual Controlled Materials, the Contractor shall dismantle the WSA and return the area to original condition. During dismantling, the Contractor shall remove all materials such as polyethylene sheeting and sand bags. Materials shall be disposed of by the Contractor as solid waste in accordance with the Contract and all Federal, State and local regulations.

Operation and maintenance of the WSA shall be included under Item #0202315A – Disposal of Controlled Materials.

Method of Measurement:

This work will be measured for payment at the Lump Sum cost for securing, construction, and dismantling of a WSA.

Basis of Payment:

The work for Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area will be paid for at the Contract Lump Sum price, which shall include all materials, tools, labor, equipment, permits, and work needed to secure, construct, decontaminate and dismantle the WSA, including all clearing, grubbing, grading, clean up, site restoration and seeding.

All materials, labor and equipment associated with compliance with the General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer) will not be measured separately but will be considered incidental to the item "Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area".

Pay Item	Pay Unit
Securing, Construction and Dismantling Of a Waste Stockpile and Treatment Area	L.S.

ITEM #0202216A – EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL

Description: This work shall consist of excavating existing channel bottom material, herein referred to as natural streambed material, in areas where the channel bottom is to be disturbed and regraded to create a work area for a bridge, culvert, articulated concrete block placement, cofferdam installation, as shown on the plans or as directed by the Engineer. This item shall also include the stockpiling and protecting of the excavated material on-Site, subsequent placement, top dressing, or backfilling of the excavated stockpiled material within the watercourse, as shown on the plans or as directed by the Engineer.

Materials: The material for this item shall consist of the existing naturally formed rocks, cobbles, gravel, soils and clean natural sediments from within the channel.

Any material excavated from shale, ledge (bedrock) formations broken from larger boulders, or material with sharp acute edges will not be accepted. Broken concrete will not be accepted.

Geotextile: Geotextile shall be as specified in M.08.01-19 Geotextiles.

Construction Methods:

1. Stockpiling of Material. The Contractor shall submit for the Engineer's approval a proposed location for stockpiling material. The proposed location shall be upland where disruption to the stream channel or impact to wetland areas caused by moving the natural streambed material to and from the stockpile are minimized. The Contractor shall prepare the area approved by the Engineer, suitable in size and location for stockpiling the natural streambed material.

The stockpile shall be located where it can remain undisturbed for the duration of the stream channel reconstruction or as shown on the plans and shall be protected using sedimentation control measures. The stockpile area shall be free of debris and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of a separation barrier such as: Geotextile – (Separation Class 1), polyethylene sheeting, or similar. The stockpile area shall be adequately covered to protect the excavated natural streambed material from erosion by rain, wind, or other forces.

2. Excavation of Natural Streambed Material. The Contractor shall notify the Engineer 10 days in advance of excavation and placement of natural streambed material activities. The Engineer will identify the limits of the exposed natural streambed material during excavation under this item. The Engineer will identify the bottom limit of excavation, an amount up to but not exceeding 24 inches in depth, unless approved by the Engineer or their authorized delegate, based upon visual inspection of the natural streambed material. After the limits of excavation have been determined, the Contractor shall excavate the natural streambed material, separate from any other roadway, structure, channel or unsuitable material excavation on Site. After the natural streambed material has been excavated, it shall be placed in the pre-approved stockpile area.

3. Backfilling and Placement with Natural Streambed Material. The stockpiled natural streambed material shall be placed as fill material as specified at the designated location(s) to the required thickness and elevation as shown on the plans or as directed by the Engineer or their authorized delegate. Placement methods likely to cause segregation of the various sizes of stone will not be permitted. Placement techniques shall prevent integration with non-natural streambed material and shall keep the natural streambed material relatively homogenous. The natural streambed material shall be placed in a manner that replicates the original condition of the channel prior to excavation and to the elevation as shown on the plans.

4. Top Dressing with Natural Streambed Material. The stockpiled natural streambed material shall be used as top dressing over riprap or other material as specified at the designated location(s) to the required thickness and elevation as shown on the plans or as directed by the Engineer or their authorized delegate. Placement techniques shall prevent integration with the non-natural streambed material and shall keep the natural streambed material relatively homogenous. The natural streambed material shall be placed in a manner that replicates the original condition of the channel prior to excavation and to the elevation as shown on the plans.

5. Site Maintenance. When backfilling, placing, or top dressing, the Contractor shall perform all containment, diversion, or other separation of the channel flow to minimize sediment transport downstream.

The disposal of any surplus and/or unsuitable material shall be in accordance with Article 1.09.04.

If the Engineer determines that there is an insufficient quantity of natural streambed material within the Project limits, the Contractor shall procure Supplemental Streambed Channel Material as specified under Item #0202217A.

If it is required for the Project to have washing-in of supplemental streambed material, the Contractor shall procure Washing-in Supplemental Streambed Material as specified under Item #0202218A.

The pre-approved stockpile areas shall be restored to the satisfaction of the Engineer. Work to restore/regrade stockpile areas will be paid for under the respective pay item(s).

Method of Measurement: This work will be measured for payment by the number of cubic yards of natural streambed material excavated, stockpiled, maintained, installed, and accepted.

The Engineer will delineate the horizontal pay limit prior to the start of excavation. The vertical pay limit will be measured from the top of the existing channel bottom to the bottom of excavation required specifically for the stockpiling of channel bottom material.

Any material excavated beyond the approved horizontal pay limits or deeper than the depth of natural streambed material identified and approved by the Engineer will not be measured for payment under this item. Should such additional excavation be required to complete the Contract work, it will be measured for payment separately under the applicable pay item(s).

Basis of Payment: Payment for this work will be made at the Contract unit price per cubic yard for "Excavation and Reuse of Existing Channel Bottom Material." The price shall include all materials, equipment, geotextile, tools, and labor incidental to the preparation of the stockpile area, excavation of natural streambed material, hauling of the material to the stockpile, and separation of any rock ledge or concrete debris, storing, and protecting (including sedimentation controls and covering) excavated material.

Payment for clearing and grubbing of the approved stockpile area will be included in the item "Clearing and Grubbing."

Payment for the removal and proper disposal of all surplus and/or unsuitable material will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Riprap or other specified material as shown on the plan will be paid for under the respective items.

Payment for supplemental streambed channel material will be included in the Item #0202217A "Supplemental Streambed Channel Material." If no item appears in the proposal, payment for the work will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Payment for washing in supplemental streambed channel material will be included in the Item #0202218A "Washing-in Supplemental Streambed Material." If no item appears in the proposal, payment for the work will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Payment for all containment, diversion or other separation of stream flow will be included in the item "Cofferdam and Dewatering" or special provision for "Handling Water."

Pay Item	Pay Unit
Excavation and Reuse of Existing Channel Bottom Material	c.y.

ITEM #0202217A – SUPPLEMENTAL STREAMBED CHANNEL MATERIAL

Description: This work shall consist of procuring, transporting, and placing supplemental streambed channel material, herein referred to as supplemental streambed material, meeting the visual inspection requirements herein, along stream bank/channel improvement locations as shown on the plans or denoted on the Project's permit applications. This item shall also include any necessary temporary protection and stockpiling of the supplemental streambed material on–Site, subsequent placement, top dressing, or backfilling of the supplemental streambed material within the watercourse, as shown on the plans or as directed by the Engineer.

Materials: When a sufficient quantity of material is not available from the existing streambed channel for placement, top dressing, or backfilling within the permitted footprint of the stream bank/channel improvement locations, the Contractor shall furnish supplemental streambed material from an off-Site source. Supplemental streambed material must be visually inspected and accepted by the Engineer or their authorized delegate prior to being delivered to the Site. The Contractor shall notify the Engineer at least 10 working days in advance of the need for inspection of proposed off-Site material.

The supplemental streambed material for this item shall be consistent with the existing naturally-formed cobbles and rocks, gravel, and clean natural sediments found within the existing channel. Rock excavated from shale, ledge (bedrock) formations broken from larger boulders, broken concrete or angular material, or material with sharp acute edges will not be accepted.

Geotextile: Geotextile shall be as specified in M.08.01-19 Geotextiles.

Construction Methods:

1. Stockpiling of Material. At the start of construction, the Contractor shall prepare an area, approved by the Engineer, suitable in size and location for stockpiling the supplemental streambed material. The Contractor shall select an upland location where disruption to the stream channel or impact to wetland areas caused by moving the supplemental streambed material to and from the stockpile are minimized during the placement of material. The stockpile shall be located where it can remain undisturbed for the duration of the stream channel construction and shall be protected using sedimentation control measures.

The stockpile area shall be free of debris and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of Geotextile – (Separation Class 1), or similar, if required. The stockpile area shall be adequately covered to protect the supplemental streambed channel material from erosion by rain or other forces. After supplemental streambed material and existing natural streambed material have been placed in the stockpile areas, no other excavated or off-Site material shall be placed in the stockpiles.

2. Backfilling and Placement with Supplemental Streambed Material. The stockpiled supplemental streambed material shall be placed as fill material as specified at the designated location(s) to the required thickness and elevation as shown on the plans or as directed by the

Engineer or their authorized delegate. Placing this material by methods likely to cause segregation of the various sizes of stone will not be permitted. Placement techniques shall prevent integration with non-natural streambed material and shall keep the streambed material relatively homogenous. The streambed material shall be placed in a manner that replicates the original condition of the channel prior to excavation and to the elevation as shown on the plans.

3. Top Dressing with Supplemental Streambed Material. The stockpiled supplemental streambed material shall be used as top dressing over riprap or other material as specified at the designated location(s) to the required thickness and elevation as shown on the plans or as directed by the Engineer or their authorized delegate. Placement techniques shall prevent integration with the non-natural streambed material and shall keep the streambed material relatively homogenous. The streambed material shall be placed in a manner that replicates the original condition of the channel prior to excavation and to the elevation as shown on the plans.

4. Site Maintenance. When placing, backfilling, or top dressing streambed material, the Contractor shall perform all containment, diversion, or other separation of the channel flow to minimize sediment transport downstream.

If it is required for the Project to have washing-in of supplemental streambed material, the Contractor shall procure Washing-in Supplemental Streambed Material as specified under Item #0202218A.

The pre-approved stockpile areas shall be restored to the satisfaction of the Engineer. Work to restore/regrade stockpile areas will be paid for under the respective pay item(s).

Method of Measurement: Work under this item will be measured for payment as provided under Article 1.09.04 – Extra and Cost-Plus Work.

The sum of money shown on the estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount bid for the Contract.

Basis of Payment: Payment for "Supplemental Streambed Material" shall include all materials, equipment, geotextile, tools, and labor incidental to the preparation of the stockpile area, hauling of the material to the stockpile, placement of supplemental streambed material, and separation of any rock ledge or concrete debris, storing, and protecting (including sedimentation controls and covering) excavated material.

Payment will be as specified under Article 1.09.04 – Extra and Cost-Plus Work.

Payment for clearing and grubbing of the approved stockpile area will be included in the item "Clearing and Grubbing."

Payment for excavation and reuse of existing channel bottom material will be included in the Item #0202216A “Excavation and Reuse of Existing Channel Bottom Material.”

Payment for washing in supplemental streambed material will be included in the Item #0202218A “Washing-in Supplemental Streambed Material.” If no item appears in the proposal, the work will be in accordance with Article 1.09.04 – Extra and Cost-Plus Work.

Payment for all containment, diversion or other separation of stream flow will be included in the item “Cofferdam and Dewatering” or special provision for "Handling Water."

Pay Item	Pay Unit
Supplemental Streambed Channel Material	est.

ITEM #0202218A – WASHING-IN SUPPLEMENTAL STREAMBED MATERIAL

Description: This work shall consist of procuring, transporting, stockpiling, and washing in of supplemental streambed material, meeting the visual inspection requirements herein, along stream bank/channel improvement locations as shown on the plans or denoted on the Project's permit applications or as directed by the Engineer. This item shall also include any necessary temporary protection and stockpiling of the washing-in supplemental streambed material on–Site and subsequent washing in of supplemental streambed material for filling voids of riprap areas within the watercourse, as shown on the plans or as directed by the Engineer.

Materials: When washing in of supplemental streambed material is required, the Contractor shall furnish the washing-in supplemental streambed material from an off-Site source. The supplemental streambed material for washing in must be visually inspected and accepted by the Engineer or their authorized delegate prior to being delivered to the Site. The Contractor shall notify the Engineer at least 10 working days in advance of the need for inspection of proposed off-Site material.

Geotextile: Geotextile shall be as specified in M.08.01-19 Geotextiles.

Construction Methods:

1. Stockpiling of Material. At the start of construction, the Contractor shall prepare an area, approved by the Engineer, suitable in size and location for stockpiling the supplemental streambed material for washing in. The Contractor shall select an upland location where disruption to the stream channel or impact to wetland areas caused by moving the supplemental streambed material to and from the stockpile are minimized during the placement of material. The stockpile shall be located where it can remain undisturbed for the duration of the stream channel construction and shall be protected using sedimentation control measures. The stockpile of streambed material for washing in shall be kept separate from other streambed material stockpile areas.

The stockpile area shall be free of debris and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of Geotextile – (Separation Class 1), or similar, if required. The stockpile area shall be adequately covered to protect the supplemental streambed material from erosion by rain or other forces. After supplemental streambed material for washing in has been placed in the stockpile area, no other excavated or off-Site material shall be placed in the stockpiles.

2. Washing-in Supplemental Streambed Material. If it is specified on the plans that washing-in supplemental streambed material for filling voids between riprap, or other material, is required, the Contractor must submit a Washing-In Supplemental Streambed Material Plan (SMP) for the Engineer's acceptance. The SMP shall include the following:

1) Provide a plan and section identifying the completed installation and preparation of riprap area to receive streambed material as shown on the plans or as directed by the Engineer or their authorized delegate.
2) Provide means and methods for washing in the supplemental streambed material. Means and methods shall include:
   a. Equipment used to place material.
   b. Washing in of material is to be done manually. Water from the watercourse shall be used to wash in the streambed material into the voided areas between the riprap or other material as specified on the plans. Washing in should be done carefully and at a controlled flow rate/velocity (approximately 4.0 gpm) to not cause erosion of adjacent erodible soils or cause turbid effluent to flow out of the riprap-filled area.
   c. Provide a Catalogue Cut of type and size of pump and hose proposed to be used.
   d. Measures to prevent turbidity from the work area. The Contractor may dewater the areas as defined under Article 2.04 Cofferdam and Dewatering or Item Handling Water.
3) Show calculations of estimated quantity of streambed material needed to wash in and fill riprap voids. The ratio of natural streambed material to riprap shall be approximately 1:3 (assuming 30% voids in the riprap).

Method for washing in supplemental streambed material:

Pre-blending riprap with the supplemental streambed material is prohibited. Placement and washing in of supplemental streambed material shall occur after all the riprap has been installed and shaped to final dimensions and grade as shown on the plans or as directed by the Engineer. Placement and washing in of supplemental streambed material must occur within a confined area.

1) Initially place approximately 12-inch lift of the washing-in streambed material over the riprap. Manually hand shovel/rake to assist with placing the streambed material into the riprap voids prior to washing in the streambed material.
2) Begin to manually wash the streambed material into the voids, slowly add more washing-in streambed material on top, in a manner to prevent turbid effluent flow from exiting the work area.
3) If turbidity is observed discharging from the confined work area, cease operations immediately and implement preventative measures as outlined in the approved SMP, until the water level subsides and naturally permeates. Continually observe the confined work area.
4) The Contractor may be allowed to move to different area(s) and continue the washing in process, as noted in Steps 1-3 above, if other locations need the water levels to subside and permeate. (It may be necessary to stop temporarily if the rate of water application exceeds the storage capacity and natural infiltration of the riprap area.)

5) The Contractor shall continue until all voids are filled with streambed material to the satisfaction of the Engineer or their authorized delegate. The ratio of streambed material to riprap shall be approximately 1:3 (assuming 30% voids in the riprap). This ratio should be considered as a guideline in deciding whether riprap voids are likely to be filled. If the calculated volume of streambed material based on 30% void space has not been washed in, it should be assumed that the voids are not fully filled.
6) Partially remove water-handling-cofferdams or cofferdams to allow watercourse to flow through the area in a controlled manner. Observe watercourse over a period of time; should the water flow go under the surface through the recently created riprap area, reinstall water-handling-cofferdams and continue washing streambed material into riprap voids. Repeat this process as necessary until subsurface flow is no longer observed.

The Contractor may propose alternative methods to meet the requirements noted above. The means and methods will be reviewed by the Engineer or their authorized delegate for acceptance.

3. Site Maintenance. When washing in supplemental streambed material, the Contractor shall perform all containment, diversion, or other separation of the channel flow to minimize sediment transport downstream.

The pre-approved stockpile areas shall be restored to the satisfaction of the Engineer. Work to restore the stockpile areas shall be paid for under the respective pay item.

Method of Measurement: Work under this item shall be measured for payment as provided under Article 1.09.04 – Extra and Cost-Plus Work.

The sum of money shown on the estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded, and the original price will be used to determine the total amount bid for the Contract.

Basis of Payment: The price shall include all materials, equipment, geotextile, pumps, hoses, tools, and labor incidental to the preparation of the stockpile area, hauling of the material to the stockpile, placement and washing-in supplemental streambed material to fill riprap voids, and separation of any rock ledge or concrete debris, storing, and protecting (including but not limited to sedimentation controls and covering of excavated material).

Payment for Washing-in Supplemental Streambed Material will be paid for under Article 1.09.04 – Extra and Cost-Plus Work.

Payment for clearing and grubbing of the approved stockpile area will be included in the Item "Clearing and Grubbing."

Payment for excavation and reuse of existing channel bottom material will be included in the ITEM #0202216A “Excavation and Reuse of Existing Channel Bottom Material.”

Payment for supplemental streambed channel material, other than washing-in streambed material, will be included in the Item #0202217A “Supplemental Streambed Channel Material.”

Payment for all containment, diversion or other separation of stream flow will be included in the item “Cofferdam and Dewatering” or special provision for "Handling Water."

Pay Item	Pay Unit
Washing-in Supplemental Streambed Material	est.

ITEM #0202315A - DISPOSAL OF CONTROLLED MATERIALS

Description:

Work under this item shall include all materials, equipment, tools, and labor required to perform the following:

(1) Loading and transportation of surplus soils (Controlled Materials) excavated from the Project limits to the designated temporary Waste Stockpile Area (WSA);

(2) Stockpiling, covering, securing, and maintaining Controlled Materials transported to the WSA throughout the duration of the Project;

(3) Maintaining the WSA throughout the duration of the Project; and

(4) Loading, transportation, and disposal of Controlled Materials to a Municipality-approved treatment, recycling, or disposal facility for final off-site disposal/ recycling/treatment.

An estimated 883 cubic yards (CY) of soil have been designated as surplus and are therefore considered Controlled Materials for the Project.

Project soils are assumed to be contaminated with regulated substances at non-hazardous levels. Further information regarding anticipated soil conditions is noted in the "Notice to Contractor – Environmental Investigations." It is noted that actual levels found during construction may vary and such variations will not be considered a change in condition provided the Controlled Materials can still be disposed as non-hazardous at one or more of the disposal facilities listed herein. Worker health and safety protocols that address potential risks of exposure to site-specific hazards shall be incorporated in the site-specific Health and Safety Plan.

The Contractor must use one or more of the following Municipality-approved treatment/recycle/ disposal facilities for the disposal of <u>non-hazardous</u> materials:

Advanced Disposal Services Greentree Landfill 635 Toby Road Kersey, PA 15846 (814) 265-1744; Tony LaBenne	Allied Waste Niagara Falls Landfill, LLC 5600 Niagara Falls Boulevard Niagara, NY 14304 (716) 285-3344; David Hanson
Clean Earth of Carteret 24 Middlesex Avenue Carteret, NJ 07008 (732) 541-8909; Cheryl Coffee	Clean Earth of Connecticut (Formerly Phoenix Soil, LLC) 58 North Washington Street Plainville, CT 06062 (860) 747-8888; Dave Green

Clean Earth of Southeast Pennsylvania, Inc. 7 Steel Road Morrisville, PA 19067 (215) 428-1700; Joe Siravo	Clean Earth of Philadelphia, Inc. 3201 S. 61 Street Philadelphia, PA 19153 (215) 724-5520; Mike Kelly
Clinton Landfill 242 Church Street Clinton, MA 01510 (978) 365-4110; Chris McGown	Colonie Landfill Waste Connections, Inc. 1319 Louden Road Cohoes, NY 12047 (518) 786-7331; Eric Morales
Coplay Aggregates Regulated Fill Site 5101 Beekmantown Road Whitehall, PA 18052 (610) 262-3804; Brian Hilliard	ESMI of New York, LLC 304 Towpath Road Fort Edward, NY 12828 (518) 747-5500; Peter Hansen
ESMI of New Hampshire, LLC 67 International Drive Louden, NH 03307 (603) 783-0228; Steve Bennitt	Hazelton Creek Properties, LLC* 280 South Church Street Hazelton, PA 18201 (570) 207-2000; Allen Swantek
Manchester Landfill 311 Olcott Street Manchester, CT 06040 (860) 647-3248; Brooks Parker	Ontario County Landfill 3555 Post Farm Road Stanley, NY 14561 (603) 235-3597; Scott Sampson
Red Technologies Soil 232 Airline Avenue Portland, CT 06980 (860) 342-1022; Christopher Wingdale	Republic Services Conestoga Landfill 420 Quarry Road Morgantown, PA 19543 (717) 246-4640; James Kuhn
Soil Safe, Inc. 378 Route 130 Logan Township Bridgeport, NJ 08085	Rhode Island Resource Recovery Corporation 65 Shun Pike Johnston, RI 02919
Ted Ondrick Company, LLC 58 Industrial Road Chicopee, MA 01020 (413) 592-2565; Alan Desrosiers	Turnkey Landfill - Waste Management of NH; TLR III Refuse Disposal Facility 90 Rochester Neck Road P.O. Box 7065 Rochester, NY 03839
The Southbridge Recycling and Disposal Park 165 Barefoot Road Southbridge, MA 01550 (508) 765-9723; Tracey Markham	Waste Management RCI Fitchburg Landfill Fitchburg Princeton Road Westminster, MA 01473 (974) 355-6821; Frank Sepiol

Tunnel Hill Reclamation 2500 Township Road 205 Route 2 New Lexington, OH 43764 (914) 713-0203; William Gay	

* Note: each bin will require an additional 10 days (or more) for PADEP to review analytical data and approve material for disposal prior to facility acceptance of material. This is in addition to all other restrictions and wait periods defined below.

The above list contains treatment/recycle/disposal facilities which can accept the waste stream generated by the project in quantities that may be limited by their permits and their operations restrictions. It is the responsibility of the contractor to verify that a facility will be available and capable of handling the volume as well as the chemical and physical characteristics of material generated by the project.

Construction Methods:

A. Material Disposal

The Engineer will sample materials stored at the WSA at a frequency established by the selected treatment/recycling/disposal facilities. The Contractor shall designate to the Engineer which facility it intends to use, as well as the facility acceptance criteria and sampling frequency, prior to samples being taken. The Contractor is hereby notified that laboratory turnaround time is expected to be fifteen (15) working days. Turnaround time is the period of time beginning when the Contractor notifies the Engineer which facility it intends to use and that the bin within the WSA is full and ready for sampling and ending with the Contractor's receipt of the laboratory analytical results. Any change of intended treatment/recycling/disposal facility may prompt the need to resample and will therefore restart the time required for laboratory turnaround. The laboratory will furnish such results to the Engineer. Upon receipt, the Engineer will make available to the Contractor the results of the final waste characterization determinations. **No delay claim will be considered based upon the Contractor's failure to accommodate the laboratory turnaround time as identified above.**

The Contractor shall obtain and complete all paperwork necessary to arrange for material disposal (such as disposal facility waste profile sheets). It is solely the Contractor's responsibility to co-ordinate the disposal of controlled 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 selected 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.**

Any material processing (including but not limited to the removal of woody debris, scrap metal, pressure-treated and untreated wood timber, large stone, concrete, polyethylene sheeting or similar

material) required by the Contractor's selected facility will be completed by the Contractor prior to the material leaving the site. It is solely the Contractor's responsibility to meet any such requirements of its facility. Any materials removed shall be disposed of or recycled in a manner acceptable to the Engineer at no additional cost. If creosote treated timbers are removed, they will be disposed of under the item "Disposal of Contaminated Timber Piles", "Disposal of Contaminated Railroad Ties" or in accordance with Article 1.04.05 in the absence of such items.

All manifests or bills of lading utilized to accompany the transportation of the material shall be prepared by the Contractor and signed by an authorized Municipality representative, as Generator, for each truck load of material that leaves the site. The Contractor shall forward the appropriate original copies of all manifests or bills of lading to the Engineer the same day the material leaves the Project.

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

B. Material Transportation

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 controlled materials off-site:

- Transported Controlled Materials are to be covered sufficiently to preclude the loss of material during transport prior to leaving the site and are to remain covered until the arrival at the selected treatment/recycling/disposal facility.

- 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.

- No materials shall leave the site unless a treatment/recycling/disposal facility willing to accept all of the material being transported has agreed to accept the type and quantity of waste.

C. Equipment Decontamination

All equipment shall be provided to the work site free of gross contamination. The Engineer may prohibit from the site any equipment that in his opinion has not been thoroughly decontaminated prior to arrival. Any decontamination of the Contractor's equipment prior to arrival at the site shall be at the expense of the Contractor. The Contractor is prohibited from decontaminating equipment on the Project that has not been thoroughly decontaminated prior to arrival.

The Contractor shall furnish labor, materials, tools and equipment for decontamination of all equipment and supplies that are used to handle Controlled Materials. Decontamination shall be conducted at an area designated by the Engineer and shall be required prior to equipment and

supplies leaving the Project, between stages of the work, and between work in different areas within the Project limits.

The Contractor shall use dry decontamination procedures. Residuals from dry decontamination activities shall be collected and managed as Controlled Materials. If the results from dry methods are unsatisfactory to the Engineer, the Contractor shall modify decontamination procedures as required.

Following the removal of all stockpiled Controlled Materials from the WSA, residuals shall be removed from surfaces as directed by the Engineer. This operation shall be accomplished using dry methods such as shovels, brooms, mechanical sweepers or a combination thereof. Residuals shall be disposed of as Controlled Materials. If the results from dry methods are unsatisfactory to the Engineer, the Contractor shall modify decontamination procedures as required.

The Contractor shall be responsible for the collection and treatment/recycling/disposal of any liquid wastes that may be generated by its decontamination activities in accordance with applicable regulations.

Method of Measurement:

The work of "DISPOSAL OF CONTROLLED MATERIALS" will be measured for payment as the actual net weight in tons of material delivered to the treatment/recycling/disposal facility. Such determinations shall be made by measuring each hauling vehicle on the certified permanent scales at the treatment/recycling/disposal facility. Total weight will be the summation of weight bills issued by the facility specific to this Project. Excess excavations made by the Contractor beyond the payment limits specified in Specification Sections 2.02, 2.03, 2.06, and 2.86, or the Contract Special Provisions (as appropriate) will not be measured for payment and the Contractor assumes responsibility for all costs associated with the appropriate handling, management and disposal of this material.

Equipment decontamination, the collection of residuals, and the collection and disposal of liquids generated during equipment decontamination activities will not be measured separately for payment.

Any material processing required by the Contractor-selected disposal facility, including the proper disposal of all removed materials other than creosote treated wood, will not be measured for payment.

Basis of Payment:

This work will be paid for at the Contract unit price, which shall include the loading and transportation of surplus soils (Controlled Materials) to the WSA; stockpiling, covering, securing, and maintaining Controlled Materials in the WSA; maintaining the WSA; loading and transportation of Controlled Materials from the WSA to the treatment/recycling/disposal facility; any fees paid to the facility for treatment/recycling/ disposal; preparation of all related paperwork;

and all equipment, materials, tools, and labor incidental to this work. **This unit price will be applicable to all of the listed disposal facilities and will not change for the duration of the Project.**

This price shall also include equipment decontamination; the collection of residuals generated during decontamination and placement of such material in the WSA; and the collection and disposal of any liquids generated during equipment decontamination activities.

Pay Item	Pay Unit
Disposal of Controlled Materials	Ton

ITEM #0204151A - HANDLING WATER

Description: Work under this item shall consist of designing, furnishing, installing, maintaining, and removing of a temporary water handling system. This may include water-handling-cofferdams, bypass pipes, bypass pumps/hoses, temporary energy dissipation, sump pumps, drainage channels, water handling for ancillary drainage, and dewatering.

A temporary water handling system redirects water beyond, through, or around the limits of construction to allow work to be done in the dry.

Materials: The materials required for this work shall be as shown on the plans, on the accepted Contractor's Working Drawing submittal, or as ordered by the Engineer.

Construction Methods: The Contractor shall prepare and submit written procedures for handling water. Working Drawings, in accordance with Article 1.05.02, shall also be prepared and submitted.

The Contractor shall consider stream conditions, water elevations, expected weather, and risks associated with the Site to determine the type of temporary water handling system required to redirect water away from work being performed. The system shall be designed to comply with the Temporary Hydraulic Table in the Contract plans and be compatible with the stage of construction and Maintenance and Protection of Traffic scheme, as indicated in the Contract, and shall conform to Section 1.10.

The Contractor shall be responsible to maintain and repair the water handling system throughout the duration of the Contract. If the system becomes damaged, displaced, or not functioning properly due to construction activities, stream conditions or storm events, the Contractor shall be responsible to remediate the system back to working order per plan or as required at the direction of the Engineer.

Unless otherwise directed by the Engineer, all temporary water handling system components shall be removed in an acceptable manner when no longer required.

Bypass Pumping:

The bypass pump system shall be designed by the Contractor to comply with the Temporary Hydraulic Table in the Contract plans.

When incorporating a bypass pump/hose system, the Contractor shall provide a means to maintain continuous flow to the downstream channel to protect resources, unless otherwise noted in the Contract plans or as accepted by the Engineer. The Contractor shall provide for both maintaining continuous flow and accommodating temporary design flows using appropriate pump size for each case, valving, metering, or adjusting the flow during construction.

A pump screen shall be provided on the intake with maximum 0.5 inch diameter openings.

Method of Measurement: The work under this item, being paid on a lump sum basis, will not be measured for payment.

Basis of Payment: This work will be paid for at the Contract lump sum price for "Handling Water" completed and accepted, which price shall include designing (including submittals and Working Drawings), furnishing, installing, maintaining, and removing of all temporary water handling system components as are necessary for completion of the work. This price shall include all materials, equipment, tools, labor and work incidental thereto.

A schedule of values for payment shall be submitted to the Engineer for review and comment.

Pay Item	Pay Unit
Handling Water	l.s.

ITEM #0210821A — WATER POLLUTION CONTROL

Description: This work shall consist of measures to control water pollution and soil erosion which become necessary for the completion of the work, but for which no item is provided in the Contract. Such measures include:

- temporary check dams, water bars, berms, dikes, dams
- temporary sediment traps
- pump settling basins
- silt fence
- inlet protection
- hay bales
- erosion control matting
- fiber rolls, coir rolls, wattles
- gravel, stone, riprap
- mulch
- permanent or temporary seeding
- slope drains, ditches, channels, temporary drainage measures
- dust control
- topsoil
- other erosion control materials, devices, or methods

If a situation arises that requires immediate deployment of water pollution control measures, the Engineer will direct the Contractor to use this item to prosecute the work.

If the Contractor proposes changes in construction methods or staging which would affect the as designed pollution controls, plans for revised pollution controls shall be submitted for the Engineer's approval prior to start of work.

Materials: The materials shall meet the pertinent articles of the Standard Specifications. The Contractor shall submit Product Data for the materials.

Construction Methods: The Engineer has the authority to control the surface area of earth material exposed by construction operations and to direct the Contractor to immediately provide permanent or temporary pollution control measures to protect watercourses, wetlands, or other natural resources. Every effort shall be made by the Contractor to prevent erosion on the Site and prevent runoff onto abutting property.

All disturbed areas shall be permanently or temporarily stabilized by mulching, seeding or other methods as the work progresses to comply with the intent of this specification.

All damaged slopes shall be repaired as soon as possible. The Engineer will limit the surface area of earth material exposed if the Contractor fails to sufficiently protect the slopes.

The Contractor shall always have on hand the necessary materials and equipment to provide for slope stabilization and corrective measures to damaged slopes.

Temporary channels, ditches, water bars and outfalls shall be protected prior to directing water into them.

The erosion control features installed by the Contractor shall be maintained by the Contractor, and such installations shall be removed if ordered by the Engineer. Maintenance of erosion control measures by the Contractor shall include the clean out of accumulated sediment.

Method of Measurement: The work and materials required for Water Pollution Control measures will be measured for payment as provided for under 1.09.04 - Extra and Cost-Plus Work.

The sum of money shown on the estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded, and the original price will be used to determine the total amount bid for the Contract.

Basis of Payment: Work will be paid for as provided under 1.09.04 - Extra and Cost-Plus Work.

Control measures that are made necessary by the Contractor's failure to install and maintain controls as a part of the work as scheduled or ordered by the Engineer shall be performed by the Contractor at its own expense.

Control work at off-Site areas selected by the Contractor shall be the responsibility of the Contractor.

Pay Item	Pay Unit
Water Pollution Control	est

ITEM #0219011A – SEDIMENT CONTROL SYSTEM AT CATCH BASIN

Description: Work under this item shall consist of furnishing, installing, maintaining, replacing, and removing sediment control system at catch basins, herein referred to as Silt Sack, at the locations as shown on plans or as directed by the Engineer. The work shall also include removal of accumulated sediment, and disposal of accumulated sediment,

Materials: The Silt Sack must be commercially produced and marketed for the specific application(s) on the Project. All Silt Sack must be manufactured from a specially designed woven polypropylene geotextile sewn material. The Silt Sack must be able to handle flows of at least 180 gallons per minute per square foot, fit any sized catch basin or drop inlet, and be UV resistant.

The Silt Sack product shall be one of the following or an approved equal:

1. Siltsack®
2. Dandy Sack®
3. FleXstorm Catch-It™
4. PIG®Sediment-Drain Filter
5. ACF Environmental Silt Sack

The Sediment Control System at Catch Basin must have the following features: two dump straps attached at the bottom to facilitate the emptying of the Silt Sack and lifting straps to be used to lift the Silt Sack from the catch basin or drop inlet. The Silt Sack shall have a restraint cord approximately halfway up to keep the sides away from the catch basin or drop inlet walls. When required, a curb deflector shall be installed as directed by the Engineer.

Product Data for the Silt Sack to be used by the Contractor must be submitted for review and acceptance by the Engineer or their authorized delegate prior to the installation on-Site.

Construction Methods: The Contractor shall install the Silk Sack per the manufacturer's instructions and recommendations at each catch basin or drop inlet as shown on the plans or as directed by the Engineer to provide inlet protection to prevent silt, sediment, or debris from entering the stormwater drainage system.

When the Silt Sack becomes 1/2 full of accumulated sediment, the Contractor shall empty, clean, and replace the Silt Sack back into the catch basin or drop inlet. Sediment emptied shall be considered unsuitable material and be disposed of at an off-Site approved upland facility per federal, State, and local environmental laws and regulations.

At the completion of the Project, the Contractor shall remove all Silt Sacks within the Project limits. Any spilled sediment material during removal operations shall be removed by the Contractor at no cost to the State.

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

Basis of Payment: The item "Sediment Control System at Catch Basin" will be paid at the Contract unit price for each completed system in place and accepted, which price shall include installing, maintaining, replacing, removal of material, off-Site disposal of accumulated material, materials, equipment, tools, and labor incidental thereto.

The cost of installing hay bales, geotextile, check dam, or fiber roll for inlet protection shall be paid for under their respective Contract item or special provision.

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

ITEM #0406303A – SAWING AND SEALING JOINTS

Description: This work shall consist of sawing bituminous concrete pavement and applying hot-applied asphalt crack sealant to create a sealed pavement joint at the locations specified on the Plans. It shall be constructed in close conformity with the lines, grades, thicknesses, and typical cross sections shown on the Plans or established by the Engineer.

Materials:

1. Crack Seal: The crack seal material shall be composed of a hot-applied asphalt meeting ASTM D6690 Type II requirements.

   Prior to the start of work, the Contractor shall submit a Materials Certification (MC) in accordance with Article 1.06.07 certifying the joint seal material meets these requirements. The Contractor must submit to the Engineer all Safety Data Sheets (SDS) from the material manufacturer prior to the commencement of work.

2. Blotting Agent – Detackifier: This material shall be a fine-graded granular material with 100% aggregate passing the 3/16-inch sieve and no more than 5% passing the #200 sieve when tested in accordance with AASHTO T 27 and T 11.

   The material shall be one recommended by the supplier of the crack sealant and shall be used as recommended by the supplier, except that no paper, cotton, or other organic materials will be allowed. Product Data shall be submitted to the Engineer for review in accordance with Article 1.05.02.

Construction Methods: The sawing and sealing operation shall proceed in accordance with the requirements of the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications.

1. Equipment: The equipment used by the Contractor shall include the following:

   a. Saw and Blades: A minimum of one (1) power saw shall be used for the cutting of bituminous concrete. The saw shall be capable of providing straight, clean cuts of uniform depth and width to the dimensions shown on the Plans. The saw(s) shall be capable of making both a single, deeper cut (for reflective crack control) as well as a wider, shallower cut (to form the upper sealant reservoir), in one single pass, using multiple blades mounted side-by-side in "gang blade" arrangement. The saw shall have diamond-tipped blades.

   b. Melter Applicator: This shall consist of a boiler kettle equipped with pressure pump, hose, and applicator wand; the boiler kettle may be a combination melter and pressurized applicator of a double-boiler type with space between the inner and outer shells filled with heat transfer oil. Heat transfer oil shall have a flash point of not less

than 600°F. The kettle shall include a temperature control indicator. The kettle shall be capable of maintaining the crack seal material at the manufacturer's specified application temperature range. The kettle shall include an insulated applicator hose and application wand. The hose shall be equipped with a shutoff control. The kettle shall include a mechanical full sweep agitator to provide continuous blending. Thermometers shall monitor the material temperature and the heating oil temperature. Thermostatic controls shall allow the operator to regulate material temperature up to at least 425°F.

c. Application Wand and Squeegee Applicator: The material shall be applied with a wand followed by a squeegee applicator. The squeegee applicator shall be of commercial/industrial quality designed with a "U" shaped configuration. It shall be of a size adequate to strike off, flush with the surrounding pavement surface and without overflow around the sides, all crack seal material placed. This tool shall be either attached to the applicator wand or be a separate long handled tool.

d. Hot Air Lance: This shall be designed for cleaning and drying the pavement saw cuts. Minimum compressed air capacity shall be 100 psi. The compressed air emitted from the tip of the lance shall be oil free and capable of achieving a temperature of at least 1500°F.

2. Weather Requirements: Work shall be performed only when the pavement is dry. No frost, snow, ice, or standing water may be present on the roadway surface or within the pavement saw cuts. The ambient temperature must be at least 40ºF during field application operations.

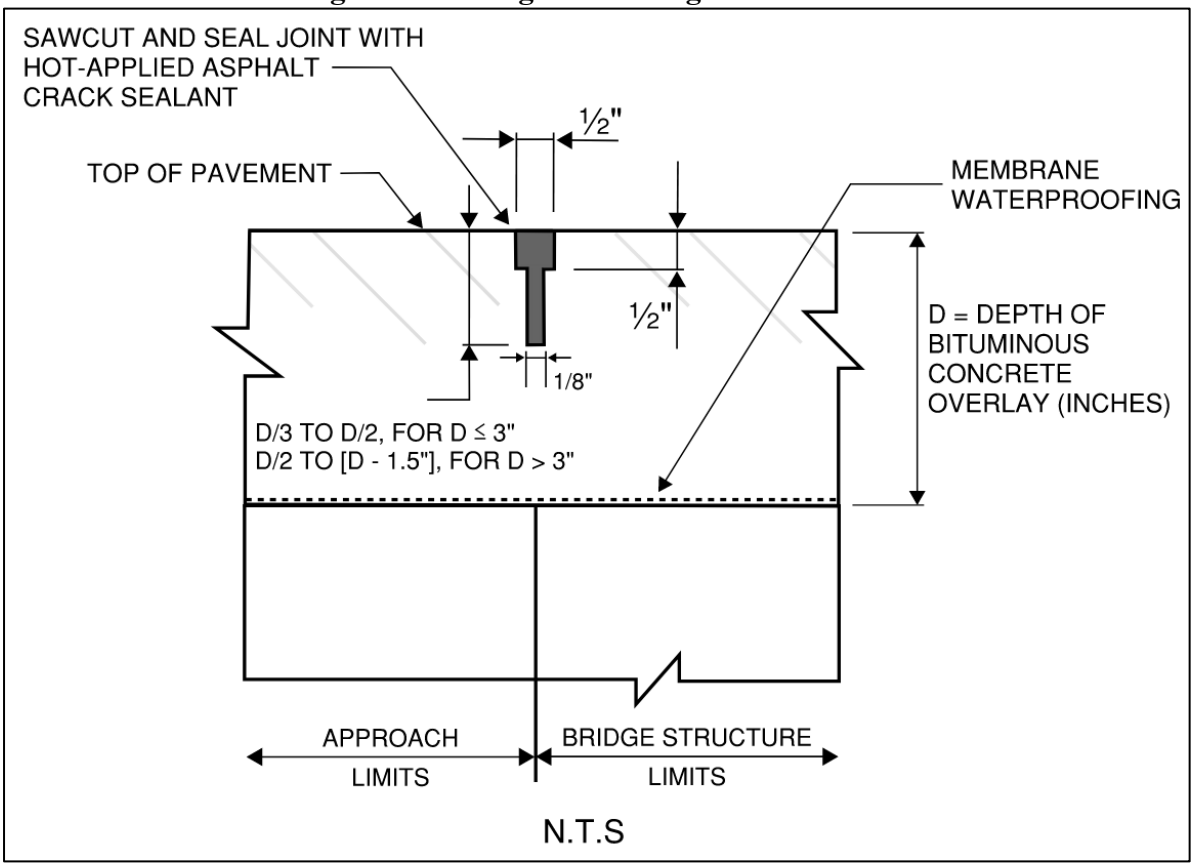
3. Material Mixing Procedure: The prepackaged material shall be added to the melter applicator in the presence of the Engineer. It shall then be mixed and heated to the recommended application temperature. The crack sealant shall never exceed 400°F.

4. Delineation of Transverse Joints: Prior to the sawing and sealing operation, the Contractor shall establish sufficient controls to determine the exact location of each transverse joint. This shall include setting markers at each joint to reference its location and alignment, while having each of these markers tied. Survey shall be established while the joint elements are exposed and must be done before placement of the proposed pavement, base, or other fill materials. A written procedure for this work shall be submitted to the Engineer for review prior to commencement.

5. Cutting of Bituminous Concrete: Saw cutting shall be performed a minimum of 48 hours and a maximum of 5 days after the surface lift of the bituminous concrete overlay is placed. After final paving is completed, the proposed saw cut lines shall be marked on the overlay by the Contractor. The saw cut lines must be approved by the Engineer before performing the work.

   The joint shall consist of a gang-blade saw cut made in a single pass and shall span from edge-of-road to edge-of-road, as shown on the Plans. The cuts shall be made using blades of appropriate thickness to achieve the joint detail shown in Figure 1.

Figure 1: Sawing and Sealing – Joint Detail



The inner 1/8-inch-wide cut shall be made in a straight line across the pavement directly over the transverse joint. For total bituminous concrete overlay depths of 3 inches and less, the depth of the inner saw cut shall be between one third (D/3) and one half (D/2) the specified depth of the overlay as shown on the Plans. For total overlay depths exceeding 3 inches, the minimum required depth of the inner saw cut shall be one half (D/2) the specified depth of the bituminous concrete overlay as shown on the Plans, and a maximum of 1.5 inches above the bottom of the overlay (D – 1.5”). The saw cut shall not damage or impact any portion of the membrane waterproofing, bridge deck, joint, or other structural element.

The outer cuts shall be made using a gang blade arrangement within the same pass as the inner cut to form the 1/2-inch by 1/2-inch upper reservoir and properly support the installation of the sealant.

The saw cut shall provide straight, clean vertical faces with no cracking, tearing, or breakage along the cut edge.

6. Saw Cut Preparation: Saw cuts to be sealed shall be treated with a hot air lance immediately prior to application of the crack seal material. Two (2) passes minimum shall be made with the

hot air lance. There shall be no more than 10 minutes between the second hot air lance treatment and the material application.

The use of the hot air lance is not intended to heat the saw cut. It is to be used to blow all debris from the saw cut to the depths specified below and to remove any latent moisture from the saw cut until the inside of the saw cut is completely dry as determined by the Engineer. "Moisture" does not include standing water. The hot air lance is not to be used to boil off or blow standing water from the bottom of a saw cut. If standing water is present in the bottom of any saw cut, the sealing operation shall be postponed until such time that the standing water evaporates naturally. The Contractor may use compressed, oil-free air (not heated) to blow standing water from a saw cut to help accelerate the natural evaporation process. If standing water remains after using compressed air, the saw cut shall be allowed to dry naturally until remaining standing water evaporates. The hot air lance shall be used after visible water has evaporated. If a saw cut is already completely dry as determined by the Engineer, the hot air lance shall be operated at its lowest temperature possible.

7. Crack Sealing: Immediately after saw cuts have been prepared, they shall be filled to refusal along their entire length with the crack sealant material. The treatment material shall be maintained at the manufacturer's specified/recommended application temperature range at all times. The sealing operation shall be suspended if the temperature of the crack seal material falls outside the specified temperature range and shall remain suspended until the crack seal material is brought within the specified range.

   Sealed saw cuts shall be squeegeed immediately following application of the crack sealant material, striking the excess even with the adjacent pavement surface. There shall be no build-up of treatment material above or adjacent to the crack. If the initial application of crack sealant material fails to fill the saw cut or shrinks upon cooling with a depression of 1/8 inch or greater, a second application of sealant shall be placed. Care shall be taken during the sealing operation to ensure that overfilling and spilling of material is avoided.

8. Protection of Sealed Joints: Traffic shall not be permitted on the pavement until the crack seal material is set, so that the material does not deform or track and be pulled out by tires. If work under this item is not followed by placement of an overlay of any kind, a detackifier or blotting agent shall be used. If the work under this item is being performed prior to placing a surface treatment (e.g., chip seal), a detackifier or blotting agent will not be allowed.

9. Removal and Disposal of Material: All debris generated from the operations described above shall be removed by the Contractor. Treatment material remaining in the Contractor's kettle at the end of the work shift shall be discarded. Treatment material shall not be re-heated for use in subsequent crack sealing applications unless permitted by the Engineer. All debris and surplus treatment material shall be properly disposed of in accordance with Article 1.10.03 and State of Connecticut regulations.

10. Acceptance of Work: When work is complete, an inspection shall be scheduled. The Engineer will note all deficiencies including areas exhibiting adhesion failure, cohesion failure, tracking

of sealant material, locations of missing, incompletely, or incorrectly constructed joints, or other factors that show the work is not acceptable. Work identified by the Engineer as not acceptable shall be repaired at the Contractor's expense. The Contractor shall notify the Engineer upon completion of any corrective work performed.

Any reflective cracking attributable to improper joint referencing or construction methods shall be repaired at the expense of the Contractor, in a manner approved by the Engineer.

Method of Measurement: This work will be measured by the total number of linear feet of sawn and sealed joints, verified and accepted by the Engineer.

Basis of Payment: This work will be paid for at the Contract unit price per linear foot for "Sawing and Sealing Joints" complete and accepted in place. The price shall include all submittals, materials, equipment, tools, and labor incidental thereto. No payment will be made to the Contractor prior to submittal of required documents.

Pay Item	Pay Unit
Sawing and Sealing Joints	l.f.

ITEM #0406312A – GUTTER LINE SEALING FOR BRIDGES

Description: This work shall consist of applying hot-applied asphalt crack sealant along the gutter line of bridges after paving to seal the joint between the bituminous concrete overlay and parapet, curb, or barrier at the locations and to the limits shown on the Plans.

Materials:

3. Crack Seal: The crack seal material shall be composed of a hot-applied asphalt meeting ASTM D6690 Type II requirements.

   Prior to the start of work, the Contractor shall submit a Materials Certification (MC) in accordance with Article 1.06.07 certifying the joint seal material meets these requirements. The Contractor must submit to the Engineer all Safety Data Sheets (SDS) from the material manufacturer prior to the commencement of work.

4. Blotting Agent – Detackifier: This material shall be a fine-graded granular material with 100% aggregate passing the 3/16-inch sieve and no more than 5% passing the #200 sieve when tested in accordance with AASHTO T 27 and T 11.

   The material shall be as recommended by the supplier of the crack sealant and shall be used as recommended by the supplier, except that no paper, cotton, or other organic materials will be allowed. Product Data shall be submitted to the Engineer for review in accordance with Article 1.05.02.

Construction Methods: The sealing operation shall proceed in accordance with the requirements of the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications.

11. Equipment: The equipment used by the Contractor shall include the following:

    e. Melter Applicator: This shall consist of a boiler kettle equipped with pressure pump, hose, and applicator wand; the boiler kettle may be a combination melter and pressurized applicator of a double-boiler type with space between the inner and outer shells filled with heat transfer oil. Heat transfer oil shall have a flash point of not less than 600°F. The kettle shall include a temperature control indicator. The kettle shall be capable of maintaining the crack seal material at the manufacturer's specified application temperature range. The kettle shall include an insulated applicator hose and application wand. The hose shall be equipped with a shutoff control. The kettle shall include a mechanical full sweep agitator to provide continuous blending. Thermometers shall monitor the material temperature and the heating oil temperature. Thermostatic controls shall allow the operator to regulate material temperature up to at least 425°F.

f. Application Wand and Squeegee Applicator: The material shall be applied with a wand followed by a squeegee applicator. The squeegee applicator shall be of commercial/industrial quality and be designed with a configuration to properly strike off the sealant placed along the gutter line of the bridge, adjacent bituminous concrete overlay and parapet, curb, or barrier to the dimensions specified. It shall be of a size adequate to strike off, flush with the surrounding areas, all crack seal material placed. This tool shall be either attached to the applicator wand or be a separate long handled tool.

g. Hot Air Lance: This shall be designed for cleaning and drying the pavement edge along the curb parapet or barrier. Minimum compressed air capacity shall be 100 psi. The oil-free compressed air emitted from the tip of the lance shall be oil free and capable of achieving a temperature of at least 1500°F.

12. Weather Requirements: The pavement shall be dry without frost, snow, ice, or standing water on the roadway surface and within the areas to be sealed. The ambient temperature must be at least 40ºF and rising during application.

13. Material Mixing Procedure: The prepackaged material shall be added to the melter applicator in the presence of the Engineer. It shall then be mixed and heated to the recommended application temperature. The crack sealant shall never exceed 400°F. The treatment material shall be maintained at the manufacturer's specified/recommended application temperature range during application. The sealing operation shall be suspended if the temperature of the crack sealant falls outside the specified temperature range and shall remain suspended until the crack sealant is brought within the specified range.

14. Delineation of Areas to be Sealed: Prior to the sealing operation, the Contractor shall locate and mark out the start and end limits of the work. The sealing shall span the entire length of the structure and be done along each side of the bridge such that both gutter lines are completely sealed, as shown on the Plans. Sealing shall be performed after the surface lift of the bituminous concrete overlay is placed, at a time determined by the Engineer, not to exceed 4 weeks after final paving is completed. The sealing operation shall not damage or otherwise negatively impact the performance of any portion of the overlay, membrane waterproofing, bridge deck, joint, or other structural element.

Sealing Preparation: Areas to be sealed shall be treated with a hot air lance prior to application of the crack seal material. A minimum of two (2) passes shall be made. Within 10 minutes of the second hot air lance treatment the sealant shall be applied. The use of the hot air lance is not intended to heat the areas to be sealed. It is to be used to blow away all debris and remove any latent moisture from the areas to be sealed until the area is completely dry as determined by the Engineer. "Moisture" does not include standing water. The hot air lance is not to be used to boil off or blow standing water. If standing water is present, the sealing operation shall be postponed until such time that the standing water evaporates naturally. The Contractor may use compressed, oil-free air (not heated) to blow standing water to help accelerate the natural evaporation process. If standing water remains after using compressed air, the area shall be allowed to dry naturally

until remaining standing water evaporates. The hot air lance shall be used after visible water has evaporated. If an area is already completely dry as determined by the Engineer, the hot air lance shall be operated at its lowest temperature possible.

The parapet, curb, or barrier face shall be masked off above the sealant line to ensure straight, clean, and neat lines are provided along the vertical surface and that crack seal material is placed within the dimensions specified below.

15. Sealing Operation: Once prepared, all specified areas shall be sealed along their entire length with the crack seal applicator. Crack seal shall be placed 2 inches up onto the parapet, curb, or barrier face and 4 to 6 inches onto the adjacent bituminous concrete overlay. There shall be no build-up of sealant material above or adjacent to the sealed areas beyond these limits. Sealed areas are to be flattened with the squeegee applicator immediately following application of the crack sealant, striking excess material flat and even with the adjacent surface(s). If the initial application of crack sealant fails to fill the area flush or shrinks upon cooling with a depression of 1/8 inch or greater, additional applications of sealant shall be placed where necessary. Care shall be taken during the sealing operation to ensure that overfilling and spilling of material is avoided.

16. Protection of Sealed Areas: Traffic shall not be permitted on the sealed area of pavement along the gutter line until the crack sealant is set, so that the material does not deform or track and be pulled out by tires. If work under this item is not followed by placement of an overlay of any kind, a detackifier or blotting agent shall be used. If the work under this item is being performed prior to placing a surface treatment (e.g., chip seal), a detackifier or blotting agent will not be allowed.

17. Removal and Disposal of Material: All debris generated from the operations described above shall be removed by the Contractor. Treatment material remaining in the Contractor's kettle at the end of the work shift shall be properly discarded. Treatment material shall not be re-heated for use in subsequent crack sealing applications unless permitted by the Engineer. All debris and surplus treatment material shall be properly disposed of in accordance with Article 1.10.03 and State of Connecticut regulations.

18. Acceptance of Work: When work is complete, an inspection shall be scheduled. The Engineer will note all deficiencies including areas exhibiting adhesion failure, cohesion failure, tracking of sealant material, locations of missing, incompletely or incorrectly constructed sealant, or other factors that show the work is not acceptable. Work identified by the Engineer as not acceptable shall be repaired at the Contractor's expense. The Contractor shall notify the Engineer upon completion of any corrective work performed.

Method of Measurement: This work will be measured by the total number of linear feet sealed, verified and accepted by the Engineer.

Basis of Payment: This work will be paid for at the Contract unit price per linear foot for "Gutter Line Sealing for Bridges" complete and accepted in place. The price shall include all submittals, materials, equipment, tools, and labor incidental thereto. No payment will be made to the Contractor prior to submittal of required documents.

Pay Item	Pay Unit
Gutter Line Sealing for Bridges	l.f.

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 the following:

I. Hot Mix Asphalt (HMA) and Polymer Modified Asphalt (PMA),
II. Ultra-Thin Bonded HMA (UTB-HMA) and Ultra-Thin Bonded PMA (UTB-PMA),
III. Thin Friction Wearing Course (TFWC),
IV. Binder Rich Intermediate Courses (BRIC) and Stone Matrix Asphalt (SMA),
V. Balanced Mix Design (BMD), and
VI. Asphalt Rubber Chip Seal (ARCS) treatments 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 the following conditions are met per mixture:

I. For HMA, PMA, TFWC, BRIC, SMA, and BMD mixtures:
   a. The HMA, PMA, TFWC, BRIC, SMA, or BMD 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, PMA, TFWC, BRIC, SMA, and BMD 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 UTB-HMA and UTB-PMA mixtures:
   a. The UTB-HMA or UTB-PMA mixture for which the adjustment would be applied is listed as a Contract item.
   b. ***The total quantity for the UTB-HMA or UTB-PMA mixture in the Contract exceeds:***
      i. 800 tons if the UTB-HMA or UTB-PMA item has a pay unit of tons,
      ii. 30,000 square yards if the UTB-HMA or UTB-PMA item has a pay unit of square yards, or
      iii. the Project duration is greater than 6 months.

      Note: The quantity of UTB-HMA or UTB-PMA measured in tons shall be determined from the material documentation requirements set forth in the UTB-HMA or UTB-PMA item specification.
   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 UTB-HMA or UTB-PMA mixture system.

III. For Asphalt Rubber Chip Seal (ARCS) treatments:
   a. The ARCS treatment for which the adjustment would be applied is listed as a Contract item.

b. ***The total quantity for the ARCS treatment in the Contract exceeds 30,000 square yards or the Project duration is greater than 6 months.***

Note: The quantity of asphalt binder measured in tons used for the Asphalt Rubber Chip Seal treatment shall be determined from the material documentation requirements set forth in the ARCS item specification. The Asphalt Adjustment Cost will also be applied to the asphalt binder used to pre-coat the cover aggregate as part of the ARCS and will be considered as a portion of the total tons of binder for the treatment. The additional quantity of binder measured in tons will be determined based on a percentage of the cover aggregate weight per the requirements set forth in the ARCS item specification.

c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than $5.00 per ton.

Regardless of the binder used in all mixtures or treatments, 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:

A. **Formula A: HMA x [PG%/100] x [(*Period Price - Base Price*)] = $ ____**

Where:

- **HMA:**
  1. For HMA, PMA, UTB-HMA, UTB-PMA, TFWC, BRIC, SMA, and BMD mixtures with pay units of tons:
     The quantity in tons of accepted HMA, PMA, UTB-HMA, UTB-PMA, TFWC, BRIC, SMA, or BMD mixture measured and accepted for payment.
  2. For UTB-HMA and UTB-PMA mixtures with pay units of square yards:
     The quantity of UTB-HMA and UTB-PMA mixture delivered, placed, and accepted for payment, calculated in tons as reported according to the Material Documentation provision of the UTB-HMA and UTB-PMA specification.
- ***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, PMA, UTB-HMA, UTB-PMA, TFWC, BRIC, SMA, or BMD 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 UTB-HMA, UTB-PMA, TFWC, BRIC, SMA, and BMD mixes:
   - PG% = Design % PGB (Performance Graded Binder) in the approved job mix formula, expressed as a percentage to the tenth place (e.g. 5.1%)

B. For Asphalt Rubber Chip Seal:

Formula B: Total Tons x [(*Period Price - Base Price*)] = $ ____

Where:

- ***Total tons:*** The tons of asphalt binder for each lot of asphalt rubber produced, as reported according to the Testing and Certification article of the specification for Asphalt Rubber Chip Seal, and the tonnage of binder used to coat the cover aggregate calculated as follows: 0.6% x tons of cover aggregate.
- ***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 Asphalt Rubber Chip Seal mixture was placed.

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 applicable formula(s) 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 #0503866A – REMOVAL OF EXISTING CULVERT (SITE NO. 1)

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

5.03.01 - Description: *Delete Paragraph and add the following:*

This work shall include the full removal and disposal of the existing two-cell corrugated metal pipe arch culvert and concrete block headwalls as indicated on the plans. Also includes excavation, removal, and disposal of sediment and earth to the limits shown on the plans. Also includes excavation, removal, and disposal of the existing roadway pavement and subbase above the culvert.

5.03.03 – Construction Methods:

1. **Submittals.** *Delete Paragraph and add the following:*

   The Contractor shall prepare and submit written procedures and working drawings for removal, in accordance with 1.05.02. The submittal shall address the following:

   - proposed equipment and removal method(s)
   - operating and storage location(s) of equipment and materials
   - containment and disposal of debris, including lead paint if required.

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

This work shall be paid for at the contract lump sum price for "Removal of Existing Culvert (Site No. 1)", which price shall include the removal and disposal of materials including but not limited to the corrugated metal pipe arch culverts, block headwalls, concrete and reinforcing, earth, sediments, pavement, and all materials, equipment, tools, and labor-incidental to the removal and disposal of the culvert.

Pay Item	Pay Unit
Removal of Existing Culvert (Site No. 1)	LS

ITEM #0601088A – CONCRETE FORM LINERS

Description: Work under this item shall include construction of textured and colored formed concrete surfaces using simulated stone form liners and a color stain system designed to closely duplicate the appearance of natural stone. This item shall include, but not be limited to, the following:

1. Furnishing, installing, and removing a concrete form liner that will be used to produce a simulated stone facing on the exposed surface of the cast-in-place bridge and wing-wall parapets to the limits shown on the plans.

2. Hand and tool finishing work after the forms are removed as necessary to remove lines and irregularities on the finished facing that are not in keeping with the intended "look" of the simulated stone facing.

3. Color staining of the concrete surfaces as may be required by the style of simulated stone facing used, including test panels to establish colors and patterns of staining before initiating this portion of the work.

4. Preparation, submittal, and approval of pattern layout drawings, maximizing re-use and minimizing cutting of form liners, for each bridge and wing-wall parapet.

Materials The concrete form liner shall conform to pattern #1203 "New England Dry Stack" from Custom Rock International, Inc., St. Paul, Minnesota, as distributed by Connecticut Bomanite Systems, Inc., Newtown, Connecticut or approved equal.

Form Liners - The form liners shall be reusable, made of high strength urethane and not compressed more than 1/4-inch when concrete is placed at a rate of 10 vertical feet per hour. Form liners shall be removable without causing deterioration of surface or underlying concrete.

Release Agent - The release agent shall be compatible with the form liners, simulated stone masonry and with the color stain system, as recommended by the manufacturer.

Form Ties - The form ties shall be designed to separate at least 1 inch back from the finished surface, leaving only a neat hole that can be plugged with patching material.

Color Stain - Special penetrating stain mix as provided by the manufacturer, shall achieve color variations present in the natural stone being simulated by the pattern selected for the Project. The stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, alkali, fungi, sunlight or weathering. The stain shall be a waterborne, low V.O.C. material less that 180 grams/liter, and shall meet the following requirements:

1. weathering resistance – 2000 hours accelerated exposure in accordance with the 3-bulb test of ASTM G23.
2. scrub test – 100 revolutions, abrasion resistance (Tabor CF-10) – 500 cycles
3. adhesion – 1.00 mm cross cuts on glass pass 3 or higher on a scale of 1 to 5 in accordance with ASTM D3359
4. chemical resistance – ASTM D1308

Construction Methods: General: The manufacturer of the simulated stone form liners and custom coloring systems shall demonstrate at least three (3) years of experience making custom simulated stone form liners and color stains to create formed concrete surfaces to match natural stone shapes, surface textures and colors. Evidence and color pictures of projects actually constructed over the last three years shall be submitted prior to approval.

The Contractor or subcontractor who is to install the form liners and perform the work shall demonstrate at least three (3) years of experience placing vertically formed architectural concrete, including training in the manufacturer's special techniques as may be required in achieving realistic surfaces.

An authorized representative from both the form liner manufacturer and the color stain manufacturer (if color stain is used) shall be present at the Site for installation of the facing test panel and during placing of all structural concrete utilizing form liners.

Prior to initiating any work, a meeting shall be scheduled by the Contractor to assure full understanding of the work by all parties involved and to coordinate the work. Included for attendance shall be the manufacturers authorized representatives, the Contractor, the subcontractor (installer), the Engineer and Owner.

The Contractor shall submit the following for approval by the Engineer prior to beginning the form operations:

Photographs - Color photographs of at least three (3) similar projects recently performed by the Contractor (or subcontractor) and at least three (3) similar projects recently produced by the manufacturer.

Form Tie Sample - A sample, description, and demonstration of the form tie the Contractor proposes to use.

Pattern Layout Drawings (3 copies) - Layout drawings shall be the plan, elevation, and details showing the overall pattern, joint locations, form tie locations, weephole locations, and any other special considerations. These drawings shall maximize re-use of form liners and minimize cutting of form liners and shall be approved prior to installation of the form liners.

Concrete Facing Test Panel - At least 30 days prior to placing structural concrete requiring form liners, a concrete test panel shall be built on-Site, using the same materials and methods of work

force that will be used for the Project. Location of the test panel shall be approved by the Engineer and the concrete test panel shall conform to the following:

1. The size of the test panel shall be 50 square feet, or larger if needed to adequately illustrate the pattern selected.

2. The test pattern shall contain an area demonstrating simulated stone masonry butt joint and the continuation of the pattern through an expansion joint.

3. The test panel shall include staining as may be required for the selected pattern.

4. The test panel shall be removed when it is no longer needed, to the satisfaction of the Engineer.

The results of the test panel shall be approved by the Engineer and no actual work shall be performed by the Contractor prior to the Engineer's review and acceptance of the test panel.

All work associated with the process of form lining, texturing and color staining of the hardened concrete shall be performed in strict accordance with the manufacturer's recommendations and as approved by the Engineer.

The Contractor shall:

- provide, cut and install the form liners in accordance with the approved pattern drawings for each structural component
- provide and apply manufacturer's release agent
- hand carve top exposed texture surfaces (as applicable)
- remove form liner after concrete is sufficiently set to avoid damage
- patch, grind or bush hammer form liner seams as required
- power wash hardened concrete just prior to staining
- power wash and patch form liners as may be required before re-use

Form Liners: Design and pattern of the form lined concrete surfaces shall follow the manufacturer's standard drawing and the approved pattern layout drawings. The completed color and formed concrete surfaces shall match the pattern, color and texture of the approved test panel and shall accurately simulate the appearance of real stone, demonstrating the colors that may be apparent due to aging, rusting, and staining from oxidation, soil and/or vegetation.

All form liners shall be placed with less than 1/4-inch separation between form liners. Form liners shall be securely attached to the forms with wood or sheet metal screws, securely bolted through the forms with bolts secured into threaded inserts in the back of the form liners, or securely bolted through the form liner and forming system with flat head bolts inserted in a pattern joint, all according to manufacturer's recommendations for the pattern and form liner used. Construction adhesives may be used but not on re-usable form liners.

Release of Form Liners: Only manufacturer recommended form release agents shall be utilized and shall be applied to the form liners before the concrete is placed. Release agents shall be applied in strict accordance with release agent manufacturer recommendations. Hand-charged sprayers will only be allowed if a thin uniform coating of release agent is obtained on the form liner.

Form liners shall be removed from the wall within 24 hours of placing the concrete. The form liners may be detached from the forms and then removed from the concrete or they may remain attached to the forms and the entire forming system removed from the concrete. Remove the form liners from the top, down. Curing of concrete may be accomplished with form liners and forms placed back against the wall after the initial detachment. **Curing compounds shall not be used,** as they are incompatible with the color staining material.

Care & Cleaning of Form Liners: Form liners shall be cleaned the same day they are removed from the wall with a power wash and mild detergent. Synthetic brushed with stiff bristles may be used on stubborn areas. Mild acid washes may also be used. **Solvents shall not be used.** If necessary, patching of holes shall be performed with 100% clear silicone caulk. Form liners shall be stored inside or under a protective, non-transparent cover in a vertical position.

Wall Patching and Preparation: After form liners are removed from the hardened concrete, the textured uncolored surface shall be prepared for color staining. All holes larger than 3/8" in greatest principal dimension shall be filled with concrete patching material such as Tamms Speed-crete (or equal) mixed with latex or acrylic bonder, as approved by the manufacturer and Engineer. All honeycombed areas shall be filled and textured to match surrounding areas. Seam lines and other unnatural protrusions shall be ground down to match adjacent areas with a hand- held power grinder using discs made for concrete. Grinding of seams shall be performed immediately after removal of the form liners. Perform final bush hammering to blend defects and ground areas into the final rock texture. In particular, the process of wall patching and preparation shall be subject to approval of the manufacturer and Engineer.

Color Staining: All color staining shall be performed by the manufacturer, or authorized representative, and the hardened concrete shall be a minimum of 30 days old before color staining is applied. The Contractor shall power wash the wall to free it from laitance, dirt, oil and other objectionable materials. After the wall has dried, the color staining process shall be applied using colors approved by the Engineer. Color staining shall be applied in such a way that the stones shall have individual colorations form one to the other. Water-based stains shall be used in air temperatures ranging from 50 degrees F to 100 degrees F. Solvent-based stains shall be used in air temperatures of 50 degrees F and below, but in no case when the temperature of the hardened concrete is 40 degrees and falling.

All staining work shall be scheduled after adjacent earth work is completed to avoid contamination or damaging of the surfaces. Topsoil, riprap, backfill, etc. shall be placed in a way that does not damage the surfaces after staining is complete and approved.

Method of Measurement: This work will be measured for payment by the actual number of square feet of accepted concrete patterned on cast-in-place concrete surfaces.

Basis of Payment: This work will be paid for at the Contract unit price per square foot for "Concrete Form Liners," complete in place, which price shall include all work and materials incidental thereto, including form liners, release agents, form ties, color stains or additives, pattern drawings, test panels, scaffolding, patching, preparation, cleaning, staining and all other work, materials, tools, and labor incidental thereto.

Pay Item	Unit
Concrete Form Liners	s.f.

ITEM #0603474A - METALLIZING STRUCTURAL STEEL (SITE NO. 1)

Description:

Work under this item shall consist of the surface preparation, shop application of a thermal spray (metallizing) coating, shop application of a sealer and topcoat, and field painting and touch-up painting operations of new structural steel used for the fabrication of the proposed 3-Tube Curb Mounted Bridge Rail, as shown on the plans, or as directed by the Engineer.

Materials:

Only one metallizing supplier and one sealer and topcoat manufacturer may be used for the Project including material supplied for field painting and touch-up painting operations.

Abrasives:
Abrasives shall conform to the following:

1. SSPC AB 1 for mineral slag abrasives
2. SSPC AB 2 for recycled ferrous metal abrasives
3. SSPC AB 3 for new steel abrasives

Thermal Spray Coating (TSC) Materials:
The thermal spray coating (TSC) wire feedstock material used for metallizing must be 85%/15% (Zn/Al alloy) and meet the Chemical Composition requirements stated in Table 2 of AWS C2.25, classification W-ZnAl-2. The Contractor shall provide a Certified Test Report (CTR) in accordance with 1.06.07 for the feedstock from the feedstock supplier.

Sealer and Topcoat:
The Contractor shall select one of the following semi-gloss topcoats of the color shown on the plans from the list below:

AkzoNobel: *International Interthane 870UHS*
Carboline: *Carbothane 133 LV*
Sherwin Williams: *Hi-Solids Polyurethane 250*
or approved equal

The Contractor shall select a sealer compatible with the topcoat chosen. The sealer shall be capable of penetrating into the body of the TSC to seal the interconnected surface porosity as defined in AWS C2.18-93R.

The sealer and topcoats shall be packaged and sealed, in the original container with labeling bearing the manufacturer's name, type of material, brand name, shelf life, batch number, and instructions for mixing and thinning. The topcoat shall meet the color and gloss retention performance criteria of SSPC Paint 36, Level 3, for accelerated weathering. The Contractor shall

provide Materials Certificates in accordance with 1.06.07. The color of the topcoat shall be AMS-STD-595- 27038 (ANA 514).

Caulking Materials:
Caulking shall be as recommended by the coating manufacturer.

Construction Methods:

The Contractor shall implement procedures that comply with this specification. If a state or local regulation is more restrictive than the requirements of this specification, the more restrictive requirements shall prevail. The Contractor must comply with all local OSHA and EPA standards and regulations, even if the regulation or standard is not specifically referenced herein.

The complete coating system shall be shop-applied except for surfaces that are otherwise listed on the plans or otherwise noted in this specification. Such surfaces shall be coated only after all members are erected and bolts are fully tensioned.

Metallizing Contractor Worker Qualifications: The Metallizing Contractor shall be certified by the SSPC Painting Contractor Certification Program QP-6, entitled "Thermal Spray (Metallizing) Contractor Certification Program" in the *enclosed shop* category or be certified in the American Institute of Steel Construction (AISC) Sophisticated Paint Endorsement (SPE) category – *enclosed shop* P1 or *covered shop* P2. A list of approved contractors can be found on the AISC website at www.AISC.org.

The Metallizing Contractor shall be fully certified, including endorsements, for the duration of the time they are doing the surface preparation and coating application. The certification(s) must be kept current for the duration of the Project work. If a Contractor's, subcontractor's or any craft-worker's certification expires, the firm will not be allowed to do any work on this item until the certification is reissued. Requests for extension of time for any delay to the completion of the Project due to an inactive certification will not be considered, and liquidated damages will apply.

Each person applying a metallized coating shall be qualified according to ANSI/AWS C2.18-93R.

The Metallizing Contractor shall have a certified NACE Coatings Inspector Program (CIP) Level 3 inspector, or approved equal, on staff for the duration of the project and actively engaged in the metallizing activities before during and after the coating application.

The Metallizing Contractor and subcontractors are required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)** – certified (Level II-Interim Status Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each painting/blasting crew during blast cleaning and spray application (Atmospheric and Immersion Service) operations. A crew-member is a person who is on the job performing hand-held nozzle blast cleaning and/or spray application of protective coatings on a steel structure. The

certification(s) must be kept current for the duration of the Project work. If a Contractor's, subcontractor's or any craft-worker's certification expires, the firm will not be allowed to do any work on this item until the certification is reissued.

Submittals:
The Contractor shall submit the following to the Material Evaluation and Specification Unit (MESU), the Designer of Record and the Project Engineer, for review a minimum of thirty (30) days prior to metallizing.

Metallizing Quality Control (QC) Plan, including:
A. Written procedures for the preparation of surfaces and the application of the metallizing, the sealer, and topcoat in the shop; and procedures for the repair and touch up of any damage that occurs to the newly applied metallizing or coatings. Shop and field repair procedures must be clearly identified.
B. Hold points for surface preparation, metallizing application, adhesion testing of metallizing application and top coating thickness measurements.
C. Identification of the metallizing and coating materials to be applied, including manufacturer's name, product names, and product numbers.
D. Product Data Sheets, VOC levels for liquid coatings, MSD sheets, and written application instructions including mixing requirements, proposed thinners, and manufacturer's recommended thinner amounts for liquid coatings.
E. Identification of the type and brand name of the abrasive proposed for use.
F. Copies of qualification records along with continuity logs for all thermal spray operators.
G. Copies of NACE CIP Level 3 certifications, or approved equal, for all staff required to possess same. Copies of CAS (SSPC ACS/NACE No. 13) certifications, for all staff required to possess same.
H. Identification of the thermal spray equipment.
I. A work schedule that includes timelines for surface preparation, metallizing, sealing and topcoating.
J. Color chips to be supplied for the review and approval of the Engineer and the Municipality.

Notification:
Contact the Material Evaluation and Specification Unit (MESU) at DOT.Steel@ct.gov a minimum of two (2) weeks prior to the start of work.

Surface Preparation:
A. Weld Spatter, Sharp Edges, and Holes: All slag, flux deposits, and weld spatter and steel irregularities such as fins, tears and slivers shall be removed from the surfaces to be metallized. Any resulting burrs from such removal shall be ground smooth, including burrs around holes. All corners and edges shall be rounded to a 0.0625-inch radius or chamfered to a 0.0625-inch chamfer.
B. Cleaning of Steel: All visible contaminants shall be removed from surfaces in accordance with SSPC-SP 1 using only solvents or detergents.
C. Compressed Air Cleanliness: The cleanliness of the compressed air shall be confirmed in accordance with ASTM D4285 at least once per shift for each compressor system.

D. Surface Requirements: The required surface preparation shall meet SSPC SP 5. Surface preparation shall not be performed under damp environmental conditions or when the surface temperature of the steel is less than 5°F above the dewpoint temperature as determined by a surface thermometer and an electric or sling psychrometer.
E. Abrasives/Profile:
    1. The Contractor shall use abrasives that are free of oil, soluble salts and other similar substances that could contaminate the surface.
    2. A uniform sharp angular profile with a profile of 3.0 to 6.0 mils shall be provided in accordance with ASTM D4417, Method B or C.
F. Acceptance Prior to Metallizing: The cleaned surface shall be accepted by the Engineer before application of metallizing. Failure of the Contractor to prepare and clean the surfaces to be metallized in accordance with these specifications shall be cause for rejection by the Engineer. All surfaces that are rejected shall be re-cleaned to the satisfaction of the Engineer at no additional cost to the Municipality.
G. Pre-Production Test Section and Bend Tests:
    1. The Contractor shall blast clean and metallize at least 9 square feet of steel surface prior to initiating the full-scale metallizing operation using the same metallizing equipment, set up, materials, and calibration and operating procedures in the test section(s) that shall be used for the production operations.
    2. Spray parameters shall be validated by passing a bend test as follows:
    a. Five (5) steel coupons 2 × 8 × 0.05 inches shall be fabricated of the same steel grade proposed as the member being coated.
    b. The coupons shall receive the same surface preparation, and metallizing as the actual member.
    c. The coupons may be fastened to larger pieces of stock during the blast cleaning and metallizing operations.
    d. Bend coupons 180 degrees around a 0.5-inch diameter mandrel.
    e. The bend test passes if there is no cracking or only minor cracking visually observed on the bend radius.
    f. The bend test fails if the coating cracks and lifts from the substrate.
    3. Additional coupons and testing may be required by the Engineer to establish the suitability of the surface preparation and the thermal spray coating. Full-scale metallizing shall not commence until the Engineer has inspected and approved the Test Section and coupons.

Metallizing Application:
A. Quality of Surface Preparation: The Contractor shall verify that the surface meets the specified SSPC-SP 5 surface requirements immediately prior to application of the metallized coating.
B. Surface Cleanliness: Subsequent coats shall not be applied until overspray, spent abrasive, dirt, dust, and other contaminants have been removed in accordance with SSPC-SP 1.
C. Ambient Conditions: Metallizing shall be applied when the relative humidity is less than 80%. Metallizing shall not be applied under damp environmental conditions or when the surface temperature of the steel is less than 5°F above the dewpoint temperature as determined by a surface thermometer and an electric or sling psychrometer.
D. Metallizing: The coating shall be applied by thermal spray employing multiple passes to

achieve a uniform thickness of 0.008 to 0.012 inches (8-12 mils) unless otherwise specified. No single pass shall deposit more than 0.004 inches.

E. Metallizing Adhesion: Adhesion strength of the metallizing shall be 700 psi minimum as measured with approved equipment per ASTM D4541, Annex A4. Measurements shall be taken on companion coupons 4 × 6 × 0.25 inches of the same steel grade as the member being coated and processed concurrently. If adhesion is less than 700 psi but greater than 560 psi, four (4) additional adhesion tests shall be made. If any of the additional adhesion tests are less than 700 psi, the coating shall be removed and re-applied. Any single adhesion test result less than 560 psi, will be justification for the Engineer to have the Contractor remove the entire coating. All corrective action will be at the Contractor's expense.

F. Quality Control of Metallizing Operation:
   1. The Metallizing Contractor shall verify proper spray equipment set up, calibration, and operating procedures by performing a bend test at the beginning of each work shift that metallizing is to be applied in accordance with requirements described in the Pre-Production Test Section.
   2. In addition to the bend test, a cut test shall be performed on the companion coupons, one during the production day and one at the end of each shift, to confirm that metallizing is being properly applied. The cut test consists of a single cut 1.5 inches long through the thermal spray coating to the substrate without severely cutting the substrate. A cut shall be made with a hammer and sharp chisel. The chisel cut shall be made at a shallow angle. The bond of the metallizing is considered unsatisfactory if any part of the metallizing lifts from the substrate along the cut.
   3. The Engineer shall be notified immediately of any unsatisfactory tests.

G. Bolted Connections and Other Areas:
   1. The Contractor shall state in writing to the Engineer a list of areas they believe are inaccessible prior to the start of work. The Engineer will have the final determination as to the accessibility of those areas.
   2. All connection points shall be appropriately masked off either before or after metalizing and prior to the application of seal coat.
   3. After members have been erected in the field, all previously masked areas that remain exposed shall be thoroughly cleaned and lightly sanded by hand to receive a brush-applied coat of the same sealer and topcoat used in the shop.
   4. Areas such as bolt holes, backs of snipes and other similar areas where the standard application of a metallized coating cannot be performed shall be cleaned and free of dirt and any loose overspray, and shall receive a brush applied coating of the approved coating system.
   5. Metallized coating applied to surfaces not required to be coated may remain if found to be tightly adhered, as determined by the Engineer.

<u>Sealer and Topcoat Application:</u>

A. The sealer shall be applied in a single mist coat followed by a full topcoat.
   1. The Metallizing Contractor shall apply the sealer in accordance with the manufacturer's recommendations, unless otherwise specified.
   2. The sealer shall be applied no more than 8 hours after application of the metallizing, and in no case shall the sealer be applied over dust, rust that may have bled through (if there

was not enough thickness), loose oxides or other visible contaminants that would interfere with the sealer.

3. When conventional spray equipment is used, the Contractor shall verify that the compressed air supply is clean and dry as determined by the blotter test (ASTM D4285).
4. The topcoat shall be applied to achieve a 4 to 6 mils dry film thickness and shall be applied after the seal coat has been allowed to dry as required by the recoat time in the manufacturer's written instructions, but in no case shall a coat remain exposed for longer than ten (10) calendar days prior to overcoating.

B. Coverage and Continuity: All surfaces shall be completely coated and free of voids, runs, sags or other defects. Special attention shall be given to hard-to-reach or inaccessible areas and irregular surfaces. Some configurations may require spraying from multiple directions to assure complete coverage.

C. Sealer and Topcoat Adhesion to Metallized Surfaces:
   1. The Metallizing Contractor shall apply the sealer and topcoat in such a manner to assure adherence to the underlying surface. Any lifting of an underlying coat, or poor adhesion between coats or to the substrate, will require removal of the coating in the affected area to adjacent intact, adherent, coating, and reapplication of the material.
   2. Topcoat adhesion shall be verified using adhesion tests in accordance with ASTM D4541 as directed by the Engineer.

D. Coating Thickness
   1. Wet Film Thickness: The Contractor shall verify and document the thickness of each liquid coat at the time of application using wet film thickness gages in accordance with ASTM D4414.
   2. Dry Film Thickness: The dry film thicknesses of the completed coating shall be:

Metallizing	8 to 12 mils
Topcoat	4 to 6 mils
TOTAL SYSTEM	12 to 18 mils

The Contractor shall measure the thickness of each coat using nondestructive magnetic dry film thickness gages. The procedure shall comply with SSPC-PA2 for the calibration and use of the gages, and the frequency of thickness measurements. Spot readings both 20% above and 20% below the thicknesses shown above are permitted, provided the average thicknesses are within the specified tolerances.

Field Required Coating Operations:

Any areas requiring sealer or topcoat after erection shall be done in accordance with the previously submitted and approved field coating procedures and shall be in accordance with the manufacturer’s recommendations.

Repair of Film Discontinuities and Damage to Coating System after Erection: A repair procedure shall be submitted for concurrence by the Engineer prior to the start of repair work.

Shipping and Storage: All materials shall be shipped and stored in a manner to prevent damage from all physical and environmental factors.

Method of Measurement:

The work under this item, being paid on a lump sum basis, will not be measured for payment.

Basis of Payment:

The coating of structural steel, incorporated in the completed and accepted metal bridge rail, along with the field coating of the exposed galvanized bolts, nuts and washers will be paid for at the Contract lump sum price for "Metallizing Structural Steel (Site No. 1)." The lump sum price shall include all materials, equipment, tools, transportation, repairs, corrective actions, inspection access, and labor incidental thereto.

A schedule of values shall be submitted to the Engineer for review and comment prior to application of the metallizing coating.

Pay Item	Pay Unit
Metallizing Structural Steel (Site No. 1)	l.s.

ITEM #0707009A - MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)

Description: Work under this item consists of furnishing and installing a seamless elastomeric waterproofing membrane system applied to a concrete or steel surface as shown on the plans, and as directed by the Engineer. Work shall also include conditioning of the surface to be coated, and all submittals and quality-control testing noted herein.

The completed membrane system shall be comprised of a primer coat, reinforcing material as specified or directed, membrane coating (minimum total thickness of 80 mil and maximum total thickness not to exceed 120 mil), an additional 40 mil membrane layer with aggregate broadcast into the material while still wet, and an application of tack coat.

Materials: The Contractor shall select a waterproofing membrane system from the Department's Qualified Products List (QPL) for Spray-Applied Membrane Waterproofing System. All materials incorporated in the work shall meet the Manufacturer's specification for the chosen system. A Manufacturer is the original source of supply as defined in Article 1.06.01 of CTDOT's Standard Specifications. The Engineer will reject any system that is not on the QPL.

Reinforcing material (to bridge gaps, joints and cracks) shall be as recommended by the manufacturer.

Aggregate: The aggregate shall be a nonfriable, durable #8 aggregate stone with no more than one-half percent (0.5%) passing the #200 sieve by weight.

Concrete Deck Repair Material: Depressions greater than ½ inch that are required to be filled before application of the membrane shall be repaired with a neat repair mortar as approved by the Engineer. If the repair includes engagement of reinforcing steel, the repair shall be performed under separate, appropriate Contract items.

Construction Methods:

1. Submittals:
   At least 30 days prior to installation of the membrane system, the Contractor shall submit to the Engineer the following:
   (a) A Site-specific Installation Plan that includes, but is not limited to, the manufacturer's recommended equipment, materials and procedure for:
      1) Authorization by Manufacturer of applicator
      2) Safety precautions, SDS documents
      3) On site storage of material
      4) preparation of the deck surface and recommended surface moisture content at time of priming
      5) Pre-treatment or preparation procedure at cracks and gaps, treatment at curbs, vertical surfaces or discontinuities
      6) Overspray protections (masking and shielding)

7) Method and equipment for taking/calculating onsite temperatures and dewpoint temperatures as well as listing of acceptable temperature and dewpoint ranges for application of primer and/or membrane
8) Method and equipment for application of the primer and membrane
9) Treatment of already primed areas when delays occur; include allowable time frame for covering already placed primer or treatment if the primed surface is compromised
10) Treatment at overlap areas
11) Method for placement of the aggregated coat
12) All Quality Control (QC Plan) tests and procedures to be performed prior to and during the membrane system's installation
13) Recommended repair methods for system non-compliant issues identified during application

(b) Materials Certificate for the primer, membrane and aggregate in accordance with the requirements of Article 1.06.07.
(c) Concrete Mix Design: At least two weeks before installation, the Contractor shall submit the concrete mix design to the Engineer for acceptance. For RSCP material, NTPEP lab test data shall be submitted that demonstrates that the concrete mix matches the mix that was tested by NTPEP and meets the pre-qualification criteria in the QPL. This test data shall be submitted with a Materials Certificate and a Certified Test Report in accordance with Article 1.06.07.

Automated mechanical applicators will be considered for approval for use, provided there is a trial installation area to demonstrate that the required thickness can be consistently achieved. The Installation Plan shall identify and differentiate between areas using automated applicators and areas where hand application will be used, such as on vertical surfaces and at areas prior to installation of reinforcing material.

2. A technical representative, in the employ of the manufacturer, shall be present on-Site immediately prior to and during application of the membrane. The technical representative shall not be an employee of the installation contractor but is on Site solely to perform QC. The technical representative shall review environmental conditions for proper application, inspect and approve the surface prior to priming, provide guidance on the handling, mixing and addition of components, observe application of the primer and membrane. The technical representative is required to notify the Engineer immediately when conditions are not within acceptable parameters and any further installation will be analyzed by the Engineer under Article 1.06.04. The technical representative shall be qualified and shall perform all required QC testing and remain on the Project site until the membrane has fully cured.

   All QC testing, including verbal direction or observations at the time of installation, shall be recorded and submitted to the Engineer for inclusion in the Project records. The QC testing data shall be received by the Department's Project personnel prior to any paving over the finished membrane, or within 24 hours following completion of any staged portion of the work.

3. Applicator Approval: The Contractor's membrane Applicator shall be fully trained and authorized by the membrane manufacturer and shall have successfully completed at least six spray membrane projects in the past two years. The Contractor shall furnish references from those projects, including names of contact persons and the names, addresses and phone numbers of persons who supervised the projects. This information shall be submitted to the Engineer prior to the submittal of the Installation Plan. The Engineer shall have sole authority to determine the adequacy and compliance of the submitted information. Inadequate proof of ability to perform the work will be grounds to reject proposed applicators.

4. Job Conditions:
   (a) Environmental Requirements: Air and substrate temperatures shall be between 40°F and 104°F and the substrate shall be above the dew point. Outside of this range, the Manufacturer shall be consulted.

   The Applicator shall be provided with adequate disposal facilities for nonhazardous waste generated during installation of the membrane system. The applicator shall follow safety instructions regarding respirators and safety equipment.

   Extra care shall be taken to prevent the introduction of moisture onto the area to be membraned including, but not limited to, locating water rest break areas/devices away from the works, prevent vehicles from accessing the prepared areas that may have AC units that drip water. If there is any potential for moisture to impact application, operations shall cease until conditions warrant proper adherence to specification requirements.

   (b) Safety Requirements: All open flames and spark producing equipment shall be removed from the work area prior to commencement of application.

   Personnel not involved in membrane application or inspection duties shall be kept out of the work area.

5. Delivery, Storage and Handling:
   (a) Packaging and Shipping: All components of the membrane system shall be delivered to the Site in the Manufacturer's packaging, clearly identified with the product type, lot and batch number, manufactured date and expiry or "Best-used-by Date."

   (b) Storage and Protection: The Applicator shall be provided with a storage area for all components. The area shall be cool, dry and out of direct sunlight and shall be in accordance with the Manufacturer's recommendations and relevant health and safety regulations.

   Copies of Safety Data Sheets (SDS) for all components shall be kept on Site for review by the Engineer or other personnel.

(c) Shelf Life - Membrane Components: Packaging of all membrane components shall include a shelf-life date sealed by the Manufacturer. No membrane components whose original shelf life has expired shall be used.

6. Pre-application Meeting: A minimum one week prior to beginning any membrane waterproofing work, an on-site Pre-application meeting shall be scheduled to review all requirements of the approved Installation Plan. This meeting shall include representatives from the membrane system's Manufacturer and from the Installer as well as the Prime Contractor.

7. Surface Preparation:
   (a) Protection: The Contractor shall be responsible for the protection of equipment, adjacent areas, and affected pedestrians/traffic from over spray or other contamination. Permanent highway features adjacent to the work such as, but not limited to, curbs, parapets, sidewalks and bridge joints shall be masked prior to application of the materials.

   (b) Surface Preparation: Surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae, growth, laitance, friable matter, dirt, bituminous products, previous waterproofing materials or any material that will affect the proper bonding/adhesion of the membrane to the surface receiving the membrane application. If required, degreasing shall be done by detergent washing in accordance with ASTM D4258.

   Sharp peaks and discontinuities within the areas to be coated shall be ground smooth. Any peak greater than ¼ inch above the surface profile of the prepared substrate shall be ground to the surrounding elevation and voids and holes greater than ½" in the surface patched with appropriate material. The surface shall be abrasively cleaned, in accordance with ASTM D4259, to provide a sound substrate free from laitance and shall achieve a Concrete Surface Profile (CSP) as defined by the International Concrete Repair Institute (ICRI) of between 4 and 6. The QC representative shall have on their person and available for use by Department Engineers, a full CSP Chip Set to confirm concrete surface meets above profile requirement. Areas not falling within the noted range shall be re-addressed as needed.

   Steel components to receive membrane waterproofing shall be blast cleaned in accordance with the Society of Steel Protective Coatings' SSPC-SP6, Commercial Blast Cleaning, and shall be coated with the membrane waterproofing system within the same work shift.

8. Inspection and Testing: Prior to priming of the surface, the Engineer, the Applicator and Manufacturer's technical representative shall inspect and approve the prepared substrate.

   (a) Random tests for deck moisture content shall be conducted on the substrate by the Contractor at the Site using a "Sovereign Portable Electronic Moisture Master Meter," "Tramex CMEXpertII Concrete Moisture Meter" or approved equal. The minimum frequency shall be one test per 1000 s.f. but not less than three tests per shift for each contiguous section worked on during that shift. Additional tests may be required if

atmospheric conditions change and retesting of the substrate moisture content is warranted.

The membrane system shall not be installed on substrate with a moisture content greater than 6%, or at a moisture content above the amount recommended by the written submittal installation documentation from the system's Manufacturer.

(b) The ambient air temperature and dew point temperature readings shall be taken immediately prior to starting any primer or membrane application and continuously throughout the installation process. No primer or membrane application shall be allowed if the difference between the two is 5° deg or less, or is not within the recommended air and dew point temperature ranges noted in the submitted Installation Plan from the system's Manufacturer.

(c) Random tests for adequate tensile bond strength shall be conducted by the Contractor on the substrate using an adhesion tester in accordance with the requirements of ASTM D7234 for concrete substrate or ASTM D4541 for steel substrate. The minimum frequency shall be one test per 5,000 s.f. but not less than three adhesion tests per shift for each contiguous section worked on during that shift. The locations of the pull tests shall be at least a distance from each other equal to or greater than 1/3 of the width or length (whichever is greater) of the area being worked in that section. The location of the pull tests shall be located in accordance with ASTM D3665 or a statistically based procedure of stratified random sampling approved by the Engineer.

Adequate surface preparation will be indicated by tensile bond strengths of the substrate greater than or equal to 150 psi or failure in a concrete surface and greater than or equal to 300 psi for steel surfaces.

If the tensile bond strength is lower than the minimum specified, the Engineer may request additional substrate preparation.

(d) Grouted joints, materials that the membrane cannot bond to, and cracks or discontinuities that cannot be bridged over by the membrane material shall be covered by a reinforcing material recommended by the membrane system's Manufacturer prior to application of membrane layers as approved or directed by the Engineer.

9. Application:
   (a) The System shall be applied in the following distinct steps as follows:
      1) Substrate preparation,
      2) Priming,
      3) Reinforcing material application over grouted joints, cracks, etc., embedded in wet membrane bonding layer,
      4) Membrane application,
      5) Membrane with aggregate.

(b) Immediately prior to the application of any components of the System, the surface shall be adequately dry (see Section 8(a) of this specification) and any remaining dust or loose particles shall be removed using clean, dry, oil-free compressed air or industrial vacuum.

(c) Where the area to be treated is bound by a vertical surface (e.g. curb or wall), the membrane system shall be continued up the vertical, if shown on the plans or directed by the Engineer.

(d) The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results, in accordance with the Manufacturer's recommendations or as approved or directed by the Engineer. All components shall be used from its original packaging (barrels) or be discarded – no mixing of like materials from different batches shall be allowed.

(e) A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.

(f) Primer: The primer shall consist of one coat with an overall coverage rate of 125 to 175 s.f./gal unless otherwise recommended in the Manufacturer's written instructions.

All components shall be measured and mixed in accordance with the Manufacturer's recommendations.

The primer shall be spray applied using a single component spray system approved for use by the Manufacturer. If required by Site conditions and allowed by the manufacturer brush, squeegee or roller application will be allowed.

The primer shall be allowed to cure tack-free for a minimum of 30 minutes or as required by the Manufacturer's instructions, whichever time is greater, prior to application of the first lift of waterproofing membrane.

Porous concrete (brick) may require a second coat of primer should the first coat be absorbed.

Bond Strength: Random tests for adequate adhesion capacity shall be conducted on the primed substrate in accordance with the requirements of ASTM D7234 for concrete or ASTM D4541 for steel substrate. The minimum frequency shall be one test per 5,000 s.f. but not less than three adhesion tests per shift for each contiguous section worked on during that shift. The locations of the pull tests shall be at least a distance from each other equal to or greater than 1/3 of the width or length (whichever is greater) of the area being worked in that section. The location of the pull tests shall be located in accordance with ASTM D3665 or a statistically based procedure of stratified random sampling approved by the Engineer.

Adequate adhesion will be indicated by tensile bond strengths of primer to the substrate greater than or equal to 150 psi or failure in a concrete surface and greater than or equal to 300 psi for steel surfaces.

Any primer not adequately applied shall be removed and new primer applied at the Contractor's expense, as directed by Engineer.

Delays to the membrane installation following installation of the primer may necessitate remedial measures. Re-application of the primer or any work required due to, but not limited to, precipitation, ambient or dew point temperatures falling out of allowable zone, materials dropped on the surface, shall be accomplished as outlined in the Installation Plan.

(g) Membrane and Reinforcing Material: Application of the membrane on the primed surface shall not commence until the primer is cured and adequate adhesion capacity achieved as described in Section 9(f) of this specification.

The waterproofing membrane shall consist of two equal 40 mil coats for a total dry film thickness of a minimum 80 mils but not to exceed 120 mils. successive coats shall be of a contrasting color to aid in Quality Assurance and inspection.

Hand sprayer application of a single layer at 80 mils may be allowed after demonstration on a test section of not less than 100 sq. feet, of the applicator's ability to meet specified tolerances has been reviewed and found acceptable to the Engineer.

Use of an automated mechanical applicator to achieve the required thicknesses in either one or two equal layers, may be allowed after demonstration on a test section of not less than 100 sq. feet, of the applicator's ability to meet specified tolerances has been reviewed and found acceptable to the Engineer.

Reinforcing material, if required, shall be applied as described in the Installation Plan.

The substrate shall be coated in a methodical manner.

Thickness checks: For each layer, checks for wet film thickness using a gauge pin or standard comb-type thickness gauge shall be carried out once every 100 s.f. Where rapid set time of the membrane does not allow for wet film thickness checks, ultrasonic testing (steel surfaces only), calibrated point-penetrating (destructive) testing, in-situ sampling (cutout of small sections for measuring thicknesses), or other methods approved by the Engineer shall be employed for determination of dry film thickness. The measured thickness of each and every individual test of the membrane shall be greater than or equal to the required thickness.

Bond Strength: Random tests for adequate adhesion shall be conducted on the membrane in accordance with the requirements of ASTM D7234 for concrete substrate or ASTM

D4541 for steel substrate. The minimum test frequency shall be one test per 5,000 s.f. but no less than three adhesion tests per bridge. Adequate adhesion will be indicated by tensile bond strengths of the membrane to the substrate of greater than or equal to 150 psi or failure in a concrete surface, and greater than or equal to 300 psi for steel surfaces.

Repair the membrane system following destructive testing and correct any deficiencies in the membrane system or substrate noted during QC testing in accordance with the Manufacturer's recommendations to the satisfaction of the Engineer at no additional cost to the State.

(h) Repairs: For areas left untreated or where the membrane hasn't bonded or becomes damaged, a patch repair shall be carried out to restore the integrity of the system. The damaged areas shall be cut back to sound materials, abraded and wiped with solvent (e.g. acetone or other manufacturer-recommended material) up to a width of at least six inches on the periphery, removing any contaminants unless otherwise recommended by the Manufacturer. The substrate shall be primed as necessary and tested for adhesion before the membrane layer(s) are applied. A continuous layer shall be obtained over the substrate with a six-inch overlap onto any adjacent existing membrane. The repaired area shall be tested for adhesion, with a minimum of one test per repair area.

(i) Overlapped areas: Where the membrane is to be joined to existing cured material, the overlapped area shall be cut back to sound material if necessary, abraded and wiped with solvent (e.g. acetone or other manufacturer-recommended material) or cleaned in accordance with the Installation Plan, up to a width of at least six inches prior to application of the overlapping membrane material. A continuous layer shall be obtained over the substrate with a six-inch overlap onto existing membrane. The overlapped section shall be tested for adhesion, with a minimum of one test per 200 lineal feet.

(j) Aggregated Finish:
1) Apply an additional 40 mil thick layer of the membrane material immediately followed by an aggregate coating, before the membrane cures, at a rate to fully cover the coated area to a point where no membrane material is visible. The membrane and aggregate shall be fully integrated after the aggregate has been applied and the membrane cured.
2) Using motorized mechanical sweepers followed by a vacuum or motorized blower apparatus, remove all loose and excess aggregate and fines from the surface, to the satisfaction of the Engineer, and dispose of properly prior to application of tack coat and overlay.
3) Traffic shall not be allowed to travel on the completed membrane system without prior approval of Engineer upon consultation with Manufacturers technical representative.
4) Localized areas not fully coated following removal of loose aggregate, defined as being at least 90% covered with well-adhered aggregate within any one square foot area, shall be touched up with additional membrane and aggregate as needed. These areas shall then be swept and/or vacuumed or blown again prior to application of tack coat and overlay.

5) Tack coat: a Tack Coat Emulsion shall be applied to the aggregated finish prior to covering with a bituminous concrete mat. Material shall be applied in two coats of 0.06 - 0.08 gal/s.y. allowing it to break in between coats. This work shall be done as part of the paving operation and paid under separate, applicable Contract items.

10. Final Review: The Engineer and the Applicator shall jointly review the area(s) over which the completed system has been installed. Any irregularities or other criteria that do not meet the requirements of the Engineer shall be addressed at this time.

Method of Measurement: This item will be measured by the number of square yards of waterproofed surface completed and accepted.

Basis of Payment: This item will be paid for at the Contract unit price per square yard of "Membrane Waterproofing (Cold Liquid Elastomeric)," complete and accepted in place, which price shall include submittals, Pre-Work Meeting, all surface preparation, furnishing, storing and applying the system, technical representative and Quality Control testing, and any necessary repairs and remediation work as well as all materials, equipment, tools, labor incidental to this work.

The asphalt emulsion (tack coat) will be paid separately.

Pay Item	Pay Unit
Membrane Waterproofing (Cold Liquid Elastomeric)	s.y.

ITEM #0819002A - PENETRATING SEALER PROTECTIVE COMPOUND

Description: Work under this item shall consist of cleaning concrete surfaces of dirt, dust, and debris, and furnishing and applying a clear, penetrating sealer to concrete surfaces where shown on the plans, to provide a barrier against the intrusion of moisture and chlorides. This work also includes furnishing, installing, and removing platforms, scaffolding, ladders, and other means of access as well as shields, as required, to protect adjacent areas and traffic from overspray.

Materials: The penetrating sealer shall conform to Article M.03.09. A Materials Certificate shall be submitted for the penetrating sealer in accordance with Article 1.06.07. A product not listed on the Qualified Products List (QPL) may be considered for approval. A Certified Test Report shall be submitted in accordance with Article 1.06.07 indicating that the product being considered conforms to the Test Requirements listed on the QPL.

Construction Methods:

Submittals: The Contractor shall submit to the Engineer Safety Data Sheets (SDS), Technical Data Sheets and product literature for the approved sealer. The literature shall include written instructions how to apply the sealer to vertical and horizontal surfaces, and where required, overhead surfaces. Application rate and number of applications of sealer shall be addressed.

The Contractor shall submit to the Engineer, in accordance with Article 1.05.02, written procedures for cleaning the concrete surfaces prior to sealer application The submittal shall include proposed equipment and materials and shall address how adjacent traffic and other areas shall be protected from dust, debris and overspray during the cleaning and application processes. Where the sealer is to be applied to parapets before pavement is placed, the submittal shall address protection of the deck and curb to which membrane waterproofing will be applied. Should the membrane already be present, the submittal shall address shielding of the membrane. It shall also indicate how vegetation and regulated areas shall be protected from overspray. The submittal shall address the conditions under which work may proceed, including wind speed, temperature and precipitation. It shall also include procedures to be followed to protect the work should unfavorable weather conditions occur before the product has been absorbed.

The Contractor shall inspect the surfaces to be sealed to identify surface cleaning needs before submitting the procedures. The Contractor shall identify concrete surfaces that:

- Need repair
- Require special attention or cleaning procedures
- Have been previously treated with coatings or curing compounds that would hinder penetration of the sealer into the concrete
- Will be new or newly repaired

Written procedures shall include observations listed above. Application of penetrating sealer to new concrete shall be addressed in the application procedures. Forms for surfaces of new concrete to receive penetrating sealer shall not be treated using form release oil, which can inhibit or prevent penetration of the sealer into the concrete.

Surface Preparation: Concrete surfaces to which penetrating sealer will be applied shall be clean and free of grease, oil, and other surface contaminants, including biological growth. Dry surfaces may be cleaned by sweeping with brushes or brooms, and blowing clean with oil-free, compressed air. The Contractor shall take care not to damage the concrete surface finish during cleaning operations. Care shall be taken so that cleaning methods do not damage joint sealant or other components of the structure that are to remain.

Application: Application of the sealer may begin only after the Engineer evaluates the concrete surfaces and determines that conditions for installation comply with the accepted written application procedures.

The sealer shall be applied in accordance with the accepted application procedures at the rate specified by the manufacturer. The Contractor shall monitor and record the number of square feet of concrete surface sealed and the number of gallons of sealer applied over that surface area to verify that the required application rate is being met. A minimum of three applications of sealer shall be assumed to be needed. After the first application of the sealer, curing time shall be recorded and submitted to the Engineer. Additional applications of sealer shall be applied as specified in the application instructions, provided adequate time between applications and appropriate curing of the sealer have occurred. For each application, the Contractor shall record the area and number of gallons of sealer applied as well as the curing time for that application. The Contractor may be directed to apply sealer in up to three separate applications if concrete surfaces readily absorb the previous application.

If the Contractor is directed to apply more than three applications of sealer, the additional applications will be compensated as extra work. Should salts, oil or other visually undesirable materials be evacuated from the concrete by the penetrating sealer and remain on the surface after sufficient rain events have occurred, the Engineer may order surface cleaning of the concrete as extra work.

The Engineer shall be provided access to inspect the concrete surface during application and after the sealer has had adequate time to cure.

Method of Measurement: This work will be measured for payment by the actual number of square yards of concrete, sealed and accepted, within the designated limits. The area will be measured once, regardless of the number of applications required.

Basis of Payment: This work will be paid for at the Contract unit price per square yard for "Penetrating Sealer Protective Compound," complete, which price shall include all equipment tools, labor and materials, incidental thereto, including the preparation of the concrete surfaces and proper disposal of debris.

The following are not included in the cost of this item and will be considered Extra Work:

- Special cleaning procedures ordered by the Engineer to properly prepare the concrete surface for application of the penetrating sealer (such as removal of tightly adherent biological growth, graffiti, or other difficult-to-remove surface contaminants)
- Additional applications of sealer as noted in the Construction Methods
- Cleaning of evacuated material from sealed surfaces as ordered by the Engineer.

Pay Item	Pay Unit
Penetrating Sealer Protective Compound	s.y.

ITEM #0904051A – 3-TUBE CURB MOUNTED BRIDGE RAIL

Description:

Work under this item shall consist of fabricating, metallizing, transporting and erecting a curb mounted bridge rail comprised of anchorages, concrete inserts, plates, posts, rails, fasteners and epoxy grout in accordance with the plans.

Materials:

Structural steel shapes and plates shall meet the requirements of ASTM A572, Grade 50. Hollow structural sections shall meet the requirements ASTM A500, Grade C or ASTM A501, Grade B. Certified Test Reports and Materials Certificates shall be submitted in accordance with Article 1.06.07. The Certified Test Reports shall address that the steel meets the requirements of Article 1.06.01, Buy America.

All exposed steel shapes, plates and hollow structural sections shall have a controlled content of silicon within the range 0.0% to 0.4% or 0.15% to 0.25%. Before metallizing, mill test certificates verifying silicon content shall be submitted to the Engineer and the metallizer.

All steel shapes, plates and hollow structural sections shall be metallized in accordance with item #0603474A-Metallizing Structural Steel (Site No. 1)

All high strength bolts shall meet the requirements of ASTM F3125, Grade A325, Type 1. Nuts shall conform to ASTM A563, Grade DH. Circular, flat, hardened steel washers shall meet the requirements of ASTM F436. The bolts, nuts and washers shall be galvanized in accordance with ASTM F2329 or ASTM B695, Class 55.

The anchor rods shall be fully threaded rods in accordance with ASTM F1554, Grade 105. The nuts shall meet the requirements of ASTM A563, Grade DH. The washers shall meet the requirements of ASTM F436. The bolts, nuts and washers shall be galvanized in accordance with ASTM F2329 or ASTM B695, Class 55.

Dome head bolts with wrench slots shall meet the requirements of ASTM F3125, Grade A325, Type 1 or ASTM A449, Grade 1. The nuts shall meet the requirements of ASTM A563, Grade DH. The washers shall meet the requirements of ASTM F436. The bolts, nuts and washers shall be galvanized in accordance with ASTM F2329 or ASTM B695, Class 55.

Concrete inserts shall meet the requirements shown on the plans. The concrete inserts shall be hot dip galvanized in accordance with ASTM A153. The bolts shall meet the requirements of ASTM A307 and the washers shall meet the requirements of ASTM F436. The bolts and washers shall be galvanized in accordance with ASTM F2329.

Epoxy grout shall capable of being installed in the void below the baseplate and meet the following requirements:

Compressive strength, ASTM C579, @ 73 degrees F, 10,000 psi
Tensile strength, ASTM C307 @ 7 days or ASTM D638 @ 7 days, 2,000 psi
Bond strength to concrete, ASTM C882, concrete failure
Bond strength to steel, ASTM C882, 2,500 psi
Volatile organic compounds (VOC), 0.0
Color, gray or concrete gray

Damaged areas of the metallized coatings shall be repaired in accordance with item #0603474A-Metallizing Structural Steel (Site No. 1)

Construction Methods:

A. Submittals: Prior to fabrication, the Contractor shall submit shop drawings for the bridge rail at each location in accordance with Article 1.05.02 and welding procedures in accordance with Article 1.05.17.

Prior to placing the epoxy grout, the Contractor shall submit the following to the Engineer for review in accordance with Article 1.05.02 Product Data requirements:

1. A copy of the epoxy grout manufacture's data sheet documenting the grout meets the specification requirements.
2. A copy of the epoxy grout manufacturer's printed installation instructions (MPII)
3. A copy of the epoxy grout manufacturer's printed safety instructions

B. Fabrication Requirements: The steel fabricator shall meet the requirements of the AISC Certification Program for Manufacturers of Bridge and Highway Components (CPT).

Shop fabrication of the bridge rail shall meet the requirements of Article 6.03.03-3. Structural steel elements of the bridge rail shall be prepared for metallizing in accordance with item #0603474A-Metallizing Structural Steel (Site No. 1)

After metallizing, surfaces that are found to be deficient shall be repaired in the shop in accordance with item #0603474A-Metallizing Structural Steel (Site No. 1). Surfaces of metallized steel that are damaged after the metallizing operation shall be repaired in accordance with item #0603474A-Metallizing Structural Steel (Site No. 1). Damage that occurs in the shop shall be repaired in the shop.

C. Installation Requirements: The anchor rods shall be securely bolted to anchor plates to create anchorage assemblies. The anchorage assemblies shall be accurately positioned and restrained to prevent movement during field placement of the concrete. The concrete inserts shall be accurately positioned and restrained against movement during the placement of concrete.

Field installation of the rail components shall be as shown on the plans.

The connection of the post baseplate to the anchor rods shall be a double nut connection. The post baseplate shall be installed on washers supported by leveling nuts. The baseplate shall be secured in place with a washer topped with nuts at each anchor rod.

High-strength bolts, including nuts and washers, shall be installed and tensioned in accordance with Subarticle 6.03.03-5(f).

Dome headed bolts shall be installed with a washer, a lock washer and nut.

Epoxy grout shall be placed between the concrete curb and the baseplate at all post locations. The concrete and steel surfaces that will be in contact with the grout shall be dry, clean and free of all loose concrete and contaminants. The metallized surface of the baseplate shall not be abrasively cleaned. Solvent cleaning is acceptable if allowed by the epoxy grout manufacturer. The grout shall be placed within an area formed around each baseplate. The forms shall be liquid tight and treated with a form release agent. The forms shall have chamfer strips placed along all vertical and horizontal finished grout edges. The vertical faces of the grout shall extend beyond the vertical edges of the baseplate.

Prior to placing the epoxy grout, the curb concrete shall have obtained the compressive strength shown on the plans.

The grout shall be mixed and placed in accordance with the manufacturer's printed installation and safety instructions. Conditions, including the temperature of the mixed grout, air and substrate, at the time of the installation shall meet the manufacturer's recommendations. The grout shall be placed from one side allowing it to flow beneath the baseplate to the formed surfaces and avoid air entrapment. After removal of the forms, rough surfaces and edges shall be trimmed or ground down to provide smooth surfaces and defined edges.

Damage that occurs to the metallized surfaces during transport or during installation shall be repaired in accordance with the requirements of item #0603474A-Metallizing Structural Steel (Site No. 1). The color of the finished repair area shall match the color of the adjacent metallized surface at the time of the repair to the satisfaction of the Engineer.

Upon completion of the installation of the Bridge Rail System and all bolts have been properly tensioned, all exposed galvanized bolt heads, washers and nuts shall be field painted in accordance with item #0603474A-Metallizing Structural Steel (Site No. 1). The color of the finish areas shall match the color of the adjacent metallized surface at the time of the repair to the satisfaction of the Engineer.

All exposed galvanized bolt heads, washers and nuts shall be hand tool cleaned to the satisfaction of the Engineer, prior to the field color topcoat application.

The colored topcoat used to paint the exposed galvanized bolt heads, washers and nuts shall be from the same manufacturer and lot of colored topcoat that was shop applied to the metallized steel posts, tubes and plates.

During installation of the rail and any component parts, the Contractor shall take necessary precautions to prevent any injury or property damage from any falling materials.

All work shall proceed in accordance with the special provisions “Maintenance and Protection of Traffic” and “Prosecution and Progress.”

Method of Measurement:

This work will be measured for payment by the number of linear feet of bridge rail installed, complete and accepted, measured within the pay limits shown on the plans.

Basis of Payment:

This work will be paid for at the Contract unit price per linear foot for "3-Tube Curb Mounted Bridge Rail," complete and accepted in place, which price shall include all materials, equipment, tools, and labor incidental thereto.

The metallizing along with the field touch up painting of the steel plates, posts and rails are included for payment under the item “Metallizing Structural Steel (Site No. 1).

The field touch up painting of the galvanized fasteners is included for payment under the item “Metallizing Structural Steel (Site No. 1).

Pay Item	Pay Unit
3-Tube Curb Mounted Bridge Rail	l.f.

ITEM #0912503A – REMOVE METAL BEAM RAIL

Section 9.12 is supplemented as follows:

Article 9.12.01 – Description is supplemented with the following:
Work under this item shall also include the loading, transporting and unloading of the metal beam rail panels, posts and miscellaneous hardware designated for removal to the Town of Hebron Public Works Department. See Notice to Contractor-Salvage for further information.

Article 9.12.03 – Construction Methods is supplemented with the following:
Prior to commencement of work, the Contractor and Engineer shall inventory the existing rail system within the project limits to determine which materials are suitable for salvage.

Article 9.12.04.04 – Method of Measurement is supplemented with the following:
No separate measurement will be taken for the loading, transporting, and unloading of the salvaged metal beam rail panels, posts and miscellaneous hardware.

Article 9.12.05.04 – Basis of Payment is supplemented with the following:
The loading, transporting and unloading of the salvaged metal beam rail panels, posts and miscellaneous hardware shall be included in the unit price of this work.

Pay Item	Pay Unit
Remove Metal Beam Rail	l.f..

ITEM #0921022A – STONEDUST PATHWAY

DESCRIPTION:

The work under this item shall consist of the construction of a stonedust pathway surface of stone screenings in the locations and to the dimensions shown on the plans. Depth of the placed stonedust material shall be 6 inches or as ordered by Engineer.

MATERIALS:

Screenings shall be from bluestone or granitic parent material and conform to the gradation in Section M.01.03 of the Standard Specifications.

CONSTRUCTION METHODS:

Installation shall be performed in accordance with the provisions of Section 2.02 of the Standard Specifications.

Screenings shall be placed in one layer to the compacted dimensions shown on the Contract Drawings.

After the screenings are spread, they shall be thoroughly compacted. Water may be used during compaction. The direction and intensity of the stream shall be such that it will not disturb the surface and shall be approved by the Engineer.

Any surface irregularities which develop during, or after the work, shall be corrected by loosening material already in place and removing or adding material as required, after which the entire area, including the surrounding surface, shall be re-compacted and rebound until it is brought to a firm and uniform surface satisfactory to the Engineer.

METHOD OF MEASUREMENT:

This work will be measured by the actual number of square feet of "Stonedust Pathway" completed and accepted

BASIS OF PAYMENT:

This work will be paid for at the contract unit price per square foot for "Stonedust Pathway," complete in place, which price shall include all equipment, tools, labor, stone screenings, and materials incidental thereto for the completion of the work.

Pay Item	Pay Unit
Stonedust Pathway	s.f.

ITEM #0922503A – GRAVEL DRIVEWAY

DESCRIPTION:

This item shall consist of gravel surfaced driveways constructed in the locations and to the dimensions, lines, grades, and thickness shown on the plans and details, in accordance with these specifications, or as directed by the Engineer.

MATERIALS:

Subbase materials for this work shall conform to Article M.02.01.

Processed Aggregate: Materials for this work shall conform to Article M.05.01, except that the coarse aggregate shall be broken stone or gravel. No reclaimed materials may be used. Gradation shall meet the following requirements:

Square Mesh Sieves	Percent Passing by Mass
1 ½"	100
1"	90-100
¾"	75-100
¼"	30-60
#40	5-25
#100	3-12

CONSTRUCTION METHODS:

Excavation, including removal of any existing driveway, shall be made to the required depth below the finished grade, as shown on the plans or as directed by the Engineer. All soft and yielding material shall be removed and replaced with suitable material.

Subbase: Construction of subbase shall conform to Article 2.12.03.

Processed Aggregate: Installation of processed aggregate shall conform to Article 3.04.03.

Backfilling and Removal of Surplus Material: The sides of the driveway shall be backfilled with suitable material thoroughly compacted and finished flush with the top of the driveway. All surplus material shall be removed and the site left in a neat and presentable condition to the satisfaction of the Engineer.

METHOD OF MEASUREMENT:

Work for Gravel Driveway will be measured by the actual number of square yards of completed and accepted gravel driveway.

Excavation below the finished grade of the driveway, backfilling, and disposal of surplus material will not be measured for payment but the cost shall be included in the price bid for the driveway. Excavation above the finished grade of the driveway shall be paid for by the appropriate item of excavation.

BASIS OF PAYMENT:

This work will be paid for at the contract unit price per square yard for "Gravel Driveway", complete in place, which price shall include all excavation as specified above, processed aggregate, subbase, backfill, disposal of surplus material, and all equipment, tools, labor and materials incidental thereto.

Pay Item	**Pay Unit**
Gravel Driveway	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 identification and treatment methods for the control of invasive vegetation, including trees if present, as directed by the Engineer or their authorized delegate. This work will also include the removal and off-Site disposal of invasive vegetation from within the Project limits in accordance with the accepted IVRP.

The list of invasive vegetation to be controlled, removed, and disposed off-Site under this item can be found on the following websites:

- 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)

Materials: The herbicide shall be formulated as applicable for target-species foliar treatment or a flush cut/stump treatment. All herbicide applications shall be in accordance with Product label rates and in conjunction with Sections 22a-46 to 22a-66z of the Connecticut General Statutes (CGS).

Flagging tape, if used, shall be fluorescent, 'All-Weather' type, resistant to UV and water damage.

Stakes shall be survey-grade, as specified under Article 9.80.02.

Construction Methods: The Contractor shall be responsible to identify invasive vegetation at all times of the year and to prepare a plan for its control, removal, and off-Site disposal without assistance.

1. **IVRP:** Prior to any ground disturbance within the Project limits, the Contractor shall submit a proposed IVRP to the Engineer or their authorized delegate for review and comment. The Contractor shall address any comments to the satisfaction of the Engineer and resubmit their revised IVRP for review and acceptance.

   The IVRP shall include the following information:

   1) Proposed dates for the initial walk through of the invasive vegetated areas to be controlled and removed for off-Site disposal.

   2) Schedule identifying specific dates when herbicide treatment or mechanical excavation or removal of invasive species is to occur for the life of the Contract, including the 1-year warranty period that begins at Substantial Completion. The treatment schedule shall coincide with the Contractor's schedule.

   3) Plan sheets identifying the species of invasive vegetation and trees within the

Project limits showing the total square yards proposed to be controlled and removed for off-Site disposal. For each species of invasive vegetation present on-Site, the following shall be described:

a. Types and concentrations of any herbicides to be used to control the identified species for the life of the Contract, including any adjuvants, SDS sheets, types of tools, equipment, or machinery to be used.
b. Mechanical excavation and removal methods including the type of machinery to be used.

4) Provide proof of DEEP Pesticide Application Business registration pursuant to CGS Section 22a-66b, and certifications for each supervisor and operational commercial applicator on-Site or as required under CGS Sections 22a-54 to 22a-58. All Contractors physically applying pesticides on Department construction Projects to treat invasive vegetation in the State highway right-of-way must ensure that the "6 Rights-of-Way Pest Control" certification is held by at least one Commercial Supervisory Pesticide Applicator employed at the Pesticide Application Business. If the applicator does not have a commercial supervisory certificate, then the applicator must have a junior operator certificate in "6 Rights-of-Way Pest Control" and operate under the written or in-person directions of the supervisor who is certified in "6 Rights-of-Way Pest Control." More information on DEEP certifications and permits for applying pesticides is available at the Pesticide Management Program page website. The Department reserves the right to require additional DEEP certifications based on Project Site specific requirements.

5) A description of safety equipment required.

6) Procedures for handling chemical spills.

7) Proposed disposal methods:

a. Procedures for off-Site removal of invasive vegetation including trees.
b. Provide address of disposal location, current permits / letters from the town authorizing such activity and a Site map (showing regulated areas).
c. **Invasive vegetation shall not be buried on-Site.**

If changes are required to the accepted IVRP during the life of the Contract (including registration/certification changes for the personnel applying pesticides or new invasive species not previously identified in the original IVRP submission) or additional invasive vegetation control and/or removal are ordered by the Engineer, these changes shall be documented by the Contractor and resubmitted to the Engineer or their authorized delegate for review and acceptance. Only those changes recommended by the appropriately licensed supervisor/ applicator will be considered. At no time shall the Contractor direct or advise workforces on the pesticide treatment. All direction must be generated from the licensed Pesticide Application Business and approved by the Engineer.

The IVRP or any amended version must be accepted by the Engineer or their authorized delegate prior to beginning of any mechanical excavation or herbicide treatment in the areas which require invasive species control, removal and off-Site disposal as identified Contractor's marked up plan sheets. The accepted methods must be capable of total control and removal of all identified invasive species in the identified areas throughout the life of the Contract and the 1-year warranty period.

2. Special Handling of Invasive Species Vegetation: The Contractor will be allowed to mechanically excavate invasive vegetation and underlying soils using the accepted methods in the IVRP. The accepted methods must be capable of the removal of all soil to a depth where invasive plant material and root system is no longer evident, to the satisfaction of the Engineer or their authorized delegate. Suitable material shall be provided and placed to final grade as shown on the plans or as directed by the Engineer.

All excavated invasive vegetation and underlying soils shall be considered an unsuitable material and must be removed separately from clearing and grubbing operations and disposed of off-Site at an approved location as described in the Contractor's IVRP.

Whether the Contractor's method of removal is by flush cutting/stump treatment or spraying of herbicides, invasive species, including trees identified as invasive in the above websites or IVRP, must be removed separately from clearing and grubbing operations and disposed of at an approved location as described in the Contractor's IVRP.

The Contractor will not be allowed to strip/cut topsoil from any location and reuse this material within the Project limits identified within the IVRP as an area requiring treatment. The stripped/cut material is considered unsuitable material and is to be taken off-Site to an approved disposal facility as described in the Contractor's IVRP.

Wood chips from invasive species are not allowed to be stockpiled or reused on-Site. Wood chipping on-Site may be allowed to remain on-Site if temporarily stored in a properly contained enclosure and removed off-Site at the end of the treatment cycle, to the satisfaction of the Engineer or their authorized delegate.

No equipment or vehicles other than those required to complete the work as described in the Contractor's IVRP 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.

3. Site Maintenance: 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, they shall be replaced with in-kind species at the Contractor's expense.

Vines shall be cut from the ground to the tree canopy. Twining vines within a tree canopy shall be removed to the greatest extent possible without damaging the existing tree to remain. Should

branches be damaged, the Contractor shall prune damaged limbs at their expense. All corrective pruning shall meet the requirements of the National Arborists Association Pruning Standards. Note: Use of aerial equipment is encouraged; use of a pole saw to cut vines leaving unsightly debris hanging from the trees will not be allowed.

Flush cutting/stump treatment of brush and trees shall not be more than 2 inches above the ground line.

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. Disturbed areas shall be vegetatively stabilized with the appropriate seed mix and protected with hay mulch, cellulous fiber mulch, or erosion control matting.

Limits for control and removal of invasive vegetation shall be maintained for the life of the Contract. Should stakes or flagging be damaged during the course of construction, the Contractor shall re-establish limits. Use of reference staking is permissible.

4. Field Meetings: The Contractor's IVRP must receive acceptance from the Engineer, or their authorized delegate and have the Site surveyed, staked, and flagged prior to any field meeting.

The Contractor shall provide at least 10 working days' notice to the Engineer for any scheduled field meeting(s) as described in the IVRP. During the meeting, the Contractor's IVRP shall be reviewed to verify the identified invasive species and to review the square yardage on the marked-up plan sheet(s). At this time, the Engineer or their authorized delegate may identify additional invasive species or designate additional areas for removal that are not included within the Contractor's submitted IVRP.

Additional field meetings may be warranted at any time, as directed by the Engineer or their authorized delegate, to ensure the Contractor is compliant with the IVRP or amended versions.

5. Treatment: The treatment schedule as identified in the IVRP may be modified based on changes to the Contractor's construction schedule or based on existing field conditions. The Contractor shall provide at least 10 working days' notice to the Engineer or their authorized delegate prior to proceeding with each treatment.

Treatment of invasive species will not be permitted without notifying the Engineer or their authorized delegate prior to activity and such personnel shall be on-Site to observe the work, unless specifically authorized otherwise. Treatment shall not be permitted outside of normal working hours, unless specifically authorized.

Prior to any herbicide treatment on-Site, the Contractor shall provide proof of DEEP Pesticide registration/certification, as specified above in **1. IVRP**. The Contractor shall not perform, nor allow subcontractors to perform, any treatment work at any time unless proof of current registration/certification for the actual supervisor and operator conducting or overseeing the herbicide application is available to the Engineer, upon request.

At a minimum, the Contractor shall treat all areas within the optimal growing season between April 15 and October 15. Additional spot treatment measures may be warranted within the same optimal growing season in any year throughout the life of the Contract if full control and removal of the invasive species is not achieved within the Project limits as outlined in the IVRP or as identified by the Engineer or their authorized delegate. When herbicide is used, a minimum of 10 working days is required prior to clearing and grubbing, planting, and seeding operations, so the herbicide application can take effect.

Mechanical excavation and disposal may occur at any time of the year as specified above in **2. Special Handling of Invasive Species Vegetation**.

If rain or windy conditions are anticipated on the day of the scheduled treatment, the Contractor will not be allowed to proceed, unless authorized by the Engineer or their authorized delegate.

Method of Measurement: The work to remove invasive vegetation, as defined above, will be measured for payment by the number of square yards of invasive vegetation surveyed, treated, and removed as required, including any required re-treatment of any regrowth or new growth. This work shall also include the removal of invasive trees, if present. No additional payment will be made for subsequent treatments.

All areas for removal shall be surveyed, flagged, and measured prior to treatment. After a review of the surveyed limits during the field meeting(s), the Engineer may designate additional areas for removal not indicated on the plans which will be measured for payment by the number of square yards treated.

Basis of Payment: The work for the removal of invasive vegetation and trees will be paid for at the Contract unit price per square yard for "Control and Removal of Invasive Vegetation." Payment shall include all labor, surveys, materials, tools, and equipment necessary for limits of the invasive area(s); development and required revisions of the IVRP; maintenance of the limits throughout the Project; species identification; proof of DEEP pesticide registration/certification; and cutting, excavation and replacement of in-kind material, treating, re-treating, removal, and off-Site disposal of designated invasive plant and tree material. Off-Site disposal of residue shall include the loading, transport, dumping, and fees associated with legal off-Site disposal.

- Upon Engineer's acceptance of the required IVRP, the Contractor will receive payment equal to 10% of the estimated Contract Item value.
- Upon completed initial herbicide or mechanical removal treatment methods as described in the IVRP, the Contractor will receive payment equal to 20% of all areas receiving treatment.
- The Contractor will receive incremental payments for each additional treatment throughout the duration of the Project of all areas receiving treatment. The total of incremental payments will not exceed 40% of the Contract item value.
- Upon successful completion of the 1-year warranty period covering all treated areas on the Project, the Contractor will receive final payment.
- Any fines levied against the Department due to the Contractor's or Subcontractor's failure to

comply with the specifications or applicable regulations will be deducted from the monies due the Contractor.

All other vegetation to be removed which is not designated as invasive vegetation or invasive tree shall be removed in accordance with the Item "Clearing and Grubbing" or other Contract items. Vegetative stabilization of disturbed areas will be paid for under the respective Contract items.

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 documents, adequate weatherproof office quarters with related furnishings, materials, equipment, and other services, shall be provided by the Contractor for the duration of the work, and if necessary, for a close-out period determined by the Engineer. The office, furnishings, materials, equipment, and services are for the exclusive use of Municipal forces and others who may be engaged to augment Municipal forces with relation to the Contract. The office quarters shall be located convenient to the work site and installed in accordance with Article 1.08.02. This office shall be separated from any office occupied by the Contractor. Ownership and liability of the office quarters shall remain with the Contractor.

Furnishings/Materials/Supplies/Equipment: All furnishings, materials, equipment, and supplies shall be in like new condition for the purpose intended and require approval of the Engineer.

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

Description\ Office Size	Medium
Minimum Sq. Ft. of floor space with a minimum ceiling height of 7 ft.	720
Minimum number of exterior entrances.	2
Minimum number of parking spaces.	7

Office Layout: The office shall have a minimum square footage as indicated in the table above and shall be partitioned as shown on the building floor plan as provided by the Engineer.

Unless otherwise approved by the Engineer, office space shall be partitioned into segregated work areas for each user as follows:

A. Each work area (or cubicle) shall be a minimum of 8 feet × 8 feet, with full height walls or tall cubicle partitions (minimum 6 feet high), placed to provide a minimum of 6 feet walking space around and between each user work area (for social distancing).
B. Only one user (workstation/desk) per work area.
C. Desks, tables, and other work surfaces shall be arranged so that adjacent users do not face each other.

Tie-downs and Skirting: Modular offices shall be tied down and fully skirted to ground level.

Lavatory Facilities: For field offices' sizes Small and Medium the Contractor shall furnish a toilet facility at a location convenient to the field office for use by Municipal personnel and such assistants as they may engage. For all facilities the Contractor shall supply lavatory and sanitary supplies as required.

Windows and Entrances: The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds, and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. All keys to the construction field office shall be furnished to the Municipality and will be kept in their possession while Municipal personnel are using the office. Any access to the entrance ways shall meet applicable building codes, with appropriate handrails. Stairways shall be ADA/ABA compliant and have non-skid tread surfaces. An ADA/ABA compliant ramp with non-skid surface shall be provided with the Extra-Large field office.

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

Parking Facility: The Contractor shall provide a parking area, adjacent to the field office, of sufficient size to accommodate the number of vehicles indicated in the table above. If a paved parking area is not readily available, the Contractor shall construct a parking area and driveway consisting of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

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

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

A. 120/240 volt, 1 phase, 3 wire

B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.

C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.

D. Additional 120-volt, single phase, 20-amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each desk and personal computer table (workstation) location.

E. Additional 120-volt, single phase, 20-amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.

F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.

G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120-volt, straight blade.

H. After work is complete and prior to energizing, the Municipality's electrical inspector must be contacted.

Heating, Ventilation and Air Conditioning (HVAC): The field office shall be equipped with sufficient and properly operating, heating, air conditioning, and ventilation equipment to maintain a temperature range of 68º-80º Fahrenheit within the field office. The Contractor shall increase ventilation rates and increase the percentage of outdoor air that circulates into the system where possible.

Telephone Service: The Contractor shall provide telephone service with unlimited nation-wide calling plan. For a Small and Medium field office this shall consist of the installation of one (1) telephone line for phone/voice service

Data Communications Facility Wiring: The Contractor shall supply cables to connect the Computer(s), Wi-Fi printer and Multi-Function Laser Printer/Copier/Scanner to the Contractor supplied internet router and to workstations/devices as needed.

Additional Equipment, Facilities and Services: The Contractor shall provide at the field office at least the following to the satisfaction of the Engineer:

Furnishing Description	Office Size Medium Quantity
Office desk (2.5 ft. x 5 ft.) with drawers, locks, and matching desk chair(s) that have pneumatic seat height adjustment and dual wheel casters on the base.	3
Personal computer tables (4 ft. x 2.5 ft.).	3
Drafting type tables (3 ft. x 6 ft.) and supported by wall brackets and legs; and matching drafter's stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base.	1
Office Chairs.	4
Fire resistant cabinet (legal size/4 drawer), locking.	1
Vertical plan racks for 2 sets of 2 ft. x 3 ft. plans for each rack.	1
Case of cardboard banker boxes (Min 10 boxes/case)	1
White Dry-Erase Board, 36" x 48" min. with markers and eraser.	1
Wastebaskets - 30 gal., including plastic waste bags.	1
Wastebaskets - 5 gal., including plastic waste bags.	3
Electronic Level	1
Telephone.	2

Furnishing Description	Office Size Medium Quantity
Full size stapler 20 (sheet capacity, with staples)	2
Desktop tape dispensers (with Tape)	2
8 Outlet Power Strip with Surge Protection	4
Rain Gauge	1
Mini refrigerator - 3.2 c.f. min.	1
Hot and cold-water dispensing unit. Disposable cups and bottled water shall be supplied by the Contractor for the duration of the project.	1
Microwave, 1.2 c.f., 1000W min.	1
Fire extinguishers - provide and install type and *number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.	*
Electric pencil sharpeners.	2
Multi-Function Laser Printer/Copier/Scanner combination unit, network capable, as specified below under Field Office Technology	1
Field Office Internet Service and Hardware as specified below under Field Office Technology	1
Digital Camera as specified below under Field Office Technology	1
Infrared Thermometer, including annual third-party certified calibration, case, and cleaning wipes.	1
Concrete Curing Box as specified below under Concrete Testing Equipment.	1
Concrete Air Meter and accessories as specified below under Concrete Testing Equipment as specified below. Contractor shall provide third party calibration on a quarterly basis.	1
Concrete Slump Cone and accessories as specified below under Concrete Testing Equipment.	1
First Aid Kit	1
T-handle concrete cylinder mold splitter as specified below under Concrete Testing Equipment	1

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.

Field Office Technology: The Contractor shall supply by its own means the actual Personal Computer(s) for the Municipal representatives. The Contractor shall supply the internet service connection, Contractor supplied modem, associated hardware, Digital Camera(s), Wi-Fi Printer, Multifunction Laser Printer/Copier/Scanner, Teleconferencing Equipment, associated hardware and software meeting the requirements of this specification, as well as the latest minimum specifications posted, as of the Project advertising date, at CTDOTs Construction Field Office Technology web site.

Within 10 calendar days after the signing of the Contract, but before ordering/purchasing the Computer(s), Digital Camera(s), Wi-Fi Printer (separate from the Multifunction Laser Printer/Copier/Scanner), Field Office Wi-Fi, Multifunction Laser Printer/Copier/Scanner, as well as associated hardware, the Contractor must submit a copy of their proposed order(s) with catalog cuts and specifications to the Municipality or their proposed Representative for review and approval. The Computer(s), Wi-Fi printer, modem and digital cameras will be reviewed by Municipal Personnel or their Representative for approval. The Multifunction Laser Printer/Copier/Scanner will be reviewed by Municipal Personnel or their Representative. The Contractor shall not purchase the hardware, software, or services until the Municipality, or their Representative informs them that the proposed equipment, software, and services are approved. The Contractor will be solely responsible for the costs of any hardware, software, or services purchased without approval.

The Contractor and/or their internet service provider shall be responsible for the installation and setup of the field office Wi-Fi/internet service, Wi-Fi printer, Computer(s) and the configuration of the wireless router as directed by the Municipality. Installation will be coordinated with Municipal and Project personnel.

After the approval of the hardware and software, the Contractor shall contact the designated representatives of the Municipality, a minimum of 2 working days in advance of the proposed delivery or installation of the Field Office Wi-Fi / Internet Service Connection, Wi-Fi Printer, Computer(s), Digital Camera(s), Multifunction Laser Printer/Copier/Scanner as well as associated hardware, software, supplies, and support documentation.

The Contractor shall provide all supplies, paper, maintenance, service, and repairs (including labor and parts) for the computer(s), Wi-Fi printer(s), copiers, field office Wi-Fi / internet service, and other equipment and facilities required by this specification for the duration of the Contract. All repairs of contractor supplied equipment and internet service must be performed within 48 hours. If the repairs require more than 48 hours, then an equal or better replacement must be provided.

Once the Contract has been completed, the Contractor supplied hardware, and software will remain the property of the Contractor.

First Aid Kit: The Contractor shall supply a first aid kit adequate for the number of personnel expected based on the size of the field office specified and shall keep the first aid kit stocked for the duration that the field office is in service.

Rain Gauge: The Contractor shall supply, install and maintain a rain gauge for the duration of the Project, meeting these minimum requirements. The rain gauge shall be installed on the top of a post such that the opening of the rain gauge is above the top of the post an adequate distance to avoid splashing of rainwater from the top of the post into the rain gauge. The location of the rain gauge and post shall be approved by the Engineer. The rain gauge shall be made of a durable material and have graduations of 0.1 inches or less with a minimum total column height of 5 inches. If the rain gauge is damaged the Contractor shall replace it prior to the next forecasted storm event at no additional cost.

Electronic Level: The Contractor shall supply and maintain in working order, for the duration of the Contract, the number of electronic levels, identified in the Additional Equipment, Facilities and Services table of this specification. The electronic level(s) shall meet the following requirements:

A. 48-inch length, box beam type

B. IP65 water and dust proof

C. 0.1-degree accuracy

D. Backlit display

E. Carrying case included

F. New or like new condition

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following equipment.

A. Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.
B. Air Meter – The air meter provided shall be in good working order and meet the requirements of AASHTO T 152.
C. Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T 119, Standard Test Method for Slump of Hydraulic-Cement Concrete.
D. T-handle concrete cylinder mold splitter.

All testing equipment will remain the property of the Contractor at the completion of the Project.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of five thousand dollars ($5,000) to insure all Contractor supplied data equipment and supplies used in the office against all losses. The Contractor shall be named insured on that policy, and the Municipality shall be an additional named insured on the policy. Insured losses shall include, but not be limited to, theft, fire, and physical damage. In the event of loss, the Contractor shall provide replacement equipment in accordance with current CTDOT equipment specifications, within seven days of notice of the loss. If the Contractor is unable to provide the required replacement equipment within seven days, the Municipality 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 Municipality will reimburse the Contractor for replacement costs exceeding the amount of the required coverage.

Maintenance: During field office occupancy by the Municipality, 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 professional cleaning including vacuuming carpet, washing and waxing floors, cleaning restrooms, removal of trash, general cleaning, 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 way 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 Municipality 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, Medium will be measured for payment by the number of calendar months that the office is in place and in operation, rounded up to the nearest month.

There will not be any price adjustment due to any change in the minimum computer-related hardware and software requirements.

Basis of Payment: The furnishing and maintenance of the Construction Field Office will be paid for at the Contract unit price per month for "Construction Field Office, Medium," which price shall include all material, equipment, labor, service contracts, licenses, software, repair or replacement of hardware and software, related supplies, utility services, parking area, external illumination, trash removal, snow and ice removal, and work incidental thereto, as well as any other costs to provide requirements specified herein.

Pay Item	Pay Unit
Construction Field Office, Medium	Month

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description *is supplemented by the following:*

The Contractor shall maintain and protect traffic as described by the following and as limited in the special provision for Section 1.08 - Prosecution and Progress:

Old Colchester Road

The Contractor shall maintain and protect a minimum of 1 lane of traffic in each direction with each lane on a paved travel path not less than 11 feet in width, with the following exceptions:

1. During the allowable periods and when the Contractor is actively working, the Contractor will be permitted to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width and no more than 300 feet in length, unless specified elsewhere in the Contract. There shall be no more than one alternating one-way traffic operation within the Project limits without prior approval of the Engineer.

2. The Contractor will be permitted to close Old Colchester Road to through traffic and detour traffic as shown on the Detour Plans. The Contractor shall notify the Engineer and the Town of Hebron at least two weeks prior to the Roadway Closure to ensure that ample time is provided to notify all Town Departments, Emergency Services, Buses, and any other Entity that may be affected by the Detour.

Commercial and Residential Driveways

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the Project limits. The Contractor will be permitted to temporarily close affected driveways while actively working with coordination and permission from the owner or proprietor.

Air Line State Park Trail and Parking Lot

The Contractor shall maintain pedestrian and bicycle access to the Air Line State Park Trail at all times during construction.

Article 9.71.03 - Construction Methods *is supplemented as follows:*

General

Unpaved travel paths will only be permitted for areas requiring full depth and full width reconstruction. The unpaved section shall be the full width of the road and shall be perpendicular to the travel lanes. The Contractor will be allowed to maintain traffic on processed aggregate for a duration not to exceed 10 calendar days and opposing traffic lane dividers shall be used as a centerline.

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

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway or bridge section by the end of a work shift, or as directed by the Engineer.

When the installation of all intermediate courses of bituminous concrete pavement is completed for the entire roadway, the Contractor shall then install the final course of bituminous concrete pavement.

When the Contractor is excavating adjacent to the roadway, the Contractor shall provide a 3-foot shoulder between the work area and travel lanes, with traffic drums spaced every 50 feet. At the end of the work shift if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary bituminous concrete traversable slope of 4:1 or flatter that is acceptable to the Engineer.

The Contractor, during the course of any active overhead construction work, shall close the lanes directly below the work area for the entire length of time overhead work is being undertaken.

At no time shall an overhead sign be left partially removed or installed.

When an existing sign is to be relocated or replaced, the work shall be completed during the same work shift.

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

Existing Signing

The Contractor shall maintain all existing overhead and side-mounted signs within the Project limits throughout the duration of the Project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary and shall install temporary sign supports if necessary and as directed by the Engineer.

Requirements for Winter

The Contractor shall schedule a meeting with representatives of the Department, including the offices of Maintenance and Traffic, and the Town/City to determine any interim traffic control measures the Contractor shall accomplish prior to winter to provide safety to motorists and permit adequate snow removal procedures. This meeting shall be held prior to October 31 of each year and will include, but not be limited to, discussion of the status and schedule of the following items: lane and shoulder widths, pavement restoration, traffic signal work, pavement markings, and signing.

Signing Patterns

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory.

Pavement Markings - Non-Limited Access Roadways

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the Project.

Temporary pavement markings shall be installed on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work shift.

Permanent Epoxy Resin Pavement Markings shall be installed on the final course of bituminous concrete pavement within 10 calendar days of the final pavement installation if no Pavement Marking Grooves are proposed.

Temporary Pavement Markings

Temporary pavement markings that will be in place for less than 72 continuous hours may consist of temporary plastic pavement marking tape at the Contractor's expense. Additionally;

1. These temporary pavement markings shall include centerlines, lane lines (solid and broken), and stop bars.
2. Centerlines shall consist of two 4-inch-wide yellow markings, 2 feet in length, side by side, 4 inches apart, at 40-foot intervals.
3. Lane lines shall consist of 4-inch-wide white markings, 2 feet in length, at 40-foot intervals.
4. No passing zones shall be posted with signs in those areas where the final centerlines have not been established on two-way roadways.
5. Stop bars may consist of two 6-inch-wide white markings or three 4-inch-wide white markings placed side by side.
6. The temporary plastic pavement marking tape shall be installed in accordance with Section 12.12.
7. The Contractor shall remove and dispose of the temporary plastic pavement marking tape prior to another course of bituminous concrete pavement being installed.

Temporary pavement markings that will be in place for 72 continuous hours or more should consist of temporary painted pavement markings and shall be installed in accordance with Section 12.09. The markings shall include centerlines, edge lines, lane lines (solid and broken), lane-use arrows, and stop bars on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work shift Edge lines and lane-use arrows are not required if the next course of bituminous concrete pavement will be placed within 10 calendar days.

All temporary pavement markings exposed throughout the winter shall be Epoxy Resin Pavement Markings, unless directed otherwise by the Engineer.

Temporary pavement markings, as described above, shall be maintained until the permanent pavement markings are installed.

Final Pavement Markings

Refer to Pavement Marking Groove special provisions for pavement marking requirements. Permanent epoxy resin pavement markings shall be installed in accordance with Section 12.10 and the applicable Traffic Engineering Standard Drawings.

If Temporary Plastic Pavement Marking Tape is installed, then the Contractor shall remove and dispose of these markings during the same work shift that the permanent epoxy resin pavement markings are to be installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

Traffic Control During Construction Operations

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for a safer and more efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

Traffic Control Patterns

Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder or is within the clear zone. For each situation, the installation of traffic control devices shall be based on the following:

- Speed and volume of traffic.
- Duration of operation.
- Exposure to hazards.

Traffic control patterns shall be uniform, neat, and orderly in order to command respect from the motorist.

Lane reduction tapers should be placed so that the entire length of the taper is installed on a tangent section of roadway and the entire taper area can be seen by the motorist.

All existing conflicting signs shall be removed, covered with an opaque material, or turned so that they are not legible to oncoming traffic prior to implementing a traffic control pattern. The existing signs shall be uncovered or reinstalled once the pattern is removed.

A buffer area should be provided during installation of a traffic control pattern and maintained for the duration of the work. The buffer area shall be free of any equipment, workers, materials, and parked vehicles.

Construction Traffic Control Plans 19 through 25 should be used for moving operations such as line striping, rumble strips, pothole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns are not required for vehicles on an emergency patrol type activity or for a short duration stop of up to one hour, as long as the equipment is contained within the shoulder.

Flashing lights, arrow boards, truck-mounted or trailer-mounted impact attenuators, and appropriate Trafficperson(s) shall be used when required.

In a situation not adequately covered by the Construction Traffic Control Plans, the Contractor shall contact the Engineer for assistance prior to setting up a traffic control pattern.

Placement of Signs

Signs shall be placed in a position that allows motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs shall be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads) where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

Allowable Adjustment of Signs and Devices Shown on the Construction Traffic Control Plans

The Construction Traffic Control Plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans.

The proper application of the Construction Traffic Control Plans and installation of traffic control devices is dependent upon actual field conditions.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

Adjustments to the Construction Traffic Control Plans shall only be made at the direction of the Engineer.

Table 1 indicates the minimum taper lengths required for a lane closure based on the posted speed limit and lane width of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the Construction Traffic Control Plans cannot be achieved.

Table 1 – Minimum Taper Length

POSTED SPEED LIMIT (MPH)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE (FEET)	
	FREEWAYS	SECONDARY ROADS
30 OR LESS	180	165
35	245	225
40	320	295
45	540	495
50	600	550
55	660	605
65	780	715

1. Work Zone Safety Meetings

1.a) Prior to the commencement of work, a Work Zone Safety Meeting shall be conducted with representatives from DOT Construction, Connecticut State Police (Local Barracks), Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the Project. DOT Traffic Engineering shall be invited to the Work Zone Safety Meeting. Other Work Zone Safety Meetings during the course of the Project should be scheduled as needed.

1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the Meeting to outline the anticipated traffic control issues during the construction of this Project. Any issues that can't be resolved at these Meetings will be brought to the attention of the District Engineer and the Office of Construction. The agenda shall include:

i. Review Project scope of work and time;
ii. Review Section 1.08, Prosecution and Progress;
iii. Review Section 9.70, Trafficpersons;
iv. Review Section 9.71, Maintenance and Protection of Traffic;
v. Review Contractor's schedule and method of operations;
vi. Review special concern areas: ramps, turning roadways, medians, lane drops, etc.;
vii. Open discussion of work zone questions and issues;
viii. Discussion of review and approval process for changes in Contract requirements as they relate to work zone areas.

2. General

2.a) Traffic control patterns shall only be installed if the required minimum number of signs, traffic cones, traffic drums, and other equipment (i.e. one Arrow Board for each lane closed, two Truck-Mounted or Trailer-Mounted Attenuators (TMAs), Changeable Message Sign, etc.) are on Site.

2.b) The Contractor shall have spare maintenance and protection of traffic equipment (TMAs, Arrow Board, Changeable Message Sign(s), construction signs, traffic cones, traffic drums, etc.) available at all times in case of mechanical failures, etc. Spare maintenance and protection of traffic equipment installed as a result of a sudden equipment breakdown shall be replaced by the Contractor within 24 hours.

2.c) Failure of the Contractor to have the required minimum number of signs, personnel, and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for lost time.

2.d) In cases of differences of opinion between the Contractor and the Inspection staff, the Contractor shall follow the directions of the Engineer. The matter shall be brought to the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

3. Installing and Removing Traffic Control Patterns

3.a) Lane closures shall be installed beginning with the advance warning signs and proceeding forward toward the work area.

3.b) Lane closures shall be removed in the reverse order, beginning at the end of the work area, or traffic control pattern, and proceeding back toward the advance warning signs.

3.c) Stopping traffic may be allowed within the allowable hours stated in Section 1.08.04:

i. For those activities stated within the Contract.
ii. During paving, milling operations, or similar activities where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway so traffic does not travel across the longitudinal joint or difference in roadway elevation.
iii. To move slow moving equipment across live traffic lanes into the work area.

3.d) The Contractor shall adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.

3.e) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travel path prior to merging with or exiting from the mainline traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.

3.f) Workers are prohibited from crossing the travel lanes on limited access roadways to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

4. Implementation of Rolling Road Block (RRB)

4.a) Temporary road closures using a RRB may be allowed on limited access highways for operations associated with the installation and removal of temporary lane closures. RRB may be allowed for the installation and removal of lead signs and lane tapers only and shall meet the following requirements:

i. Refer to the Limitation of Operations Chart provided in Section 1.08.04 for the hours allowed for implementing a RRB operation. The Contractor shall only implement a RRB operation within the hours shown in the Chart.
ii. In areas with good sight lines and full shoulders, signs on the side of the road opposite the traffic pattern should be installed in a separate operation.
iii. TMAs equipped with Arrow Boards shall be used to slow traffic to implement the RRB. State Police Officers in marked vehicles may be used to support the implementation of the RRB. The RRB shall start by having all vehicles, including TMAs and police vehicles, leave the shoulder or on-ramp and accelerate to normal

roadway speeds in each lane. The vehicles will then position themselves side by side and decelerate to the RRB speed on the highway.

iv. A Pre-Warning Vehicle, as specified elsewhere in the Contract, shall be used to advise the motorists that sign pattern installation or removal is underway.

v. The RRB duration shall not exceed 15 minutes from the start of the traffic block until all lanes are opened as designated in the Limitation of Operations chart. If the RRB duration exceeds 15 minutes on 2 successive shifts, no further RRB will be allowed until the Contractor obtains approval for a revised installation procedure from the District.

vi. RRB shall not be used to expand a lane closure pattern to an additional lane during the shift. The workers and equipment required to implement the additional lane closure should be staged from within the closed lane. TMAs (and State Police if available) shall be used to protect the workers installing the taper in the additional lane.

vii. Exceptions to these work procedures may be submitted to the District Office for consideration. A minimum of 2 business days shall be allowed for review and comment by the District.

viii. The Engineer and the Contractor will review and discuss the RRB procedures (including any revisions) in advance of the work. The implementation of the agreed upon plan will be reviewed with the State Police during the Work Zone Safety Meeting held before each shift involving temporary lane closures. If the State Police determine that alternative procedures should be implemented for traffic control during the work shift, the Department and Contractor will attempt to resolve any discrepancies with the duty sergeant at the Troop. If the discrepancies are unable to be resolved prior to the start of the shift, then the work will proceed as recommended by the Department. Any unresolved issues shall be addressed the following day.

5. Use of Arrow Boards

5.a) On limited access roadways, one Arrow Board shall be used for each lane that is closed. The Arrow Board shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the Construction Traffic Control Plans. Additional Arrow Boards shall be deployed if sight distances are limited.

5.b) On non-limited access roadways, the use of an Arrow Board for lane closures is optional. The roadway geometry, sight distance, and traffic volume shall be considered in the decision to use the Arrow Board.

5.c) A vehicle displaying an arrow board shall be equipped with high-intensity rotating, flashing, oscillating, or strobe lights.

5.d) The flashing arrow mode shall be used for lane closure (merge) tapers.

5.e) The flashing arrow mode shall not be used for temporary alternating one-way traffic operations or to laterally shift lanes of traffic.

5.f) The flashing double arrow mode shall only be used for closing a center lane on a multilane roadway where adjacent left and right lanes remain open.

5.g) For shoulder work or roadside work near the shoulder, the Arrow Board shall be positioned in the shoulder and the flashing alternating diamond mode should be used.

5.h) The flashing alternating diamond caution mode should also be used when supplemental Arrow Boards are positioned in an already closed lane.

6. Use of Truck-Mounted or Trailer-Mounted Impact Attenuators (TMAs)

6.a) On limited access roadways, lane closures shall use a minimum of two TMAs to install and remove traffic control patterns. If two TMAs are not available, then the pattern shall not be installed.

6.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume shall be considered in the decision to utilize the TMAs.

6.c) On limited access roadways, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane to establish the advance and transition signing. The Arrow Board mounted on the TMA shall be in the arrow mode when taking the lane. The sign truck and workers shall be at sufficient distance ahead of the second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, the TMAs shall travel in the closed lane until all Portable Changeable Message Signs, signs, Arrow Boards, and cones/drums are installed. The Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when traveling in the closed lane.

6.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs shall be positioned at each additional work area as needed. The Arrow Board mounted on the TMA should be in the flashing alternating diamond caution mode when in the closed lane.

6.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to Section 18.06. Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) shall be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.

6.f) TMAs will be paid for in accordance with how the unit is used. If it is used as a TMA and is in the proper location as specified, then it will be paid for at the specified hourly rate for Truck-Mounted or Trailer-Mounted Impact Attenuator. When the TMA is used as an Arrow Board, it will be paid for at the daily rate for Arrow Board. If a TMA is used to install and remove a pattern and is also used as an Arrow Board in the same day, then the unit will be paid for as a Truck-Mounted or Trailer-Mounted Impact Attenuator for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove). If the TMA is also used as an Arrow Board during the same day, then the unit will only be paid for at the daily rate as an Arrow Board.

7. Use of Traffic Drums and Traffic Cones

7.a) On limited-access highways, ramps, and turning roadways:

i. Traffic drums shall be used for taper channelization.
ii. Traffic drums shall be used to delineate raised catch basins and other hazards.
iii. Traffic cones with a minimum height of 42 inches may be used in place of drums in the tangent section of a closed lane or shoulder.
iv. Traffic cones less than 42 inches in height shall not be used.

7.b) On all roadways:

i. Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.
ii. Traffic cones shall not be left unattended.
iii. Traffic cones with a minimum height of 42 inches shall be used when the posted speed limit is 45 MPH or above.

7.c) Typical spacing of traffic drums and/or cones shown on the Construction Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

8. Use of Barricade Warning Lights

8.a) Barricade Warning Lights may be installed on channelizing devices when used in a merge taper. The Barricade Warning Lights shall flash in a sequential pattern when used in a merge taper. The successive flashing shall occur from the upstream end (beginning) of the merge taper to the downstream end (end) of the merge taper.

8.b) Type C Barricade Warning Lights may be used at night to delineate the edge of the travel way.

8.c) Type B Barricade Warning Lights shall be used on post-mounted advanced warning signs.

9. Use of Portable Changeable Message Signs (PCMS)

9.a) On limited access roadways, one PCMS shall be used in advance of the traffic control pattern for all lane closures. Prior to installing the pattern, the PCMS shall be installed and in operation, displaying the appropriate lane closure information. The PCMS shall be positioned ½ to 1 mile ahead of the start of the lane closure taper. If the distance to the nearest exit ramp is greater than the specified ½ to 1 mile distance, then an additional PCMS shall be positioned a sufficient distance ahead of the exit ramp (and before the previous on-ramp where practical) to alert motorists to the work and therefore offer them an opportunity to take the exit.

9.b) On non-limited access roadways, the use of PCMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume shall be considered in the decision to use the PCMS.

9.c) PCMS should be placed off the shoulder of the roadway and behind a traffic barrier, if practical. Where a traffic barrier is not available to shield the PCMS, it should be placed off the shoulder and outside of the clear zone. If a PCMS has to be placed on the shoulder of the roadway or within the clear zone, it should be placed on the paved shoulder with a minimum of five traffic drums placed in a taper in front of it to delineate its position. The taper shall meet minimum distance requirements for a shoulder closure. The PCMS shall be protected if it is used for a continuous duration of 36 hours or more.

9.d) The PCMS shall be removed from the clear zone and have the display screen cleared and turned 90 degrees away from the roadway when the PCMS is no longer required.

9.e) The PCMS should not be used within 1,000 feet of an existing PCMS or Variable Message Sign (VMS).

9.f) A PCMS message shall:

i. consist of no more than two phases;
ii. contain no more than three lines of text per phase;
iii. have no more than eight characters per line, including spaces.

9.g) The PCMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs. The PCMS should not be used for generic messages (ex.: Road Work Ahead, Bump Ahead, Gravel Road, etc.) or for messages that need to be displayed for long periods of time, such as during stage construction. These types of messages should be displayed with construction signs. Special signs shall be coordinated with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.

9.h) Typical messages that are allowed on the PCMS are shown below. Approval must be received from the Office of Construction for any message(s) different than the typical messages shown in Figure 1.

9.i) All messages shall comply with the information provided in Tables 2 and 3.

Message No.	Phase 1	Phase 2	Message No.	Phase 1	Phase 2
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	EXIT XX CLOSED	USE EXIT YY
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	EXIT XX CLOSED USE YY	FOLLOW DETOUR
5	RIGHT LANE CLOSED	MERGE LEFT	13	2 LANES SHIFT AHEAD	USE CAUTION
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	3 LANES SHIFT AHEAD	USE CAUTION
7	RIGHT LANE CLOSED	REDUCE SPEED			
8	2 RIGHT LANES CLOSED	REDUCE SPEED			

Figure 1: Typical PCMS Messages

Table 2: Acceptable Abbreviations

Word Message	Standard Abbreviation	Word Message	Standard Abbreviation
Access	ACCS	Minimum	MIN
Afternoon / Evening	PM	Minor	MNR
Ahead	AHD	Minute(s)	MIN
Alternate	ALT	Monday	MON
Avenue	AVE, AV	Morning / Late Night	AM
Bicycle	BIKE	Mount	MT
Blocked	BLKD	Mountain	MTN
Boulevard	BLVD	National	NATL
Bridge	BR	Normal	NORM
CB Radio	CB	North	N
Center	CTR	Northbound	NBND
Center	CNTR	Oversized	OVRSZ
Chemical	CHEM	Parking	PKING
Circle	CIR	Parkway	PKWY
Compressed Natural Gas	CNG	Pavement	PVMT
Condition	COND	Pedestrian	PED
Congested	CONG	Place	PL
Construction	CONST	Pounds	LBS
Court	CT	Prepare	PREP
Crossing	XING	Quality	QLTY
Crossing (other than highway-rail)	XING	Right	RT
Downtown	DWNTN	Road	RD
Drive	DR	Roadwork	RDWK
East	E	Route	RT, RTE
Eastbound	EBND	Saint	ST
Electric Vehicle	EV	Saturday	SAT
Emergency	EMER	Service	SERV
Entrance, Enter	ENT	Shoulder	SHLDR
Exit	EX	Slippery	SLIP
Express	EXP	South	S
Expressway	EXPWY	Southbound	SBND
Feet	FT	Speed	SPD
Freeway	FRWY, FWY	State, county, or other non-US or non-Interstate numbered route	[Route Abbreviation determined by highway agency]**
Friday	FRI	Street	ST
Frontage	FRNTG	Sunday	SUN
Hazardous	HAZ	Telephone	PHONE
Hazardous Material	HAZMAT	Temporary	TEMP
High Occupancy Vehicle	HOV	Terrace	TER

Highway	HWY	Thruway	THWY
Highway-Rail Grade Crossing	RR XING	Thursday	THURS
Hospital	HOSP	Tons of Weight	T
Hour(s)	HR, HRS	Traffic	TRAF
Information	INFO	Trail	TR
International	INTL	Travelers	TRVLRS
Interstate	I-	Tuesday	TUES
Junction / Intersection	JCT	Turnpike	TPK
Lane	LN	Two-Way Intersection	2-WAY
Left	LFT	Two-Wheeled Vehicles	CYCLES
Liquid Propane Gas	LP-GAS	Upper	UPR
Local	LOC	US Numbered Route	US
Lower	LWR	Vehicle(s)	VEH, VEHS
Maintenance	MAINT	Warning	WARN
Major	MAJ	Wednesday	WED
Maximum	MAX	West	W
Mile(s)	MI	Westbound	WBND
Miles Per Hour	MPH		

** A space and no dash shall be placed between the abbreviation and the number of the route.

Table 3: Unacceptable Abbreviations

Unacceptable Abbreviation	Intended Word	Common Misinterpretation
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (Merge)
LT	Light (Traffic)	Left
PARK	Parking	Park
POLL	Pollution (Index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
WRNG	Warning	Wrong

10. Use of State Police Officers

10.a) State Police may be used only on limited access highways and secondary roadways that are under their primary jurisdiction. A minimum of one Officer may be used per critical sign pattern; however, a State Police presence is not required. Shoulder closures and right lane closures can generally be implemented without the presence of a State Police Officer. Left lane closures may also be implemented without State Police presence in areas with only moderate traffic and wide, unobstructed medians. It may be desirable to have a State Police presence, when available, under specific situations, such as nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur; however, they are not required.

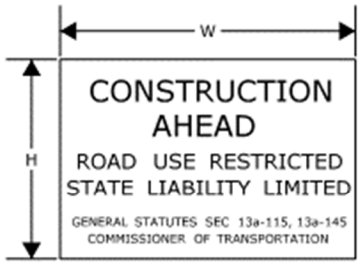
10.b) If a State Police presence is provided, once the pattern is in place, the State Police Officer should be positioned in a non- hazardous location in advance of the pattern to provide advance warning to the motorist. If traffic backs up beyond the beginning of the pattern, then the State Police Officer shall reposition so that they are located prior to the backup. The State Police Officer should not be located immediately behind or within the roll ahead area of any TMA or within the work zone buffer area. The State Police Officer shall not be positioned in such a way that the State Police Officer obstructs any construction warning signs or PCMS from view of the motorist.

10.c) Other functions of the State Police Officer(s) may include:

i. Assisting construction vehicles entering and exiting the work area.
ii. Enforcement of motor vehicle laws within the work area, if specifically requested by the Engineer.

10.d) State Police Officers assigned to a work site shall take direction from the Engineer.

SERIES 16 SIGNS



		W H
16-E	80-1605	84" x 60"
16-H	80-1608	60" x 42"
16-M	80-1613	30" x 24"



		W H
16-S	80-1619	48" x 30"

SIGN 16-S SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS. SERIES 16 SIGNS SHOULD BE LOCATED TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHOULD BE INSTALLED ON MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHOULD BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMPS PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL FREEWAYS AND EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS AND MAJOR TOWN/CITY ROADWAYS.

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

CONSTRUCTION TRAFFIC CONTROL PLAN
SERIES 16 SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

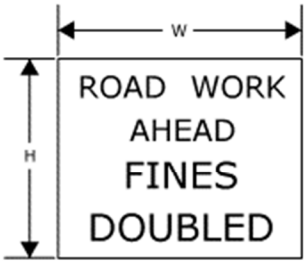
APPROVED Tracy L Fogarty Tracy L. Fogarty, P.E. 2013.10.09 16:30:32-04'00'
PRINCIPAL ENGINEER

REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY AND MUNICIPAL ROAD IN CONNECTICUT WHERE THERE ARE WORKERS PRESENT ON THE HIGHWAY.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

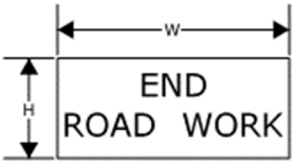
	W	H
31-1906	48"	42"
31-1907	60"	54"



"END ROAD WORK" SIGN

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

	W	H
80-9606	36"	18"
80-9612	48"	24"



CONSTRUCTION TRAFFIC CONTROL PLAN

ROAD WORK AHEAD SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

Tracy L. Fogarty, P.E.
2019.09.12 15:54:44-04'00'

PRINCIPAL ENGINEER

NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.

2. SIGNS (AA), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED IN ADVANCE TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.

3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.

4. TRAFFIC CONES AND PORTABLE CONSTRUCTION SIGNS SHALL NOT BE LEFT UNATTENDED.

5. ALL CONFLICTING SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.

6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 48 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.

7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT $\leq$ 40 MPH).

8. IF THIS PLAN IS TO REMAIN IN OPERATION FROM SUNSET TO SUNRISE, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.

9. A PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF MILE TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

10 SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180'
35	245'
40	320'
45	540'
50	600'
55	660'
65	780'

CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

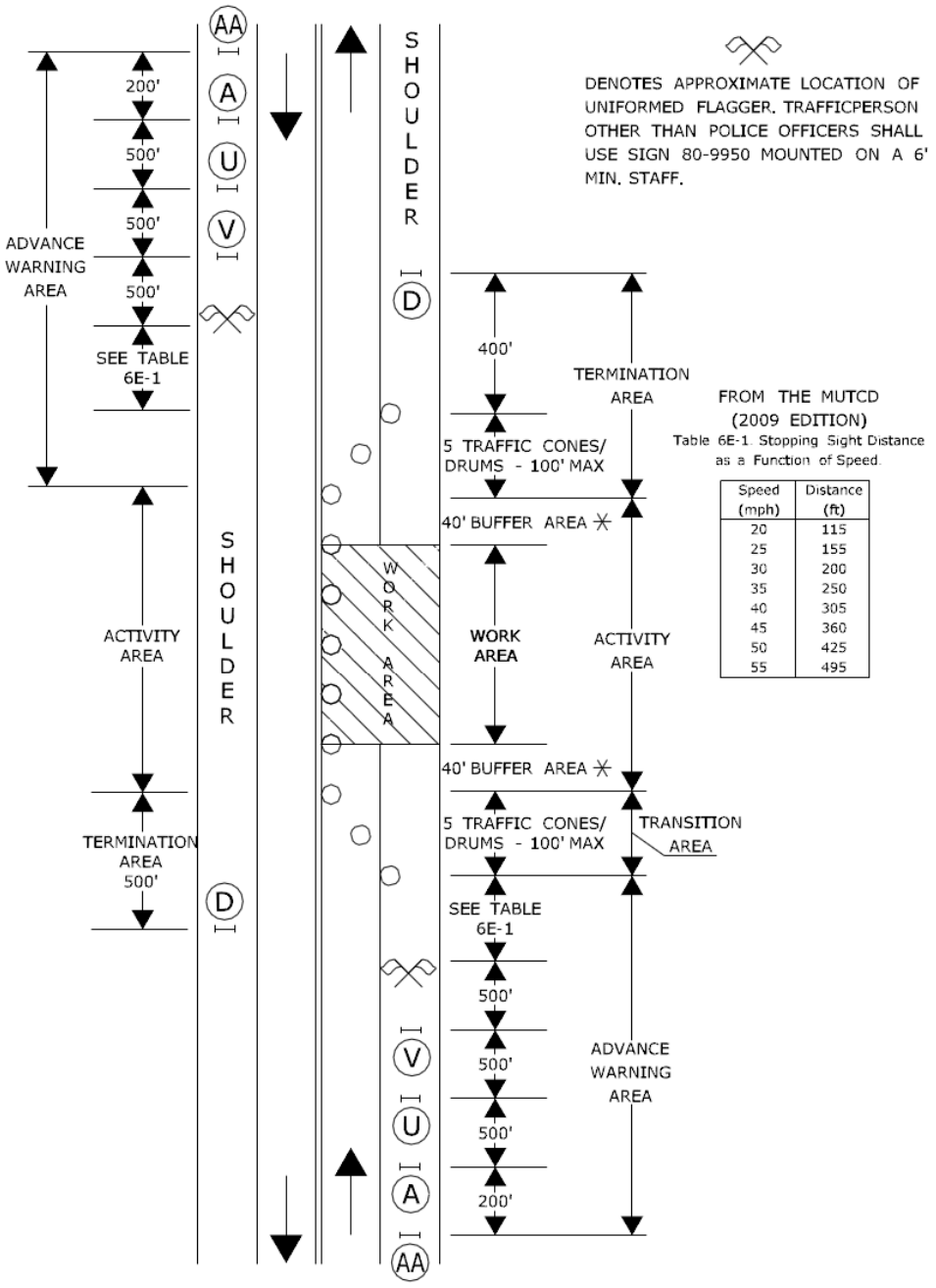
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CONNECTICUT DEPARTMENT OF TRANSPORTATION
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PRINCIPAL ENGINEER

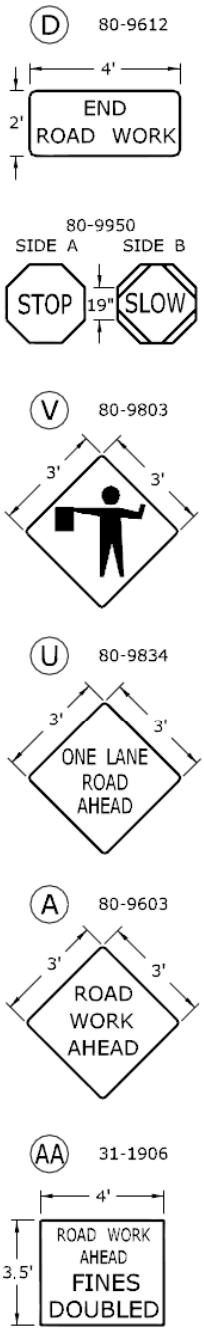
WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS



FROM THE MUTCD (2009 EDITION)
Table 6E-1 Stopping Sight Distance as a Function of Speed

Speed (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495

SIGN FACE
108 SQ. FT (MIN.)



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 1 OF 2

SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
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APPROVED _____ PRINCIPAL ENGINEER
Charles S. Harlow 2012.06.05 15:55:23-04'00'

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

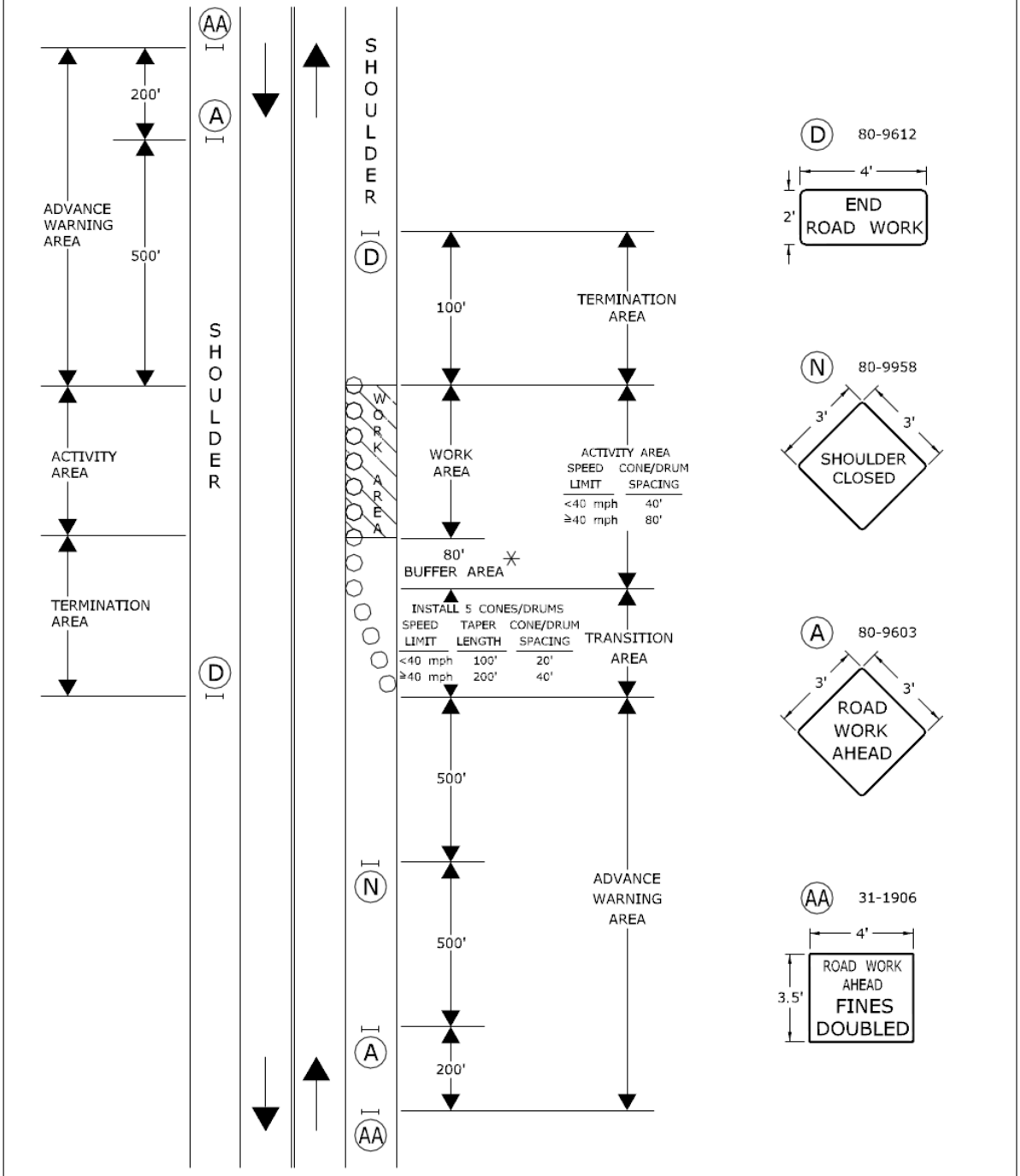
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
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APPROVED Charles S. Harlow 2012.06.05 15:55:45-04'00'
PRINCIPAL ENGINEER

WORK IN SHOULDER - TWO LANE HIGHWAY

SIGN FACE
71 SQ. FT (MIN.)



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

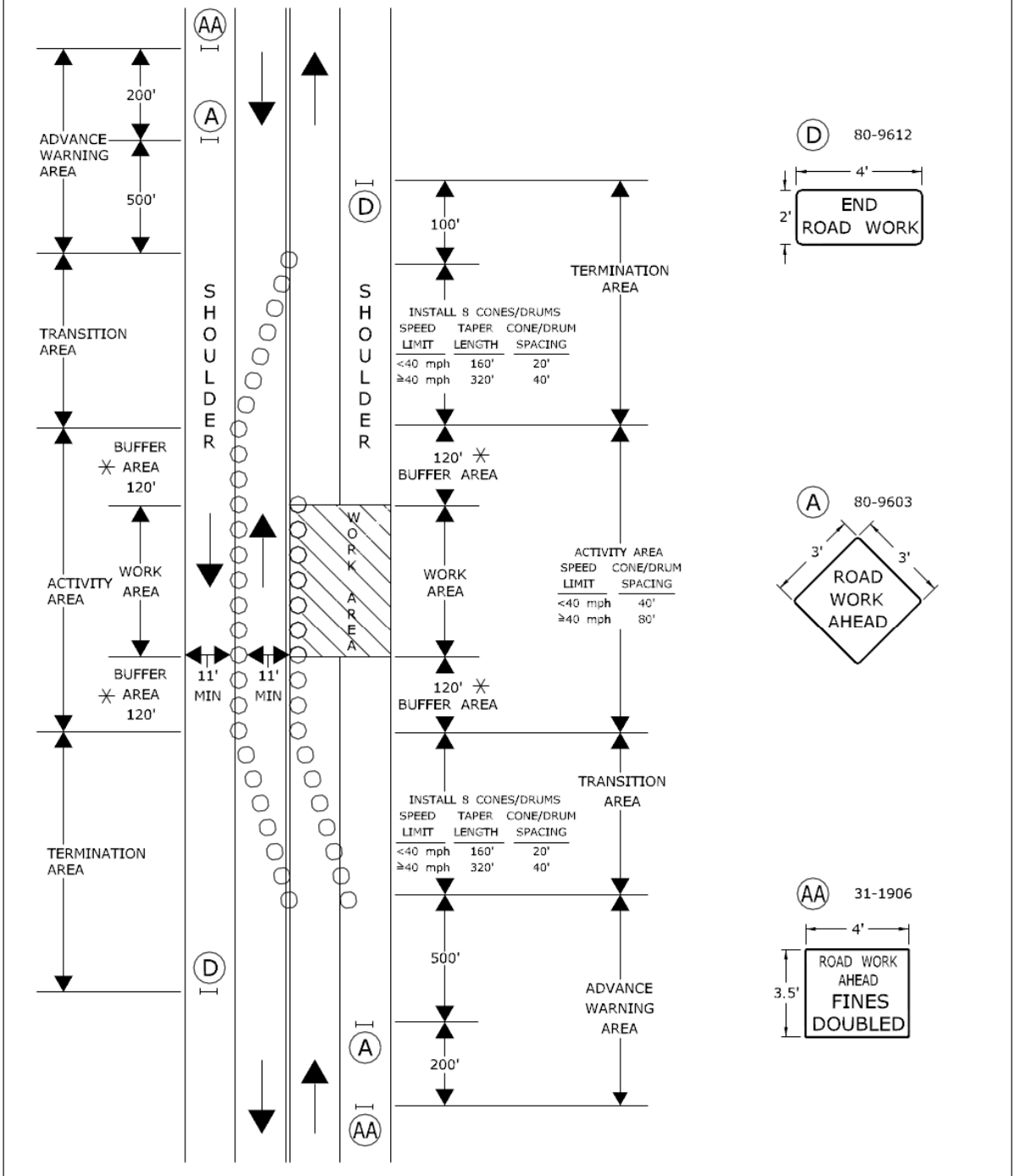
SEE NOTES 1, 2, 4, 7, 8

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

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY

SIGN FACE
62 SQ. FT (MIN.)



○ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢ PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 15

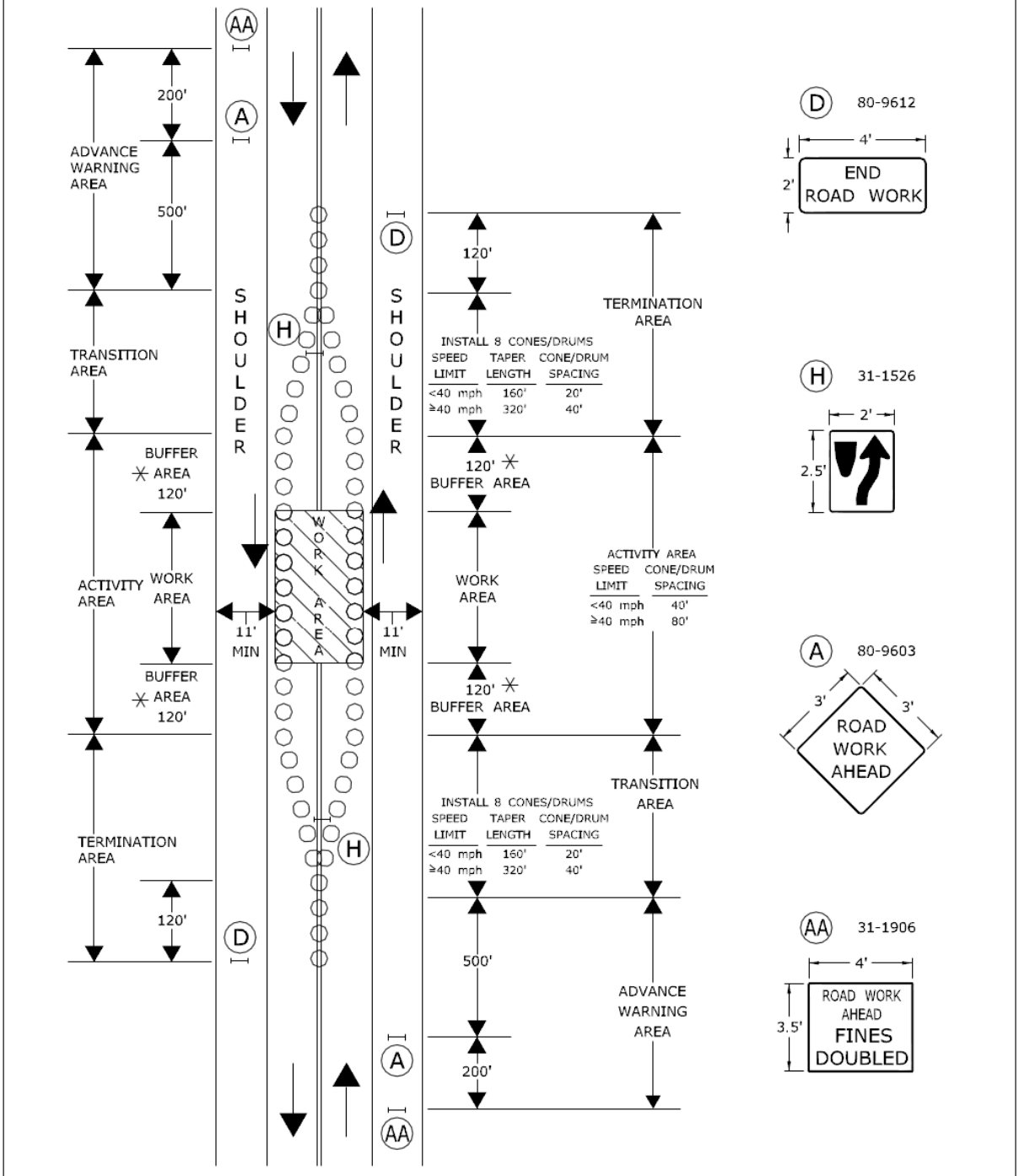
SEE NOTES 1, 2, 4, 6, 7, 8

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

WORK IN MIDDLE OF ROADWAY
TWO LANE HIGHWAY

SIGN FACE
72 SQ. FT (MIN.)



TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL | TRAFFIC DRUM | PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 16

SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:56:51-04'00'
PRINCIPAL ENGINEER

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

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item "Maintenance and Protection of Traffic".

Temporary overhead sign supports and foundations shall be paid for under the appropriate item(s).

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

ITEM #0971200A – MAINTENANCE PEDESTRIAN ACCESS

Description:

Work under this item shall consist of the construction, maintenance, and subsequent removal of a temporary pedestrian access route to provide pedestrian and bicycle access along the Air Line Multi Use Trail and across Old Colchester Road during construction.

Article 9.71.01 – Description *is supplemented by the following:*

The Contractor shall maintain and protect traffic as described by the following and as limited in the special provision for Section 1.08 - Prosecution and Progress: Access to the Air Line Multi Use Trail shall remain open to both pedestrians and bicyclists at all times.

Pedestrians/Bicyclists:

The Contractor shall provide and maintain clear pedestrian/bicyclist travel paths (minimum 8 feet wide) on temporary walks at all times at the Project site.

If the Contractor proposes changes to the plans, or the Contract does not include plans, 30 days in advance of implementation, the Contractor shall submit plans and procedures to the Engineer for review. The submittal shall be in accordance with typical details of the Manual on Uniform Traffic Control Devices (MUTCD) for maintaining pedestrian crosswalk access during the reconstruction of the roadway. When a pedestrian/bicyclist route is closed, pedestrian/bicyclist traffic must be detoured or a temporary crosswalk must be provided. Pedestrian/bicyclist detours and temporary sidewalks must meet ADA requirements. The appropriate signs for the pedestrian/bicyclist detour shall be installed in accordance with the MUTCD. Temporary bituminous sidewalk and ramps, if required, and all pedestrian detour signage will be included in the cost of this item.

When crosswalks or other pedestrian facilities are relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility. Pedestrians/bicyclists shall be detoured to temporary crosswalks.

Temporary movable 6-foot-high chain link fencing shall be utilized to separate and protect the pedestrians and bicycles from the work zone. The Contractor shall relocate the fencing as necessary during construction to allow for Contractor access to all areas where construction will occur, but a minimum 8 foot wide path shall be provided at all times. The fence may also include gates or removable sections to allow Contractors to access the site with construction vehicles, materials and equipment. When the gates are open or fencing is removed, the Contractor shall utilize uniformed flaggers to provide a safe passageway for pedestrians and bicyclists across the opening in the fencing.

Materials:

The temporary pedestrian access shall consist of, but not be limited to, temporary chain link fencing, temporary ramps, and sidewalks.

Sidewalks shall conform to the applicable requirements of Section 9.22 and shall be a minimum of 8 feet wide and shall consist of gravel fill, unless crossing is across a previously paved area.

Temporary ramps, if needed, shall be ADA compliant, and may be prefabricated or may be constructed using bituminous concrete, as approved by the Engineer. The maximum slope of any ramp shall be 1:12 (V:H) and shall have a minimum width of 8 feet.

The material for the temporary chain link fence, posts and gates, including all hardware and appurtenances, shall conform to the requirements of Article 9.13.02.

The materials used shall be new or in good condition, if previously used. Previously used materials require the approval of the Engineer prior to installation.

The temporary fencing shall be placed on movable foundations that will allow the pathway to be relocated as needed during certain construction activities.

Gravel or reclaimed miscellaneous aggregate to be used as temporary fill shall meet the requirements of M.02.01 for granular fill.

1. Working Drawings: Before fabrication, the Contractor shall submit working drawings to the Engineer for review in accordance with Article 1.05.02.

Working drawings for temporary pedestrian and bicycle access walkway shall include but not be limited to the following:

Plans showing location, length, and width of walkway.

Material designations.

Construction Methods:

The temporary pedestrian access shall be constructed at an approved location to provide a safe means of pedestrian and bicycle access along the Air Line Trail across Old Colchester Road such that it does not interfere with the proposed construction activities. The temporary pedestrian and bicycle access shall be constructed to meet ADA requirements.

Temporary fill to be placed on depressed areas to create a level surface for the temporary pedestrian access.

Construction of the access shall not begin until approval is received from the Engineer. Such approval shall not serve to relieve the Contractor of his responsibility for the safety of the design and the successful completion of this work.

The Contractor shall maintain the pedestrian and bicycle access at all times during construction by replacing and/or repairing any part or areas which become worn or damaged.

The pedestrian access shall be dismantled and the disturbed areas shall be restored to their original condition at the completion of construction when the structure is fully opened to both vehicular and pedestrian traffic, or as directed by the Engineer

Method of Measurement:

This item, being paid for on a lump sum basis, will not be measured for payment. There will be no separate payment for uniformed flaggers needed to allow for access of construction vehicles, materials and equipment across the temporary pedestrian and bicycle access pathway and the cost for the uniformed flaggers shall be included in the lump sum cost of this item.

Basis of Payment:

This work will be paid for at the contract lump sum price for " Maintenance Pedestrian Access", which price shall include all labor, materials, and equipment necessary to construct, maintain (including removal of snow), monitor and remove a temporary pedestrian access during construction.

Pay Item	Pay Unit
Maintenance Pedestrian Access	L.S.

ITEM #1118012A - REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT

Section 11.18: Replace the entire section with the following:

11.18.01 – Description:

Work under this item shall consist of the removal and relocation of the existing Solar Powered Rectangular Rapid Flashing Beacon (RRFB Type B) at the locations indicated on the plan or where directed by the Engineer.

Each RRFB Type B is a complete assembly consisting of but not limited to the following:

- RRFB Type B unit with two rapidly flashing rectangular-shaped yellow LED indications located on each side of facing traffic
- Controller Cabinet (circuit breaker, timer or solid-state circuit boards etc.) or any electrical component hardware
  - Pedestal
  - Pedestal Foundation
  - Pedestrian Pushbutton with accessible features
  - Pushbutton Signs
  - Mounting hardware
  - If solar, all solar equipment.

Work under this item shall also include the loading of, transportation to and unloading of the above-mentioned components of the existing units to the Town of Hebron, Public Works Department located at 550 Old Colchester Road, Amston, CT 06231 and then back to the project site for reinstallation. The Contractor shall notify the Town 48 hours in advance of delivering and/or picking up the above referenced materials. The contact information is as follows:

Mr. Paul Forrest, Director of Public Works (pforrest@hebronct.gov)
Mr. Darren Norton, Road Foreman (dnorton@hebronct.gov)

Phone: (860) 228-2871

Work under this item shall also include the removal of the existing concrete landing areas including the removal of the existing Detectable Warning Panel at the location shown on the plan or directed by the Engineer.

11.18.02 – Materials:

The related sections of the following specifications apply to all incidental and additional material required for the proper relocation of existing equipment and the restoration of any area affected by this work.

- Division III, “Materials Section” of the Standard Specifications.
- Current Supplemental Specifications to the Standard Specifications.
- Applicable Special Provisions to the Standard Specifications.

- Current Department of Transportation, Functional Specifications for Traffic Control Equipment.
- Article M.16.03-Pedestals
- Article M.16.08-Pedestrian Push Button
- Article M.16.10-Cabinet
- Article M.14.01-Traffic Control Foundation Pedestal – Type I - Precast

Article 11.18.03 - Construction Methods:

Relocated Equipment

In the presence of the Engineer, verify the condition of all material that will be relocated and reused at the site. Carefully remove all material, fittings, and attachments in a manner to safeguard parts from damage or loss. Notify the Town of Hebron and deliver the removed materials to them for storage until the project site is ready for them to be reinstalled. The Contractor shall replace at no additional cost, all material which becomes damaged or lost during removal, storage, or reinstallation.

Each RRFB Type B indication will be remounted on the existing standard aluminum pedestal and in accordance with the dimensions and details shown on the plan.

Each Solar RRFB Type B will require a location free of any vegetation or obstruction which will inhibit solar charging.

Each RRFB shall initiate operation only upon pedestrian actuation and shall cease operation after a programmed time as shown on the plan or determined by the Engineer (based on MUTCD procedures).

All RRFBs associated with a given crosswalk (including those with an advance crossing sign, if used) shall when activated, simultaneously commence operation of their rapid-flashing indications and shall cease operation simultaneously.

Install the pedestrian push button according to the manufacturer's instructions.

Position the pedestrian push button so the plane of the sign face is parallel to the crossing (sign is facing perpendicular) and the arrow is pointing in the same direction as the crossing, not necessarily at the ramp. Notify the Engineer if there is any discrepancy or ambiguity between the plans and field conditions that prevent placement of the pedestrian push button as shown on the plan.

Set the minimum sound levels of the locator tone and the speech message when there is little or no ambient noise as in nighttime operation. Set the volume of speech message and pushbutton locator tones to a maximum of 5dBA louder than the ambient sound. The locator tone should be audible from 6' to 12' from the push button or to the building line, whichever is less. Confirm the volume of both speech message and the locator tone increases with an increase in ambient sound and subsequently decreases when the ambient noise decreases.

Mechanical and Electrical Requirements:

Should any of the materials be damaged or lost during removal, transporting, storage or reinstallation, the following Mechanical and Electrical Specifications shall be adhered to:

a) Dimensions:
   - Each indication shall be at least 5” wide by 2” high
   - The indications shall be aligned horizontally, with the longer dimension horizontal and with a minimum space of 7” between the two indications
   - The outside edges of the indications, including any housing, shall not project beyond the outside edges of the sign that it supplements

b) Power:
   - Solar:
     - DC input, 12 VDC, 80W (min.)
     - DC output, 12 VDC, +/- 1%

c) Temperature and Humidity:
   - All components will be capable of continuous operation in accordance with NEMA Standards

d) Indications:
   - Flash Pattern
     - When actuated, the two yellow indications in each RRFB Type B unit shall flash in a rapidly flashing sequence and shall provide 75 flashing sequences per minute.
     - Shall comply with MUTCD https://mutcd.fhwa.dot.gov/resources/interim_approval/ia21/ia21.pdf
   - Optics:
     - ITE LED
   - Light Intensity:
     - During daytime conditions: shall meet the minimum specifications for Class 1 yellow peak luminous intensity in the Society of Automotive Engineers (SAE) Standard J595 (Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance and Service Vehicles) dated January 2005.
     - During nighttime conditions: an automatic signal dimming device shall be used to reduce the brilliance of the indications.
   - Housing Color:
     - Federal Yellow

e) Control Cabinet
   - Shall be NEMA 3R Type

f) Crosswalk Illuminator:
   - Power Input – 12VDC
   - Power Consumption – 700mA to 1.4A
   - Activation – Initiated with pedestrian pushbutton activation and synchronized with the flash interval of RRFB Type B
   - Installation Height – 12 to 15 feet
   - Housing – Aluminum and weather resistant polycarbonate
   - Mounting – Adjustable Bracket
   - Operating Temperature Range - -40°F to 176°F
   - Wind Rating – Up to 120 mph (dependent upon pole size and system arrangement)

Article 11.18.04 – Method of Measurement:

This work will be measured as a Lump Sum.

Article 11.18.05 – Basis of Payment:

This work will be paid for at the contract lump sum price for "Removal and/or Relocation of Traffic Signal Equipment" which price shall include relocating signal equipment and associated hardware, all equipment, material, tools and labor incidental thereto. This price shall also include removing, loading, transporting, and unloading of signal equipment/materials and signs affixed to the RRFB Assembly designated for relocation to the Town of Hebron, Public Works Department for temporary storage and return to the project site and all equipment, material, tools and labor incidental thereto. This price shall also include removing and disposing of the existing concrete landings and Detectable Warning Panels.

Payment for the construction of the new concrete landings shall be made under the item 0921005-Concrete Sidewalk Ramp.

Payment for the installation of the new Detectable Warning Panels shall be made under the item 0921048-Detectable Warning Surface.

Payment for the removal and relocation of the signs not affixed to the RRFB Assembly shall be made under the item 1206013-Removal of Existing Signing.

Pay Item	Pay Unit
Removal and/or Relocation of Traffic Signal Equipment	L.S.

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

ITEM #1208937A – SIGN FACE - SHEET ALUMINUM (TYPE XI RETROREFLECTIVE SHEETING)

Section 12.08 is supplemented and amended as follows:

12.08.01—Description:

Add the following:

All signs shall use Type XI retroreflective sheeting with the exception of side-mounted signs with white background which shall be Type IX.

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

Signs shall conform to the sign details located at https://portal.ct.gov/DOT/Traffic-Engineering/Catalog-of-Signs with legend for variable signs as shown in the plans.

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

ITEM #1220027A – CONSTRUCTION SIGNS

Section 12.20 *is supplemented and amended as follows:*

Article 12.20.01 – Description:

Add the following:

The Contractor shall also furnish, install, maintain, and remove Bipartisan Infrastructure Law project signs. The Bipartisan Infrastructure Law project signs shall be of the details, colors and materials as shown on the attached detail sheet.

The sign legend for this Project shall include the U.S. Department of Transportation pictograph on the lower right side of the sign with the legend Federal Highway Administration, FTA, FRA, or NHTSA.

Article 12.20.03 — Construction Methods:

Add the following:

The Contractor shall install the Bipartisan Infrastructure Law (BIL) project signs prior to initiating construction.

The Contractor shall install BIL project sign 80-5957 on each major roadway approach to the construction Site in advance of the Project limit(s).

The sign detail is included and is also available at 80-5957.

The Contractor shall maintain the BIL project signs for the entire duration of the Project. The Contractor shall relocate the BIL project signs during construction as needed and shall remove the signs after construction work is completed.

Article 12.20.05 – Basis of Payment:

Add the following:

The price shall also include furnishing, installing, maintaining, relocating, and removing the Bipartisan Infrastructure Law project signs and sign posts and all hardware, materials, and labor incidental thereto.

SIGN DETAIL

1:35

LEGEND NOTE: THE LEGEND NEXT TO THE US DOT LOGO SHALL BE ONE OF THE FOLLOWING BASED ON PROJECT FUNDING SOURCE:





SIGN NUMBER	80-5957
PANEL SIZE	8'-0" x 5'-0"
TOTAL AREA	40.0 Sq.Ft.
MUTCD	N/A
BDR INSET/WIDTH	0" / 0.75"
CORNER RADIUS	3"
BACKGROUND	TYPE: IX
	COLOR: Green
LEGEND/BORDER	TYPE: IX
	COLOR: White/White

* REFER TO CATALOG OF SIGNS FOR SHEETING TYPE. WHEN COLOR IS BLACK TYPE IS "PLAIN".

SYMBOL	ROT	X	Y	WID	HT
CT DOT LOGO	0	3.5	3.5	9.21	7
US DOT LOGO	0	75.0	3.5	17.5	7

REV'D 7/24

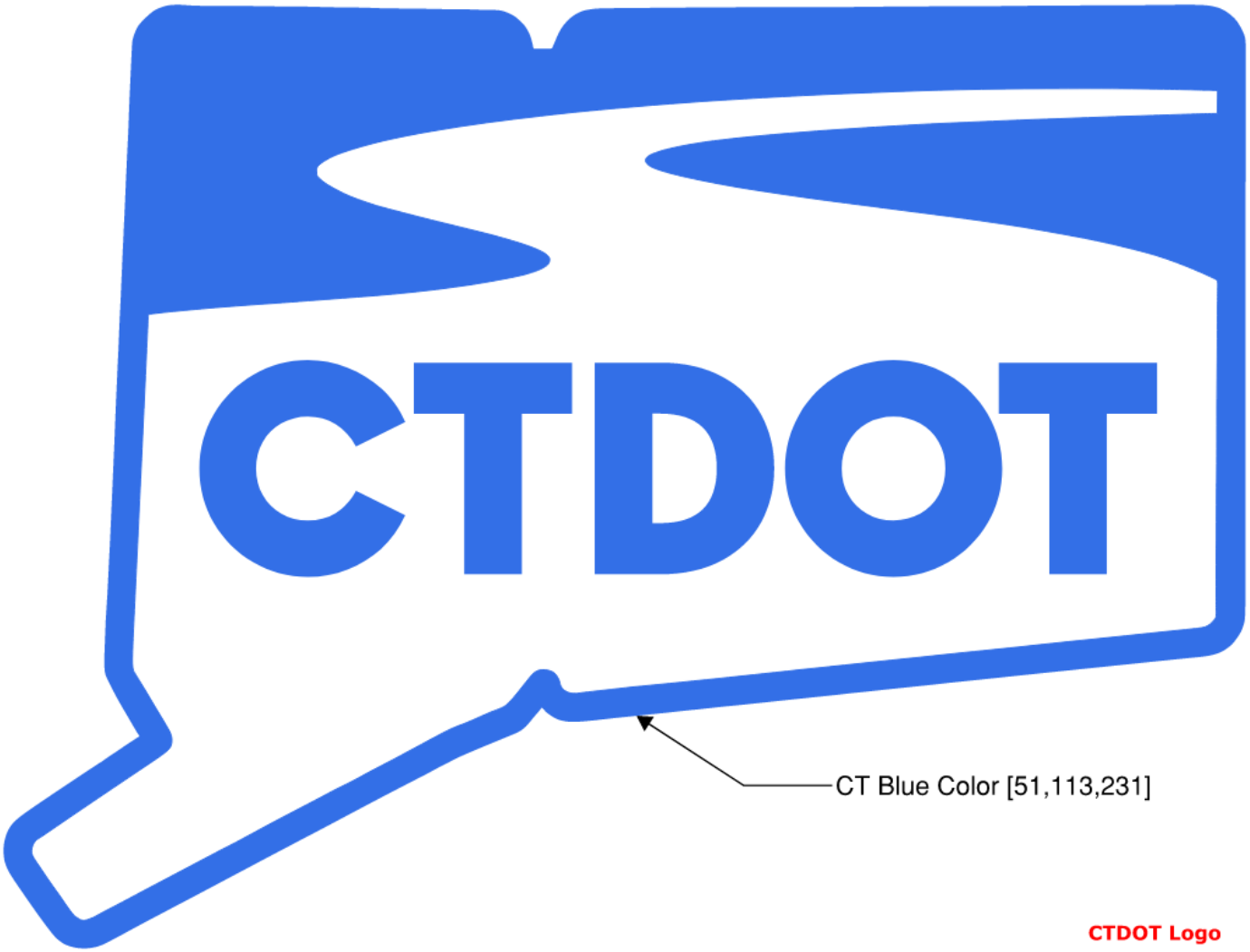
Dimensions are In Inches
Material : 0.125" Thick Sheet Aluminum
Ground Mounted

File name: 80-5957

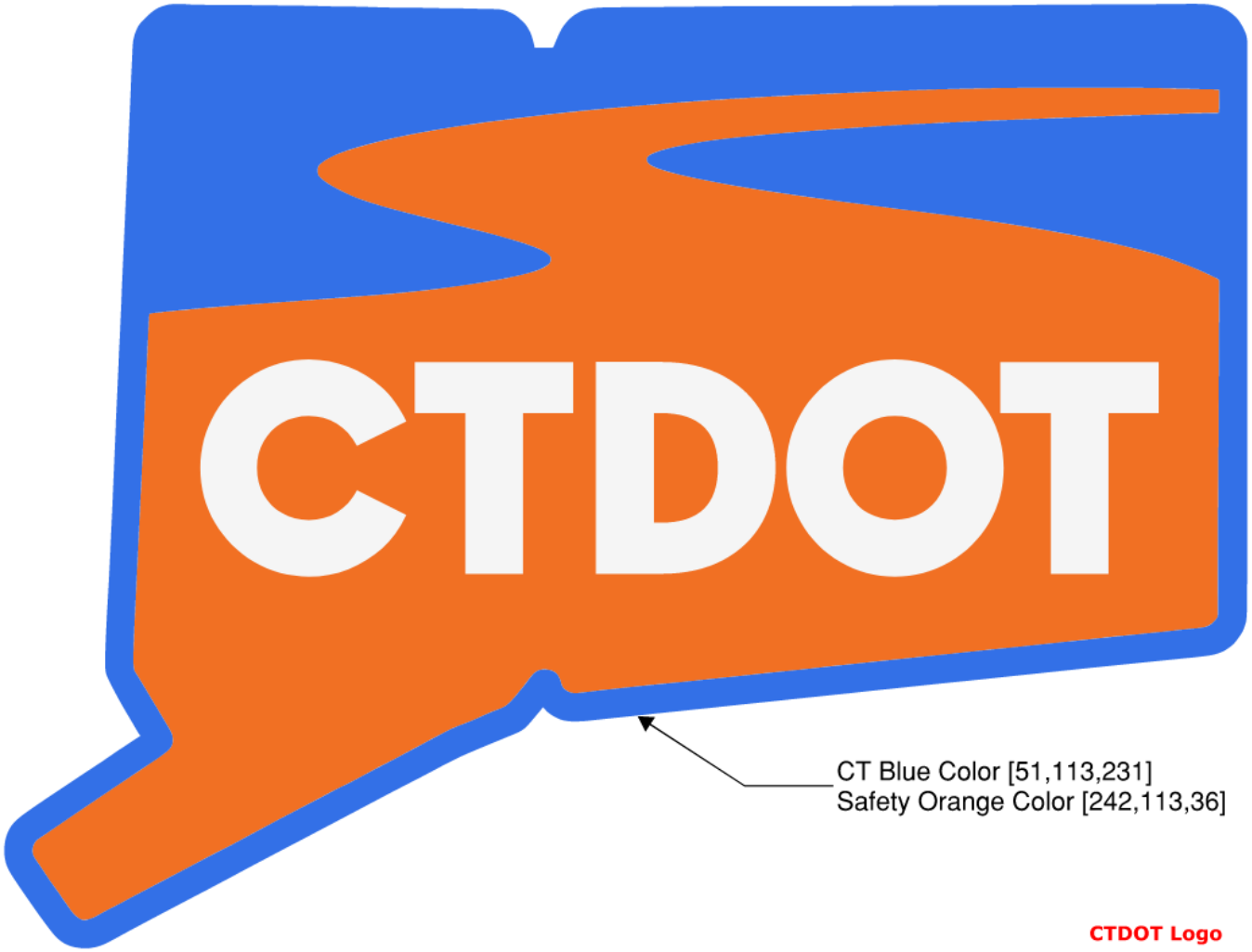
Printed: 9/13/2024

LETTER POSITIONS (X)

P	R	O	J	E	C	T	F	U	N	D	E	D	B	Y	T	H	E					LENGTH	SERIES/SIZE
5.8	9.9	14.1	18.3	22.7	26.5	30.6	37.7	41.5	46.1	50.7	55.2	59.2	66.6	70.4	78.7	82.6	87.2					84.5	D 2000 5
B	I	p	a	r	t	I	s	a	n														
3.4	7.6	9.6	13.2	17.1	19.2	21.8	23.4	26.2	30.2														
I	n	f	r	a	s	t	r	u	c	t	u	r	e	L	a	w							D 2000
36.1	38.2	41.8	44.3	46.6	50.2	52.8	55.4	57.9	61.8	65	67.6	71.6	74	79.9	83.5	87						89.3	5/3.8
I	N	V	E	S	T	I	N	G	I	N													Arial Black
22	24.9	29.9	35.4	40	44.7	49.9	52.8	58.2	66.8	69.7												52.1	4.5
A	M	E	R	I	C	A																	Arial Black
30.8	36.4	42.8	47.7	52.9	55.5	60.3																34.3	4.5

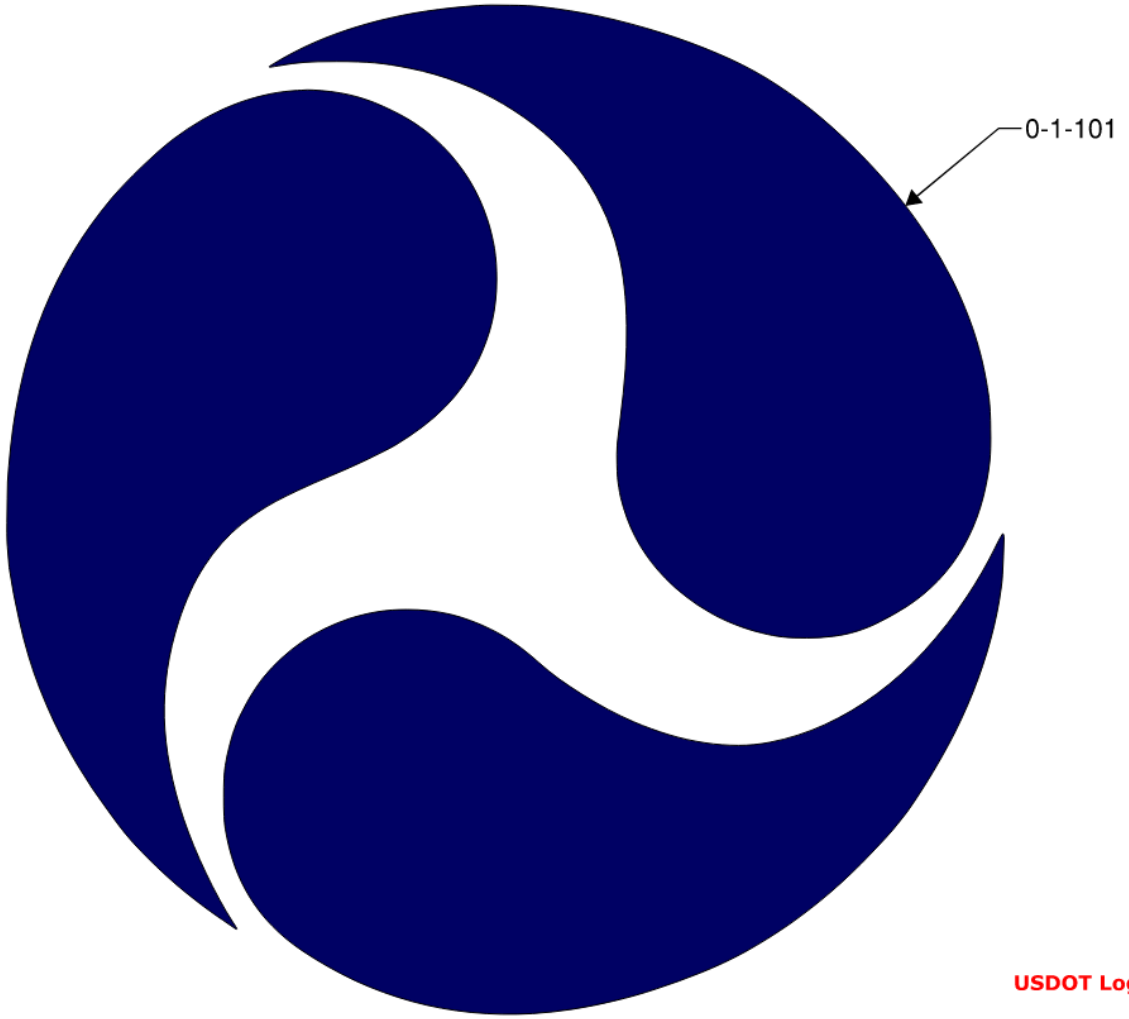


CTDOT Logo



CTDOT Logo

Link to .dgn file: New_CTDOT_Logos.dgn



USDOT Logo

Link to .dgn file: USDOT_logo.dgn

PERMITS AND REQUIRED PROVISIONS

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

- **PERMITS AND/OR PERMIT APPLICATIONS**

Permit	Approval Date
CTDOT Flood Management General Certification – MOU	Anticipated December 15, 2025
Hebron Conservation Commission, Inland Wetlands and Watercourses Permit	Approved October 10, 2025
USACE 404 Self Verification Notification (SV)	Pending Approval of FMC-MOU

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

Flood Management Certification Program for Municipal Projects Funded[1] by the Department of Transportation

Projects eligible for this certification program, as identified in the Memorandum of Understanding (MOU) between the Departments of Transportation and Environmental Protection (03/18/2009), shall be reviewed by the Department of Transportation for consistency with Section 25-68d (b) of the Connecticut General Statutes[2] and Sections 25-68h-1 through 25-68h-3 of the Regulations of Connecticut State Agencies (RCSA)[3] and approval shall be in accordance with the MOU. **This program shall not apply to projects that qualify for the Department of Transportation Flood Management General Certification Program nor shall it be construed as a substitute for any other flood management or permit approval process that may be required by the municipality.**

1. Project Identification

ConnDOT Project No(s).	(PE)	(Construction)	City/Town(s)
		0066-0110	Hebron
Project Name	Replacement of Bridge No. 04695, Old Colchester Road over Raymond Brook		

2. Funding Source

Check the funding source(s) for the subject project from the eligible list below:

☐ State Local Bridge Program:	☐ STP – Urban Program
DOT Br. No(s).	☐ STP – Rural Minor / Major Collector Program
☒ Federal Local Bridge Program:	☐ Local Roads Accident Reduction Program
DOT Br. No(s). ***04695***	☐ Federal Earmark Project
☐ Small Town Economic Assistance Program	☐ CT Special Act Grant
☐ Transportation Enhancement Program	☐ Safe Routes to School Program

3. Quality Assurance/Quality Control

The intent of this document is to assist the applicant as well as the reviewer with the regulatory requirements, process, scope and the completeness of the documentation for the flood management certification of a project. **Failure to complete this document in its entirety and/or to provide the information indicated therein will result in rejection of the flood management submission and a possible delay in the project.** Enter contact information and signature of the person responsible for preparing this document and the completeness of the submission below:

Name	Company Name		
Gregory Gerrish, P.E.	VHB		
Mailing Address	City/Town	State	Zip Code
100 Great Meadow Road, Suite 200	Wethersfield	CT	06109
Telephone No.	Fax No.	Email address	
(860) 807-4300		ggerrish@vhb.com	
Date Prepared	Signature		
October 23, 2025	Gregory Gerrish C=US, E=ggerrish@vhb.com, O="Vanasse Hangen Brustlin, Inc.", CN="Gregory D. Gerrish, P.E." 2025.11.12 07:24:02-05'00'		

☐ Check this box if this document has been prepared by the ConnDOT Approved Hydraulic Engineer who shall be responsible for the submission content. The Approved Hydraulic Engineer shall need only date and sign this section, provided the other contact information is the same as in Section 7, Hydraulic Engineer Approval.

[1] Federal or state funding passed to municipalities by ConnDOT
[2] http://cga.ct.gov/lco/Statute_Web_Site_LCO.htm
[3] http://www.ct.gov/dep/cwp/view.asp?a=2704&q=323518

4. Other Permits/Authorizations/Certifications

This section should be completed in conjunction with Section 8, *Flooding Source Identification & Floodplain Determination,* Section 9, *Floodplain Involvement,* and Section 10, *Environmental Considerations*.

Check for other permits/authorizations/certifications required for the subject project:

ConnDOT Flood Management General Certification – The general certification applies to certain minor activities in a regulatory floodplain and is separate from the Flood Management Certification Program for Municipal Projects. The application form and descriptions of approved activities for the general certification are available on the Hydraulics and Drainage (H & D) website (http://www.ct.gov/dot/cwp/view.asp?a=2303&q=300868)

☒ The descriptions of approved activities of the general certification have been reviewed. The subject project does not qualify for the Flood Management General Certification.

DEP Inland Water Resources Div. (IWRD):		☒ NO IWRD PERMITS REQUIRED	
http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324222&depNav_GID=1643			
Permit Type	Date Approved	Permit Type	Date Approved
☐ Inland Wetlands & Watercourses		☐ Dam Construction	
☐ Stream Channel Encroachment Line*		☐ 401 Water Quality Certification	
☐ Water Diversion		☐ General Permit - *Indicate type below*	
*A listing of SCEL regulated areas is provided at the H & D website @ http://www.ct.gov/dot/cwp/view.asp?a=2303&q=300868			

☐ **Any project that requires an *Inland Wetlands & Watercourses*, *Stream Channel Encroachment Line* or *Water Diversion* permit from the DEP is not eligible for this program. The project must be submitted to the DEP in accordance with the MOU.**

DEP (Other Permits):	**Date Approved**
☐ Aquifer Protection Area (http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324222&depNav_GID=1643)	
☐ Stormwater and Dewatering Wastewaters from Construction Activities (a.k.a. Stormwater Discharge) http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324212&depNav_GID=1643#StormwaterConstructionGP	

DEP Office of Long Island Sound Programs (OLISP):		☒ NO OLISP PERMITS REQUIRED	
http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324222&depNav_GID=1643			
Permit Type	Date Approved	Permit Type	Date Approved
☐ Structures, Dredging and Fill & Tidal Wetlands		☐ Certificate of Permission	
☐ OLISP General Permit –*Indicate type*	Type:		

U.S. Army Corps of Engineers (Corps):			☐ NO CORPS PERMIT REQUIRED
http://www.nae.usace.army.mil/reg/index.htm			
Permit Type			Date Approved
☒ Programmatic General Permit (PGP)	☒ Category 1	☐ Category 2	Pending
☐ Individual			

Municipal Permits:			
Permit Type	Date Approved	Permit Type	Date Approved
Hebron Inland Wetlands	10/10/2025		

5. Exemptions

Any project that requires an exemption (CGS Section 25-68d.) from the Flood Management Regulations is not eligible for this program. Complete this section to determine if an exemption is required.

Project complies	Exemption required	The application for Flood Management Certification shall provide information certifying that:
☒	☐	1. The proposal will not obstruct flood flows or result in an adverse increase in flood elevations, significantly affect the storage or flood control value of the floodplains, cause an adverse increase in flood velocities, or an adverse flooding impact upon upstream, downstream or abutting properties, or pose a hazard to human life, health or property in the event of a base flood or base flood for a critical activity.
☒	☐	2. The proposal complies with the provisions of the National Flood Insurance Program (44 CFR 59 et seq.), and any floodplain zoning requirements adopted by a municipality in the area of the proposal and the requirements for stream channel encroachment lines adopted pursuant to the provisions of section 22a-342.
☒	☐	3. If the base flood or base flood for a critical activity is elevated above the increment authorized by the National Flood Insurance Program or the flood storage loss would cause adverse increases in such base flood flows, easements and property in floodplains shall be acquired, through public or private purchase or conveyance.
☒	☐	4. The proposal promotes long-term nonintensive floodplain uses and has utilities located to discourage floodplain development.
☒	☐	5. Flood-proofing techniques, dikes, dams, channel alterations, seawalls, breakwaters or other structures have been considered and will be used to the extent feasible to protect new and existing structures and utility lines, only where there are no practical alternatives and stormwater management practices will be implemented in accordance with regulations adopted pursuant to section 25-68h.
☒	☐	6. Flood forecasting and warning capabilities are consistent with the system maintained by the National Weather Service and a flood preparedness plan has been prepared.
☒	☐	7. The project design is consistent with the floodplain management and stormwater management standards set forth in Sections 25-68h-2 and 25-68h-3 of the Regulations of Connecticut State Agencies.

☐ **The project requires an exemption from the Flood Management Regulations and is not eligible for this program The project shall be submitted to the DEP in accordance with the MOU.**

If an exemption is required, indicate the specific regulation(s) and/or standard(s) that can not be met, the reason(s) why and the potential impacts below:

☐ A letter to the DEP must be prepared requesting an exemption from the Flood Management Regulations citing the specific regulations which can not be met, the reasons why and the potential impacts.

☐ When submitted to the DEP, exemption requests require a public notice and comment period that could result in a public hearing prior to approval.

6. Significant Impacts

Any project or activity considered a significant impact as defined under Section 25-68h-1 of the Flood Management Regulations for State Agencies is not eligible for this program. Complete this section to determine if the project includes a significant activity as defined in the regulations.

Yes	No	Does the project include any activity that would create/cause:
☐	☒	1. A five percent increase in peak flow rates at any downstream point
☐	☒	2. A twenty percent increase in flow velocities or a change that allows a stable condition to become unstable
☐	☒	3. An unacceptable cumulative impact
☐	☒	4. Flooding on developed property not currently subject to flooding
☐	☒	5. A downstream dam to become unsafe

☐ **If the answer is yes to one or more of the above, the project includes a significant activity as defined in the regulations and is not eligible for this program. The project shall be submitted to the DEP in accordance with the MOU.**

7. Hydraulic Engineer Approval

In order to be eligible for this program, the engineer responsible for preparing the hydraulic analysis and design and the flood management certification for the project must be pre-approved by the Department in accordance with Section 404.01 of the Department's Consultant Administration And Project Development Manual and Section 1.2.4 of the Drainage Manual. Enter the information for the approved Hydraulic Engineer below:

Name	CT PE Number	Company Name	
Gregory D. Gerrish	36085	VHB	
Mailing Address	**City/Town**	**State**	**Zip Code**
100 Great Meadow Road, Suite 200	Wethersfield	CT	06109
Telephone No.	**Fax No.**		**Email address**
(860) 807-4300			ggerrish@vhb.com
Approval Request Date		**Date Approved**	
July 9, 2025		July 30, 2025	

8. Flooding Source Identification & Floodplain Determination

State Flood Management Certification (FMC) is required for projects proposing activities within mapped, 1-percent annual chance (100-Year) floodplains, designated as Zone A, AE, or A-numbered and V or VE (coastal floodplains) FEMA Flood Hazard Zones where the drainage area of the flooding source is greater than or equal to one square mile.

Note: FMC is not required for proposed activities in:

- *mapped* floodplains where the drainage area of the flooding source is *less* than one square mile, or
- *unmapped* floodplains with drainage areas greater than or equal to one square mile *unless* changes in drainage patterns are proposed.

The floodplain designation and drainage area at the project site(s) shall be verified by completing the following section:

Flooding Source	Site 1	Site 2	Site 3
Site Description (ex. Br. No., Sta., etc.)	Bridge No. 04695 carrying Old Colchester Road		
Name of Stream or Waterbody	Raymond Brook		
Drainage Area @ Site	8.4 square miles		

☐ Copies of the drainage area delineation(s) must be attached and included in the preliminary hydrologic and hydraulic design reports.

FEMA Flood Insurance Study (FIS) Data. Downloads available at FEMA Map Service Center:
http://msc.fema.gov/webapp/wcs/stores/servlet/StoreCatalogDisplay?storeId=10001&catalogId=10001&langId=-1&userType=G

Flood Insurance Rate & Floodway Maps	Site 1	Site 2	Site 3
Map Panel No(s)	090162 0010 B		
Effective Date(s)	03/18/1991		
Flood Hazard Zone(s) [Indicate "None", if no zone]	A		
Regulatory Floodway (Yes/No)	No		

☒ Copies of FEMA Flood Insurance Rate Maps (FIRM) and Floodway & Flood Hazard Boundary Maps (*if separate maps were published*) with bridge locations and/or project limits annotated must be attached to this form and included in the preliminary hydraulic design and the floodplain/floodway analysis reports.

9. Floodplain Involvement

Type of Floodplain Involvement (Check all that apply)		
Site 1	Site 2	Site 3
☒ Bridge/Culvert Replacement	☐ Bridge/Culvert Replacement	☐ Bridge/Culvert Replacement
☐ Bridge/Culvert Rehabilitation or Modification	☐ Bridge/Culvert Rehabilitation or Modification	☐ Bridge/Culvert Rehabilitation or Modification
☒ Fill ☒ Cut in floodplain	☐ Fill ☐ Cut in floodplain	☐ Fill ☐ Cut in floodplain
☐ Fill ☐ Cut in floodway	☐ Fill ☐ Cut in floodway	☐ Fill ☐ Cut in floodway
☐ Stream Alteration	☐ Stream Alteration	☐ Stream Alteration
☐ New or Substantially Improved Structure (i.e., Building/Facility)	☐ New or Substantially Improved Structure (i.e., Building/Facility)	☐ New or Substantially Improved Structure (i.e., Building/Facility)
☐ Critical Activity as defined in CGS Sec. 25-68b (4)	☐ Critical Activity as defined in CGS Sec. 25-68b (4)	☐ Critical Activity as defined in CGS Sec. 25-68b (4)

9. Floodplain Involvement (continued)

Regulatory floodplain/floodway analyses – Based on the type and extent of floodplain involvement, does the project require detailed hydraulic analyses in accordance with the DEP "Hydraulic Analysis Guidance Document" available at http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324222&depNav_GID=1643	Yes/No
	Yes

If no, explain:

Has the stream been studied in detail by the FEMA FIS? (Yes/No)	No

If yes, the back-up hydraulic analysis data used in the FIS must be obtained from FEMA using the FIS Data Request Form (http://www.fema.gov/library/viewRecord.do?id=2223), unless the town/city has a copy of the data that matches the effective study. Enter the FEMA data request and receipt information in the space provided:

Date Requested	N/A	Data Available (Yes/No)?	N/A	Date Received	N/A

☐ A copy of the archive hydraulic data obtained from FEMA or the town/city must be included in the preliminary floodplain/floodway analysis report.

☐ All copies of correspondence with FEMA, in particular, if FEMA determines that the hydraulic data is unavailable, must be included in the preliminary floodplain/floodway analysis report.

Critical Activity - Does the proposed project involve the treatment, storage and disposal of hazardous waste or the siting of hospitals, housing for the elderly, schools or residences, in the 0.2 per cent (500 year) floodplain?	Yes/No
	No

☐ If yes, the base flood for the critical activity shall have a recurrence interval equal to the 500 year flood event.

Nonintensive Floodplain Uses - Will the proposed project promote development in floodplains or will utilities servicing the project be located so as to enable floodplain development?	Yes/No
	No

Explain (*required if yes or no*):

The project site is located within a rural area. The area surrounding the project site is dedicated open space for Town recreation, as well as undevelopable floodplain. A water main relocation is for constructability purposes and does not contribute to floodplain development. Floodplain development as a result of this project is not anticipated.

National Flood Insurance Program (NFIP) – Does the proposed project meet the NFIP minimum standards established in 44 CFR, Chapter 1, Subchapter B, Part 60.3, floodplain management criteria for flood-prone areas?	Yes/No
	Yes

Municipal Regulations - Has the municipality in which the proposed project is to be located adopted floodplain regulations containing requirements that are more restrictive than the NFIP floodplain management criteria for flood-prone areas?	Yes/No
	No

If yes, describe the more restrictive requirements:

Does the proposed project comply with the more restrictive standards of the municipality (Yes/No)?	N/A

9. Floodplain Involvement (continued)

Regulatory Floodplain with No Floodway – The NFIP requires that until a regulatory floodway is designated, that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point. (If no regulatory floodway has been adopted, project impacts may be evaluated by considering an equivalent conveyance loss on the opposite side of the river from the proposed project.)

Is the proposed project consistent with this requirement?	☒ Yes	☐ No	☐ Not applicable. The site has a regulatory floodway.

Floodway Encroachments - Does the proposed project include encroachments, including fill, new construction, substantial improvements, or other development within a NFIP adopted regulatory floodway?	Yes/No
	No

If yes, will the proposed encroachment into the floodway result in any increase in flood levels during either the 100 year or 10 year discharges?

100-year:	☐ No Increase	☐ There is an increase in 100-yr flood level of (1/100ths of a foot):	
		Is the increase contained within city/town property (Yes/No)?	
		Has approval of such increase been received in accordance with 44 CFR, Chapter 1, Subchapter B, Part 65.12 (Yes/No)?	

RCSA Section 25-68h-2(c)(5) and Section 60.3(d)(3) of NFIP regulations prohibit any activity within a regulatory floodway which would result in any increase in the base flood water surface elevation. In order for any proposed project which does not meet these standards to be approved, a map revision is required from FEMA. Some increase in the floodway elevations within the roadway right-of-way may be acceptable without FEMA's prior approval, however, an exemption to the flood management regulations would be required and the project would need to be submitted to the DEP in accordance with the MOU.

10-year:	☐ No Increase	☐ There is an increase in 10-yr flood level of (1/100ths of a foot):	
		Is the increase contained within city/town property (Yes/No)?	

RCSA Section 25-68h-2(c)(5) prohibits any activity within a regulatory floodway which would result in an increase in the elevation of the 10-year water surface. An increase within the right of way or one with no adverse impact may be approved, however, an exemption to the flood management regulations would be required and the project would need to be submitted to the DEP in accordance with the MOU.

Flooding - Will the proposed project pose any hazard to human life, health or property in the event of a base flood?	Yes/No
	No

Explain:

The proposed project involves the replacement of the existing twin cell culvert with a new span bridge. The proposed structure will eliminate structural deficiencies. An increased span results in a decrease of water surface elevations from existing conditions. The proposed structure does not increase flooding potential on properties upstream or downstream of the crossing.

9. Floodplain Involvement (continued)

Flood Elevations - Will the proposed project cause an increase in flood elevation during the base flood discharge?	Yes/No No
If yes, the increase in flood elevation in 1/100ths of a foot is:	
Flood Velocities - Will the proposed project cause an increase in flow velocity during the base flood discharge?	Yes/No Yes
If yes, the increase in flow velocity in feet per second is:	3.3 (max)
Will such increase in velocity or flood elevation cause channel erosion or pose any hazard to human life, health or property?	Yes/No N/A

Explain:

The increased velocities are nearly the same as natural conditions in which the channel was formed. The channel is expected to handle the increased velocities and streambed instability is not anticipated.

Flood Storage - Will the proposed project affect the flood storage capacity or flood control value of the floodplain?	Yes/No No

Explain:

The proposed project reduces existing backwater, producing increased velocities within the approach reach of the analysis by a maximum 3.3 fps upstream. Velocities are increased compared to existing, as expected with reduced tailwater. The proposed velocities more closely simulate the natural velocities and the streambed is expected to remain stable.

Degrading or Aggrading Stream Beds - Is the streambed currently degrading or aggrading?

☐ Degrading	☐ Aggrading	☒ Neither

Has the project design addressed degrading or aggrading streambed conditions (Yes/No)?	
Ice Jams - Is the watercourse prone to ice jams or floods due to ice (Yes/No)?	No
Has the project design considered ice jams or floods due to ice (Yes/No)?	

Storage of Materials & Equipment – Storage of materials that could be injurious to human health or the environment in the event of flooding is prohibited below the elevation of the 500 year flood. Other material or equipment may be stored below the 500 year flood elevation provided that such material or equipment is not subject to major damage by floods, and provided that such material or equipment is firmly anchored, restrained or enclosed to prevent it from floating away or that such material or equipment can be removed prior to flooding.

Will the construction or use of the proposed project involve the storage of materials below the 500 year flood elevation that are buoyant, hazardous, flammable, explosive, soluble, expansive or radioactive, or the storage of any other materials which could be injurious to human, animal or plant life in the event of a flood?	Yes/No No

If yes, describe the materials and how such materials will be protected from flood damage, secured or removed from the floodplain to prevent pollution and hazards to life and property.

9. Floodplain Involvement (continued)

Floodwater Loads - Will structures, facilities and stored materials be anchored or otherwise designed to prevent floatation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy?	Yes/No
	Yes

Coastal Areas - Flood hazard potential in coastal areas shall be evaluated considering surface profiles of the combined occurrence of tides, storm surges, and peak runoff. The starting water surface elevation for the base flood in watersheds with time of concentrations of over 6 hours shall be the 10 year frequency tidal surge level.

If the proposed project is in a coastal area, have the hydraulic analyses incorporated these criteria?

☐ Yes	☐ No	☒ Not in Coastal Area

10. Environmental Considerations

Fish Passage & Habitat – The design of bridges, culverts and stream channel alterations along watercourses must be reviewed by and receive concurrence from the Department of Environmental Protection Fisheries Division. Enter the Fisheries review and concurrence information below:

Fisheries Review Request Date	Fisheries Comments Date	Fisheries Concurrence Date
11/16/2021	12/06/2021	9/18/2025

☒ Copies of all correspondence with the DEP Fisheries must be attached to this form and/or included in the preliminary hydraulic design and the floodplain/floodway analysis reports

Endangered, Threatened Or Special Concern 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"? http://www.ct.gov/dep/cwp/view.asp?a=2698&q=322898&depNav_GID=1707	Yes/No	Date of Map
	Yes	December 2024

If yes, complete and submit a *Connecticut Natural Diversity Data Base* (CT NDDB) *Review Request Form* (DEP-APP-007) to the DEP Bureau Of Natural Resources, Wildlife Division. http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324218&depNav_GID=1643#NDDB	Date Requested
	03/26/2025

Correspondence received (Yes/No)?	No	Date Reviewed	3/26/2025

Concerns:	Freshwater mussels: Eastern Pearl Shell, Brook Floater Reptiles: Spotted Turtle, Eastern Ribbon Snake

Has a field survey been conducted to determine the presence of these species? If yes, provide biologist's name & address.	Yes/No	Survey Date
	Yes	June 2023

Name	Address
CTDOT OEP Consultant	

☒ Copies of any correspondence provided to or received from the NDDB, including copies of the completed CT NDDB Review Request Form, any field surveys, and any other information which may lead you to believe that endangered or threatened species may or may not be located in the area of the project, must be attached to this form.

Aquifer – Is the site located within an aquifer protection area as defined in Section 22a-354a through 354bb of the General Statutes? If yes, coordination with the water company is required.	Yes/No
	No

Name of Water Company	

Public Water Supply – Is the project located within a public water supply watershed or a well-head protection area?	Yes/No	☐ Reservoir ☐ Well-head
	No	

Name of Reservoir or Well-head	Name of Water Company

10. Environmental Considerations (continued)

If project is located within public water supply watershed or aquifer protection area:

- ☐ The design of storm drainage systems shall be coordinated with the Department of Public Health (DPH) and the water authority.
- ☐ Copies of any correspondence/meeting minutes with the DPH and the water company must be attached to this form.
- ☐ A "Notice to Contractor" shall be prepared with input from the Office of Environmental Planning that shall be included in the contract documents.

Stormwater Quality – Does the project include new installation or the modification of storm drainage systems?	Yes/No
	Yes

☒ If yes, the drainage design and stormwater treatment practices shall be in accordance with the ConnDOT *Drainage Manual* (http://www.ct.gov/dot/cwp/view.asp?a=3200&q=260116&dotPNavCtr=|#40139), the *Design Measures for Stormwater Permits Phase II* (http://www.ct.gov/dot/cwp/view.asp?a=2303&q=300868) guidelines and the DEP *2004 Connecticut Stormwater Quality Manual* (http://www.ct.gov/dep/cwp/view.asp?a=2721&q=325704&depNav_GID=1654).

Erosion and Sediment Control (E & S) – E & S plans shall be consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (http://www.ct.gov/dep/cwp/view.asp?a=2720&q=325660&depNav_GID=1654), the current version of ConnDOT's "*On Site Mitigation for Construction Activities*" and the *Standard Specifications Form 816, Section 1.10, Environmental Compliance* (http://www.ct.gov/dot/cwp/view.asp?a=3609&q=430362).

☒ E & S plans shall be developed in final design in accordance with the required documents.

Estimate total acres of site disturbance for project:	The General Permit for Stormwater Discharge shall be:
☒ less than1 acre	☒ Not Required
☐ greater than or equal to 1 acre but less than 5-acres	☐ Reviewed & Approved by City/Town
☐ greater than 5 acres	☐ Registered with the DEP

General Permit for Stormwater and Dewatering Wastewaters from Construction Activities (Stormwater Discharge):
http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324212&depNav_GID=1643#StormwaterConstructionGP

10. Environmental Considerations (continued)

U.S. Army Corps of Engineers (Corps) Programmatic General Permit (PGP) – The Corps regulates any work in U.S. waters or wetlands. The New England District of the Corps has issued a PGP to expedite review of minimal impact projects in coastal and inland waters and wetlands within the State of Connecticut. Although the PGP is not directly related to the FMC, the requirements for bridges or culverts under the PGP may affect the design of these structures which may in turn affect the documentation for the FMC. Therefore, an early understanding of the PGP requirements is necessary to ensure that the project is eligible for the streamlined Corps permit and/or to avoid any unnecessary design changes that may affect the FMC approval and the project schedule. A copy of the CT PGP is available at http://www.nae.usace.army.mil/reg/ctpgp.pdf

Indicate the area of impact to inland or tidal wetlands from the project (0 = No Impact)	☒ Inland ☐ Tidal

Permanent (Acres)	Temporary (Acres)	Total Impact (Acres)
0.028	0.015	0.043

Does the project result in fill in the regulatory floodway (Yes/No)?	No
Does the project include a bridge or culvert waterway crossing (Yes/No)?	Yes
Is the drainage area to the bridge/culvert greater than or equal to one square mile (Yes/No)?	Yes

☒ Bridge or Open-Bottom Structure

- ☒ Crossing spans at least 1.2 times the watercourse bank full width
- ☒ Structure has an openness ratio equal to or greater than 0.25 meters
- ☒ Structure allows for continuous flow and does not result in a change of the normal surface elevation of the upstream waters, waterway or wetland
- ☒ Structure incorporates a riparian bank on at least one side for wildlife passage

Open bottom arches, bridge spans or embedded culverts are generally preferred over traditional culverts and are required for Category 1/non-reporting projects. However, site constraints may make use of an open bottom arch, bridge span or embedded culverts impractical, and in these cases documentation must be provided.

☐ Culvert or Artificial-Bottom Structure

- ☐ Structure has an openness ratio equal to or greater than 0.25 meters
- ☐ Culvert gradient is less than or equal to the streambed gradient upstream and downstream of the culvert
- ☐ Invert is set at least 1 foot below streambed elevation; (for double box crossings, at least one box is set 1 foot below, for culverts where one foot is not practicable, 25% of the pipe must be depressed)
- ☐ Structure allows for continuous flow and does not result in a change of the normal surface elevation of the upstream waters, waterway or wetland
- ☐ Structure does not impede the passage of fish

Waterway Crossing Data – Enter the bridge/culvert crossing data below:

Location	Site 1		Site 2		Site 3	
Bridge/Culvert Type	Single Span					
Span/Size	42 ft	12.8 m	ft	m	ft	m
Channel Bankfull Width	23 ft	7.0 m	ft	m	ft	m
Culvert embedment depth	ft	m	ft	m	ft	m
Cross Sectional Area (*excludes embedded area*)	278 ft^2	25.8 m^2	ft^2	m^2	ft^2	m^2
Bridge/Culvert Length (*in direction of flow*)	37.5 ft	11.4 m	ft	m	ft	m
Openness Ratio (m^2/m)		2.3 m		m		m

Check the type of permit required for the project:

☒ Project is Category 1 eligible. Documentation will be processed through Office of Environmental Planning.

☐ Project is Category 2 eligible and must be presented at Project Manager's Meeting. Corps application Form ENG 4345 and CT PGP addendum (*both available at* http://www.nae.usace.army.mil/reg/index.htm) must be prepared. If any of the above criteria cannot be met, a justification for the reasons must be included in the permit submission.

☐ Project is not eligible for PGP. An individual permit must be submitted to the Corps.

11. Stormwater Management

Stormwater Runoff – The proposed project will (check all that apply):	
☐ Increase the area of impervious surfaces	☐ Alter existing drainage patterns
☐ Increase runoff coefficients	☐ Alter time of concentrations
☐ Change the timing of runoff in relation to adjacent watersheds	

Will the proposed project impact downstream areas by increasing peak flow rates, the timing of runoff, or the volume of runoff?	Yes/No
	No

If yes, describe the downstream impacts for the 2, 10 and 100 year frequency discharges:

The pre and post development peak flow rates at the downstream design point are as follows:

Return Frequency (Year)	Peak Discharges (CFS)	
	Pre-Development	Post-Development
2		
10		
100		

The above peak discharges were computed utilizing the a storm duration of:	Hour
	24

This duration storm was selected because:

In accordance with CTDOT Drainage Manual

Describe the location of the design point and why this location was chosen:

Stormwater Detention Facilities – Does the proposed project include the construction of any stormwater detention facilities?	Yes/No
	No

☐ If yes, complete the *Stormwater Detention Facilities* worksheet and attach

Storm Drainage Systems – Does the proposed project include the construction of subsurface storm drainage systems?	Yes/No
	Yes

☒ If yes, complete the *Storm Drainage Systems* worksheet and attach

12. Hydrologic Report(s)

☒ Perform hydrologic analysis in accordance with the methods identified in the current ConnDOT Drainage Manual and Consulting Engineers General Memorandum 07-06, "StreamStats" (http://www.ct.gov/dot/cwp/view.asp?a=2303&q=421916).

☒ Prepare narrative describing the watershed; design storm frequency; FEMA, SCEL, USGS stream gage, *StreamStats* or other study discharge information, if available; the hydrologic methodologies used in the analysis; results of the hydrologic analysis and final recommendations for the 2, 10, 25, 50, 100 and 500-year storm frequencies.

☒ Include all other documentation as outlined in Chapter 6, Appendix D of the Drainage manual.

☒ Submit a draft Hydrologic Report to ConnDOT for review and approval. The persons preparing and checking the report shall sign and date the report. The report shall be signed and dated by the Department approved hydraulic engineer and include a professional engineer seal, signature and date.

☒ Incorporate comments into report, repackage and resubmit Final Report with signatures. Provide responses to previous comments.

13. Hydraulic Report(s)

Depending on whether the flooding source identified in Section 4, "Flooding Source Identification & Floodplain Determination", has been studied in detail by FEMA, one or both of the following documents shall be required:

A. Preliminary Hydraulic Analysis Report – This report and hydraulic analyses contained therein, shall document the hydraulic design for the project and its conformance to the standards and design criteria outlined in the ConnDOT Drainage Manual 2000, as revised. The manual and revisions can be found on the internet at http://www.ct.gov/dot/cwp/view.asp?a=1385&Q=260116. For projects potentially affecting a regulatory floodplain that was determined by approximate methods (FEMA Zone A), this report and hydraulic analyses contained therein, shall document that the proposed project is in conformance with the applicable flood management standards and criteria prescribed in Sections 25-68b through 25-68h of the Connecticut General Statutes (CGS), Sections 25-68h-1 through 25-68h-3 of the Regulations of Connecticut State Agencies, and Section 13a-94 of the CGS.

The report and hydraulic analyses shall be prepared in accordance with the latest version of the DEP "Hydraulic Analysis Guidance Document" and the ConnDOT Drainage Manual. The hydraulic analyses shall be performed using the latest version of the ACOE HEC-RAS computer program unless another program has been specified or approved by the Department.

Cross sections for the hydraulic models shall be developed from field survey and where appropriate, supplemented with cross sections from previous analyses, LIDAR data or other available contour mapping.

Peak discharges from the approved Final Hydrologic Report shall be used. Unless otherwise noted, the 2, 10, 25, 50, 100, and 500-year storm events shall be analyzed for riverine conditions. For tidal structures a combination of tidal storm surge and riverine flooding needs to be analyzed.

☒ Required – ***Complete Section 13A*** ☐ Not Required (*indicate reason*)

Reason:

B. Preliminary Floodplain/Floodway Analysis Report – This report is only required for floodplain/floodway involvement in watercourses that have been studied in detail by FEMA. The report is not required for watercourses with FEMA Flood Hazard Zone "A", "B", or "X" ("C" in older studies) designations or when no zone designation is shown on the FEMA mapping. For projects potentially affecting a regulatory floodplain and floodway, this report and hydraulic analyses contained therein, shall document that the proposed project is in conformance with the applicable flood management standards and criteria prescribed in Sections 25-68b through 25-68h of the Connecticut General Statutes (CGS), Sections 25-68h-1 through 25-68h-3 of the Regulations of Connecticut State Agencies, and Section 13a-94 of the CGS.

The report and hydraulic analyses shall be prepared in accordance with the latest version of the DEP "Hydraulic Analysis Guidance Document" (http://dep.state.ct.us/pao/download.htm#IWRD) and the ConnDOT Drainage Manual. The hydraulic analyses shall be performed using the latest version of the ACOE HEC-RAS computer program unless another program has been specified or approved by the Department.

Cross sections for the hydraulic models shall be the same as those used for the published FEMA FIS. The original FEMA FIS hydrologic and hydraulic analysis data is requested as noted in Section 4 of this form. When the FEMA data is unavailable, the DEP guidance document shall be followed. The FIS cross sections may be supplemented, replaced or additional cross sections from field survey information may be inserted into the hydraulic model in order to define the project site as outlined in the DEP guidance document. In cases where discrepancies between the FIS cross sections and the current survey information are unacceptable, or obvious input errors are noted, data from the current survey shall be used.

Peak discharges from the published FEMA FIS shall be used. Unless otherwise noted, the 10, 50, 100, and 500-year peak discharges shall be analyzed for the floodplain (unencroached condition) analysis. The 10 and 100 peak discharges shall be analyzed in the floodway (encroached condition) analysis. When only a portion of the stream reach is being studied by the project, the hydraulic models shall start and end at "lettered" FEMA cross sections.

☐ Required – ***Complete Section 13B*** ☒ Not Required (*indicate reason*)

Reason:

The project is located in a FEMA Zone A. The Hydraulic Analysis Report provides the hydraulic data for this application.

13A. Preliminary Hydraulic Analysis Report

The following hydraulic models shall be developed:

☒ *Existing conditions model* – This model shall be developed to reflect the current, pre-project conditions.

☒ *Natural conditions model* – This model is required for all structure replacements and is typically developed by removing existing structure data from the existing conditions model. Only the 100-year peak discharge needs to be analyzed in the natural conditions model.

☒ *Proposed conditions model* – This model is developed by imposing the proposed structure and any other proposed modifications onto the existing conditions model. Proposed modifications may include, among other things, floodplain encroachments resulting from the proposed highway and bridge design and any stream channel relocations/restorations. The preliminary hydraulic design and proposed model shall also address any fisheries and aquatic habitat concerns identified by the DEP Fisheries review. The hydraulic models shall be compared to verify that there are no increases in elevations from existing to proposed conditions and that the proposed conditions model does not increase the water surface elevation by more than one foot over the natural conditions for the 100-year storm event. The proposed conditions model results shall be used to verify that the design of culverts and bridges satisfy the design criteria outlined in Tables 8-4 and 9-2 of the Drainage Manual. The In certain cases where these and other design criteria can not be satisfied due to site conditions or other constraints, the report must document the reasons, potential impacts and provide recommendations.

☒ *Temporary conditions model* – In combination with the anticipated construction methodology and/or stage construction plans, conceptual water handling and flood contingency plans shall be developed. The temporary conditions model shall reflect any obstructions and reduced channel capacities caused by temporary hydraulic facilities that are used to temporarily divert stream flow or isolate work areas from the stream flow as shown in the water handling plan. All stages of construction shall be analyzed using a temporary design flow as determined by the methodology in Chapter 6, Appendix F, "Hydrology for Temporary Facilities", of the Drainage Manual. In some cases, an analysis of the worst-case scenario only, may be acceptable to document that the temporary condition will not cause or exacerbate flooding of the roadway or private property or result in excessive erosion and sedimentation. As a part of the development of a flood contingency plan for the project, storms greater than the temporary design storm shall also be evaluated and, if necessary, the water handling/stage construction plans shall be modified to avoid excessive flooding or erosion during construction.

  ☒ *All hydraulic models for a specific site shall be created and maintained in the same HEC-RAS project (.prj) file using different geometry, flow data and plan files where needed. The HEC-RAS program has been specifically designed to facilitate review of different conditions and scenarios in this fashion.*

☐ Channel Design – Conceptual plans and calculations shall be included in the report for any channel design, stream relocation/restoration, revetment design, scour countermeasures, fisheries enhancements or other similar work proposed for the project.

☒ Prepare Report – The report shall include <u>all</u> information required to clearly document the site specific hydraulic analysis and design. At a **<u>minimum</u>**, the report shall include the following material:

  ☒ Location Maps (annotated TRU, USGS Quad, FEMA and aerial maps)

  ☒ Hydraulic Data Sheets (DM, Chapter 9, Appendix A) for each proposed structure based on ConnDOT design discharge.

  ☒ Hydraulic Cross-Section Location Map(s) with topography and contours showing existing and proposed cross section locations. The map(s) shall be developed from the base mapping for the project.

  ☒ Water Surface Profile Plots

    ☒ Existing, Natural & Proposed at 100-year design discharge

    ☒ Existing & Proposed at 10-year design discharge

    ☒ Proposed at 100-year design discharge

  ☒ Comparison Tables

    ☒ Existing vs. Proposed & Proposed vs. Natural 100-year Water Surface Elevation

    ☒ Existing vs. Proposed 10-year Water Surface Elevation

    ☒ Existing vs. Proposed 100-year Average Channel Velocity

  ☒ Existing vs. Proposed 10-year Average Channel Velocity

13A. Preliminary Hydraulic Analysis Report (continued)

- ☒ Narrative describing the project; hydrology; hydraulic design criteria, analysis methodology and results; natural, existing and proposed conditions; model boundary conditions; hydraulic structures; channel design, stream relocations and restorations; fish passage; any unusual aspects of the hydraulic analysis, results and design; conclusions and recommendations. For structure replacements that decrease backwater from existing conditions, the narrative shall address qualitatively potential downstream effects due to loss of upstream flood storage volume. If it appears that downstream effects may be detrimental, then additional analyses may be required to verify the effects or the design may need to be modified accordingly. The narrative shall be comprehensive and clear enough to expedite the review process by guiding the reviewers' through the project, the hydraulic analysis and design. The document shall also serve as a record so that the design methodology and intent may be understood should the document be referenced many years in the future. Stage construction, water handling, temporary hydraulic facilities and flood contingency shall be described in a separate narrative included in an appendix to the report.
- ☒ Appendices
  - ☒ Site photographs
  - ☒ Data Collection & Field review Forms
  - ☒ HEC-RAS hydraulic model input and output data – Full printout for proposed condition only; HEC-RAS Profile Output Tables – Standard Table 1 including the 2, 10, 25, 50, 100, and 500-year storm events for existing and proposed conditions and 100-year for the natural condition.
  - ☒ Hydraulic calculations – Include all miscellaneous hydraulic calculations used for the design of the project.
  - ☐ Channel Design – Include all calculations, plates or plans for channel design.
  - ☒ Cross section plots – Proposed condition superimposed on existing condition with 10- and 100-year water surfaces and the proposed condition alone with 10- and 100-year water surfaces.
  - ☒ Water Handling And Temporary Hydraulic Facility Design – Narrative describing stage construction, water handling, temporary hydraulic facilities, flood contingency and the development and results of the temporary conditions model; Hydrology for Temporary Facilities (worksheet); HEC-RAS Profile Output Table – Standard Table 1; water surface profile plot; cross section plots showing temporary conditions; plates or plans showing construction staging, water handling and the temporary hydraulic facilities.
- ☒ Correspondence – Include any correspondence related to the hydraulic design such as a copy of the DEP Fisheries comments and recommendations.
- ☐ CD – The report shall include a computer CD containing all files used in the hydraulic analysis including HEC-RAS input files and any spreadsheets developed for the project. The CD shall be labeled with the project information and include a clear index of the files contained therein. Any interim calculation or extraneous files used during the design process shall not be copied onto CD.
- ☐ Other – Include any other site or project specific information required to document the hydraulic analysis and design.

☒ Submit Preliminary Hydraulic Analysis Report to ConnDOT for review prior to or concurrent with the Preliminary Design submission. The persons preparing and checking the report shall sign and date the report. The report shall include the signature of the Department approved hydraulic engineer, date and a professional engineer seal, signature and date.

13B. Preliminary Floodplain/Floodway Analysis Report

☐ Prior to developing the hydraulic models, the 100-year floodplain limits, floodway and FEMA cross section locations shall be plotted on a plan developed from the base mapping for the project. The proposed conditions shall be superimposed on the plan so that proposed encroachments into the floodplain/floodway can be identified, be eliminated by redesign or be included in the hydraulic models for the project.

The following hydraulic models shall be developed:

☐ *Calibrated model* - Recreate the FEMA model "as-is" with the original FEMA data for the 10, 50, 100 and 500-year storm events using the published FEMA flows. Compare the results of this model with FEMA's published values. In the report narrative, discuss any differences between the calibrated model results and the published FEMA data including any apparent errors or discrepancies in the original data.

☐ *Existing conditions model* – Modify the calibrated or "as-is" model to reflect the current conditions , keeping in mind that if additional cross sections are required for the proposed conditions model, matching cross sections must be included in the existing conditions model. Also, cross sections at the right of way limits are recommended as they may be needed should the proposed condition show minor increases in water surface elevation near the roadway crossing. However, prior to developing this model, the FEMA cross sections within the study reach of the proposal should be compared to current survey information at the location of the FEMA cross sections in order to determine their accuracy. In situations where any discrepancies found between the FEMA data and the current survey information are relatively minor (generally matching to within 0.5' is acceptable), the FEMA data should be used. In cases where the discrepancies between the FEMA cross sections and the current survey information are unacceptable, or obvious input errors are noted, data from the actual site conditions should be utilized. The report shall discuss any differences.

☐ *Existing conditions encroached model* – When a FEMA floodway is present the existing conditions model will be run with encroachments using Method 1 for the 10 and 100-year storm events. The distance between the encroachment stations shall be consistent with the published (FIS "FLOODWAY DATA" table) floodway widths and the floodway widths scaled from the FEMA mapping.

☐ *Proposed conditions model* – Similar to the hydraulic analysis report, this model is developed by imposing the proposed structure and any other proposed modifications onto the existing conditions model. Increases in water surface elevation in the proposed conditions model compared to the existing conditions model shall be eliminated by redesign, where possible. Unavoidable increases and potential impacts must be thoroughly discussed in the report narrative. Adverse impacts will not be approved. If the proposed conditions model differs from the published information by more than 0.5-feet, a notification letter and backup data shall be sent to FEMA and the town per the DEP guidelines. The existing and proposed conditions model shall show convergence of the water surface elevation upstream and downstream of the project. If the water surface elevation is lowered in the proposed condition, convergence within 0.5-feet is acceptable.

☐ *Proposed conditions encroached model* - When a FEMA floodway is present the proposed conditions model will be run with encroachments using Method 1 for the 10 and 100-year storm events. The encroachment stations must be the same as in the existing conditions encroached model. No increase in water surface elevation (0.00') in the proposed encroached conditions model compared to the existing encroached conditions model is allowed. If an increase occurs, the hydraulic models shall be carefully reviewed and/or the project design shall be modified to eliminate the increase. An increase in water surface elevation that converges to the existing condition at or within the State or Town (for municipal projects) right of way may be permissible if there is no adverse impact shown. Cross sections must be located at the right of way limits to demonstrate convergence. Other unavoidable increases in water surface elevation or modifications to the regulatory floodway will not be permitted without prior approval of a conditional letter of map revision (CLOMR) from FEMA.

  ☐ *All hydraulic models for a specific site shall be created and maintained in the same HEC-RAS project (.prj) file using different geometry, flow data and plan files where needed. The HEC-RAS program has been specifically designed to facilitate review of different conditions and scenarios in this fashion.*

☐ Prepare Report – The report shall include <u>all</u> information required to clearly document the site specific hydraulic analysis and design. At a **<u>minimum</u>**, the report shall include the following material:

  ☐ Location Maps (annotated TRU, USGS Quad, FEMA and aerial maps)

  ☐ Hydraulic Data Sheets (DM, Chapter 9, Appendix A) for each proposed structure based on FEMA discharge.

  ☐ Plan showing floodplain/floodway involvement.

  ☐ Hydraulic Cross-Section Location Map(s) with topography and contours showing FEMA cross section locations and any additional existing and proposed cross section locations. The map(s) shall be developed from the base mapping for the project or other mapping that has been approved for use by the Department.

13B. Preliminary Floodplain/Floodway Analysis Report (continued)

- ☐ Water Surface Profile Plots
  - ☐ Existing & Proposed conditions at 100-year design discharge
  - ☐ Existing encroached & Proposed encroached conditions at 100-year design discharge
  - ☐ Existing & Proposed conditions at 10-year design discharge
  - ☐ Existing encroached & Proposed encroached conditions at 10-year design discharge
  - ☐ Proposed conditions and Proposed encroached conditions at 100-year design discharge
- ☐ Comparison Tables
  - ☐ FEMA FIS model vs. Calibrated model & Calibrated model vs. Existing conditions model 100-year Water Surface Elevation
  - ☐ Existing conditions & Existing encroached conditions vs. Proposed conditions & Proposed encroached conditions 100-year Water Surface Elevation
  - ☐ Existing conditions & Existing encroached conditions vs. Proposed conditions & Proposed encroached conditions 10-year Water Surface Elevation
  - ☐ Existing vs. Proposed conditions 100-year Average Channel Velocity
  - ☐ Existing vs. Proposed conditions 10-year Average Channel Velocity
- ☐ Narrative describing the project; location(s) and description of floodplain/floodway involvement; FEMA FIS data, FEMA cross sections, accuracy and use of additional cross sections to define site; FEMA and project hydrology; hydraulic design criteria; hydraulic structures; channel design, stream relocations and restorations; fish passage; FEMA and project analysis methodology and results; FEMA calibrated model, existing and proposed unencroached and encroached conditions models; model boundary conditions; any unusual aspects of the hydraulic analysis, results and design; conclusions and recommendations. The narrative shall be comprehensive and clear enough to expedite the review process by guiding the reviewers' through the project, hydraulic analysis and design. The narrative shall cross reference any pertinent information contained in the separately bound Hydrologic, Hydraulic Analysis, and Drainage reports prepared for the project.
- ☐ Appendices
  - ☐ FEMA FIS data – FIS cover page, summary of discharges, floodway data table, flood profiles, copy of FIS hydrologic and hydraulic analyses obtained from FEMA.
  - ☐ HEC-RAS hydraulic model input and output data – Full printout for proposed conditions and proposed encroached conditions only; HEC-RAS Profile Output Tables – Standard Table 1 for (1) the 10, 50, 100, and 500-year storm events for existing and proposed conditions, (2) 100-year existing, existing encroached, proposed and proposed encroached conditions and (3) 10-year existing, existing encroached, proposed and proposed encroached conditions.
  - ☐ Cross section plots – Proposed conditions & proposed encroached conditions superimposed on existing conditions & existing encroached conditions with 10- and 100-year water surfaces shown separately.
- ☐ CD – The report shall include a computer CD containing all files used in the hydraulic analysis including HEC-RAS input files and any spreadsheets developed for the project. The CD shall be labeled with the project information and include a clear index of the files contained therein. Any interim calculation or extraneous files used during the design process shall not be copied onto CD.
- ☐ Other – Include any other site or project specific information required to document the hydraulic analysis and design.

☐ Submit to ConnDOT for review prior to or concurrent with the Preliminary Design submission. The persons preparing and checking the report shall sign and date the report. The report shall include the signature of the Department approved hydraulic engineer, date and a professional engineer seal, signature and date.

Culverts and Bridges

Complete this section *only* if the proposed project includes the repair, modification, replacement or new construction of a culvert or bridge. *Use a separate worksheet for each culvert/bridge on the project.*

Bridge No.	Roadway	Station/Location	Stream Name
04695	**Old Colchester Road**	**Hebron**	**Raymond Brook**

All culverts and bridges are designed in accordance with methods and procedures defined in the DOT Drainage Manual as revised, DOT 816 as revised and the CT 2004 Stormwater Quality Manual as revised.

Utilizing the DOT Drainage Manual classifications listed below, the culvert or bridge is classified as a:

- ☐ *Minor Structure* - Minor structures have a drainage area of less than one square mile in which there is no established watercourse. They shall be designed to pass the 25 year frequency discharge.
- ☐ *Small Structure* - Small structures have a drainage area of less than one square mile in which there is an established watercourse. They shall be designed to pass the 50 year frequency discharge.
- ☒ *Intermediate Structure* - Intermediate structures have a drainage area greater than one square mile and less than 10 square miles. They shall be designed to pass the 100 year frequency discharge with reasonable underclearance.
- ☐ *Large Structure* - Large structures have a drainage area greater than 10 square miles and less than 1000 square miles. They shall be designed to pass the 100 year frequency discharge with an underclearance not less than two feet.
- ☐ *Monumental Structure* - Monumental structures *have* a drainage area greater than 1000 square miles. They shall be designed to meet the requirements of the Connecticut Department of Environmental Protection, U.S. Army Corps of Engineers, and the U.S. Coast Guard.
- ☐ *Tidal Structure* - Tidal structures are subject to tidal action and shall be classified as minor, small, intermediate, etc. depending on their drainage area. These structures shall be designed in accordance with the previously listed *classifications*. However if the highway is subject to frequent tidal flooding, the design storm may be made consistent with the frequency of flooding by tidal action. The proposed culvert or bridge is classified as:

  ☐ Minor ☐ Small ☐ Intermediate ☐ Large ☐ Monumental

Note: Underclearance requirements are most applicable to bridge superstructures that are subject to buoyancy and damage from debris impact and are not applicable to culverts (enclosed conduits).

Culverts and bridges will be designed for flood frequencies and underclearances stipulated in the DOT Drainage Manual as listed above, except that on local roads and driveways with low traffic volumes and where alternate routes are available, lower design criteria are acceptable when:

- ☒ Flood discharges may be allowed to cross over roads that are at or close to the floodplain grade.
- ☒ Water surface elevations are not increased by more than one foot, and will not cause damage to upstream properties.
- ☒ Provisions are made to barricade the road when overtopped.
- ☒ The road or driveway is posted as being subject to flooding.

	Yes/No
Has the structure been designed in accordance with the criteria established in the DOT Drainage Manual?	No
If no, have the preceding conditions been incorporated with the lower design criteria (Yes/No)?	Yes

The culvert or bridge has been designed for:	Design Frequency (Year)	Underclearance (feet)
	100	0.0

Describe the lower design standards and the reasons for not complying with the DOT Drainage Manual:
The proposed structure does not provide the required 1 foot of underclearance or freeboard for the design discharge. Due to site constraints, namely the state park adjacent to the site, improvements to the roadway profile to meet 1 foot of freeboard and underclearance are beyond the scope of the current project. The low chord and roadway profile of the structure would have to be raised a minimum of one foot which would have adverse impacts to the adjacent park property and entrance area. For existing conditions, the bridge deck is overtopped for the 25-year and greater events, and with the proposed improvements, the proposed replacement presents that the travelway will be dry for the 100-year event. Per CTDOT Drainage Manual Section 9.2.3 (end of pg. 9.2-3) lower underclearance and freeboard criteria is acceptable for this local road as water surface elevations are not increased and will not adversely affect upstream properties.

Culverts and Bridges (continued)

Design Discharge – If the subject site is located in a FEMA floodway or a *numbered* "A" zone, the discharge for analyzing the acceptability of a project at that site must be the same discharge used by FEMA in establishing the floodway or *numbered* "A" zone designation for the site. If the subject site is located in an *unnumbered* "A" zone or is not located in a FEMA flood zone, such that no detailed study is available, hydrologic analysis must be performed to establish an appropriate design discharge for evaluating the acceptability of the project at that site. If a design discharge is recommended other than the discharge used by FEMA, the designer must still evaluate the project using the FEMA design discharge and provide a detailed justification as to why another discharge was selected.

100-Year FEMA Discharge (cfs)	N/A	100-Year Design Discharge (cfs)	2844

Natural Condition – Bridges and culverts should be designed so that the proposed water surface profile does not exceed the natural profile by more than one foot for the 100-year floodplain analysis. This applies to the replacement of existing bridges and culverts as well as the construction of new structures.

	Yes/No	Maximum Increase Proposed vs Natural (feet) Is?
Will the proposed culvert or bridge meet this standard?	Yes	0.7 feet

If no, provide justification below:

	Yes/No
Headwater – Will the proposed culvert or bridge be designed so that flooding during the design discharge does not endanger the roadway or cause damage to upstream developed property?	Yes
Freeboard is defined as the vertical distance between the design water surface and the upstream control such as the low point of the roadway edge, sill of a building or other controlling element. Indicate the amount of freeboard (in feet) provided in the proposed culvert or bridge design:	0.0 feet

Indicate the hydraulic design control(s) for the proposed culvert or bridge below:

- ☒ The elevation of roadway edge at roadway low point
- ☐ The sill elevation of building or other structure
- ☐ A water surface elevation equal or less than the FEMA regulatory elevation
- ☐ One foot over natural condition requirement
- ☐ A water surface elevation non-damaging or not encroaching onto private property
- ☐ A ratio of the headwater/culvert depth (HW/D) less than 1.5
- ☐ A water surface elevation below a divide where the flow would be diverted from the area tributary to the culvert
- ☐ Maintain existing water surface elevation and flood storage due to downstream flooding concerns
- ☐ Other:

	Yes/No
Downstream Peak Flows – Will the proposed culvert or bridge increase downstream peak flows by decreasing existing headwater depths during flooding events?	No

If yes, describe the selected design criteria and the impacts to downstream properties:

Culverts and Bridges (continued)

Alignment – If the proposed bridge or culvert is new construction, has the structure been aligned to minimize the relocation of the watercourse? ☒ No new alignment	Yes/No
Fish Passage – Does the culvert design allow for the passage of fish?	Yes/No Yes
Has the rigid floors at new or replaced bridges and culverts been depressed a minimum of one foot below the normal streambed with one foot native streambed material on top? ☒ No rigid structural floor	Yes/No
If no, has written approval been obtained from DEP Fisheries (Yes/No)?	

Describe the specific design provisions for fish passage:

The proposed project replaces a deteriorated multiple cell culvert with a clear span, natural bottom structure, eliminating potential for obstructions, returning the channel to a more natural condition through the crossing and creating unrestricted fish passage through the crossing.

Parapet Walls – Does the design utilize solid parapet walls in the sag part of a vertical curve?	Yes/No No
If yes, has the use of such walls been deemed hydraulically acceptable by the DOT Hydraulics and Drainage?	Yes/No
Multiple Openings – The use of a single large culvert or bridge opening is preferred over the use of multiple small openings. Has the design minimized the use of multiple small openings?	Yes/No Yes

If no, explain:

Debris Blockage – Is the culvert or bridge prone to blockage by debris?	Yes/No Yes
If yes, has the project design incorporated measures to minimize the potential for debris blockage?	Yes/No *Yes*

Temporary Hydraulic Facilities

This section must be completed if the project requires a temporary hydraulic facility for water handling, temporary stream diversion and stage construction. Temporary hydraulic facilities include, among other things, all channels, culverts, bridges or channel constrictions such as cofferdams which are required for haul roads, channel relocations, culvert installations, bridge construction, temporary roads, or detours. They are to be designed with the same care which is used for the primary facility.

Has such facility been designed in accordance with Chapter 6, Appendix F, "Temporary Hydraulic Facilities," of the DOT Drainage Manual? ☒ Yes ☐ No If yes, the design flood frequency is the: **1.25** year flood.

Describe the temporary facilities:

The proposed rehabilitation consists of replacing the twin cell culvert with a 42-foot clear span bridge structure. Water-handling will be completed in two stages and traffic will be detoured around the site. Stage 1 will involve installation of temporary water handling cofferdams to block the northernmost pipe and divert flow through the southern pipe. The northern pipe will be removed followed by installation of the new substructure and embankment and channel grading detailed on the design plans and permit plans. The temporary water handling cofferdam will be flipped in stage 2 to block the southern pipe and divert flow to the newly graded northern side of the channel. The remaining culvert pipe and fill material will be removed, followed by installation of the new substructure, embankment, and final channel grading. Temporary water handling cofferdams will be removed following the completion of water handling activities.

Based on a total impact rating of 16 resulting in an acceptable design risk of 30% for temporary facilities and a 3-month period of in-water work, the temporary design frequency is estimated at less than a 2-year event. In general, the 2-year event is the minimum temporary design flow event as evaluated by the temporary facilities frequency determination method presented in the CTDOT Drainage Manual, Chapter 6, Appendix F, "Hydrology for Temporary Facilities" (See Appendix H for the temporary facilities worksheet). At times, however, it is more prudent to design to a temporary flow rate which is less than the minimum due to site constraints, expected duration in place and other site-specific concerns, such as potential impacts due to the flow control devices and expected daily flow conditions. For this project, design of the water handling devices is based on a flow rate of 180-cfs, equating to a 1.25-year event, or an 80% annual exceedance probability (AEP). For reference, the 2-year design event at the bridge has a flow rate of 384-cfs.
With this reduced design event for water handling, the contractor will be required, per Form 818 (Best Management Practices), to coordinate with the National Oceanic and Atmospheric Administration (NOAA) Weather Service (NWS) for warnings pertaining to forecasted storms and/or flooding. In the event that a flood warning is issued for the area, all floatable materials and equipment will be removed from the protected work area and the subject area secured. Discharges will be allowed to overtop the water handling structure(s) and flow through the work area. Any disturbances will be repaired and stabilized as soon as flooding recedes, and it is safe to reenter the work area.
Temporary water handling cofferdams will be set to a minimum elevation of 365.5 feet for both stages. Stage 1 upstream and downstream temporary water surface elevations are 364.6 feet and 363.9 feet, respectively. Stage 2 upstream and downstream temporary water surface elevations are 364.4 feet and 364.1 feet, respectively. Temporary water surface elevations for both stages are within 1.3 feet of the existing 2-year storm water surface elevations and will remain within the channel banks with no anticipated impacts to upstream properties. The elevation of the abutting multi-use Airline Trail (State Park) is a minimum of 3-feet above the 2-year water surface elevations during construction and will not be affected.

Storm Drainage Systems

Complete this section *only* if the proposed project includes the construction of subsurface storm drainage systems.

a. *DOT Standards* - Is the proposed storm drainage system designed in accordance with the Connecticut Department of Transportation's (DOT) Drainage Manual? ☒ Yes ☐ No

If no, describe the lower design standards and the reasons for not complying with the Drainage Manual:

b. *Design Storm* - Is the storm drainage system designed for a ten year frequency storm without closing the use of the facility? ☒ Yes ☐ No

c. *Future Development* - Has the design of the system considered future development of adjacent properties?

☒ Yes ☐ No

d. *Outlet Protection* - Have the outlets from the system been designed to minimize the potential for downstream erosion?

☒ Yes ☐ No

e. *Overland Flow* - Has the use of curbing been minimized to encourage overland dispersed flow through stable vegetated areas? ☒ Yes ☐ No

f. *Vegetated Filter Strips* - Has the design incorporated the use of vegetated filter strips or grass swales to improve the quality of water outletting from the storm drainage system? ☐ Yes ☒ No

g. *Stormwater Treatment* - Describe features of the stormwater collection system intended to improve the quality of stormwater runoff prior to its discharge to surface waters.

Overland runoff is promoted through the minimization of curbing. Drainage discharges over riprap for energy dissipation and filtration of pollutants prior to entering Raymond Brook downstream of the bridge.

h. *E & S Control Plan* - Has the design and installation of the storm drainage system been coordinated with the soil erosion and sediment control plan prepared in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control?

☒ Yes ☐ No

Explain:
Soil erosion and sedimentation control devices (hay bales, silt fence, etc.) will be placed downgrade of any disturbed soils prior to the start of construction. Water handling cofferdam will be provided within the riverine environment to provide for separation from the construction site and the open waters of the Raymond Brook. Additionally, the majority of the work will be performed within an enclosed cofferdam and dewatering system; all of which will eliminate the potential for sediment to be released from the work site to the adjacent floodplain and watercourse.

Alterations of Watercourses

Complete this section *only* if the proposed project includes the construction or alteration to a natural perennial watercourse or man-made channel

a. *Topography Change* - Is the watercourse or channel located within a regulatory floodway or Zone A1-30 or AE as designated by the NFIP? ☐ Yes ☐ No

b. *Hydraulic Capacity* - Does the channel have a minimum flow capacity of a flood equal to at least the 25 year frequency flood? ☐ Yes ☐ No

The channel capacity is designed for the: year flood.

Does the channel have an inner channel with a capacity of a 2 year frequency flood? ☐ Yes ☐ No

c. *Aquatic Habitat* - Channel alterations should be designed to create aquatic habitats suitable for fisheries, including suitable habitat for maintaining fish populations and to enable fish passage, and to maintain or improve water quality, aesthetics, and recreation.

Has the applicant had any pre-application meetings or correspondence with DEP Fisheries?

☐ Yes ☐ No

Check each of the following criteria that have been incorporated into the project design:

☐ 1. artificial channel linings have been avoided;

☐ 2. the channel will encourage ecological productivity and diversity;

☐ 3. the channel and its banks will be compatible with their surroundings;

☐ 4. the channel will vary in its width, depth, invert elevations, and side slopes to provide diverse aquatic habitat;

☐ 5. straightening existing channels and thereby decreasing their length has been avoided;

☐ 6. the channel will not create barriers to upstream and downstream fish passage;

☐ 7. the channel will contain pools and riffles and a low flow channel to concentrate seasonal low water flows;

☐ 8. the channel will contain flow deflectors, boulders and low check dams to enhance aquatic habitat;

☐ 9. stream bank vegetation will be preserved where feasible and disturbed stream bank areas will be replanted with suitable vegetation;

☐ 10. clean natural stream bed materials of a suitable size will be incorporated in the new channel; and

☐ 11. construction of the proposed project will be scheduled to minimize conflicts with spawning, stocking, and recreational fishing seasons.

Describe how the above aquatic habitat design criteria have been incorporated into the project design:

Stormwater Detention Facilities

Complete this section *only* if the proposed project includes the construction of any stormwater detention facilities.

Has the DEP determined whether a dam construction permit is required? ☐ Yes ☐ No

The pre and post development peak flow rates at the downstream design point are as follows:

Return Frequency (Year)	Peak Discharges (CFS)		
	Pre-Development	Post-Development (without detention)	Post-Development (with detention)
2			
10			
100			

The above peak discharges were computed utilizing the: hour duration storm. This duration storm was selected because:

Describe the location of the design point and why this location was chosen:

If the proposed project increases peak flow rates for the 2, 10 or 100 year frequency discharges, describe the impacts to downstream areas:

Will the detention facility aggravate erosion along the downstream channel? ☐ Yes ☐ No

In certain situations, detention of stormwater aggravates downstream flooding. This occurs when the discharge from a subwatershed is delayed by a detention facility so that it adds to the peak discharge from another subwatershed. Adding the hydrographs of the two subwatersheds results in a higher peak discharge over that which would occur if detention were not present.

Is the location of the detention facility within the watershed suitable for detention? ☐ Yes ☐ No

Explain:

Standards for Structures (Buildings/Facilities) in Floodplains or Coastal High Hazard Areas

Complete this section *only* if the proposed project involves a new or substantially improved structure or facility located within a floodplain or coastal high hazard area.

a. *Structures in Coastal High Hazard Areas* - Will the structure or facility be located within an NFIP coastal high hazard area?

☐ Yes ☐ No

If no, skip to paragraph 3(b); if yes:

1. Will the structure or facility be located landward of the reach of mean high tide?

   ☐ Yes ☐ No

2. Will a new structure or facility be located on an undeveloped coastal barrier beach designated by FEMA?

   ☐ Yes ☐ No

3. If the structure or facility is/will be located within a coastal high hazard area, the structure or facility must be elevated on pilings or columns so that the bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to at least one foot above the base flood level and the pile or column foundation and structure attached thereto must be anchored to resist floatation, collapse and lateral movement due to the effects of wind, velocity waters, hurricane wave wash, and base flood water loads acting simultaneously on all building components.

   Does the proposed structure or facility meet these standards? ☐ Yes ☐ No

   The base flood elevation is: ft. (Datum:)

   The elevation of the lowest horizontal structural member is: ft. (Datum:)

4. Will the space below the lowest floor be either free of obstruction or constructed with non-supporting breakaway walls?

   ☐ Yes ☐ No

5. Will fill be used for structural support of any buildings within coastal high hazard areas?

   ☐ Yes ☐ No

b. *Structures in Floodplain Areas* - Are the structures residential or nonresidential?

☐ Residential ☐ Nonresidential If *nonresidential*, skip to paragraph 3(d) below.

c. *Residential Structures* - If the structure or facility is for human habitation will the lowest floor of such structure or facility, including its basement, be elevated one foot above the level of the 500 year flood?

☐ Yes ☐ No

The 500 year flood elevation is: ft. (Datum:)

The elevation of the lowest floor, including basement, is: ft. (Datum:)

d. *Non-residential Structures* - If the structure or facility is not intended for residential uses, will the lowest floor of such structure or facility, including its basement, be elevated to or above the 100 year flood height or be floodproofed to that height, or in the case of a critical activity, the 500 year flood height?

☐ Yes ☐ No

If yes, the structure will be: ☐ Elevated ☐ Floodproofed

The base flood elevation is: ft. (Datum:)

The elevation of the lowest floor, including basement, is: ft. (Datum:)

The structure is floodproofed to: ft. (Datum:)

Note: for insurance purposes nonresidential structures must be floodproofed to at least one foot above the base flood elevation. DEP strongly encourages that the height of floodproofing incorporate one foot of freeboard.

Standards for Structures (Buildings/Facilities) in Floodplains or Coastal High Hazard Areas (continued)

e. *Utilities* - Will service facilities such as electrical, heating, ventilation, plumbing, and air conditioning equipment be constructed at or above the elevation of the base flood or floodproofed with a passive system?

☐ Yes ☐ No

f. *Water Supply Systems* - Does the proposed project include a new or replacement water supply system?

☐ Yes ☐ No

If yes, is the water supply system designed to prevent floodwaters from entering and contaminating the system during the base flood?

☐ Yes ☐ No

g. *Sanitary Sewage Systems* - Does the proposed project include a new or replacement sanitary sewage or collection system?

☐ Yes ☐ No

If yes, is the sanitary sewage system designed to minimize or eliminate the infiltration of flood waters into the systems and discharges from the systems into flood waters during the base flood?

☐ Yes ☐ No

h. *Foundation Drains* - Are foundation drains of buildings designed to prevent backflow from the 100 year frequency flood into the building?

☐ Yes ☐ No ☐ No foundation drains

DEPARTMENT OF PUBLIC HEALTH COORDINATION

-

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

Manisha Juthani, MD
Commissioner

Ned Lamont
Governor

Susan Bysiewicz
Lt. Governor

Drinking Water Section

December 13, 2021

Andy Shepard, Project Engineer
Close, Jensen and Miller, P.C.
1137 Silas Deane Highway
Wethersfield, CT 06109

Re: Federal Local Bridge Program
Bridge No. 04560
Newell Street over Quinnipiac River, Southington
State Project No. 131-208
DPH Project #2021-0220

Dear Mr. Shepard,

The Drinking Water Section (DWS) of the Department of Public Health has reviewed the location of the following bridge project(s):

Project No.	Bridge No.	Town	Road	Feature Crossed	Scope
131-208	04560	Southington	Newell Street	Quinnipiac River	Replacement

Based on our review it appears that the bridge project is not located in a public water supply source water area, therefore it does not appear that the above bridge projects will impact public drinking water supply sources. It is suggested that best management practices are used with construction in close vicinity to a water main.

If you have any questions regarding this matter, please contact Lisette Stone of this office at (860) 509-7208.

Sincerely,

Eric McPhee

Eric McPhee
Supervising Environmental Analyst
Drinking Water Section

Phone: (860) 509-7101 • Fax: (860) 509-7111
Telecommunications Relay Service 7-1-1
410 Capitol Avenue, P.O. Box 340308
Hartford, Connecticut 06134-0308
www.ct.gov/dph
Affirmative Action/Equal Opportunity Employer

AQUIFER PROTECTION AREA MAPPING

There is no APA mapping in the Town of Hebron.

NATURAL DIVERSITY DATABASE COORDINATION

Connecticut
Department of Energy &
Environmental Protection

portal.ct.gov/DEEP

3/26/2025

Nelson Shepard
VHB
100 Great Meadow Rd
Wethersfield, CT 06109
AShepard@cjmpc.com

Subject: Replacement of Br No 04695
Filing #: 126762
NDDB - New Determination Number: 202502945

Expiration Date: 3/26/2027

Location Description: Old Colchester Rd over Raymond Brook, Hebron, CT

I have reviewed Natural Diversity Database (NDDB) maps and files regarding this project. I do not anticipate increased negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site.

Your submission information indicates that your project requires a state permit, license, registration, or authorization, or utilizes state funding or involves state agency action. This NDDB - New determination may be utilized to fulfill the Endangered and Threatened Species requirements for state-issued permit applications, licenses, registration submissions, and authorizations.

Please be aware of the following limitations and conditions:

Natural Diversity Database information includes all information regarding listed species 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 and cooperating units of DEEP, land owners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. 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 and accessed through the ezFile portal as it becomes available. New information may result in additional review, and new or modified restrictions or conditions may be necessary to remain in compliance with certain state permits.

- During your work listed species may be encountered on site. A report must be submitted by the observer to the Natural Diversity Database promptly and additional review and restrictions or conditions may be necessary to remain in compliance with certain state permits. Please fill out the appropriate survey form and follow the instructions for submittal.
- Your project involves the state permit application process or other state involvement, including state funding or state agency actions; please note that consultations with your permit analyst or the agency may result in additional requirements. In this situation, additional evaluation of the proposal by the

DEEP Wildlife Division may be necessary and additional information, including but not limited to species-specific site surveys, may be required. Any additional review may result in specific restrictions or conditions relating to listed species that may be found at or in the vicinity of the site.

- If your project involves preparing an Environmental Impact Assessment, this NDDB consultation and determination should not be substituted for biological field surveys assessing on-site habitat and species presence.
- The NDDB - New determination for the Replacement of Br No 04695 as described in the submitted information and summarized at the end of this document is valid until 3/26/2027. This determination applies only to the project as described in the submission and summarized at the end of this letter. Please re-submit an updated Request for Review if the project's scope of work and/or timeframe changes, including if work has not begun by 3/26/2027.

If you have further questions, please contact me at the following:

Shannon Kearney
CT DEEP Bureau of Natural Resources
Wildlife Division
Natural Diversity Database
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3170
Shannon.Kearney@ct.gov

Please reference the Determination Number 202502945 when you e-mail or write. Thank you for consulting the Natural Diversity Data Base.

Shannon Kearney
Wildlife Division- Natural Diversity Data Base
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3170
Shannon.Kearney@ct.gov

Application Details:

Project involves federal funds or federal permit:	Yes
Project involves state funds, state agency action, or relates to CEPA request:	Yes
Project requires state permit, license, registration, or authorization:	Yes
DEEP enforcement action related to project:	
Project Type:	Bridge and Culvert Work
Project Sub-type:	New Bridge Including Upland and In-water work
Project Name:	Replacement of Br No 04695
Project Description:	Replacement of Bridge 04695

From: Barrows, James R. <James.Barrows@ct.gov>
Sent: Thursday, June 8, 2023 3:30 PM
To: Thomas Weldon; Michael Brady
Subject: FW: 0024-0091 ICM Determination

FYI they performed the mussel survey

James R. Barrows II, P.E. | Project Engineer
Consultant Bridge Design – CLE Program – Federal Local Bridge Program
Phone: (860) 594-3192 | **E-mail**: james.barrows@ct.gov

Connecticut Department of Transportation
2800 Berlin Turnpike | Newington, CT 06111

From: Davis, Andrew H <Andrew.H.Davis@ct.gov>
Sent: Thursday, June 8, 2023 3:29 PM
To: Barrows, James R. <James.Barrows@ct.gov>
Cc: Byrnes, Marc P <Marc.Byrnes@ct.gov>; Piraneo, Andrew <Andrew.Piraneo@ct.gov>; Roise, Michelle A. <Michelle.Roise@ct.gov>
Subject: RE: 0024-0091 ICM Determination

They did complete the survey and found common species only, no state listed species. Thanks Andy

---

From: Barrows, James R. <James.Barrows@ct.gov>
Sent: Thursday, June 8, 2023 3:27 PM
To: Davis, Andrew H <Andrew.H.Davis@ct.gov>
Cc: Byrnes, Marc P <Marc.Byrnes@ct.gov>; Piraneo, Andrew <Andrew.Piraneo@ct.gov>; Roise, Michelle A. <Michelle.Roise@ct.gov>
Subject: RE: 0024-0091 ICM Determination

Well that works for me. Did they perform the survey for Hebron as well? (66-110)

James R. Barrows II, P.E. | Project Engineer
Consultant Bridge Design – CLE Program – Federal Local Bridge Program
Phone: (860) 594-3192 | **E-mail**: james.barrows@ct.gov

Connecticut Department of Transportation
2800 Berlin Turnpike | Newington, CT 06111

From: Davis, Andrew H <Andrew.H.Davis@ct.gov>
Sent: Thursday, June 8, 2023 3:26 PM
To: Barrows, James R. <James.Barrows@ct.gov>
Cc: Byrnes, Marc P <Marc.Byrnes@ct.gov>; Piraneo, Andrew <Andrew.Piraneo@ct.gov>; Roise, Michelle A. <Michelle.Roise@ct.gov>
Subject: RE: 0024-0091 ICM Determination

James, The consultant completed the survey on May 12 per the scope of work so the project will be billed for the survey/report. As an aside no listed mussel species were found. Thanks Andy

---

From: Barrows, James R. <James.Barrows@ct.gov>
Sent: Thursday, June 8, 2023 7:33 AM
To: Davis, Andrew H <Andrew.H.Davis@ct.gov>; Roise, Michelle A. <Michelle.Roise@ct.gov>
Cc: Byrnes, Marc P <Marc.Byrnes@ct.gov>; Piraneo, Andrew <Andrew.Piraneo@ct.gov>
Subject: RE: 0024-0091 ICM Determination

Good Morning Andy,

The Contractor will be required to design and install a debris shield for the removal of the existing superstructure. For the removal of the existing stone masonry when we cut down the existing abutments, the contractor will be required to design and install a work platform to attach to the face of the abutments.

Thank you,

James R. Barrows II, P.E. | Project Engineer
Consultant Bridge Design – CLE Program – Federal Local Bridge Program
Phone: (860) 594-3192 | **E-mail**: james.barrows@ct.gov

Connecticut Department of Transportation
2800 Berlin Turnpike | Newington, CT 06111

From: Davis, Andrew H <Andrew.H.Davis@ct.gov>
Sent: Wednesday, June 7, 2023 1:56 PM
To: Barrows, James R. <James.Barrows@ct.gov>; Roise, Michelle A. <Michelle.Roise@ct.gov>
Cc: Byrnes, Marc P <Marc.Byrnes@ct.gov>; Piraneo, Andrew <Andrew.Piraneo@ct.gov>
Subject: RE: 0024-0091 ICM Determination

James, The project does not have any in temporary or permanent impacts to regulated areas which would negate the need for a mussel survey. But how will the bridge demolition be handled and saw cut effluent be handled to ensure it won't impact within the OHW boundary? Once you answer this question I can let the consultant we won't need to conduct the survey. Thanks Andy

---

From: Barrows, James R. <James.Barrows@ct.gov>
Sent: Tuesday, June 6, 2023 10:52 AM
To: Davis, Andrew H <Andrew.H.Davis@ct.gov>; Roise, Michelle A. <Michelle.Roise@ct.gov>
Cc: Byrnes, Marc P <Marc.Byrnes@ct.gov>
Subject: RE: 0024-0091 ICM Determination

Good Morning Andy,

I just wanted to follow up on this. Since we will have no impacts to the OHW or wetlands, does this project still need to perform a mussel survey?

Thank you,

James R. Barrows II, P.E. | Project Engineer
Consultant Bridge Design – CLE Program – Federal Local Bridge Program
Phone: (860) 594-3192 | **E-mail**: james.barrows@ct.gov

Connecticut Department of Transportation
2800 Berlin Turnpike | Newington, CT 06111

From: Davis, Andrew H <Andrew.H.Davis@ct.gov>
Sent: Wednesday, May 17, 2023 1:01 PM
To: Barrows, James R. <James.Barrows@ct.gov>; Roise, Michelle A. <Michelle.Roise@ct.gov>
Cc: Byrnes, Marc P <Marc.Byrnes@ct.gov>
Subject: RE: 0024-0091 ICM Determination

James, Reviewing the plans dated May`16, 2023 it appears that that the project will not impact OHW or Wetlands. As long as that doesn't change the project will not have to attend the ICM. Thanks Andy

---

From: Barrows, James R. <James.Barrows@ct.gov>
Sent: Wednesday, May 17, 2023 9:56 AM
To: Davis, Andrew H <Andrew.H.Davis@ct.gov>; Roise, Michelle A. <Michelle.Roise@ct.gov>
Cc: Byrnes, Marc P <Marc.Byrnes@ct.gov>
Subject: RE: 0024-0091 ICM Determination

Good Morning Andy,

We had the consultant revise the permit plans to show the silt fence out of the OHW. Does this meet the requirements to not attend ICM.

Thank you,

James R. Barrows II, P.E. | Project Engineer
Consultant Bridge Design – CLE Program – Federal Local Bridge Program
Phone: (860) 594-3192 | **E-mail**: james.barrows@ct.gov

Connecticut Department of Transportation
2800 Berlin Turnpike | Newington, CT 06111

From: Davis, Andrew H <Andrew.H.Davis@ct.gov>
Sent: Friday, May 12, 2023 3:17 PM
To: Barrows, James R. <James.Barrows@ct.gov>; Roise, Michelle A. <Michelle.Roise@ct.gov>
Cc: Byrnes, Marc P <Marc.Byrnes@ct.gov>
Subject: Re: 0024-0091 ICM Determination

James, Michelle and I took a look at the grading plan for the Northwest, Southwest, and Northeast quadrants of the bridge and we felt that the contractor won't be able to wrap the silt fence around the work area without impacting OHW. If the designer can tweak the grading and

keep the silt fence out of the OHW boundary then the project won't need to attend the ICM. Thanks Andy

---

From: Barrows, James R. <James.Barrows@ct.gov>
Sent: Wednesday, May 3, 2023 8:34 AM
To: Roise, Michelle A. <Michelle.Roise@ct.gov>; Davis, Andrew H <Andrew.H.Davis@ct.gov>
Cc: Byrnes, Marc P <Marc.Byrnes@ct.gov>
Subject: 0024-0091 ICM Determination

Good Morning,

We are looking for concurrence that this project will not need to go to ICM. I have attached a copy of the permit plans for the subject project. As you can see from the plans, we anticipate no water work or any work below the OHW line. The permanent impacts being shown on sheet 4 are actually the bridge itself. The bridge is below the 100 year flood elevation but is above the OHW elevation.

Please let me know OEPs determination.

Thank you,

James R. Barrows II, P.E. | Project Engineer
Consultant Bridge Design – CLE Program – Federal Local Bridge Program
Phone: (860) 594-3192 | **E-mail**: james.barrows@ct.gov

Connecticut Department of Transportation
2800 Berlin Turnpike | Newington, CT 06111

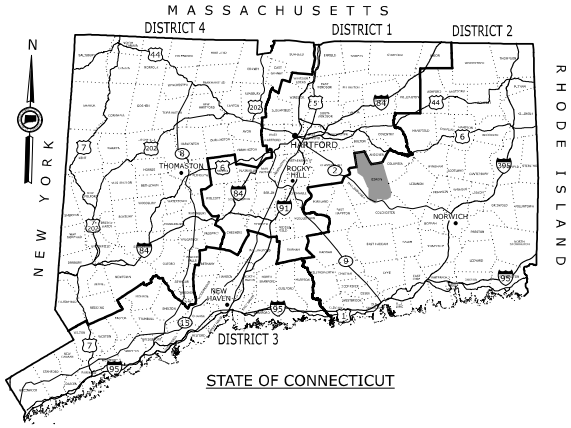
FISHERIES COORDINATION

ENVIRONMENTAL PERMIT PLANS
STATE PROJECT NO. 0066-0110

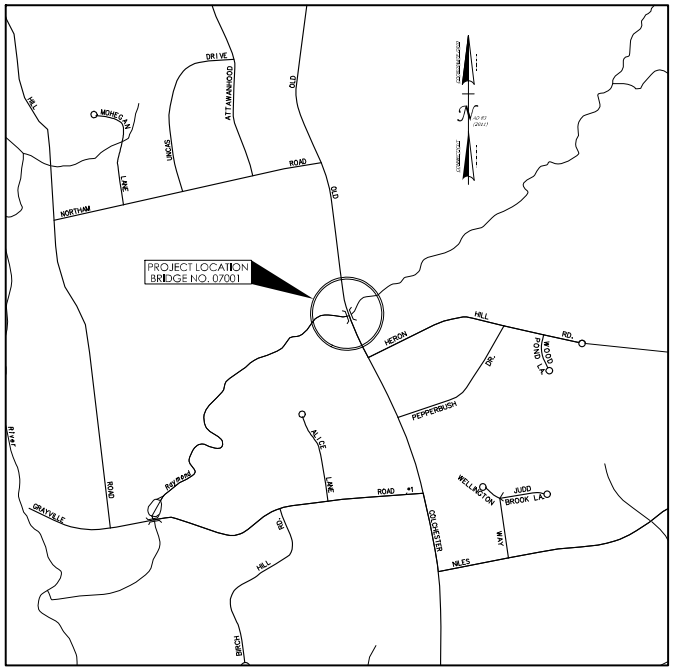
REPLACEMENT OF BRIDGE NO. 04695
OLD COLCHESTER ROAD
OVER RAYMOND BROOK

Town of

HEBRON, CT



STATE OF CONNECTICUT



LOCATION PLAN
NOT TO SCALE

GENERAL NOTES

1. THESE PLANS ARE NOT FOR CONSTRUCTION AND 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. FOR A DESCRIPTION OF THE WATERCOURSES, WETLAND AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
3. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1983, VERTICAL DATUM NAVD OF 1988.
4. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES, AND INCIDENTAL CONSTRUCTION, FORM 819, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPS) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 2024 EROSION & SEDIMENTATION CONTROL GUIDELINES AND THE 2024 STORMWATER QUALITY MANUAL.

Digitally signed by
Michael Steeves
Date: 2025.11.10
10:58:53 -05'00'

LIST OF DRAWINGS

DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL PLAN
PMT-03	ENVIRONMENTAL IMPACTS PLAN - WETLANDS
PMT-04	ENVIRONMENTAL IMPACTS PLAN - FLOODPLAINS
PMT-05	PROPOSED BRIDGE ELEVATION AND SECTION
PMT-06	WATER HANDLING PLAN (DETAILS)
PMT-07	WATER HANDLING PLAN (STAGE 1& 2)

DESIGNED BY: McFARLAND JOHNSON

McFARLAND JOHNSON
50 REGIONAL DRIVE
CONCORD, NH 03301

REV	DATE	REVISION DESCRIPTION

ENVIRONMENTAL PERMIT PLANS
DATED: 11/4/2025

DESIGNER/DRAFTER: CHECKED BY:

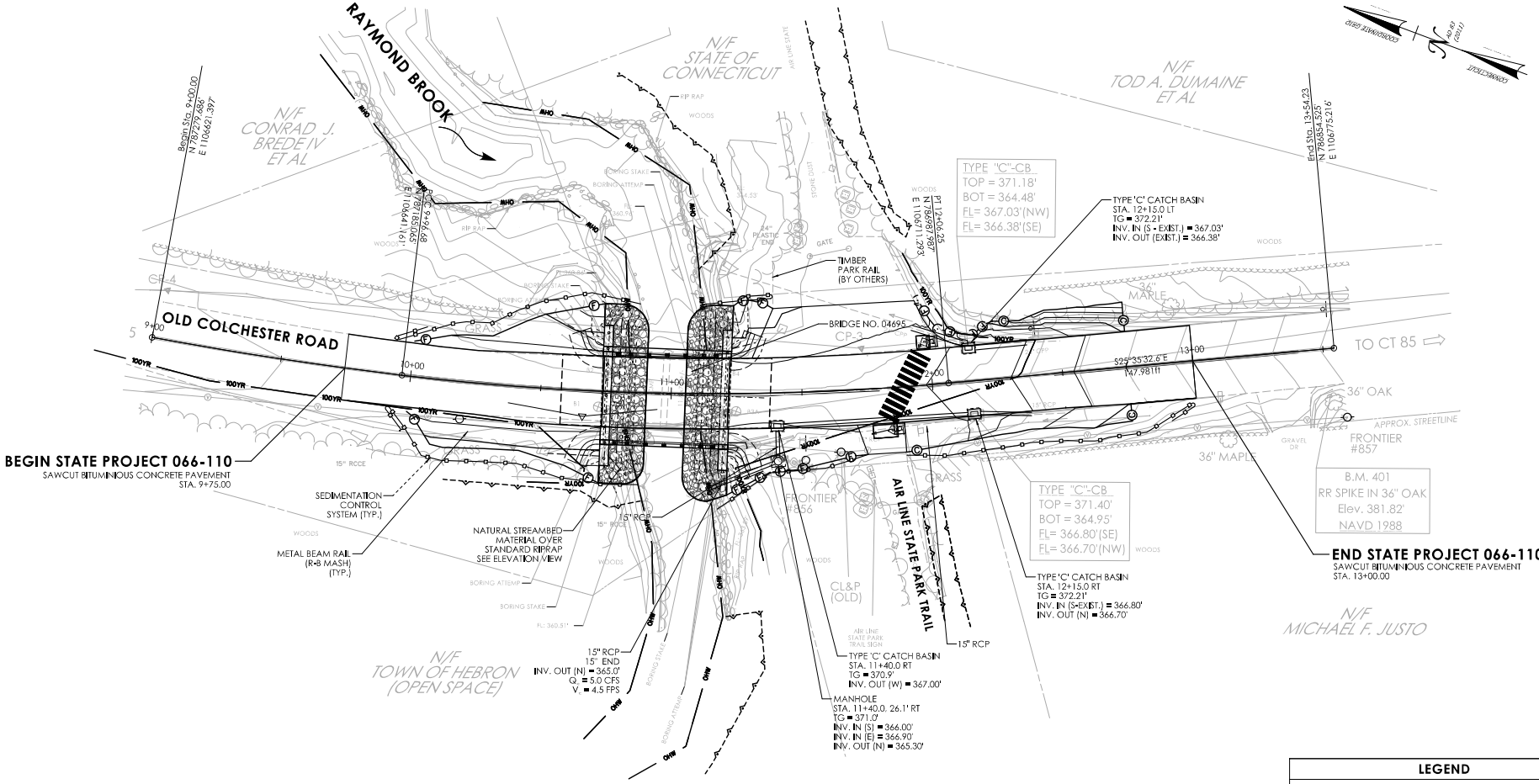
SIGNATURE/ BLOCK:

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: TITLE SHEET

DRAWING NO. PMT-01
SHEET NO.

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PLOTTED DATE: 11/4/2025



LEGEND

- LIMITS OF FEDERAL AND STATE WETLANDS
- OHW — LIMITS OF ORDINARY HIGH WATER
- EDGE OF WATER
- SEDIMENTATION CONTROL SYSTEM
- 100YR — EXISTING 100-YR. FLOOD (CALCULATED)
- STANDARD RIPRAP SLOPE PROTECTION

NOTES

1. SEDIMENTATION CONTROL SYSTEM TO BE PLACED AT CATCH BASIN(S) AS NEEDED OR AS DIRECTED BY THE ENGINEER
2. PLACE 1'-0" OF NATURAL STREAMBED MATERIAL WITHIN THE OHW LIMITS AS SHOWN ON DRAWING NO. PMT-05.

REV	DATE	REVISION DESCRIPTION

ENVIRONMENTAL PERMIT PLANS
DATED: 11/4/2025

DESIGNER/DRAFTER: CHECKED BY:

HORIZONTAL SCALE 1" = 20'

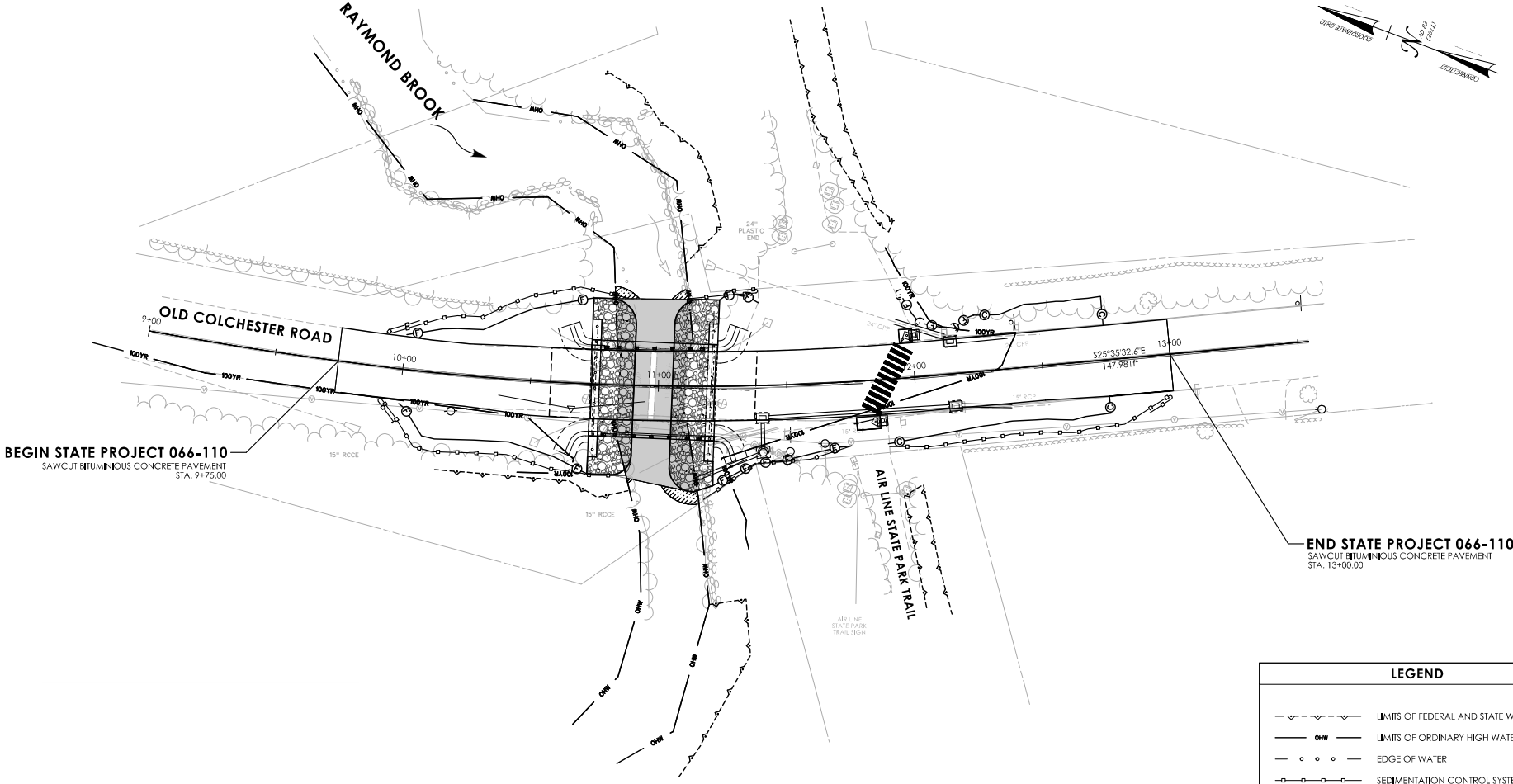
SIGNATURE/ BLOCK:

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: GENERAL PLAN

DRAWING NO. PMT-02
SHEET NO.

LASTED SAVED BY: MDcreo FILE NAME: M:\DDE\Worksets\CTDOT\0066-0110\Highways\Contract_Plans\Permit Plans\HW_CP_0066_0110_EPP_PMT02.dgn
PLOTTED DATE: 11/4/2025



WETLAND / WATERCOURSE IMPACT TABLE						
	WETLAND IMPACT		WATERCOURE IMPACT		TOTALS	
	S.F.	AC.	S.F.	AC.	S.F.	AC.
PERMANENT IMPACTS	0	0.0000	1930	0.0443	1930	0.0443
TEMPORARY IMPACTS	0	0.0000	110	0.0025	110	0.0025
TOTAL IMPACTS	0	0.0000	2040	0.0468	2040	0.0468

NOTE:

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

LEGEND

- LIMITS OF FEDERAL AND STATE WETLANDS
- OHW — LIMITS OF ORDINARY HIGH WATER
- EDGE OF WATER
- SEDIMENTATION CONTROL SYSTEM (SCS)
- 100YR — EXISTING 100-YR. FLOOD (CALCULATED)
- PERMANENT WATER COURSE / WETLANDS IMPACTS
- TEMPORARY WATER COURSE / WETLAND IMPACTS

REV | DATE | REVISION DESCRIPTION

ENVIRONMENTAL PERMIT PLANS
DATED: 11/4/2025

DESIGNER/DRAFTER: CHECKED BY:

HORIZONTAL SCALE 1" = 20'

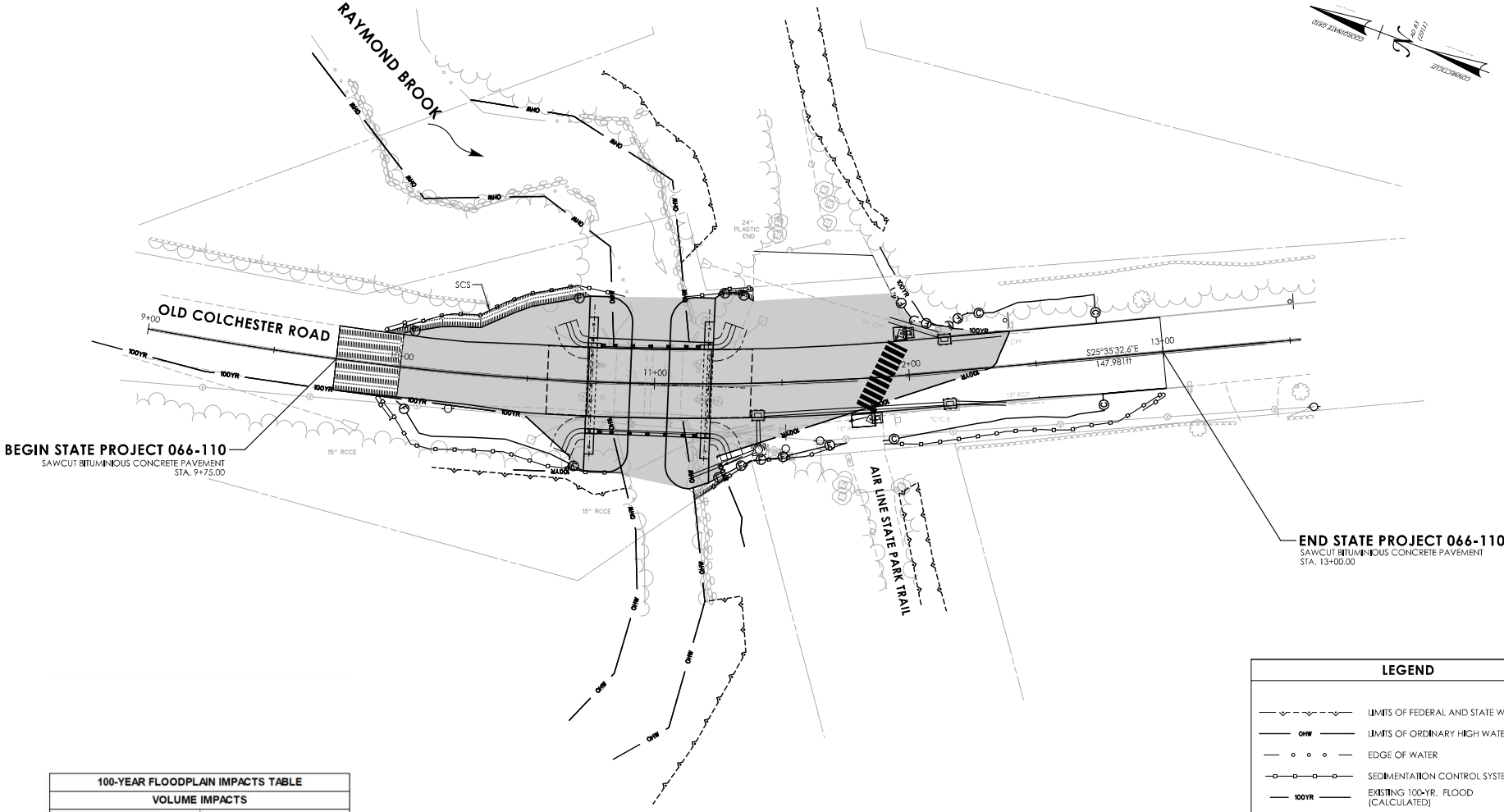
SIGNATURE/ BLOCK:

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: ENVIRONMENTAL IMPACT PLAN - WETLANDS

DRAWING NO. PMT-03
SHEET NO.

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PLOTTED DATE: 11/4/2025



100-YEAR FLOODPLAIN IMPACTS TABLE	
VOLUME IMPACTS	
EXCAVATION IN FEMA FLOODPLAIN (CY)	FILL IN FEMA FLOODPLAIN (CY)
970	610

LEGEND

- LIMITS OF FEDERAL AND STATE WETLANDS
- OHW — LIMITS OF ORDINARY HIGH WATER
- EDGE OF WATER
- SEDIMENTATION CONTROL SYSTEM (SCS)
- 100YR — EXISTING 100-YR. FLOOD (CALCULATED)
- PERMANENT FLOODPLAIN IMPACTS
- TEMPORARY FLOODPLAIN IMPACTS

REV | DATE | REVISION DESCRIPTION

ENVIRONMENTAL PERMIT PLANS
DATED: 11/4/2025

DESIGNER/DRAFTER: CHECKED BY:

HORIZONTAL SCALE 1" = 20'

SIGNATURE/ BLOCK:

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: ENVIRONMENTAL IMPACT PLAN - FLOOD PLAIN

DRAWING NO. PMT-04
SHEET NO.

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PLOTTED DATE: 11/4/2025

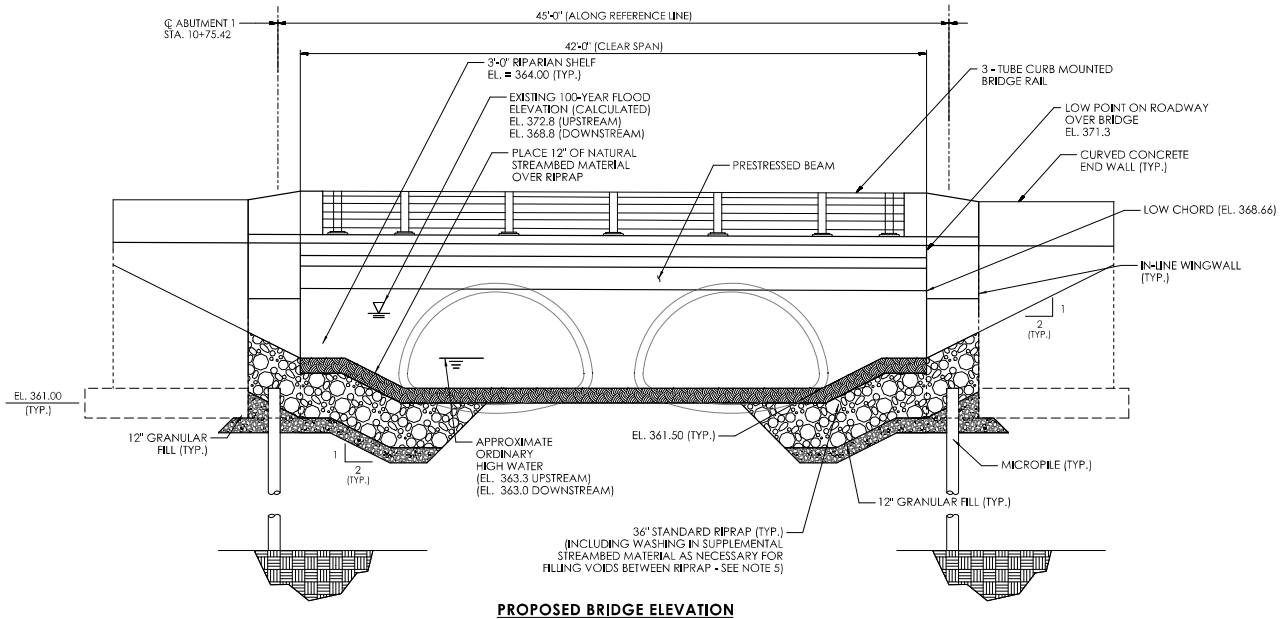
HYDRAULIC DATA	
DRAINAGE AREA	8.4 SQ. MILES
DESIGN FREQUENCY	100 YEAR
DESIGN DISCHARGE	2844 CFS
AVERAGE DAILY FLOW ELEVATION	362.3 FT (ESTIMATED)
UPSTREAM DESIGN WATER SURFACE ELEVATION	371.1 FT
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	369.0 FT
MAXIMUM SCOUR ELEVATION	358.9 FT
FREQUENCY	200-YEAR
DISCHARGE	3584 CFS
WORST CASE SCOUR SUB-STRUCTURE UNIT	ABUTMENTS

OPENNESS RATIO (OR):

OR = OPEN AREA / STRUCTURE LENGTH
OR = 278.3 SF / 37.5 FT = 7.4 FT
7.4 FT > 0.82 FT (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW)

BFW = 23 FT
1.2 X BFW = 27.6 FT
27.6 FT < 42 FT PROPOSED BRIDGE CLEAR SPAN



PROPOSED BRIDGE ELEVATION
SCALE: 1" = 5'

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE INSTALLATION OF THE STRUCTURE SHALL BE STOCKPILED AND THEN REPLACED TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL."
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL"
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.
4. CONTACT MIKE STEEVES OF DEEP FISHERIES AT MICHAELE.STEEVES@CT.GOV TEN DAYS BEFORE THE CHANNEL BOTTOM IS REGRADED.
5. THE WASHING IN OF SUPPLEMENTAL STREAMBED MATERIAL AS NECESSARY FOR FILLING IN THE VOIDS BETWEEN THE RIPRAP SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "WASHING - IN SUPPLEMENTAL STREAMBED MATERIAL".

REV	DATE	REVISION DESCRIPTION

ENVIRONMENTAL PERMIT PLANS
DATED: 11/4/2025

DESIGNER/DRAFTER: CHECKED BY:

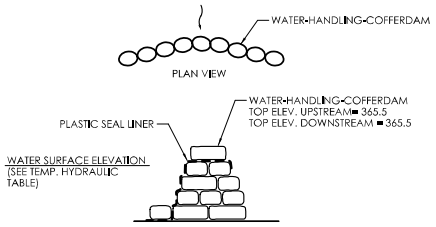
SIGNATURE/ BLOCK:

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: PROPOSED BRIDGE ELEVATION AND SECTION

DRAWING NO. PMT-05
SHEET NO.

LASTED SAVED BY: MDoreo FILE NAME: M:\DOE\Worksets\CTDOT\0066-0110\Highways\Contract_Plans\Permit Plans\HW_CP_0066_0110_EPP_PMT05.dgn
PLOTTED DATE: 11/4/2025



WATER-HANDLING-COFFERDAM
SANDBAGS
(NOT TO SCALE)

WATER HANDLING NOTES:

1. THE CONTRACTOR SHALL DESIGN THE TEMPORARY WATER HANDLING COFFERDAMS AND SUBMIT MEANS AND METHODS OF HANDLING WATER TO THE ENGINEER FOR APPROVAL.
2. THE COST OF THE TEMPORARY WATER HANDLING COFFERDAMS, TEMPORARY BYPASS PIPES, TEMPORARY DRAINAGE PIPES, STREAM DIVERSION STRUCTURES, PUMPS, AND ANY OTHER NECESSARY INCIDENTAL APPURTENANCES REQUIRED TO HANDLE THE WATER SHALL BE INCLUDED IN THE COST OF THE ITEM "HANDLING WATER".
3. ALL WATER PUMPED FROM WITHIN THE TEMPORARY WATER HANDLING COFFERDAMS TO BE HANDLED THROUGH THE TEMPORARY SEDIMENTATION BASIN. THE SMALL TEMPORARY SEDIMENTATION BASIN AND PUMP(S) SHALL BE SIZED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. COST OF TEMPORARY SEDIMENTATION BASIN SHALL BE INCLUDED IN THE COST OF ITEM "HANDLING WATER".
4. TOP OF TEMPORARY WATER HANDLING COFFERDAM SHALL BE MINIMUM EL. 365.5.
5. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY WATER HANDLING SYSTEM AS REQUIRED DURING CONSTRUCTION OF THE NEW STRUCTURE.
6. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.
7. TEMPORARY WATER HANDLING SYSTEM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS.

SUGGESTED CONSTRUCTION SEQUENCE:

1. IMPLEMENT THE DETOUR.
2. INSTALL SEDIMENTATION CONTROL SYSTEM AND CLEAR AND GRUB SITE AS REQUIRED.
3. RELOCATE UTILITIES
4. CONSTRUCT SEDIMENTATION BASINS, INSTALL TEMPORARY WATER HANDLING COFFERDAM, AND DEWATER SITE AS REQUIRED.
5. EXCAVATE AND DEMOLISH WESTERN HALF OF EXISTING CULVERT. LEAVE EXISTING PIPE ADJACENT TO ABUTMENT 2 FOR TEMPORARY WATER DIVERSION STRUCTURE.
6. EXCAVATE FOR PROPOSED ABUTMENT, INSTALL MICROPILES AND PERFORM MICROPILE TESTS AS REQUIRED.
7. CONSTRUCT PROPOSED ABUTMENT 1 AND WINGWALLS, GRADE THE PROPOSED EMBANKMENTS AND CHANNEL. NOTE THAT THE ABUTMENTS ARE NOT TO BE BACKFILLED UNTI THE PRESTRESSED DECK UNITS ARE ERECTED AND GROUTED.
8. PERFORM FINAL CHANNEL GRADING WITHIN CONFINEMENT
9. REMOVE STAGE 1 TEMPORARY WATER HANDLING COFFERDAM.
10. INSTALL STAGE 2 TEMPORARY DEWATERING BASIN.
11. CONSTRUCT STAGE 2 WATER HANDLING COFFERDAM, DIVERT WATER TO CHANNEL ADJACENT TO ABUTMENT 1.
12. REMOVE REMAINING PORTION OF EXISTING STRUCTURE.
13. EXCAVATE FOR PROPOSED ABUTMENT, INSTALL MICROPILES AND PERFORM MICROPILE TESTS AS REQUIRED.
14. CONSTRUCT PROPOSED ABUTMENT 2 AND WINGWALLS, GRADE THE PROPOSED EMBANKMENTS AND CHANNEL.
15. INSTALL PROPOSED DRAINAGE OUTLET AND PROPOSED DRAINAGE.
16. ESTABLISH GRADES IN THE STREAMBED AND ALONG BANKS.
17. REMOVE TEMPORARY WATER HANDLING COFFERDAM SYSTEM.
18. ERECT PRESTRESSED DECK UNITS.
19. BACKFILL ABUTMENTS UP TO BOTTOM OF APPROACH SLABS.
20. POUR APPROACH SLABS AND SHEAR SLAB.
21. CONSTRUCT ROADWAY APPROACHES AND PERFORM FINAL GRADING.
22. REMOVE EROSION AND SEDIMENTATION CONTROL UPON PERMANENT STABILIZATION.

UNCONFINED IN-STREAM WORK:

1. UNCONFINED IN-STREAM WORK WITHIN THE WATERCOURSE IS RESTRICTED TO THE PERIOD FROM JUNE 1ST TO SEPTEMBER 30TH, INCLUSIVE.
2. CONTACT MIKE STEEVES AT MichaelE.Steeves@ct.gov or DEEP FISHERIES AT

DEEP NDDB SPECIAL CONDITIONS

1. USE BEST MANAGEMENT PRACTICES AVAILABLE TO CONTROL STORM WATER RUNOFF FROM THIS SITE BOTH DURING CONSTRUCTION AND AFTER CONSTRUCTION; QUALIFIED ENVIRONMENTAL INSPECTOR(S) SHALL BE ON-SITE DAILY DURING THE DURATION OF CONSTRUCTION, WEEKLY DURING STABILIZATION, AND WITHIN 24 HOURS OF STORM EVENTS WITH 0.5 INCHES OF PRECIPITATION OR MORE TO INSPECT SEDIMENTATION AND EROSION CONTROLS TO ENSURE THAT THEY CONTINUE TO FUNCTION AS INTENDED. STOCK-PILED SOILS SHOULD BE SITUATED AT LEAST 10 FEET FROM THE WATERCOURSE AND WITHIN SEDIMENTATION AND EROSION CONTROL DEVICES.
2. IN GENERAL WHEN WORKING IN THE UPLAND BETWEEN MARCH 16- OCTOBER 31:
   A. EXCLUSIONARY PRACTICES WILL BE REQUIRED TO PREVENT ANY TURTLE/SNAKE ACCESS INTO CONSTRUCTION AREAS. THESE MEASURES WILL NEED TO BE INSTALLED AT THE LIMITS OF DISTURBANCE AS SHOWN ON THE PLANS.
   B. EXCLUSIONARY FENCING TO BE AT LEAST 20 INCHES TALL AND MUST BE SECURED TO AND REMAIN IN CONTACT WITH THE GROUND AND BE REGULARLY MAINTAINED (AT LEAST BI-WEEKLY AND AFTER MAJOR WEATHER EVENTS) TO SECURE ANY GAPS OR OPENINGS AT GROUND LEVEL THAT MAY LET ANIMAL PASS THROUGH.
   C. PRIOR TO CONSTRUCTION, ALL TURTLES/SNAKES OCCURRING WITHIN FENCING WORK AREA WILL BE RELOCATED TO SUITABLE HABITAT OUTSIDE DISTURBANCE AREA. THIS SHOULD BE PERFORMED BY A QUALIFIED PROFESSIONAL FAMILIAR WITH HABITAT REQUIREMENTS AND BEHAVIOR OF THE SPECIES.
   D. THE CONTRACTOR MUST SEARCH THE WORK AREA EACH MORNING PRIOR TO ANY WORK BEING DONE.
   E. ALL CONSTRUCTION PERSONNEL WORKING WITHIN THE TURTLE HABITAT MUST BE APPRISED OF THE SPECIES DESCRIPTION AND THE POSSIBLE PRESENCE OF A LISTED SPECIES.
   F. ANY TURTLES ENCOUNTERED WITHIN THE IMMEDIATE WORK AREA SHALL BE CAREFULLY MOVED TO AN ADJACENT AREA OUTSIDE OF THE EXCLUDED AREA AND FENCING SHOULD BE INSPECTED TO IDENTIFY AND REMOVE ACCESS POINT. THESE ANIMALS ARE PROTECTED BY LAW AND NO TURTLES SHOULD BE RELOCATED FROM THE SITE.
   G. IN AREAS WHERE SILT FENCE IS USED FOR EXCLUSION, IT SHALL BE REMOVED AS SOON AS THE AREA IS STABLE TO ALLOW FOR REPTILE AND AMPHIBIAN PASSAGE TO RESUME.
   H. NO HEAVY MACHINERY OR VEHICLES MAY BE PARKED IN ANY NATURAL HABITATS.
   I. SPECIAL PRECAUTIONS MUST BE TAKEN TO AVOID DEGRADATION OF WETLAND HABITATS INCLUDING ANY WET MEADOWS AND SEASONAL POOLS.
3. CONTACT MIKE STEEVES OF DEEP FISHERIES AT MICHAELE.STEEVES@CT.GOV TEN DAYS BEFORE THE CHANNEL BOTTOM IS REGRADED.
4. TREE CUTTING TIME OF YEAR RESTRICTION: NO TREE 3 INCH DBH OR GREATER SHALL BE CUT OR TRIMMED FROM APRIL 15 TO OCTOBER 31.

REV	DATE	REVISION DESCRIPTION

ENVIRONMENTAL PERMIT PLANS
DATED: 11/4/2025

DESIGNER/DRAFTER: EAP/GLM CHECKED BY: DMK

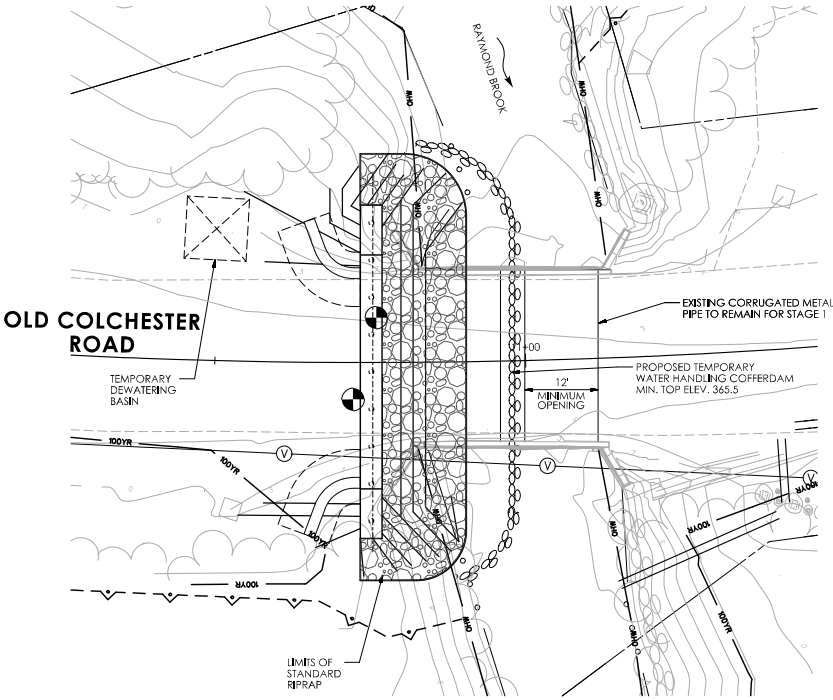
SIGNATURE/ BLOCK:

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: WATER HANDLING PLAN (DETAILS)

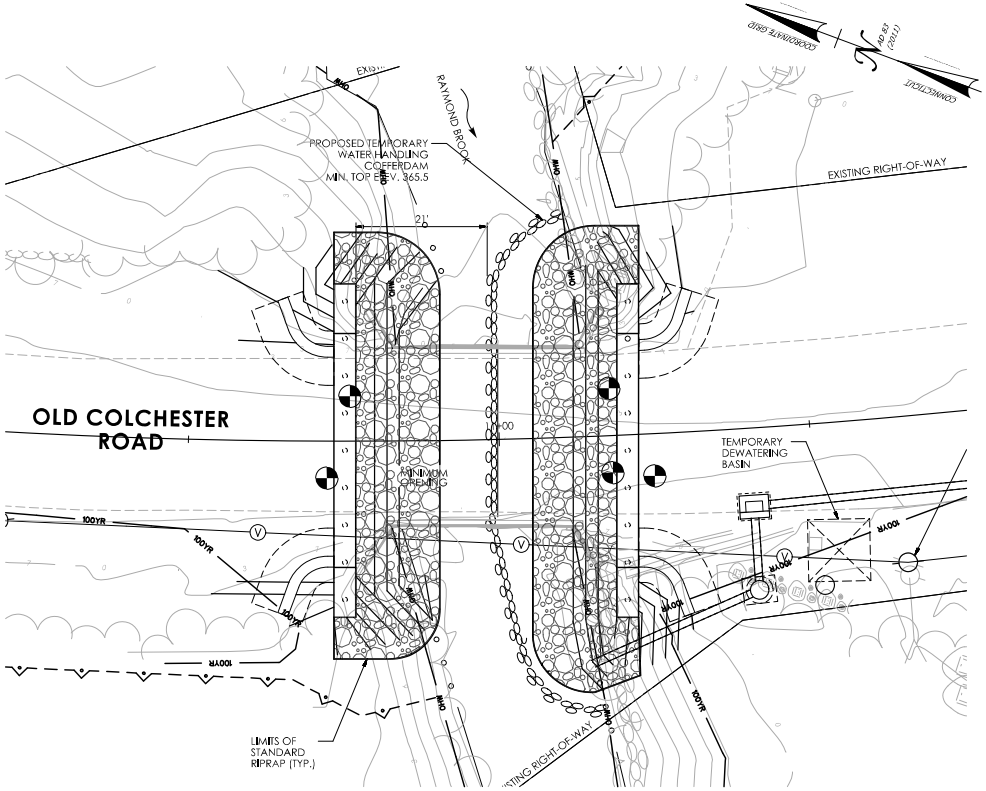
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SHEET NO.

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PLOTTED DATE: 11/4/2025



WATER HANDLING PLAN (STAGE 1)

SCALE: 1" = 10'



WATER HANDLING PLAN (STAGE 2)

SCALE: 1" = 10'

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE REMOVAL OF THE EXISTING STRUCTURE AND THE INSTALLATION OF THE NEW STRUCTURE SHALL BE STOCKPILED AND THEN REPLACED AT THE LOCATIONS AND TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION FOR ITEM NO. 0202216A - EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL.
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISION FOR ITEM NO. 0202217A - SUPPLEMENTAL STREAMBED CHANNEL MATERIAL.
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE OF THE WETLAND LIMITS AND PROTECTED WITH A SEDIMENTATION CONTROL SYSTEM. [illegible] FOR FILLING

TEMPORARY HYDRAULIC SUMMARY DATA	STAGE 1	STAGE 2
AVERAGE DAILY FLOW (ADF)	15 CFS	15 CFS
AVERAGE SPRING FLOW (ASF)	30 CFS	30 CFS
2 - YEAR DESIGN FREQUENCY	384 CFS	384 CFS
TEMPORARY FREQUENCY	1.25 YEAR	1.25 YEAR
TEMPORARY DISCHARGE	180 CFS	180 CFS
TEMPORARY DESIGN SURFACE ELEVATION (UPSTREAM)	364.6 FEET	364.4 FEET
TEMPORARY DESIGN SURFACE ELEVATION (DOWNSTREAM)	363.9 FEET	364.1 FEET

LEGEND

- LIMITS OF FEDERAL AND STATE WETLANDS
- OHW — LIMITS OF ORDINARY HIGH WATER
- EDGE OF WATER
- 100YR — EXISTING 100-YR. FLOOD (CALCULATED)
- TEMPORARY COFFERDAM

NO.	DATE	REVISION DESCRIPTION

ENVIRONMENTAL PERMIT PLANS
DATED: 11/4/2025

DESIGNER/DRAFTER: EAP/GLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: WATER HANDLING PLAN (STAGE 1 & 2)

DRAWING NO. PMT-07
SHEET NO.

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PLOTTED DATE: 11/4/2025

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2157

This section to be filled out by DOT OEP Staff:

OEP STAFF: Andrew Davis

DATE SENT TO DEEP FISHERIES: 11/16/2021

SUBJECT: Old Colchester Road Bridge Replacement over Raymond Brook

Type of Permit:

☒1. **DOT Culvert/Bridge Projects** **Project#: 66-110**
☐ 2. **Diversion**
☐ 3. **PGP/Inland Wetland** **Bridge#: 04695**
☐ 4. **Water Quality Certification**

Applicant: Connecticut Department of Transportation

Town: Hebron **Lat/Long: 41-620593/-72.359877**

Waters: Raymond Brook **Sub Regional Basin #: 4701**

Project Scope: The bridge, constructed in 1956, consists of twin metal plate pipe arches with a span of 11 feet, 7 inches and a rise of 7 feet, 5 inches with concrete block headwalls. The proposed project involves bridge replacement with a possible single span precast concrete superstructure supported on reinforced concrete abutments and wingwalls. Incidental work on the roadway approaches would include minimal pavement reconstruction and/or resurfacing and upgrading of the guide railing to meet current safety standards.

MUST SUBMIT PLANS AND PICTURES WITH THIS FORM. If unable to include please explain: Additional project information is attached to the email transmitting this form.

This section to be filled out by DEEP Fisheries Staff:

FISHERIES REVIEWER: Joseph Cassone

DATE SUBMITTED TO OEP: 12/6/2021

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CONNECTICUT 06131-7546
Phone: (860) 594-2157

Fisheries Resources:
Coldwater stream / fisheries present: ☐*1. YES* ☒*2. NO*
Fisheries division sampling in Raymond Brook indicates that the community is comprised of: American Eel, Blacknose Dace, Longnose Dace, Chain Pickerel, White Sucker, Fallfish, Bluegill, Stocked Trout (Brown/Brook). Historically, juvenile Atlantic Salmon were stocked into Raymond Brook, however there are no plans for future salmon stocking at this time. Raymond Brook is stocked with trout to support recreational fishing opportunities.

Comments/Recommendations:
☐ *No DEEP Fisheries Concerns*
*See Below
1.) The Fisheries Division is supportive of a single span replacement structure.

2.) As a best management practice, any unconfined instream work within Raymond Brook should be restricted to the period from June 1 to September 30, inclusive. It is critical that proper erosion and sedimentation controls be installed and maintained throughout the duration of this project. Care should be exercised so as not to increase turbidity levels due to the disturbance of sediment or construction/demolition materials (concrete, asphalt, stone).

3.) There is an unpaved area that could serve as an informal pull off for anglers that is located to the north of the guardrails, on the downstream side of the bridge. To the extent that is practical, access to this pull off area should be maintained once the guardrails are in final condition.

4.) As the designs become available for this project, the Fisheries Division requests an opportunity to review the Project designs.

CC. Peter Aarrestad, Director, DEEP Fisheries Division

ICM NOTES / USACE DETERMINATION

Interagency Coordination Meeting Notes

February 20, 2025

MS Teams Meeting

January 16, 2025 Interagency Meeting Notes:

- DEEP comments were coordinated before distribution of draft notes
- USACE provided comments via email

1. Project 0028-0207 Resurfacing, Rehabilitation and Safety Improvements on Route 2 in the Town of Colchester

The purpose of this project is to rehabilitate the existing Route 2 pavement in both directions and associated ramps beginning from the Eastbound Route 16 on-ramp and extending 1.6 miles easterly to the limit of concrete pavement near interchange 20 and restore it to an acceptable condition that is consistent with the FHWA pavement guidelines. The existing concrete pavement was installed as early as 1956 and has reached the limit of its serviceable life; as a result, comprehensive structural pavement rehabilitation is required to extend the pavement life and restore functionality. The substandard guiderail, outdated bridge rails, and overall roadside safety conditions throughout the project limits also warrant upgrade and will be addressed as part of this project.

Bridge repairs and improvements will include deck work involving stripping of the pavement overlay, performing deck repairs, replacing the membrane, and replacing the bituminous concrete wearing surface. Additional improvements will include Asphaltic Plug Joint replacement and deck end reconstruction, replacement of bridge railings and modifications to parapet end blocks, or construction of standalone moment slab systems to connect MASH attachments, and removal of granite curbing. Cleaning and painting of bearings, girder steel repair, deck underside repairs, and bridge painting will be included as required. Where Route 2 passes under bridges the existing pavement elevation shall be maintained to preserve existing vertical clearances. Drainage modifications are anticipated to consist of resetting or replacing catch basin tops as needed. Other drainage issues that will be addressed include replacing deteriorated corrugated metal pipes wherever feasible. As reported by the District Drainage Engineer, there is no history of flooding or drainage issues. At drainage location 4 there will be temporary water handling to remove the existing concrete endwall. OEP will coordinate with DEEP Fisheries for work in this location. FHWA funding.

Project Impacts:

Wetland/Watercourse Impacts (shown as coincident for both state and federal):

	Wetlands (SF)	Watercourse (SF)	Total (SF)
Permanent	210	0	210
Temporary	1070	0	1070
Total	1280	0	1280

Floodplain Impacts	
Cut (CY)	Fill (CY)
4	0

Agency Comments:

a. USACE asked about the adjacent project 0028-0208. The Designer explained that the bridge carries Route 2 over Route 85 has a separate design team. Any environmental impacts associated with that

project would be presented at a separate ICM meeting. Both projects will be included in the same contract.

b. CTDEEP asked about the feature to the left of outlet 5. The designer explained that there is currently a 54" CMP cross culvert that shares a headwall with the drainage outlet. The drainage pipe will be removed and the endwall plugged – a new drainage pipe and headwall are to be constructed. USACE asked if the pipe carried drainage, to which the designer explained that the culvert connects two wetland areas.
c. CTDOT H&D asked about the type of catch basin being installed. The Designer explained that they are removing curbing at select locations to improve the quality of stormwater.
d. CTDOT H&D asked if all ACCMPs are being switched to RCPs. The Designer confirmed. CTDOT H&D concurs with RCPs as long as velocities are suitable. The Designer indicated outfall protection will be designed accordingly.
e. CTDOT OEP asked if other drainage culverts aside from the six outlets presented will receive cleaning. The Designer explained that other outlets will receive cleaning but that there are only six culverts with environmental impacts that were being presented.
f. USACE asked if the riprap aprons were all located in the ROW. The Designer confirmed.
g. DEEP LWRD asked about the sizes of the riprap aprons. The Designer explained that the aprons will be approximately 3.75 ft at the narrowest part, 7.75 ft at the widest part, and 10 ft long. CTDOT H&D recommended rounding dimensions to the nearest whole number for ease of the contractor.
h. CTDEEP LWRD asked if there would be an invasive species control plan. CTDOT OEP added that there will be an invasive species control plan in wetland areas.
i. USACE asked if any work will occur below OHW. The Designer confirmed that no work will occur below OHW but noted that Outlet 4 has work occurring near the edge of pond and a cofferdam will be used to maintain a dry work area.
j. CTDEEP LWRD noted that some highlights of sight locations on the aerial map are slightly off. The Designer noted that the map provides approximate but not exact locations.
k. CTDEEP LWRD asked if state and federal wetland impacts are coincident. The Designer confirmed.
l. USACE asked if tribal coordination has been performed. The Designer explained that the project has a tribal exemption as of June 2023 coordination. USACE requested tribal coordination be included in the permit application submittal.

Permitting Requirements:

- USACE Self-Verification (GP-18)
- CTDEEP Inland Wetland General Permit (Activity 10)
- CTDEEP Stormwater Permit
- CTDOT Flood Management General Certification

USACE #: NAE-2025-00451
Action Items: n/a

2. Project 0066-0110 Replacement of Bridge No.04695 Old Colchester Road over Raymond Brook in Hebron

This is a Fed/Local Bridge Project with funding from FHWA. Bridge No. 04695 supports Old Colchester Road over Raymond Brook in Hebron. The existing structure consists of twin metal plate pipe arch culvert with span length of 11 feet, 7 inches and an out-to-out width of 28 feet, 9 inches. Average Daily Traffic (ADT) is 485. The structure was rated in Serious condition due to the Culvert Rating of 3. This rating is due to heavy rusting of the pipes as well as deep pitting and thinning of the metal and many large perforations. The existing structure is hydraulically inadequate and is within an approximate FEMA 100-year floodplain. The bankfull width is 23 feet and the drainage area is 8.4 square miles.

The proposed replacement structure type consists of precast prestressed AASHTO concrete slab superstructure on integral abutments with a clear span of 42 feet and out-to-out width of 35 feet, 6 inches. The proposed structure will be hydraulically adequate. DEEP Fisheries requested that an unpaved pull-off area remain accessible for angler parking throughout construction.

Project Impacts:

Wetland/Watercourse Impacts (shown as coincident for both state and federal):

	Wetlands (SF)	Watercourse (SF)	Total (SF)
Permanent	0	1220	1220
Temporary	60	630	690
Total	60	1850	1910

Floodplain Impacts	
Cut (CY)	Fill (CY)
970	610

Agency Comments:

a. CTDEEP LWRD asked for clarification that total wetland impacts will indeed be 0 SF and the Designer confirmed.
b. USACE asked for clarification concerning proposed grading. The Designer confirmed the stream will be regraded back to elevation 361.5 to match existing conditions. USACE requested that the linear length of the watercourse impact be included in the application.
c. CTDEEP LWRD asked if work limits will impact the state park. The Designer confirmed that all work will be within the Town ROW.
d. LWRD inquired about dewatering basins in both phases of construction. The Designer confirmed that dewatering basins will be located in upland areas throughout construction and will be included on the plans.
e. DEEP Fisheries indicated no additional comments
f. LWRD and USACE agreed and noted that the proposed project is a significant improvement to existing conditions at the site.

Permitting Requirements:

- USACE Self Verification (GP 19)
- CTDOT FM-MOU
- Local Inland Wetland Permit

USACE #: NAE-2025-00450
Action Items: n/a

INTERAGENCY COORDINATION MEETING

1. February 20, 2025

Project 0066-0110 Replacement of Bridge No.04695 Old Colchester Road over Raymond Brook in Hebron

FDP Date: June 4, 2025

DOT Engineering contact: Jeffrey C. Organek
OEP Contact:

Lat/Long: 41.6206, -72.3599
Project Description: Bridge No. 04695 supports Old Colchester Road over Raymond Brook in Hebron. The existing structure consists of twin metal plate pipe arch culvert with span length of 11 feet, 7 inches and an out-to-out width of 28 feet, 9 inches. Average Daily Traffic (ADT) is 485. The structure was rated in Serious condition due to the Culvert Rating of 3. This rating is due to heavy rusting of the pipes as well as deep pitting and thinning of the metal and many large perforations. The existing structure is hydraulically inadequate and is within an approximate FEMA 100-year floodplain. The drainage area to the culvert is 8.4 square miles.

The proposed replacement structure type consists of precast prestressed AASHTO concrete slab superstructure on integral abutments with a clear span of 42 feet and out-to-out width of 35 feet, 6 inches.

Issue/Goal: Confirm permitting requirements
Fisheries coordination: initial DEEP Fisheries comments dated December 6, 2021
Previous Interagency Meeting notes: N/A
Anticipated Permit Needs: Hebron Inland Wetland, FMC-MOU, Army Corps of Engineers GP 19 SV

US FISH AND WILDLIFE COORDINATION

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 06/09/2025 18:06:28 UTC
Project code: 2025-0107224
Project Name: Project 66-110, Bridge 04695, Old Colchester Road over Raymond Road, Hebron CT.

Subject: Not Likely to Adversely Affect Concurrence verification letter for the 'Project 66-110, Bridge 04695, Old Colchester Road over Raymond Road, Hebron CT.' project under the December 13, 2024, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat, Northern Long-eared Bat, and Tricolored Bat.

To whom it may concern:

This letter records the determination of effects to federally listed (or proposed) bat species anticipated to result from the Project 66-110, Bridge 04695, Old Colchester Road over Raymond Road, Hebron CT. (the Project). This determination is based upon information you entered into the assisted determination key (Dkey) associated with the above referenced Programmatic Biological Opinion/Conference Opinion (PBO/PCO) in the U.S. Fish and Wildlife Service's (Service) Information for Planning and Consultation (IPaC) system on the date listed above to verify that the Project may rely on the concurrence provided in the PBO/PCO to satisfy requirements under section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (16 USC 1536), as amended.

Ensuring Accurate Determinations When Using IPaC:

The Service developed the IPaC system and this Dkey in accordance with the ESA and based on the PBO/PCO. All information submitted by the project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in the Dkey invalidates this letter. Answers to certain questions in the Dkey commit the project proponent to implementation of conservation measures that must be followed for the ESA determinations to remain valid. Carefully review this letter, your ESA requirements are <u>NOT</u> yet complete.

Determinations:

Based on the information you provided (Project Description shown below), you have determined that the Project is within the scope and adheres to the criteria of the PBO/PCO, including the adoption of applicable avoidance and minimization measures. Based on your IPaC submission and the PBO/PCO, the Project is consistent with the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	NLAA
Tricolored Bat (*Perimyotis subflavus*)	Proposed Endangered	NLAA

The tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can confer under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a no effect or not likely to adversely affect (NLAA) determination from the key to confirm that the determination is still accurate.

The Service has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if we determine that the Project does not meet the criteria for a NLAA determination under the PBO/PCO. **If the Service does not notify the lead Federal action agency or designated non-federal representative within that timeframe, you may proceed with the Project under the terms of the NLAA concurrence provided in the PBO/PCO**. This verification period allows Service Field Offices to apply local knowledge to implementation of the PBO, as we may identify a small subset of actions having impacts that were unanticipated. In such instances, Service Field Offices may request additional information that is necessary to verify inclusion of the proposed action under the PBO/PCO.

If the Project is modified, or new information reveals that it may affect the Indiana bat, northern long-eared bat, or tricolored bat in a manner or to an extent not considered in the PBO/PCO, further review to conclude the requirements of ESA section 7(a)(2) may be required.

For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities:

If your initial bridge, culvert, or structure assessment failed to detect Indiana bat, northern long-eared bat, or tricolored bat use or occupancy, yet bats are later detected prior to, or during construction, promptly notify the local Service Field Office within 2 working days of the discovery. In addition, please document whether incidental take occurred, and if so, the type (i.e. kill or harm) and amount (i.e. number of individuals) and submit documentation to the local Service Field Office within 5 working days from the completion of the bridge, culvert, or structure construction (use Appendix E - Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form in the User's Guide). In these instances, potential incidental take of Indiana bats, northern long-eared bats, or tricolored bats may be exempted provided that the take is reported to

the Service. In these instances, potential incidental take of Indiana bats, northern long-eared bats, or tricolored bats may be exempted provided that the take is reported to the Service.

If the Project may affect any other federally listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Field Office is required for those species/designated critical habitat. If the Project has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency to contact this Service Field Office

The following species may occur in your project area and **are not** covered by this determination:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened

PROJECT DESCRIPTION

The following project name and description was collected in IPaC as part of the endangered species review process.

NAME

Project 66-110, Bridge 04695, Old Colchester Road over Raymond Road, Hebron CT.

DESCRIPTION

Bridge Replacement

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.6205295,-72.35975428826022,14z



DETERMINATION KEY RESULT

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the Indiana bat, northern long-eared bat or tricolored bat, therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.) is required. However, also based on your answers provided, this project may rely on the concurrence provided in the Programmatic Biological Opinion/Conference Opinion for Transportation Projects in the Range of the Indiana bat, northern long-eared bat, and tricolored bat, dated December 13, 2024.

QUALIFICATION INTERVIEW

1. Which Federal Agency is the lead federal agency the action?

   A) Federal Highway Administration (FHWA)

2. Does the Action Area intersect the species list area of the Northern long-eared bat?

   Automatically answered
   Yes

3. Does the Action Area intersect the species list area of the tricolored Bat (TCB)?

   Automatically answered
   Yes

4. Does your project's activities include raising the road profile above the tree canopy in documented habitat for the Indiana bat, NLEB, or TCB?

   Note: For the definition of documented habitat, refer to Appendix A: https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat

   No

5. Is your project located within a karst area?

   No

6. Will the project include bridge, culvert, or structure removal, replacement, and/or alteration activities?

   Note: For definitions of bridge, culvert, and structure, refer to Appendix A: https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat.

   Yes

7. Do your project’s activities involve tree removal/trimming, temporary lighting, new/additional permanent lighting, ground disturbance, percussives that involves noise/vibration above existing background levels, vibrations, or slash pile burning?

   Yes

8. Is there suitable summer habitat for the Indiana bat, NLEB, or TCB within the project action area?

   Note: See the Service's summer survey guidance for current definitions of suitable habitat [https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html].

   Yes

9. Have P/A surveys for the Indiana bat, NLEB, or TCB been conducted within the suitable summer habitat located within your project action area? This refers to mist-netting or acoustic surveys, not bridge assessments.

   Note: See the Service's survey guidance https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html

   No

10. Will the project involve the removal or trimming of trees within suitable habitat for the Indiana bat, NLEB, or TCB?

    Yes

11. Will any tree removal or trimming occur during the bat pup season?

    Note: For more information about bat pup seasons please visit https://www.fws.gov/sites/default/files/documents/2024-10/2024_usfws_rangewide_ibat-nleb_survey_guidelines.pdf

    No

12. Will the removal or trimming of trees occur **within documented habitat** for the Indiana bat, NLEB, or TCB?

    Note: For the definition of documented habitat, refer to Appendix A: https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat

    No

13. Will all tree removal or trimming occur within 100 feet of the road or rail surface?

    Yes

14. Does your project include activities involving the temporary or permanent exclusion of Indiana bats, NLEBs, or TCBs from a bridge/culvert or structure?

    Note: exclusion is conducted to deny bats' entry or reentry into a bridge/culvert or structure. To be effective and to avoid harming bats, it should be done according to established standards.

    No

15. Does your project involve the use of temporary lighting within Indiana bat, NLEB, or TCB suitable habitat?

    Note: For the definition of lighting, refer to Appendix A: https://www.fws.gov/media/users-guide-range-wide-programmatic-consultation-indiana-bat-and-northern-long-eared-bat

    No

16. Will the project substantially increase baseline light conditions via the use of permanent lighting (replacement or new/additional) in suitable habitat.

    No

17. Will your project include percussive activities?

    Note: Refer to Stressor #2 Noise/Vibration on page 109 of the PBO/PCO.

    No

18. Will the project include **bridge** removal, replacement, and/or alteration activities?

    No

19. Does the project include **culvert** removal, replacement, and/or alteration activities?

    Yes

20. Does the culvert equal or exceed 23 feet (7.0 meters) in length?

    Yes

21. Are the interior dimensions of the culvert less than 3 ft. in diameter/height?

    Yes

22. Does the project include **structure** removal, replacement, and/or alteration activities?

    Yes

23. Has a Structure Bat Assessment been conducted within the last 24 months to determine if the structure is being used by the Indiana bat, NLEB, or TCB? If yes, upload assessment.

    Note: Refer to the Service's current survey guidance for acceptable assessment practices and validity length of structure/culvert and structure bat assessments: https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines

    Yes

    SUBMITTED DOCUMENTS

    - *appendix-d-bridge-culvert-bat-assessment-form-april-2020_0066 0110.pdf https://ipac.ecosphere.fws.gov/project/ADYLJUDZDJAHRJ2IMTRU54CUMU/projectDocuments/163043468*

24. Please select one of the following results of the Structure Bat Assessment:

    c) Did not detect any signs of Indiana bats, NLEBs, or TCBs roosting in the structure (bats, guano, etc.)?

25. Will the project involve the removal or trimming of more than 20 acres of Indiana bat, NLEB, or TCB suitable habitat per 5-mile section of road/rail?

    No

26. Will the removal or trimming of trees occur within 0.5 miles of a known Indiana bat, NLEB, or TCB hibernaculum?

    No

27. Will the removal or trimming of these trees occur during the active season?

    No

28. Will the removal or trimming of trees occur **beyond 100 feet** of the existing road/rail surfaces?

    No

29. Does the Action Area intersect the species list area of the tricolored Bat (TCB)?

    Automatically answered
    Yes

30. Does the Action Area intersect the species list area of the northern long-eared bat (NLEB)?

    Automatically answered
    Yes

PROJECT QUESTIONNAIRE

1. Have you made a No Effect determinations for all other species included on the FWS IPaC generated species list?

   No

2. Have you made a May Affect determination for any other species on the FWS IPaC generated list?

   No

3. How many acres of trees are proposed for removal/trimming **outside of documented habitat** for the Indiana bat, NLEB, or TCB within 100 feet of the existing road/rail surfaces during the inactive season (NLAA)?

   Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0.10

4. How many acres of trees are proposed for removal/trimming **outside of documented habitat** for the Indiana bat, NLEB, or TCB within 100 feet of the existing road/rail surfaces during the active season **(outside the pup season and not between Dec 15th-Feb 15th in Zone 1 of the NLEB and TCB YR active areas)** (LAA)?

   Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0

5. How many acres of trees are proposed for removal/trimming **outside of documented habitat** for the Indiana bat, NLEB, or TCB within 100 feet of the existing road/rail surfaces during the pup season **(trees must be <9 in DBH, and not between Dec 15th-Feb 15th in Zone 1 of the NLEB and TCB YR active areas)** (LAA)?

   Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0

6. How many acres of trees are proposed for removal/trimming **either outside or within documented habitat** for the Indiana bat, NLEB, or TCB between 100-300 feet of the existing road/rail surface during the inactive season (LAA)? Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0.10

7. How many acres of trees are proposed for removal/trimming **either outside or within documented habitat** for the Indiana bat, NLEB, or TCB between 100-300 feet of the existing road/rail surfaces during the active season **(outside the pup season, and not between Dec 15-Feb 15 in Zone 1 of the NLEB and TCB YR active areas)** (LAA)?

   Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0

8. How many acres of trees are proposed for removal/trimming **either outside or within documented habitat** for the Indiana bat, NLEB, or TCB beyond 300 feet of the existing road/rail surfaces during the inactive season (LAA)?

   Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0

9. How many acres of trees are proposed for removal/trimming **either outside or within documented habitat** for the Indiana bat, NLEB, or TCB beyond 300 feet of the existing road/rail surfaces during the active season **(outside the pup season, and not between Dec 15th-Feb 15th in Zone 1 of the NLEB and TCB YR active areas)** (LAA)?

   Note: If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   0

10. Please enter the date of the structure assessment.

    6/5/2025

11. Please verify only a small number of Indiana bats, NLEBs, or TCBs (< 5 bats) occur per structure.

    Yes

AVOIDANCE AND MINIMIZATION MEASURES (AMMS)

This determination key result includes the commitment to implement the following Avoidance and Minimization Measures (AMMs):

GAMM1

Ensure all operators, employees, and contractors working in areas of Indiana bat, NLEB, or TCB suitable habitat are aware of all Transportation Agency environmental commitments, including all applicable AMMs.

TRTAMM1

Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to the extent practicable to avoid tree removal/trimming in excess of what is required to implement the project safely.

TRTAMM2

Ensure tree removal/trimming is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree removal/trimming to ensure contractors stay within clearing limits

TRTAMM3

Ensure tree removal/trimming is limited to the inactive season, occurs within 100 ft of the road/rail surface, and is outside of documented habitat for the Indiana bat, NLEB, and TCB

DETERMINATION KEY DESCRIPTION: FHWA, FRA, FTA PROGRAMMATIC CONSULTATION FOR TRANSPORTATION PROJECTS AFFECTING IBAT, NLEB, OR TCB

This key was last updated in IPaC on May 30, 2025. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) and may affect the federally listed endangered Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and/or federally proposed endangered tricolored bat (*Perimyotis subflavus*).

This decision key should only be used to verify project applicability with the Service's Programmatic Biological Opinion/Conference Opinion for Transportation Projects in the Range of the Indiana bat, northern long-eared bat, and tricolored bat, dated December 13, 2024. The programmatic consultation limited transportation activities that may affect the covered bat species and addresses situations that are both likely and not likely to adversely affect the covered bat species. This decision key will assist in identifying the effect of a specific project/activity and the applicability of the programmatic consultation. The programmatic consultation is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic consultation, or that may affect ESA-listed species other than the Indiana bat, northern long-eared bat, or tricolored bat, or their designated critical habitat, may require additional ESA Section 7 consultation.

IPAC USER CONTACT INFORMATION

Agency: Connecticut Department of Transportation
Name: Andrew Davis
Address: 2800 Berlin Turnpike
City: Newington
State: CT
Zip: 06131
Email andrew.h.davis@ct.gov
Phone: 8605942157

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 3301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 10/27/2025 12:58:48 UTC
Project Code: 2025-0107224
Project Name: Project 66-110, Bridge 04695, Old Colchester Road over Raymond Road, Hebron CT.

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Updated 4/12/2023 - *Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.*

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "**New England Field Office Endangered Species Project Review and**

Consultation" website for step-by-step instructions on how to consider effects on listed species and prepare and submit a project review package if necessary:

https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (**Updated 4/12/2023**) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act
Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/service/section-7-consultations

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the

ESA. The species' occurrence on an official species list does not convey a requirement to consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/program/migratory-bird-permit

https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 3301-5094
(603) 223-2541

PROJECT SUMMARY

Project Code: 2025-0107224
Project Name: Project 66-110, Bridge 04695, Old Colchester Road over Raymond Road, Hebron CT.
Project Type: Bridge - Replacement
Project Description: Bridge Replacement
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.6205295,-72.35975428826022,14z



Counties: Tolland County, Connecticut

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Connecticut Department of Transportation
Name: Andrew Davis
Address: 2800 Berlin Turnpike
City: Newington
State: CT
Zip: 06131
Email andrew.h.davis@ct.gov
Phone: 8605942157

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

Statewide Flood Management Certification for
Federally and State Funded Municipal Projects

Attachment A: DOT

A-1: Engineering Certification

Name of Subject Facility and DOT Project Number:

Bridge No. 04695 (Old Colchester Road), Hebron
SPN 0066-0110

Name of floodplain and watercourse:

Raymond Brook

I hereby certify, in reliance on the Municipal Official Certification, the Town Engineer / Consultant-Professional Certification, the DOT Hydraulics and Drainage Section and the DOT Environmental Planning reviews, that the above referenced project qualifies for the DEP Commissioner's approval pursuant to Section 25-68d of the General Statutes, and that the proposed activity described in this application is consistent with all applicable standards and criteria established in Sections 25-68d(b) of the General Statutes and Sections 25-68h-1 through 25-68h-3, inclusive, of the Regulations of Connecticut State Agencies.

Signature: _____ _____

Date

Print/Type: _____

Transportation Engineering Administrator
Bureau of Engineering and Construction

Statewide Flood Management Certification for
Federally and State Funded Municipal Projects

Attachment A: DOT

DOT Project No. 0066-0110

A-2: Hydraulics and Drainage Section Review

Based on my review and reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the proposed activity described in this application is consistent with all applicable standards and criteria established in Sections 25-68d(b) of the General Statutes and Sections 25-68h-1 through 25-68h-3, inclusive, of the Regulations of Connecticut State Agencies.

Signature: _____ _____
Date

Print/Type: _____
Transportation Principal Engineer
Hydraulics and Drainage Section

A-3: Environmental Planning Review

Based on my review and reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the proposed activity described in this application is consistent with all applicable standards found in the 2004 Connecticut Stormwater Manual, 2002 Erosion and Sedimentation Control Guidelines (as amended) and that there has been proper coordination with the Inland Fisheries Division and the Natural Diversity Database.

Signature: _____ _____
Date

Print/Type: _____
Transportation Supervising Planner
Office of Environmental Planning

Statewide Flood Management Certification for
Federally and State Funded Municipal Projects

Attachment B: Municipality

B-1: Municipal Official Certification

Name of Applicant / Municipality: Town of Hebron

DOT Project No.: 0066-0110

Description of Proposed Project: Replacement of Bridge No. 04695
Old Colchester Road over Raymond Brook

1. The recipient of federal and/or state funding will be:

Name: Town of Hebron

Mailing Address: 550 Old Colchester Road

City/Town: Hebron State: CT Zip Code: 06231

Phone: (860) 228-2871 ext. Fax:

Based on my review and reasonable investigation, including my inquiry of those individuals responsible for preparing the information, the proposed activity described in this application is consistent with all applicable standards and criteria established in Sections 25-68d(b) of the General Statutes and Sections 25-68h-1 through 25-68h-3, inclusive, of the Regulations of Connecticut State Agencies.

I understand that a false statement made in the submitted information may, pursuant to Section 22a-6 of the General Statutes, be punishable as a criminal offense under Section 53a-157b of the General Statutes, and may also be punishable under Section 22a-438 of the General Statutes.

Signature: Andrew J. Tierney 10/16/25
Date

Print/Type: Andrew J. Tierney
Chief Executive Officer
Town Manager

Statewide Flood Management Certification for
Federally and State Funded Municipal Projects

Attachment B: Municipality

B-2: Town Engineer / Consultant - Professional Certification

DOT Project No.: 0066-0110

Description of Proposed Project: Replacement of Bridge No. 04695
Old Colchester Road over Raymond Brook

Plan Dated and Revised Through: September 2025

Hydrologic and Hydraulic Study Dated: May 2023, revised May 2025 & October 2025

I hereby certify that the prepared information and the proposed activity described in this application is consistent with all applicable standards and criteria established in Sections 25-68d(b) of the General Statutes and Sections 25-68h-1 through 25-68h-3, inclusive, of the Regulations of Connecticut State Agencies.

I understand that a false statement made in the submitted information may, pursuant to Section 22a-6 of the General Statutes, be punishable as a criminal offense under Section 53a-157b of the General Statutes, and may also be punishable under Section 22a-438 of the General Statutes.

Signature: _____ C=US, E=ggerrish@vhb.com, O="Vanasse Hangen Brustlin, Inc.", CN="Gregory D. Gerrish, P.E." 2025.10.23 14:43:24-04'00' _____ Date

Print/Type: Gregory D. Gerrish, P.E.
Professional Engineer

P.E. Number: 36085



Affix P.E. Stamp Here

TOWN OF HEBRON
CONSERVATION & INLAND WETLANDS COMMISSION
APPROVAL

Town of Hebron

TOWN OFFICE BUILDING
15 GILEAD STREET
HEBRON, CONNECTICUT 06248
TELEPHONE: (860) 228-5971
FAX : (860) 228-5980
www.hebronct.com

PLANNING & DEVELOPMENT
PLANNING
ECONOMIC DEVELOPMENT
CONSERVATION
HEALTH
BUILDING

October10, 2025

CERTIFIED MAIL

Andy Shepard
Vanasse Hangen Brustlin (VHB)
100 Great Meadow Road
Wethersfield, CT 06109

Re: Petition 2025-10 - Town of Hebron c/o Vanesse Hangen Brustlin (VHB), 310 Old Colchester Road, Amston, 06231 - Replacement of Bridge (04695) Over Raymond Brook on Old Colchester Road

NOTICE OF DECISION

Dear Mr. Shepard:

After reviewing the application for the construction of a bridge within an inland wetland upland review area and based upon the findings in accordance with Section 22a-41 of the Connecticut General Statutes, **approval** is granted for conducting the activity described in the above-referenced application, with the following conditions:

1. Town Engineer to review and approve construction submittals including site layout and stockpiling plan.
2. Notify Wetland Agent prior to construction for inspection of sedimentation and erosion control measures.
3. Project will be regularly monitored by the Wetland Agent, Town Engineer, third party inspector and Public Works Dept.
4. Hebron Conservation Commission Permit package will be incorporated into the Bid and Contract.

We wish you success in this endeavor. Should you have any questions, please contact me at 860-228-5971, extension 139, or at jcordier@hebronct.com

For the Hebron Conservation and Inland Wetlands Commission:

James P. Cordier

James P. Cordier, MPH RS
Conservation and Inland Wetlands Agent
Town of Hebron

cc: Matt Bordeaux, Director of Planning and Development
Tom Loto, Chairman, Conservation and Inland Wetlands Commission
File # 2025-10

LEGAL NOTICE OF ACTIONS
HEBRON CONSERVATION COMMISSION
15 GILEAD STREET, HEBRON CT

At its October 9, 2025 meeting, the Hebron Conservation Commission took the following action:

Petition 2025-10 - Town of Hebron c/o Vanesse Hangen Brustlin (VHB), 310 Old Colchester Road, Amston, 06231 - Replacement of Bridge (04695) Over Raymond Brook on Old Colchester Road – **approved,** with the following conditions:

1. Town Engineer to review and approve construction submittals including site layout and stockpiling plan.
2. Notify Wetland Agent prior to construction for inspection of sedimentation and erosion control measures.
3. Project will be regularly monitored by the Wetland Agent, Town Engineer, third party inspector and Public Works Dept.
4. Hebron Conservation Commission Permit package will be incorporated into the Bid and Contract.

James P. Cordier, Conservation and Inland Wetlands Agent
For: Thomas Loto, Chairman, Conservation and Inland Wetlands Commission

Legal Notice will be published in the Rivereast News Bulletin on Friday, October 17, 2025.

https://transcripts.gotomeeting.com/#/s/52aff5c03615001f2778b56f372704ec7fca3d7cc9919d58eb103d2ee39f7048

ARMY CORPS OF ENGINEERS
SELF VERIFICATION
NOTIFICATION FORM

US Army Corps of Engineers ®
New England District

Appendix E: Self-Verification Notification Form

This form is required for all inland projects in Connecticut, but it is not required if work is done within boundaries of Mashantucket Pequot or Mohegan Tribal Lands. At least two weeks before work commences, complete all fields (write "none" if applicable) below, send this form, Official Species List (see GC 12), documentation of THPO and SHPO notifications if applicable, site location map, project plans (not required for projects involving the installation of construction mats only) and any State or local approval(s) to:

Regulatory Division, Branch B
U.S. Army Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751
or cenae-r-ct@usace.army.mil

and

CT DEEP
79 Elm Street
Hartford, CT 06106-5127
or DEEP.LWRDRegulatorySubmittals@ct.gov

State Permit Number: _____ Date of State Permit: _____

Permittee: Town of Hebron
Address, City, State & Zip: 550 Old Colchester Road, Amston, CT 06231
Phone(s) and Email: Paul J. Forrest, Director of Public Works, (860) 228-2871, pforrest@hebronct.com

Agent: Vanasse Hangen Brustlin, Inc.
Address, City, State & Zip: 100 Great Meadow Road, Suite 200, Wethersfield, CT 06109
Phone(s) and Email: Nelson A. Shepard, (860) 807-4451, ashepard@vhb.com

Contractor: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Project Name: Replacement of Bridge No. 04695, Old Colchester Road over Raymond Brook
Project Location (provide detailed description & locus map):
Address, City, State & Zip: Old Colchester Road over Raymond Brook, Hebron, CT 06248
Lat. ° N, Long ° (Decimal Degrees): 41° 37' 14.13" N, -72° 21' 35.56"
Waterway Name: Raymond Brook

Proposed Work Dates: Start: _____ Finish: _____

Work will be done under the following GPs (circle all that apply):

2	5	6	9	10	11	12	13	14	15	17	18	19	21

Area of Wetland Impacts (SF): Permanent: _____ Temporary: _____

Area of Waterway Impacts (SF): Permanent: _____ Temporary: _____

TOTAL Project Impact (SF): Permanent: _____ Temporary: _____

Describe the specific work that will be undertaken in waters and wetlands: _____

_____

_____

_____

_____

Have the THPOs and the CT SHPO been notified of the proposed work per the procedures in GC 11? If so, attach any responses received to this form.
Yes _____ date contacted _____No _____

Are there Federally listed endangered/threatened species, other than the northern long-eared bat, present? (see GC 12) Yes _____ No_____

Confirm no SAVs are present or will be impacted: Yes _____ No_____
Applicable to GPs:

2	5	6	9	10	11	12	13	14	15	17	18	19	21

Confirm no unconfined work with impact to diadromous fish (see App. H): Yes _____ No_____
Applicable to GPs:

2	5	6	9	10	19

Confirm work complies with Stream Crossing BMPs (see App. G): Yes _____No_____

Applicable to GPs:

2	6	17	19

If GP 19 and work does not comply with Appendix G, identify date of Interagency Meeting where waiver was granted: Date of Meeting: _____
Identify interagency participants: CT DEEP:_____ USACE:_____

Will your project include any secondary effects? (Secondary effects include, but are not limited to, non-tidal waters or wetlands drained, flooded, fragmented, or mechanically cleared resulting from a single and complete project. See Appendix F - Definitions.) If YES, describe here:

_____

_____

_____

_____

Your signature below, as permittee, indicates that you accept and agree to comply with the terms, eligibility criteria, and general conditions for Self-Verification under the Connecticut GPs.

Permittee Signature: _____ Date**:** _____

Construction Contracts - Required Contract Provisions
(FHWA and State Funded Contracts)

Index

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EXHIBIT A - FHWA Form 1273 (Begins on page 17)
EXHIBIT B - Title VI Contractor Assurances (page 31)
EXHIBIT C - Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 33)
EXHIBIT D - Affirmative Action Policy Statement (page 41)
EXHIBIT E - State Wage Rates & Other Related Information (Attached at the end)
EXHIBIT F – Federal 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. 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."

4. 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 819), 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.

5. 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.

6. 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 3l-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.

7. 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).

8. Executive Orders and Other Enactments

(a) All references in this Contract to any Federal, State, or local law, statute, public or special act, executive order, ordinance, regulation or code (collectively, "Enactments") shall mean Enactments that apply to the Contract at any time during its term, or that may be made applicable to the Contract during its term. This Contract shall always be read and interpreted in accordance with the latest applicable wording and requirements of the Enactments. Unless otherwise provided by Enactments, the Contractor is not relieved of its obligation to perform under this Contract if it chooses to contest the applicability of the Enactments or the Client Agency's authority to require compliance with the Enactments.

(b) 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 this Contract as if they had been fully set forth in it.

(c) This Contract may be subject to (1) Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services; and (2) Executive Order No. 61 of Governor Dannel P. Malloy promulgated December 13, 2017, concerning the Policy for the Management of State Information Technology Projects, as issued by the Office of Policy and Management, Policy ID IT-SDLC-17-
04. If any of the Executive Orders referenced in this subsection is applicable, it is deemed to be incorporated into and made a part of this Contract as if fully set forth in it.

9. Non-Discrimination Requirement and Certification (pursuant to section 4a-60 and 4a-60a o f 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" includes, but is not 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 (1) fifty-one per cent or more of the capital stock, if any, or assets of which are owned by a person or persons who (a) exercise operational authority over the daily affairs of the enterprise, (b) have the power to direct the management and policies and receive the beneficial interest of the enterprise, (c) possess managerial and technical competence and experience directly related to the principal business activities of the enterprise, and (d) are members of a minority, as defined in C.G.S. § 32-9n, or are individuals with a disability, or (2) which is a nonprofit corporation in which fifty-one per cent or more of the persons who exercise operational authority over the enterprise, (a) possess managerial and technical competence and experience directly related to the principal business activities of the enterprise, (b) have the power to direct the management and policies of the enterprise, and (c) are member of a minority, as defined in C.G.S. § 32-9n, or are individuals with a disability; and

x. "public works contract" means any agreement (A) for construction, rehabilitation, conversion, extension, demolition or repair of changes or improvements in real property, and (B) that is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees where such funding equals one hundred fifty thousand dollars or more.

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, unless the contract is a public works contract, (2) any other state, including but not limited to any federally recognized Indian tribal governments, as defined in C.G.S. § 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in the immediately preceding enumerated items (1), (2), (3),or (4).

(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, sexual orientation, gender identity or expression, status as a veteran, status as a victim of domestic violence, status as a victim of sexual assault or status as a victim of trafficking in persons, 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 ensure 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, sexual orientation, status as a veteran, status as a victim of domestic violence, status as a victim of sexual assault or status as a victim of trafficking in persons,

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, 46a-68f and 46a-86; and

(5) the Contractor agrees to provide the Commission 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 or she 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; the timing and value of bids; 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 in every subcontract entered into in order to fulfill any obligation of a public works contract, 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) Pursuant to subsection (c) of section 4a-60 of the Connecticut General Statutes, the Contractor, for itself and its authorized signatory of this Contract, affirms that it understands the obligations of this Section and that it will maintain a policy for the duration of the Contract to assure that the Contract will be performed in compliance with the nondiscrimination requirements of such section. The Contractor and its authorized signatory of this Contract demonstrate their understanding of this obligation by (A) having provided an affirmative response in the required online bid or response to a proposal question which asks if the contractor understands its obligations under such sections, (B) signing this Contract, or (C) initialing this nondiscrimination affirmation in the following box: ☐

10. 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.

11. 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.

12. 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.

13. Substitution of Securities for Retainages on State Contracts and Subcontracts

This Contract is subject to the provisions of Section 3-ll2a of the General Statutes of the State of Connecticut, as revised.

14. 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.

15. 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.

16. Summary of State Ethics Laws

Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes (a) the State has provided to the Contractor the summary of State ethics laws developed by the Office of State Ethics pursuant to section 1-81b of the Connecticut General Statutes, which summary is incorporated by reference into and made a part of this Contract as if the summary had been fully set forth in this Contract; (b) the Contractor represents that the chief executive officer or authorized signatory of the Contract and all key employees of such officer or signatory have read and understood the summary and agree to comply with the provisions of state ethics law; (c) prior to entering into a contract with any subcontractors or consultants, the Contractor shall provide the summary to all subcontractors and consultants and each such contract entered into with a subcontractor or consultant on or after July 1, 2021, shall include a representation that each subcontractor or consultant and the key employees of such subcontractor or consultant have read and understood the summary and agree to comply with the provisions of state ethics law; (d) failure to include such representations in such contracts with subcontractors or consultants shall be cause for termination of the Contract; and (e) each contract with such contractor, subcontractor or consultant shall incorporate such summary by reference as a part of the contract terms.

17. 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.

18. Campaign Contribution Restriction

Campaign Contribution Restriction. For all State contracts, defined in section 9-612 of the Connecticut General Statutes as having a value of $50,000 or more, or a combination or series of such agreements or contracts having a value of $100,000 or more in a calendar year, the authorized signatory to this Agreement represents that they have received 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.

19. 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.

20. 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.

21. Consulting Agreement Representation

Pursuant to section 4a-81 of the Connecticut General Statutes, the person signing this Contract on behalf of the Contractor represents, to their best knowledge and belief and subject to the penalty of false statement as provided in section 53a-157b of the Connecticut General Statutes, that the Contractor has not entered into any consulting agreements in connection with this Contract, except for the agreements listed below or in an attachment to this Contract. "Consulting agreement" means any written or oral agreement to retain the services, for a fee, of a consultant for the purposes of

(A) providing counsel to a contractor, vendor, consultant or other entity seeking to conduct, or conducting, business with the State, (B) contacting, whether in writing or orally, any executive, judicial, or administrative office of the State, including any department, institution, bureau, board, commission, authority, official or employee for the purpose of solicitation, dispute resolution, introduction, requests for information, or (C) any other similar activity related to such contracts. "Consulting agreement" does not include any agreements entered into with a consultant who is registered under the provisions of chapter 10 of the Connecticut General Statutes as of the date such contract is executed in accordance with the provisions of section 4a-81 of the Connecticut General Statutes.

Consultant's Name and Title _____ Name of Firm (if applicable) _____

Start Date _____ End Date _____ Cost _____

The basic terms of the consulting agreement are: _____

Description of Services Provided: _____

Is the consultant a former State employee or former public official? ☐ YES ☐ NO If YES: _____

Name of Former State Agency _____ Termination Date of Employment _____

22. 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.

23. Sovereign Immunity

The parties acknowledge and agree that nothing in the Solicitation or the Contract shall be construed as a modification, compromise or waiver by the State of any rights or defenses of any immunities provided by Federal law or the laws of the State of Connecticut to the State or any of its officers and employees, which they may have had, now have or will have with respect to all matters arising out of the Contract. To the extent that this section conflicts with any other section, this section shall govern.

24. Large State Contract Representation for Contractor

Pursuant to section 4-252 of the Connecticut General Statutes and Acting Governor Susan Bysiewicz Executive Order No. 21-2, promulgated July 1, 2021, the Contractor, for itself and on behalf of all of its principals or key personnel who submitted a bid or proposal, represents:

(1) That no gifts were made by (A) the Contractor, (B) any principals and key personnel of the Contractor, who participate substantially in preparing bids, proposals or negotiating State contracts, or (C) any agent of the Contractor or principals and key personnel, who participates substantially in preparing bids, proposals or negotiating State contracts, to (i) any public official or State employee of the State agency or quasi- public agency soliciting bids or proposals for State contracts, who participates substantially in the preparation of bid solicitations or requests for proposals for State contracts or the negotiation or award of State contracts, or (ii) any public official or State employee of any other State agency, who has supervisory or appointing authority over such State agency or quasi-public agency;

(2) That no such principals and key personnel of the Contractor, or agent of the Contractor or of such principals and key personnel, knows of any action by the Contractor to circumvent such prohibition on gifts by providing for any other principals and key personnel, official, employee or agent of the Contractor to provide a gift to any such public official or State employee; and

(3) That the Contractor is submitting bids or proposals without fraud or collusion with any person.

25. Large State Contract Representation for Official or Employee of State Agency

Pursuant to section 4-252 of the Connecticut General Statutes and Acting Governor Susan Bysiewicz Executive Order No. 21-2, promulgated July 1, 2021, the State agency official or employee represents that the selection of the person, firm or corporation was not the result of collusion, the giving of a gift or the promise of a gift, compensation, fraud or inappropriate influence from any person.

26. Iran Investment Energy Certification

(a) Pursuant to section 4-252a of the Connecticut General Statutes, the Contractor certifies that it has not made a direct investment of twenty million dollars or more in the energy sector of Iran on or after October 1, 2013, as described in Section 202 of the Comprehensive Iran Sanctions, Accountability and Divestment Act of 2010, and has not increased or renewed such investment on or after said date.

(b) If the Contractor makes a good faith effort to determine whether it has made an investment described in subsection (a) of this section, then the Contractor shall not be deemed to be in breach of the Contract or in violation of this section.

A "good faith effort" for purposes of this subsection includes a determination that the Contractor is not on the list of persons who engage in certain investment activities in Iran created by the Department of General Services of the State of California pursuant to Division 2, Chapter 2.7 of the California Public Contract Code. Nothing in this subsection shall be construed to impair the ability of the State agency or quasi-public agency to pursue a breach of contract action for any violation of the provisions of the Contract.

27. Access to Contract and State Data

The Contractor shall provide to the Client Agency access to any data, as defined in Conn. Gen Stat. Sec. 4e-1, concerning the Contract and the Client Agency that are in the possession or control of the Contractor upon demand and shall provide the data to the Client Agency in a format prescribed by the Client Agency and the State Auditors of Public Accounts at no additional cost.

28. Affirmative Action Policy Statement

The Contractor shall comply with the Affirmative Action Policy Statement, as applicable, attached at Exhibit E and hereby made part of this Contract.

29. Compliance with Consumer Data Privacy and Online Monitoring

Pursuant to section 4e-72a of the Connecticut General Statutes, Contractor shall at all times comply with all applicable provisions of sections 42-515 to 42-525, inclusive, of the Connecticut General Statutes, as the same may be revised or modified.

EXHIBIT A

FHWA-1273 – Revised October 23, 2023

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Non-segregated 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. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
XI. Certification Regarding Use of Contract Funds for Lobbying
XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (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). 23 CFR 633.102(e).

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. 23 CFR 633.102(e).

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) in accordance with 23 CFR 633.102. 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 solicitation-for-bids or request-for-proposals 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). 23 CFR 633.102(b).

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. 23 CFR 633.102(d).

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. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A 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 Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 230, Subpart A, 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 (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 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 Part 35 and 29 CFR Part 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. 23 CFR 230.409 (g)(4) & (5).

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, sexual orientation, gender identity, 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 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 or other knowledgeable company official.

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, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure 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. 23 CFR 230.409. 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, sexual orientation, gender identity, 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, sexual orientation, gender identity, 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 thereunder. 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, sexual orientation, gender identity, 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, 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. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. 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 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, 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.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

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 more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, 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, sexual orientation, gender identity, 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), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

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 (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), 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 basic hourly 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. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. 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 must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. 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 classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH–1321) must 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. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must 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 be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate 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 used 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) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) 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 will be sent by the contracting officer by email to *DBAconformance@dol.gov*. 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.

(4) 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 will, by email to *DBAconformance@dol.gov*, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The 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.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must 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.

d. *Fringe benefits not expressed as an hourly rate.* 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 may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* 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, in accordance with the criteria set forth in § 5.28, 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.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and 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.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements* (1) *Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; 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 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section 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 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must 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.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements* (1) *Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (*e.g.,* the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH–347 or in any other format desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division website at *https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf* or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working 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 29 CFR part 3; and

(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(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH–347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, 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, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform 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 (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must 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, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must 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 this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

c. 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. 23 CFR 230.111(e)(2). 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 journeyworkers 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 as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 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 as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, 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 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 40 U.S.C. 3144(b) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), 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 watchpersons 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. 29 CFR 5.5.

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 and interest from the date of the underpayment. 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 watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* 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.

* $31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, 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 that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

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” in paragraph 1 of Section VI 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: (based on longstanding interpretation)

(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. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), 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. Pursuant to 23 CFR 635.116(c), 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. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

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 Part 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. 23 CFR 635.108.

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 Part 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). 29 CFR 1926.10.

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 Part 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 11, 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 (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

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. 2 CFR 180.220 and 1200.220.

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. 2 CFR 180.320.

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. 2 CFR 180.325.

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. 2 CFR 180.345 and 180.350.

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, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient 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 recipient or subrecipient 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. 2 CFR 180.330.

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. 2 CFR 180.220 and 180.300.

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. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. 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 System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

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 CFR 180.325.

* * * * *

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 CFR 180.335;.

(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, 2 CFR 180.800;

(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, 2 CFR 180.700 and 180.800; 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. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

3. **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). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant 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. 2 CFR 180.365.

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, Subpart I, 180.900 – 180.1020, 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 recipient or subrecipient 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 recipient or subrecipient 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. 2 CFR 1200.220 and 1200.332.

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. 2 CFR 180.220 and 1200.220.

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 System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

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. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should 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 Part 20, App. A.

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.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor 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. 46 CFR 381.7.

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 Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B) This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

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

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

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

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

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

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

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

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

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

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 contactor (hereinafter includes consultants) will comply with the Regulations relative to Nondiscrimination in Federally assisted programs of the United States Department of Transportation Federal Highway Administration and Federal Transit Administration, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, disability, income or Limited English Proficiency in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials** and Equipment: In all solicitations, either by bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and Acts and the Regulations relative to Non- discrimination on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration or Federal Transit Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor will so certify to the Recipient or the Federal Highway Administration or the Federal Transit Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Non-compliance:** In the event of the contractor's non-compliance with the non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration or the Federal Transit Administration may determine to be appropriate, including, but not limited to:

   a. withholding contract payments to the contractor under the contract until the contractor complies; and/or
   b. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration or the Federal Transit Administration may direct as a means of enforcing such provisions including sanctions for non-compliance. 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.

APPENDIX B

TITLE VI CONTRACTOR ASSURANCES

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees 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

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 ensure 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 notification's 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 in 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.

EXHIBIT D
AFFIRMATIVE ACTION POLICY STATEMENT (October 2023)

It is the policy of this firm to assure that applicants are employed, and that employees are treated during employment, without regard to an individual's race, color, religion, creed, sex, gender identity or expression, marital status, national origin, age, ancestry, status as a veteran, intellectual disability, mental disability, learning disability or physical disability, including but not limited to blindness, unless such disability prevents performance of the work involved and to promote the full realization of equal employment opportunity through positive and continuous affirmative efforts. Such action shall include employment, promotion, demotion or transfer, recruitment or recruitment advertising, layoff or terminations, rates of pay or other forms of compensation, selection for training/apprenticeship, pre-apprenticeship opportunities, and on-the-job training opportunities.

This firm will implement, monitor, enforce and achieve full compliance with this Affirmative Action Policy Statement in conjunction with the applicable Federal and State laws, regulations, executive orders, and contract provisions, including but not limited to those listed below:

Dissemination of Policy:
All members of the firm 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, this firm's Equal Employment Opportunity (EEO) policy and contractual responsibilities to provide EEO in each grade and classification of employment. These actions shall include:

1. 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 firm's EEO policy and its implementation will be reviewed and explained. These meetings will be conducted by the EEO officer.
2. 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.
3. All personnel who are engaged in direct recruitment for the firm will be instructed by the EEO Officer of the contractor's procedures for locating and hiring minority group employees.
4. Notices and posters setting forth the firm's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
5. The firm'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.
6. Sexual Harassment Prevention Resources including training and remedies must be available to all employees. See Connecticut General Assembly Public Acts 19–16 and 19–93.

Recruitment:
When advertising for employees, the firm will include in all advertisements the notation; "An Affirmative Action/Equal Opportunity Employer." All such advertisements will be placed in

publications having a large circulation among minority groups in the area where the workforce would normally be derived.

1. The firm will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority and female applicants. To meet this requirement, the firm will identify referral sources and establish procedures for recruitment to obtain the referral of minority and female applicants.
2. In the event the firm has a valid bargaining agreement providing for exclusive hiring referrals, he/she is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The United States Department of Labor has held that where implementation of such agreements has had the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)
3. The firm will encourage his/her present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

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 an individual's race, color, religion, creed, sex, gender identity or expression, marital status, national origin, age, ancestry, status as a veteran, intellectual disability, mental disability, learning disability or physical disability, including but not limited to blindness, unless such disability prevents performance of the work involved. The following procedures shall be followed:

1. The firm will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of personnel.
2. The firm 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 correction action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
3. The firm shall periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
4. The firm will promptly investigate all complaints of alleged discrimination made to the firm 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 actions shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

Training and Promotion:

The firm will assist in locating, qualifying, and increasing the skills of minorities and women. The firm will utilize the following tools to identify training and promotional opportunities in the firm:

1. The firm will advise employees and applicants for employment of available training programs and the entrance requirements.
2. The firm will periodically review the training and promotion of minority group and female employees and will encourage eligible employees to apply for such training and promotion.

Unions:

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

1. The firm will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.
2. The firm will use best efforts to incorporate an EEO clause into each union agreement to the extent that such union will be contractually bound to refer applicants without regard to their to an individual's race, color, religion, creed, sex, gender identity or expression, marital status, national origin, age, ancestry, status as a veteran, intellectual disability, mental disability, learning disability or physical disability, including but not limited to blindness, unless such disability prevents performance of the work involved.
3. The firm is to obtain information as to the referral practices and policies of the labor union except that to the extent that such information is within the exclusive possession of the labor union and such labor union refuses to furnish the information to the contractor, the contractor shall notify the Connecticut Department of Transportation (CTDOT) of the efforts made to obtain the information.
4. In the event the union is unable to provide the firm with a reasonable flow of minority and women referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies. (The United States Department of Labor has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations under Executive Order 11246 as amended, and in compliance with 23 CFR Part 230, the firm will notify CTDOT.

Selection of Subcontractors:

The firm will not discriminate on the grounds race, color, religion, sex, sexual orientation, gender identity or expression, marital status, national origin, ancestry, age, intellectual disability, learning disability, physical disability, including, but not limited to, blindness, or status as a veteran in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

1. The firm shall use his/her best efforts to ensure subcontractor/subconsultant compliance with Federal and State Equal Opportunity (EO) and EEO requirements.

Records and Reports:

The Contractor shall keep records as necessary to document compliance with EO/EEO requirements. Such reports shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of CTDOT and/or the United States Department of Transportation. The following records should be maintained:

6. The number of minority and non-minority group members and women employed in each work classification;
7. The progress and efforts being made in cooperation with unions, when applicable to increase the employment opportunities for minorities and women;
8. The documentation showing progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and
9. Complaints of Discrimination.

In implementing this policy and ensuring that affirmative action is being provided, each time a hiring opportunity occurs this firm will contact and request referrals from minority and female organizations, referral sources, and media sources. All advertising will emphasize that the firm is "An Affirmative Action/Equal Opportunity Employer."

In order to substantiate this firm's efforts and affirmative actions to provide equal opportunity, the firm will maintain and submit, as requested, documentation such as referral request correspondence, copies of advertisements utilized and follow-up documentation to substantiate that efforts were made in good faith. This firm will maintain the necessary internal audit procedures and record keeping systems to report the firm's affirmative action efforts.

It is understood by Owner/CEO/President of the firm and the firm's Equal Employment Opportunity Officer and supervisory and managerial personnel that failure to effectively implement, monitor and enforce this firm's affirmative action program and/or failure to adequately document and submit as required, the affirmative actions taken and efforts made to recruit and hire minority and female applicants in accordance with our affirmative action program in each instance of hire, will result in this firm being required to recommit itself to a modified and more stringent affirmative action program as a condition of approval. It is recognized that this policy is a contractual requirement and is a prerequisite for performing services for the contracting agency. This policy in addition to CTDOT's EO/EEO contract provisions and requirements, shall constitute the CTDOT Affirmative Program requirements.

The ultimate responsibility for the full implementation of this firm's Affirmative Action Program rests with the Chief Executive Officer of this firm.

EXHIBIT E

(Federal wage rate package will be inserted at the end after State wages for the final executed contract only. Refer to NTC – Federal Wage Determinations)

EXHIBIT F
State Wages and Other Related Information

Please refer to the Department of Labor website for the latest updates, annual adjusted wage rate increases, certified payroll forms and applicable statutes.
http://www.ctdol.state.ct.us/wgwkstnd/prevailwage.htm

Prevailing Wage Law Poster Language

THIS IS A PUBLIC WORKS PROJECT Covered by the PREVAILING WAGE LAW CT General Statutes Section 31-53 If

you have QUESTIONS regarding your wages CALL (860) 263-6790

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE (applicable to public building contracts entered into on or after July 1, 2007, where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a bona fide student course completion card issued by the federal OSHA Training Institute; or (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in non-compliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.
Over the past few years, the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute. The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut, but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007, the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM
Construction Manager at Risk/General Contractor/Prime Contractor

I,_____of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

Subscribed and sworn to before me this_____day of_____,_____.

_____
Notary Public

Return to: Connecticut Department of Labor Wage & Workplace Standards Division 200 Folly Brook Blvd., Wethersfield, CT 06109

Rate Schedule Issued (Date):_____

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

ASBESTOS WORKERS

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

ASBESTOS INSULATOR

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

BOILERMAKERS

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in

other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

LABORER, CLEANING

• The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

DELIVERY PERSONNEL

• If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

• An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

ELECTRICIANS

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. *License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.

ELEVATOR CONSTRUCTORS

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ***License required by Connecticut General Statutes: R-1, 2, 5, 6.**

FORKLIFT 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 artwork and drywall hhg for any and all types of building and residential work.

LEAD PAINT REMOVAL

• Painter’s Rate 1. Removal of lead paint from bridges. 2. Removal of lead paint as preparation of any surface to be repainted. 3. Where removal is on a Demolition project prior to reconstruction. • Laborer’s Rate 1. Removal of lead paint from any surface NOT to be repainted. 2. Where removal is on a TOTAL Demolition project only.

PLUMBERS AND PIPEFITTERS

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ***License required per Connecticut General Statutes: P-1,2,6,7,8,9 J1,2,3,4 SP-1,2 S-**

1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.

POWER EQUIPMENT OPERATORS

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ***License required, crane operators only, per Connecticut General Statutes.**

ROOFERS

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (Demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be re-laid.)

SHEETMETAL WORKERS

Fabricate, assembles, installs and repairs sheet metal 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, facia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sunshades, 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.

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

 Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and (Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Rev. 7/1/19

SEE BELOW FOR STATE WAGE RATES

EXHIBIT E

INSERT FEDERAL WAGES HERE
EXHIBIT F

Minimum Rates and Classifications for
Heavy/Highway Construction

ID#: 25-11584

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: 0066-0110 Project Town: Hebron
State#: FAP#:
Project: Hebron Bridge Replacement

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	48.21	30.01
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	43.14	34.74
2) Carpenters, Piledrivermen	42.03	29.19
2a) Diver Tenders	42.03	29.19
2b) Divers Effluent	67.52	29.19
3) Divers	50.49	29.19
03a) Millwrights	43.25	29.13
03b) Carpenter-Welder	42.53	29.19
03c) Carpenter: Working with creosote lumber or acid	43.03	29.19

As of: November 10, 2025

4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	59.7	26.65
4a) Painters: Brush and Roller	39.57	26.50
4b) Painters: Spray	42.57	26.50
4bc) Painters: Spray Helper	40.57	26.50
4c) Painters: Steel Only	41.57	26.50
4d) Painters: Blast	44.57	26.50
4de) Painter: Blast Helper	40.57	26.50
4e) Painters: Tanks, Tower and Swingstage etc.	41.57	26.50
4f) Elevated Tanks (60 feet and above)	48.57	26.50
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)	48.25	35.22+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	45.25	43.62 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	50.58	36.30
----LABORERS---- -		
8) Group 1: General Laborers and concrete specialist	35.7	28.85

As of: November 10, 2025

8) Group 1a: Acetylene Burners (Hours worked with a torch)	36.7	28.85
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	35.95	28.85
10) Group 3: Pipelayers	36.2	28.85
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	36.2	28.85
12) Group 5: Toxic waste removal (non-mechanical systems)	37.7	28.85
13) Group 6: Blasters	37.45	28.85
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	38.7	28.85
Group 8: Traffic control signalmen	21.42	28.85
Group 9: Hydraulic Drills	36.45	28.85
Group 10: Toxic Waste Removers A or B With PPE	38.7	28.85
----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	37.93	28.85 + a
13b) Brakemen, Trackmen, Miners' Helpers and all other men	36.96	28.85 + a

----CLEANING, CONCRETE AND CAULKING TUNNEL----		
14) Concrete Workers, Form Movers, and Strippers	36.96	28.85 + a
15) Form Erectors	37.29	28.85 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers, Miners Helpers	36.96	28.85 + a
17) Laborers Topside, Cage Tenders, Bellman	36.85	28.85 + a
18) Miners	37.93	28.85 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	44.42	28.85 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	44.22	28.85 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	42.24	28.85 + a
21) Mucking Machine Operator, Grout Boss, Track Boss	45.01	28.85 + a
----TRUCK DRIVERS----(*see note below)		
Block Truck	37.48	32.68 + a

2 Axle	36.16	32.68 + a
Helpers	34.66	32.68 + a
Three Axle Trucks; Two Axle Mixer	36.27	32.68 + a
Three Axle Mixer	36.33	32.68 + a
Four Axle Trucks	36.39	32.68 + a
Four Axle Mixer	37.19	32.68 + a
5 Axle	36.39	32.68 + a
5 Axle Mixer	37.19	32.68 + a
Heavy Duty Trailer (40 tons and over)	38.66	32.68 + a
Heavy Duty Trailer (up to 40 tons)	37.39	32.68 + a
Snorkle Truck	36.54	32.68 + a
Swivel Dump and Tack Truck	36.39	32.68 + a
Euclids and Semi Trailer	36.44	32.68 + a

----POWER EQUIPMENT OPERATORS----

Group 1: Crane Handling or Erecting Structural Steel or Stone, Hoisting Engineer (2 drums or over). (Trade License Required)	58.19	29.80 + a
Group 1a: Front End Loader (7 cubic yards or over); Work Boat 26 ft. and over.	53.33	29.80 + a
Group 2: Cranes (100 ton rate capacity and over); Bauer Drill/Caisson. (Trade License Required)	57.78	29.80 + a
Group 2a: Cranes (under 100 ton rated capacity).	56.79	29.80 + a
Group 2b: Excavator over 2 cubic yards; Pile Driver ($3.00 premium when operator controls hammer).	52.92	29.80 + a
Group 3: Excavator; 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)	51.92	29.80 + a
Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper).	51.42	29.80 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" mandrel)	50.63	29.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	50.63	29.80 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	50.22	29.80 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under Mandrel)	49.77	29.80 + 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.	49.25	29.80 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder), Vacuum Excavation Truck and Hydrovac Excavation Truck (27 HG pressure or greater).	48.67	29.80 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	45.96	29.80 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	45.96	29.80 + a
Group 12: Wellpoint Operator.	45.87	29.80 + a
Group 13: Compressor Battery Operator.	45.12	29.80 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	43.6	29.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	43.06	29.80 + a
Group 16: Maintenance Engineer.	42.2	29.80 + a
Group 17: Portable Asphalt Plant Operator; Portable Crusher Plant Operator; Portable Concrete Plant Operator., Portable Grout Plant Operator, Portable Water Filtration Plant Operator.	47.91	29.80 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	44.7	29.80 + a
Surveyor: Chief of Party	48.16	29.80 + a
Surveyor: Assistant Chief of Party	44.41	29.80 + a

As of: November 10, 2025

Surveyor: Instrument Man	42.73	29.80 + a
Surveyor: Rodman or Chairman	36.78	29.80 + a

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----

20) Lineman, Cable Splicer, Technician	59.91	34.00
21) Heavy Equipment Operator	53.92	31.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	50.92	30.84
23) Driver Groundmen	44.93	28.47
23a) Groundman Experienced	32.95	13.99

----OUTSIDE LINE CONSTRUCTION----

24) Driver Groundmen	43.78	28.42
25) Groundmen	32.1	13.95
26) Heavy Equipment Operators	52.53	31.83
27) Linemen, Cable Splicers, Dynamite Men	58.37	33.94

28) Material Men, Tractor Trailer Drivers, Equipment Operators	49.61	30.79
29) Technician	56.12	32.85
----COMMUNICATION----		
Sales & Service Technician: To include but not limited to: Installation, Repair, Splicing and Maintenance	48.84	18.07
----DREDGING----		
Class A1: Mechanical Dredge Operator	48.48	17.32+a+b
Class B1: Maintenance Engineer	41.93	16.87+a+b
Class C1: Mate/Welder	38.38	16.62+a+b
Class D: Deckhand	30.86	16.09+a+b

Welders: Rate for craft to which welding is incidental.
Surveyors: Hazardous material removal: $3.00 per hour premium.
*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.
Truck Drivers: Trainers Premium: $3.00 over wage rate.
Truck Drivers: Night Premium - Mixer Drivers: $2.00 over wage rate.

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

As of: November 10, 2025

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work ~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.
Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.
The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.
The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.
All subsequent annual adjustments will be posted on our Web Site for contractor access.
Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~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: November 10, 2025

21 Griffin Rd. North
Windsor, CT 06095

T 860.298.9692
TRCcompanies.com

June 30, 2025

Mr. Jason Coite P.E.
Principal Engineer
Division of Environmental Compliance
Bureau of Engineering and Construction
State of Connecticut Department of Transportation
2800 Berlin Turnpike, P.O. Box 317546
Newington, CT 06131-7546

Attention: Michael Bedson, P.E. / Mandy Socolosky

Subject: On-Call Asbestos, Lead, Air Quality & Demolition Compliance
Agreement No. 10.04-02 (23)
HazMat Inspection – Replacement of Bridge No. 04695, Old Colchester Road over Raymond Brook, Hebron, Connecticut
ConnDOT Assignment No. 524-8521
ConnDOT Project No. 66-110
TRC Project No. 501871.8521.0710

Dear Mr. Coite:

TRC performed a limited hazardous materials site investigation associated with the replacement of Bridge No. 04695, Old Colchester Road over Raymond Brook, Amston, CT. No painted surfaces were identified at Bridge No. 04695; therefore, no lead paint was identified. Suspect asbestos black culvert mastic lining the interior of the corrugated metal culvert pipes was sampled and found to be a non-asbestos containing material. No other hazardous/regulated items, bird/pigeon guano, or homeless activity/bloodborne pathogens were identified in the accessible areas of Bridge No. 04695.

Laboratory results and TRC Mobile Data Solutions report are attached.

If you have any questions, please call TRC at (860) 298-9692.

Very Truly Yours,

TRC

Stephen R. Arienti, CHMM
New England Regional Practice Leader – Engineer in Charge

Erik R. Plimpton, P.E., CHMM, CMC
Vice President – Engineer in Charge

Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

BULK ASBESTOS ANALYSIS REPORT

CLIENT: CT Department of Transportation

Lab Log #: 0067475
Project #: 501871.8521.0710
Date Received: 06/17/2025
Date Analyzed: 06/17/2025

Site: Bridge 04695, 293-303, Old Colchester Road, Amston, CT

POLARIZED LIGHT MICROSCOPY by EPA 600/R-93/116

Sample No.	Sample Location	Homogeneous Material Description	Other Matrix Materials	Asbestos %	Asbestos Type
1	Left side culvert	Black CM1 - interior culvert mastic	- - -	ND	None
2	Right side culvert	Black CM1 - interior culvert mastic	- - -	ND	None

ND - asbestos was not detected
Trace - asbestos was observed at level of 1% or less - This is the reporting limit
NA/PS - Not Analyzed / Positive Stop
SNA - Sample Not Analyzed- See Chain of Custody for details
Notes: Asbestos-Containing Material (ACM) is any material containing more than 1% asbestos

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, EPA recommends, and certain states (e.g. NY) require, that negative results be confirmed by quantitative transmission electron microscopy.

The Laboratory at TRC follows 18/01A EPA -- 40 CFR Appendix E to subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples and 18/A03 EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials which utilize polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 101424-01. TRC is accredited by the AIHA Laboratory Accreditation Programs AIHA LAP (ID: LAP-100122) in the Industrial Hygiene Program (IHLAP) for PLM. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and QC data related to the samples is available upon written request from client.

This report shall not be reproduced, except in full, without the written approval of TRC. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report relates only to the items tested, as received by the laboratory.

Analyzed by: Najaat Bhura, Quality Manager

Reviewed by Kathleen Williamson, Laboratory Manager

Date Issued 06/17/2025

TRC
21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

Edition: October 2009
Supersede Previous Edition

LAB ID #. 67475

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
501871.8521.0710	ConnDOT — Bridge 04695, 293-303 Old Colchester Rd, Amston, Connecticut		PLM: 8hr 24hr X 48hr 3day TEM: 24hr X 48hr 3day 5day
SIGNATURE	INSPECTOR		
	Hugh Crundwell		

FIELD SAMPLE NUMBER	DATE	TIME	TYPE COMP	TYPE GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM EPA 600/R93/116 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
1	6/17/2025	13:01		X	Left side culvert	X				X	CM1 - Black interior culvert mastic
2	6/17/2025	13:02		X	Right side culvert	X					CM1 - Black interior culvert mastic

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
	6/17/25	6/17/25 @ 1400			
(Printed) Hugh Crundwell	Time: 1:17pm	(Printed) Najaat Bhuta	(Printed)	Time:	(Printed)

Remarks:

Condition of Samples: _____
Acceptable: Yes ✓ No _____
Comments:

EMSL

528 Mineola Ave, Carle Place, NY 11514
TEM Bulk Chain of Custody Record

Date: 06/17/2025

PO#: **C501871** Analysis Type: **TEM EPA N.O.B**
Client: TRC
Client Job#: 501871.8521.0710
Client Job Ref./Loc.: CT DOT- Bridge 4695, 293-303, Old Colchester Road, Amston, CT
Relinquished by: N. Bhura
Received by:
Report to: KWilliamson@trccompanies.com; SArienti@trccompanies.com; EPlimpton@trccompanies.com; KGraff@trccompanies.com; DCarillo@trccompanies.com; MKostruba@trccompanies.com
Samplers Name: H. Crundwell

Turnaround Time: <12 Hour **<**24 Hour **<48 Hour** <3 Day 5 Day **Other:**

				For Lab Use Only	
Client ID #	**Lab ID#**	**Description**	**Location**	**Acceptable on Receipt**	**Comments**
1	67475	Interior culvert mastic	See COC		

For Lab Use Only	# Spies	Total	Client #	Batch #	Results Reported	Comments

EMSL Analytical, Inc.
528 Mineola Avenue Carle Place, NY 11514
Tel/Fax: (516) 997-7251 / (516) 997-7528
http://www.EMSL.com / carleplacelab@emsl.com

EMSL Order: 062506673
Customer ID: TRC51
Customer PO: 501871.8521.071
Project ID:

Attention: Kathleen Williamson
TRC Environmental Consultants
21 Griffin Road North
Windsor, CT 06095

Phone: (860) 298-9692
Fax: (860) 298-6399
Received Date: 06/18/2025 10:25 AM
Analysis Date: 06/19/2025
Collected Date: 06/17/2025

Project: ConnDOT- Bridge 04695,, 293-303, Old Colchester Rd, Amston, Conneticut; Project #: 501871.8521.0710

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
1 *062506673-0001*	Left Side Culvert - CM1-Black Interior Culvert Mastic	Black Non-Fibrous Heterogeneous	100.0 Other	None	No Asbestos Detected

Analyst(s)

Keith McWilliams (1)

Daniel Clarke, Asbestos Laboratory Manager
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. EMSL recommends that samples reported as none detected or <1% undergo additional analysis via PLM to avoid the possibility of false negatives.

Samples analyzed by EMSL Analytical, Inc. Carle Place, NY

Initial report from: 06/20/2025 09:30:11

062506673

TRC

21 GRIFFIN ROAD NORTH
WINDSOR, CONNECTICUT 06095
TELEPHONE (860) 298-9692
FAX (860) 298-6380

ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

Edition: October 2
Supersede Previous Edi

LAB ID #. 67475

PROJECT NUMBER	PROJECT NAME	PARAMETERS	TURNAROUND TIME
501871.8521.0710	ConnDOT — Bridge 04695, 293-303 Old Colchester Rd, Amston, Connecticut		PLM: 8hr 24hr X 48hr 3day TEM: 24hr X 48hr 3day 5day
SIGNATURE	INSPECTOR		
	Hugh Crundwell		

FIELD SAMPLE NUMBER	DATE	TIME	TYPE COMP	TYPE GRAB	SAMPLE LOCATION	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM EPA 600/R93/116 (w/ gravimetric reduction) (POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 198.4 (IF PLM SERIES NEG)	MATERIAL
1	6/17/2025	13:01		X	Left side culvert	X				X	CM1 - Black interior culvert mastic
2	6/17/2025	13:02		X	Right side culvert	X					CM1 - Black interior culvert mastic

Page 1 Of 2

RECEIVED
ENSL ANALYTICAL, INC.
Carle Place, NY
JUN 18 25, AM10:25

Relinquished by: (Signature)	Date:	Received by: (Signature)	Relinquished by: (Signature)	Date:	Received by: (Signature)
	6-17-25	6/17/25 @ 1400		6/18/25	
(Printed)	Time:	(Printed)	(Printed)	Time:	(Printed)
Hugh Crandall	1:17pm	Najaat Bhura		10:25AM	Gabriela Razza

Remarks:

Condition of Samples:
Acceptable: Yes ✓ No
Comments:

Page 1 of 1

OrderID: 062506673

062506673

EMSL

528 Mineola Ave, Carle Place, NY 11514
TEM Bulk Chain of Custody Record

Date: 06/17/2025

PO#: **C501871**
Client: TRC
Client Job#: 501871.8521.0710
Client Job Ref./Loc.: CT DOT- Bridge 4695, 293-303, Old Colchester Road, Amston, CT
Relinquished by: N. Bhura
Received by:
Report to: KWilliamson@trccompanies.com; SArienti@trccompanies.com; EPlimpton@trccompanies.com; KGraff@trccompanies.com; DCarillo@trccompanies.com; MKostruba@trccompanies.com
Samplers Name: H. Crundwell

Analysis Type: **TEM EPA N.O.B**

Turnaround Time: <12 Hour <24 Hour **<48 Hour** <3 Day 5 Day **Other:**

				For Lab Use Only	
Client ID #	**Lab ID#**	**Description**	**Location**	**Acceptable on Receipt**	**Comments**
1	67475	Interior culvert mastic	See COC		
					RECEIVED
					EMSL ANALYTICAL, INC.
					Carle Place, NY
					JUN 18 25 AM10:25

For Lab Use Only	# Spies	Total	Client #	Batch #	Results Reported	Comments

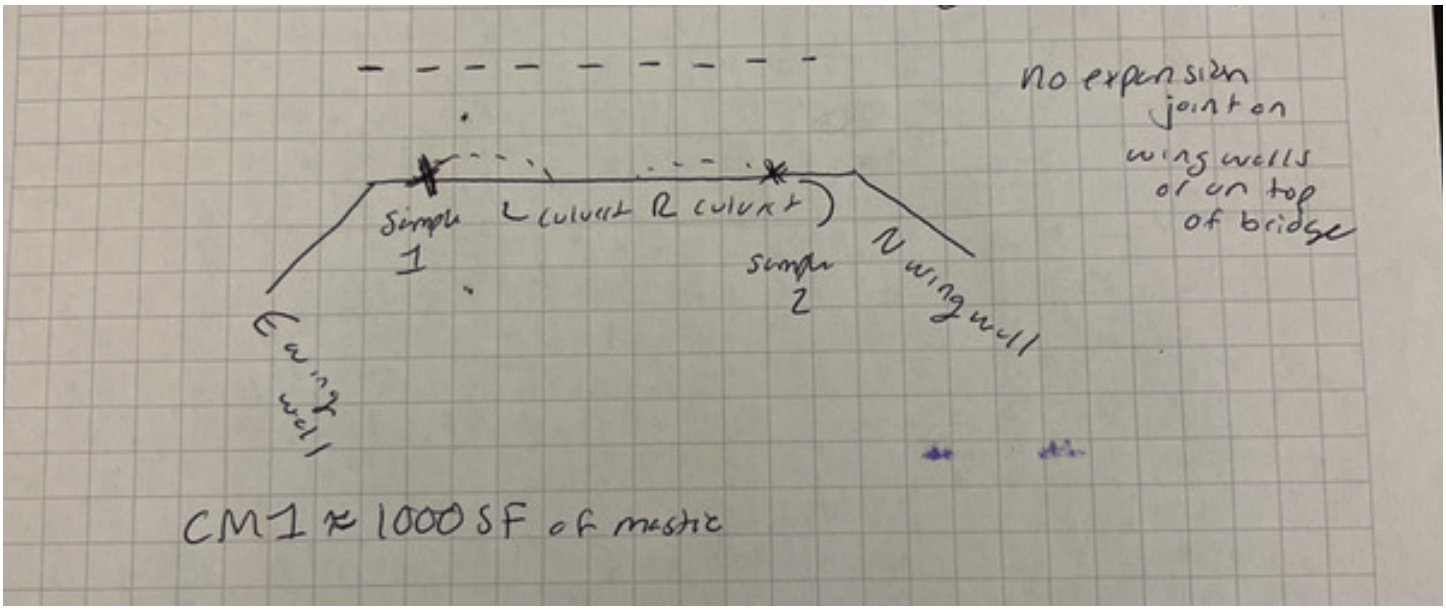
Page 2 Of 2

OrderID: 062506673

SIH - WinSIH HBM Survey

ConnDOT, Bridge 04695, 293-303 Old Colchester Rd Amston Connecticut 06231 US

6/17/2025, 6:17:45 PM UTC



CREATED

6/17/2025, 1:38:38 PM UTC
by Hugh Crundwell

UPDATED

6/17/2025, 6:17:45 PM UTC
by Najaat Bhura

STATUS

Complete

ASSIGNED TO

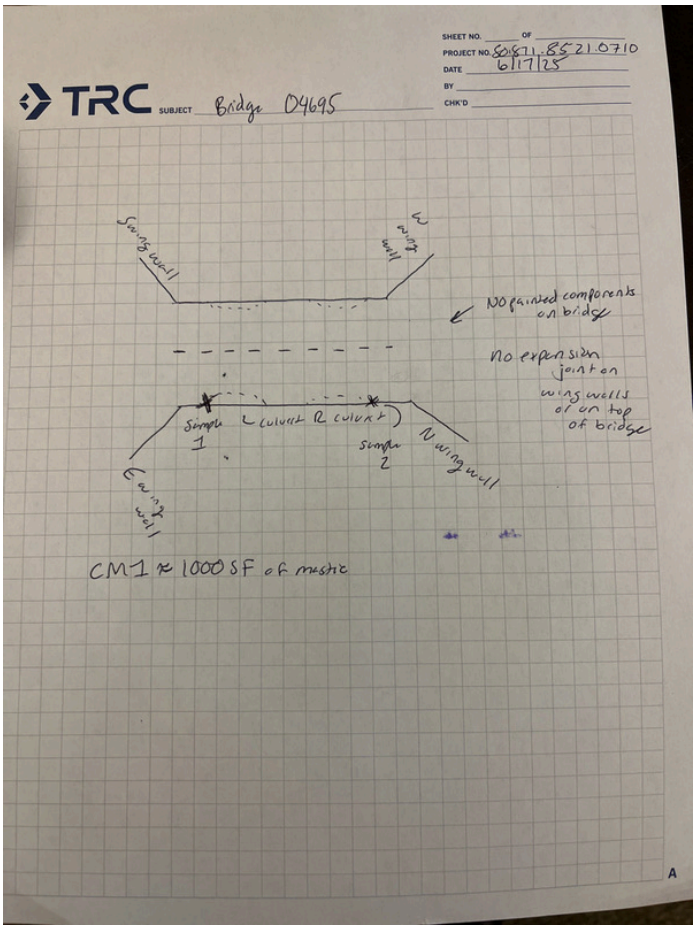
No Assignment

POWERED BY Fulcrum WWW.FULCRUMAPP.COM

JOB INFORMATION

Site Name	Bridge 04695
Address	293-303 Old Colchester Rd Amston Connecticut 06231 US
TRC Project Number	501871.8521.0710
Project Manager	Stephen Arienti, Erik Plimpton
Inspector(s)	Hugh Crundwell
Client	ConnDOT
Type of Asbestos Survey	Reno/Demo

Site Sketch Diagrams



Additional Analysis for NOB Materials (Calc)	TEM NY NOB 198.4
PLM Turnaround Time (TAT)	48-hour
TEM Turnaround Time (TAT)	48-hour
Date	June 17, 2025
General Notes	No painted materials on bridge

POWERED BY Fulcrum WWW.FULCRUMAPP.COM

Overview Photo









POWERED BY Fulcrum
WWW.FULCRUMAPP.COM



Options & Other Settings

Use auto-numbering?	No
Auto-fill gaps?	Yes
Alert user about missing site sketch?	Yes

SURVEYS PERFORMED	Asbestos, XRF, Bridge/Signs/Light Pole/Traffic Signal Items

Asbestos Survey

Materials & Samples (1 Item)

Materials & Samples - 1. (2) Samples #1–2: CM1–Black interior culvert mastic

Sample Information

Asbestos Samples (2 Items)

POWERED BY Fulcrum WWW.FULCRUMAPP.COM

Asbestos Samples - 1. Sample #1: CM...Left side culvert

Sample Number	1
Sample Location	Left side culvert
Asbestos Bulk Analysis	PLM EPA 600/R93/116
Grab or Composite	Grab
Date	June 17, 2025
Time	13:01
Sample Location Photo	

Asbestos Samples - 2. Sample #2: CM...Right side culvert

Sample Number	2
Sample Location	Right side culvert
Asbestos Bulk Analysis	PLM EPA 600/R93/116
Grab or Composite	Grab
Date	June 17, 2025
Time	13:02
Sample Location Photo	

Material Information

Sampled or Assumed?	Sampled
Material Acronym	CM1
Material Description	Black interior culvert mastic
Material Color	Black

POWERED BY Fulcrum WWW.FULCRUMAPP.COM

Representative Photos





Analyze by layer?	No
Is material non-friable organically bound (NOB)?	Yes
Homogeneous Area	
Total Approximate Quantity	1000SF
Notes	

XRF Survey

Niton XRF Model No.	
XRF Survey Completed	N/A
XRF Data Downloaded	N/A
XRF Shots >1.0 on non-metallic building materials	No
Date Data Downloaded	

Bridge/Signs/Light Pole/Traffic Signal Item Inventory

Items (1 Item)

Items - 1. 04695

Bridge/Sign/Light Pole/Traffic Signal No.	04695
General Notes	No HazMat materials
Accessibility	Accessible
Paint on Structure (s)?	No

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Suspect Asbestos Containing Materials Identified on Structure	Yes
Guano Present?	No
Homeless Activity	No
Bloodborne Pathogen Concerns?	No
Mice/Mouse Nests/Droppings	No

LAB & SAMPLE SUBMISSION INFO

Signature	

Asbestos Bulk Samples

Remarks to be added to the CoC	
Asbestos samples submitted to TRC lab?	Yes
Date Submitted to Lab	June 17, 2025
Asbestos bulk sample CoC data electronically sent to lab yet?	Yes
Asbestos bulk sample results reviewed?	No

REPORT CREATION

Select one or more documents below to be generated. Once completed in the cloud, they will be sent to the listed email address.	
NOTE: Asbestos bulk sample CoC data must now be sent electronically to the lab by selecting "Asbestos chain-of-custody - Send to Lab" from the list below.	
What documents should be generated?	Asbestos chain-of-custody, Asbestos chain-of-custody - Send to Lab, Photographs, Photo Log > Asbestos Samples
Generate Documents	

PROJECT STATUS TRACKING

Has this survey been completed?	Yes
Has the report been written?	No
Has the report been reviewed?	No

POWERED BY Fulcrum WWW.FULCRUMAPP.COM

PROJECT 0066-0110
REPLACEMENT OF BRIDGE NO. 04695
TOWN OF HEBRON

Last Updated: 02/09/2024

Project Location
Old Colchester Road over Raymond Brook

Purpose and Need
Bridge No. 04695 is in serious condition with its culvert condition rating of 3. There is heavy rust with areas of deep pitting and thinning along the entire length of both pipes up to approximately 18 inches high. Pipe 1 (southern) exhibits perforations up to 3 inches in diameter along the ordinary high water line and bottom plates near the outlet. Pipe 2 (northern) exhibits a 14-foot long area of perforations up to 3-inches in diameter along the ordinary high water line and along the bottom plates near the inlet. Near the midspan of the pipe are perforations up to 3.5-inches in diameter with fines filtering through. The concrete block headwalls exhibit random vertical cracks, mortar joints with random voids and efflorescence and deterioration along the top of the metal pipe arches.

Scope of Work

Existing Bridge: **Type:** Twin (11'-7"W x 7'-5"H) Corrugated Metal Pipe Arches

Length/Spans: 27'/2 spans **Width:** 25'-8" C-C; 28'-9" O-O **Year Built:** 1956

Proposed Bridge: **Type:** AASHTO concrete slabs on file supported Integral Abutments

Length/Spans: 42'/1 span **Width: 27' c-c, 30'-6" 0-0**



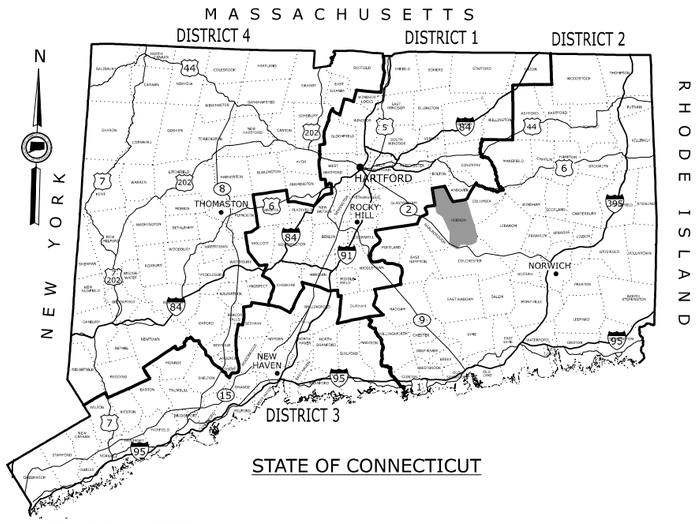


Project Manager	Marc P. Byrnes	**Anticipated Construction Start Date**	Fall 2025	**Anticipated Construction Completion Date**	Fall 2026	**Total Project Cost**	$3,222,500

TOWN OF HEBRON, CT.

Plans For

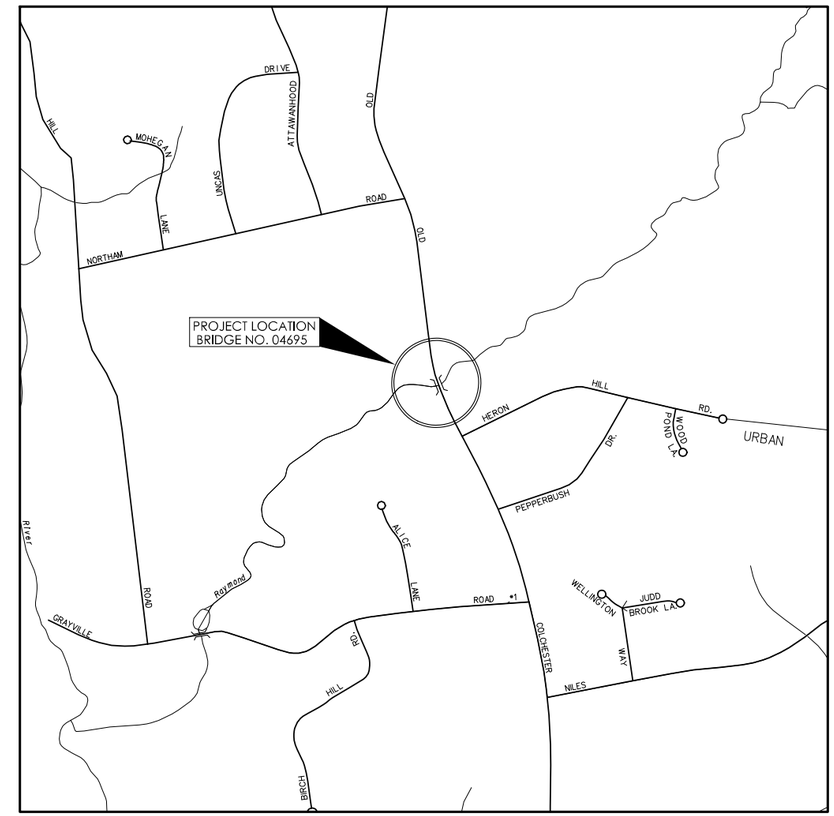
REPLACEMENT OF BRIDGE NO. 04695
OLD COLCHESTER ROAD
OVER RAYMOND BROOK



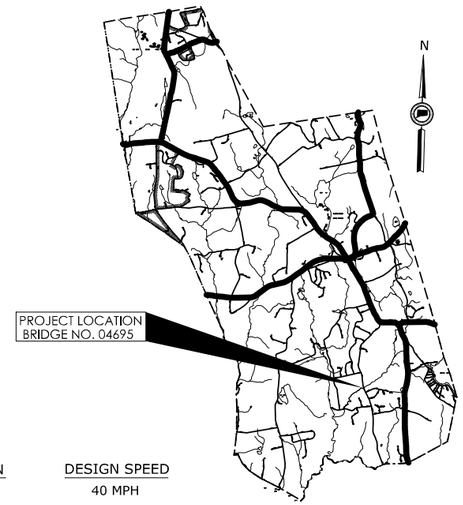
STATE OF CONNECTICUT

ROAD	MAINTENANCE RESPONSIBILITY	LENGTH
OLD COLCHESTER ROAD	TOWN	325 FEET

F.A.P. #	MAINTENANCE RESPONSIBILITY	PROJECT #
6066 (004)	TOWN	0066-0110



LOCATION PLAN
NOT TO SCALE



HEBRON
CONNECTICUT
N.T.S.

GENERAL NOTES:

1. FEDERAL AID PROJECT NO. 6066 (004)
2. CONSTRUCTION SPECIFICATIONS:
   Connecticut Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 819, dated 2024 with Supplements dated January 2025; and Special Provisions
3. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1927 N.A.D. 1983
4. VERTICAL DATUM BASED ON NGVD OF 1929 NAVD 1988
5. Surveyed By: CTDOT DISTRICT 2 SURVEYS

DISCLAIMER:

IT IS THE RESPONSIBILITY OF EACH BIDDER AND ALL OTHER INTERESTED PARTIES TO OBTAIN ALL BIDDING RELATED INFORMATION AND DOCUMENTS FROM OFFICIAL SOURCES WITHIN THE DEPARTMENT.

PERSONS AND/OR ENTITIES WHICH REPRODUCE AND/OR MAKE SUCH INFORMATION AVAILABLE BY ANY MEANS ARE NOT AUTHORIZED BY THE DEPARTMENT TO DO SO AND MAY BE LIABLE FOR CLAIMS RESULTING FROM THE DISSEMINATION OF UNOFFICIAL, INCOMPLETE AND/OR INACCURATE INFORMATION.

LIST OF SUBSETS

*THE INITIAL SUBSET SHEET COUNT DOES NOT INCLUDE ADDENDUM AND CHANGE ORDERS

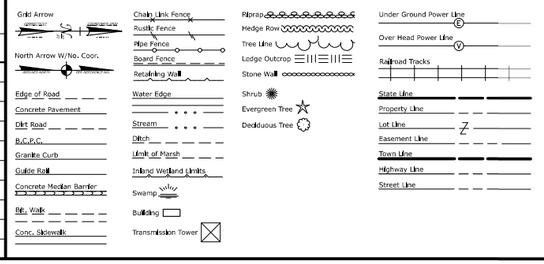
SUBSET NO.	SUBSET TITLE	*SUBSET SHEET COUNT
#01	GENERAL	3
#02	REVISIONS	1
#03	HIGHWAY	12
#04	STRUCTURE	27
#05	TRAFFIC	6
#07	ENVIRONMENTAL	3
	HIGHWAY STANDARD SHEETS	16
	TRAFFIC STANDARD SHEETS	8

ROAD (ADT)	FUNCTIONAL CLASSIFICATION	DESIGN SPEED
OLD COLCHESTER ROAD (485)	RURAL - LOCAL ROAD	40 MPH

LIST OF DRAWINGS
SUBSET 01 - GENERAL

DRAWING TITLE	DRAWING NO.
TITLE SHEET	G-1
DETAILED ESTIMATE SHEET	G-2
DETAILED ESTIMATE SHEET	G-3

STANDARD CONVENTIONS



THE DESIGN APPEARS TO CONFORM TO APPLICABLE CRITERIA. APPROVAL IS NOT TO BE CONSTRUED TO MEAN THAT ALL ASPECTS OF THE DESIGN HAVE BEEN PERSONALLY CHECKED BY THE UNDERSIGNED.

STATE OF CONNECTICUT
EUGENE W. McCARTHY
No. 27145
LICENSED PROFESSIONAL ENGINEER

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

Plans For
REPLACEMENT OF BRIDGE NO. 04695
OLD COLCHESTER ROAD
OVER RAYMOND BROOK

Town of
HEBRON

STATE PROJECT NO.
0066-0110

DRAWING NO.
G-1

SHEET NO.
01.01

HIGHWAY ITEMS

ITEM NUMBER	0101000A	0101126A	0201001	0202000	0202315A	0202529	0204151A	0207000	0209001	0212000	0213100	0219001	0219011A	0286001.10	0305000	0406170	0406171	0406238	0406305A	0586001.10	0586500.10	0686000.15	0686015.15	0686230.24	0686700.15	0686950.10	0815001	0822100.01	0912503A	0921005	0921022A	0921048	0922503A	0939001	0940001	0944100	0950005	0952051A	0960602A
ITEM	ENVIRONMENTAL HEALTH AND SAFETY	SECURING, CONSTRUCTION AND DISMANTLING OF A WASTE STOCKPILE AND TREATMENT AREA	CLEARING & GRUBBING	EARTH EXCAVATION	DISPOSAL OF CONTROLLED MATERIALS	CUT BITUMINOUS CONCRETE PAVEMENT	HANDLING WATER	BORROW	FORMATION OF SUBGRADE	SUBBASE	GRANULAR FILL	SEDIMENTATION CONTROL SYSTEM	SEDIMENT CONTROL SYSTEM AT CATCH BASIN	ROCK IN DRAINAGE TRENCH EXCAVATION 0'-10' DEEP	PROCESSED AGGREGATE	HMA S1	HMA S0.5	NON-TRACKING ASPHALT TACK COAT	SAWING AND SEALING JOINTS	TYPE "C" CATCH BASIN 0'-10' DEEP	MANHOLE - 0'-10' DEEP	15" R.C. PIPE - 0' - 10' DEEP	RELAID 15" R.C. PIPE - 0'-10' DEEP	24" HIGH DENSITY POLYETHYLENE PIPE - 0' - 10' DEEP	15" REINFORCED CONCRETE DRAINAGE PIPE END	REMOVE EXISTING PIPE - 0'-10' DEEP	BITUMINOUS CONCRETE LIP CURBING	TEMPORARY TRAFFIC BARRIER	REMOVE METAL BEAM RAIL	CONCRETE SIDEWALK RAMP	STONEDUST PATHWAY	DETECTABLE WARNING SURFACE	GRAVEL DRIVEWAY	SWEEPING FOR DUST CONTROL	WATER FOR DUST CONTROL	FURNISHING AND PLACING TOPSOIL	TURF ESTABLISHMENT	CONTROL AND REMOVAL OF INVASIVE VEGETATION	CONSTRUCTION FIELD OFFICE, MEDIUM
UNIT	LS	LS	LS	CY	TON	LF	LS	CY	SY	CY	CY	LF	EA	CY	TON	TON	TON	GAL	LF	EA	EA	LF	LF	LF	EA	LF	LF	LF	LF	SF	SF	SF	SY	HR	M.GA	SY	SY	SY	MO
BRIDGE NO. 04695	1	1	1	500	1325	60	1	50	725	250	10	400	3	50	55	180	180	60	60	3	1	110	24	40	1	110	230	80	180	80	200	24	140	140	1	480	480	1100	10
SUBTOTAL	1	1	1	500	1325	60	1	50	725	250	10	400	3	50	55	180	180	60	60	3	1	110	24	40	1	110	230	80	180	80	200	24	140	140	1	480	480	1100	10
UNASSIGNED																																							
TOTAL	1	1	1	500	1325	60	1	50	725	250	10	400	3	50	55	180	180	60	60	3	1	110	24	40	1	110	230	80	180	80	200	24	140	140	1	480	480	1100	10

HIGHWAY ITEMS — TRAFFIC ITEMS

ITEM NUMBER	0970007	0975004	0980020	0971001A	0971204A	0976002	0976002	0976003	0981100	1116012A	1206013	1206931A	1206937A	1210102	1210105	1220027A
ITEM	TRAFFIC PERSON (UNIFORMED FLAGGER)	MOBILIZATION AND PROJECT CLOSEOUT	CONSTRUCTION SURVEYING	MAINTENANCE AND PROTECTION OF TRAFFIC	MAINTENANCE PEDESTRIAN ACCESS	BARRICADE WARNING LIGHTS - HIGH INTENSITY	TRAFFIC DRUM	CONSTRUCTION BARRICADE TYPE III	42" TRAFFIC CONE	REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT	REMOVAL OF EXISTING SIGNING	SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)	SIGN FACE - SHEET ALUMINUM (TYPE XI RETROREFLECTIVE SHEETING)	4in YELLOW EPOXY RESIN PAVEMENT MARKINGS	EPOXY RESIN PAVEMENT MARKINGS, SYMBOLS AND LEGENDS	CONSTRUCTION SIGNS
UNIT	HR	LS	LS	LS	LS	DAY	EA	EA	EA	LS	LS	SF	SF	LF	SF	SF
BRIDGE NO. 04695	250	1	1	1	1	1200	25	8	25	1	1	6	3	700	118	390
SUBTOTAL	250	1	1	1	1	1200	25	8	25	1	1	6	3	700	118	390
UNASSIGNED																
TOTAL	250	1	1	1	1	1200	25	8	25	1	1	6	3	700	118	390

REV. | DATE | REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/ BLOCK:

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: DETAILED ESTIMATE SHEET

DRAWING NO. G-2
SHEET NO. 01.02

LASTED SAVED BY: MDoreo **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Highways\Contract_Plans\HW_CP_0066_0110_GeneralSubSet.dgn
PLOTTED DATE: 11/22/2025

STRUCTURES ITEMS

ITEM NUMBER	0202216A	0203000	0213100	0216000	0406171	0406173	0406303A	0406312A	0503866A	0514203	0514223	0521001	0601062	0601064	0601068A	0601118	0601121	0601122	0601123	0601502	0601504	0602030	0603474A	0703010	0706001	0706002	0706003	0706004	0707039A	0708001	0819002A	0904051A	1206934A			
ITEM	EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL	STRUCTURE EXCAVATION - EARTH (COMPLETE)	GRANULAR FILL	PERVIOUS STRUCTURE BACKFILL	HMA S0.5	HMA S0.25	SAWING AND SEALING JOINTS	GUTTER LINE SEALING FOR BRIDGES	REMOVAL OF EXISTING CULVERT (SITE NO. 1)	PRESTRESSED DECK UNITS (3'-0" X 1'-6")	PRESTRESSED DECK UNITS (4'-0" X 1'-6")	ELASTOMERIC BEARING PADS	FOOTING CONCRETE	ABUTMENT AND WALL CONCRETE	CONCRETE FORM LINERS	BRIDGE DECK CONCRETE	PARAPET CONCRETE	BRIDGE SIDEWALK CONCRETE	APPROACH SLAB CONCRETE	1/2" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES	1" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES	DEFORMED STEEL BARS - GALVANIZED	METALLIZING STRUCTURAL STEEL (SITE NO. 1)	STANDARD RIPRAP	MICROPILES	VERIFICATION TEST FOR MICROPILES	PROOF TEST FOR MICROPILES	MICROPILE LENGTH ADJUSTMENT	MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)	DAMPPROOFING	PENETRATING SEALER PROTECTIVE COMPOUND	3 TUBE CURB MOUNTED BRIDGE RAIL	SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)			
UNIT	C.Y.	C.Y.	C.Y.	C.Y.	TON	TON	L.F.	L.F.	LS	L.F.	L.F.	C.I.	C.Y.	C.Y.	S.F.	C.Y.	L.F.	C.Y.	C.Y.	S.F.	S.F.	LB.	LS	C.Y.	EA.	EA.	EA.	L.F.	S.Y.	S.Y.	S.Y.	L.F.	S.F.			
BRIDGE NO. 04695	50	630	100	410	28	14	108	99	1	140	326	7150	39	155	185	45	69	18	42	160	22	57000	1	250	18	2	2	180	240	165	136	78	2			
SUBTOTAL	50	630	100	410	28	14	108	99	1	140	326	7150	39	155	185	45	69	18	42	160	22	57000	1	250	18	2	2	180	240	165	136	78	2			
UNASSIGNED																																				
TOTAL	50	630	100	410	28	14	108	99	1	140	326	7150	39	155	185	45	69	18	42	160	22	57000	1	250	18	2	2	180	240	165	136	78	2			

ITEM NUMBER																																				
ITEM																																				
UNIT																																				
SUBTOTAL																																				
UNASSIGNED																																				
TOTAL																																				

REV. | DATE | REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/ BLOCK:

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: DETAILED ESTIMATE SHEET

DRAWING NO. G-3
SHEET NO. 01.03

LASTED SAVED BY: MDoreo **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Highways\Contract_Plans\HW_CP_0066_0110_GeneralSubSet.dgn
PLOTTED DATE: 11/22/2025

REV. No.	SHEET No.	DATE mm/dd/yy	NEW	REV.	DEL.	DESCRIPTION	BY	REV. No.	SHEET No.	DATE mm/dd/yy	NEW	REV.	DEL.	DESCRIPTION	BY	REV. No.	SHEET No.	DATE mm/dd/yy	NEW	REV.	DEL.	DESCRIPTION	BY

SIGNATURE/ BLOCK:



McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: LIST OF REVISIONS

DRAWING NO. REV-1
SHEET NO. 02.01

LASTED SAVED BY: CalkinsMJ **FILE NAME:** C:\Users\calkinsmj\Desktop\CT_CGR_CPS__02-Revisions Sheet.dgn
PLOTTED DATE: 6/30/2021

SUBSET 03 - HIGHWAY
INDEX OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
INX-01	INDEX OF DRAWINGS	XSC-01 TO XSC-04	OLD COLCHESTER ROAD CROSS SECTIONS
TYP-01	TYPICAL SECTIONS	SPM-01	SIGNING AND PAVEMENT MARKING PLAN
MDS-01 TO MDS-02	MISCELLANEOUS DETAILS	TR-1205_01	DELINEATION, DELINEATORS AND OBJECT MARKER DETAILS
PLN-01	HIGHWAY PLAN		
PRO-01	HIGHWAY PROFILE		

DESIGNED BY:
CONSULTANT COMPANY NAME

STATE OF CONNECTICUT · EUGENE W. McCARTHY · No. 27145 · LICENSED PROFESSIONAL ENGINEER

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT · EUGENE W. McCARTHY · No. 27145 · LICENSED PROFESSIONAL ENGINEER

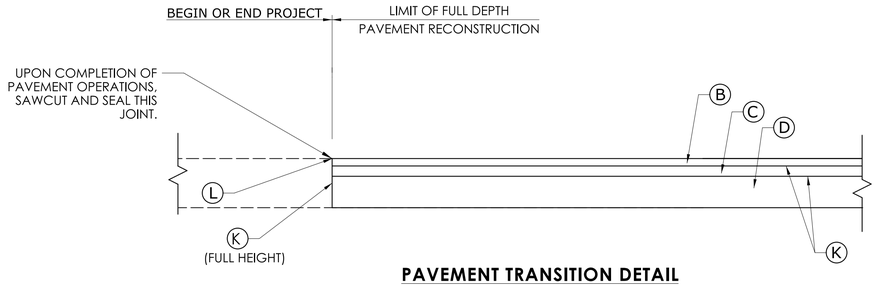
McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

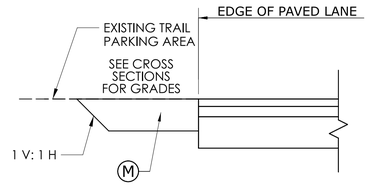
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TOWN(S): HEBRON
DRAWING TITLE: INDEX OF DRAWINGS

DRAWING NO. INX-01
SHEET NO. 03.01

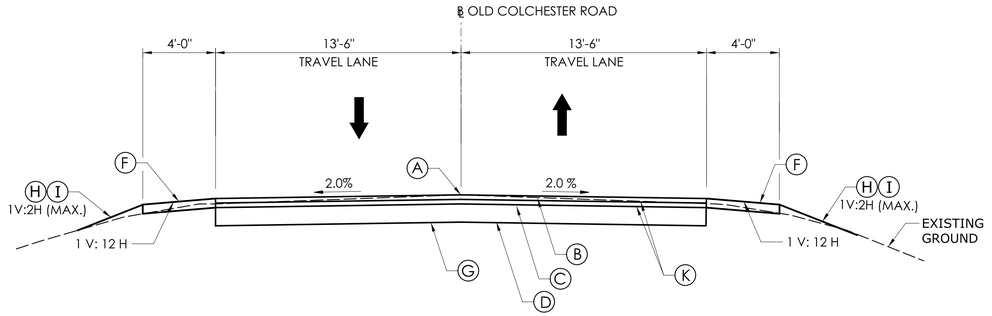
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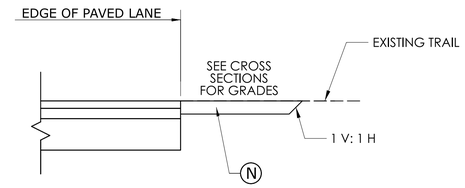
PAVEMENT TRANSITION DETAIL
NOT TO SCALE



PARKING LOT DETAIL
NOT TO SCALE



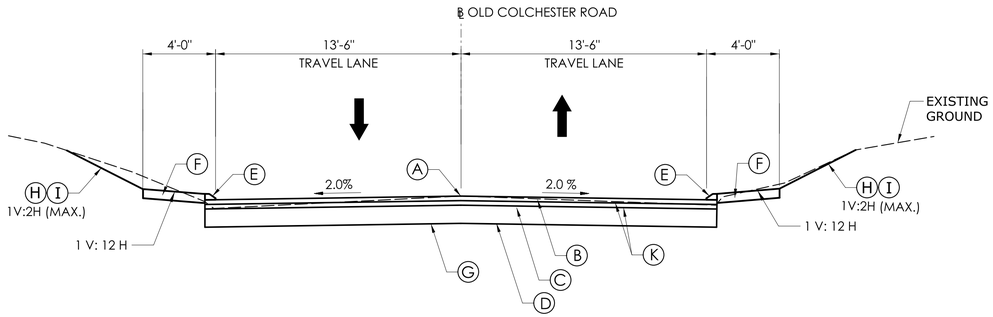
OLD COLCHESTER ROAD
STA. 10+25.00 TO STA. 10+83.50 ±



TRAIL PATH DETAIL
NOT TO SCALE

LEGEND

- (A) POINT OF APPLIED GRADE
- (B) 4" HMA S0.5 (PLACED IN 2 EQUAL LIFTS)
- (C) 4" HMA S1 (PLACED IN 1 LIFT)
- (D) 12" SUBBASE
- (E) BITUMINOUS CONCRETE LIP CURBING
- (F) 6" PROCESSED AGGREGATE
- (G) FORMATION OF SUBGRADE
- (H) 4" TOPSOIL
- (I) TURF ESTABLISHMENT
- (K) NON-TRACKING ASPHALT TACK COAT (TO BE APPLIED BETWEEN EACH LIFT OF PAVEMENT)
- (L) CUT BITUMINOUS CONCRETE PAVEMENT
- (M) 12" GRAVEL DRIVEWAY
- (N) 6" STONEDUST PATHWAY



OLD COLCHESTER ROAD
STA. 11+22.50 ± TO STA. 12+75.00

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/ BLOCK:

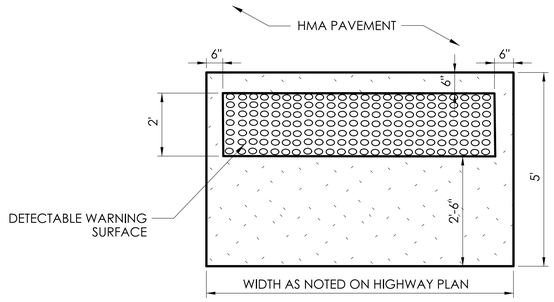
McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

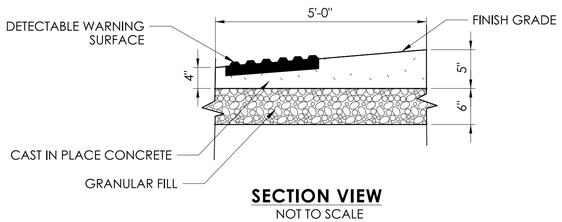
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TOWN(S): HEBRON
DRAWING TITLE: TYPICAL SECTIONS

DRAWING NO. TYP-01
SHEET NO. 03.02

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PLOTTED DATE: 10/27/2025



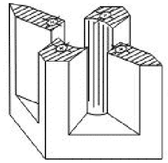
PLAN VIEW
NOT TO SCALE



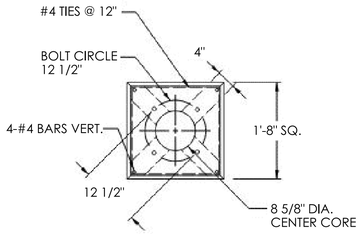
SECTION VIEW
NOT TO SCALE

CONCRETE SIDEWALK RAMP

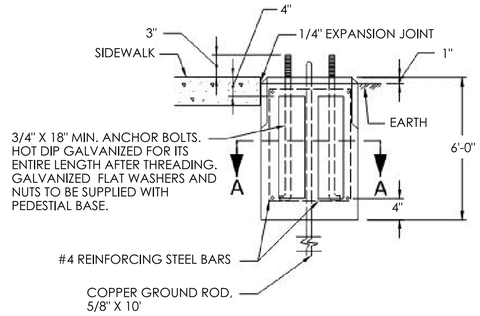
NOTE: INSTALLATION OF CAST IN PLACE CONCRETE SIDEWALK RAMP AT UNPAVED TRAIL CROSSINGS SHALL BE PAID UNDER ITEM 0921005 - CONCRETE SIDEWALK RAMP.



PICTORIAL



SECTION A-A



TRAFFIC CONTROL FOUNDATION PEDESTAL - TYPE I - PRECAST

TRAFFIC CONTROL FOUNDATION PEDESTAL TYPE I NOTES:

INSTALL FOUNDATION ON 12" OF COMPACTED GRAVEL IN ACCORDANCE WITH SECTION 2.14.
LEVEL FOUNDATION WITH A PROJECTION OF 1" ABOVE FINISHED GRADE.
INSTALL COPPER GROUND ROD: 5/8" X 10'
PLACE NO. 6 CRUSHED STONE IN THE CENTER OPENINGS AFTER THE CONDUITS AND GROUND ROD HAVE BEEN INSTALLED.
CONCRETE: (PRECAST) PRC04060 IN ACCORANCE WITH ARTICLE M.14.01

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/ BLOCK:

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

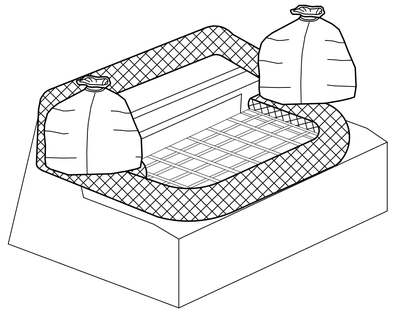
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PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: MISCELLANEOUS DETAILS

DRAWING NO. MDS-01
SHEET NO. 03.03

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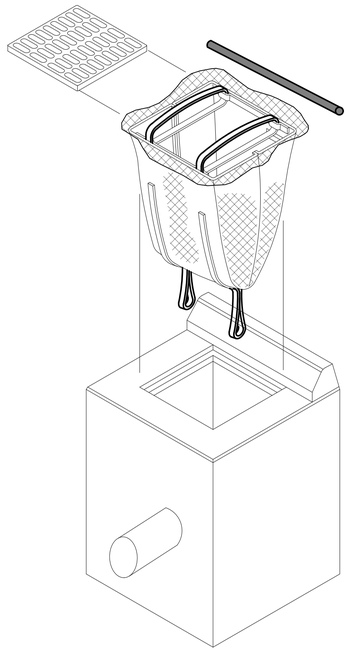






FIBER ROLL AROUND
TYPE "C" OR "C-L" CATCH BASIN TOP

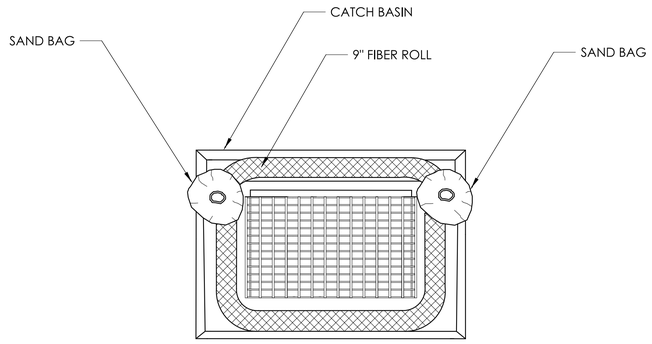
NOTE: THIS ITEM WILL BE MEASURED BY EACH SEDIMENT CONTROL SYSTEM AT CATCH BASIN



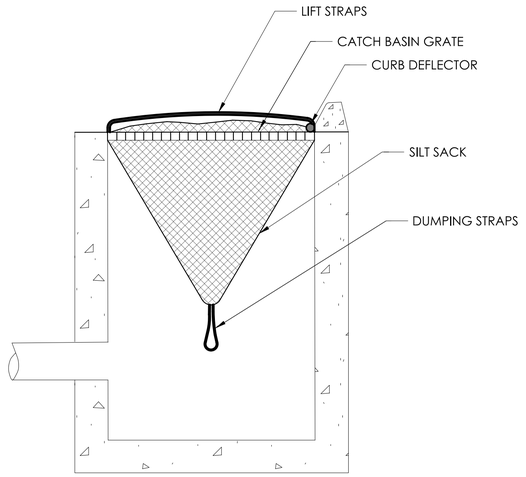
INLET SEDIMENT CONTROL DEVICE
AT TYPE "C" OR "C-L" CATCH BASIN

NOTE: THIS ITEM WILL BE MEASURED BY EACH SEDIMENT CONTROL SYSTEM AT CATCH BASIN





PLAN



SECTION

REV. | DATE | REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT — No. 27145 — REGISTERED PROFESSIONAL ENGINEER

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

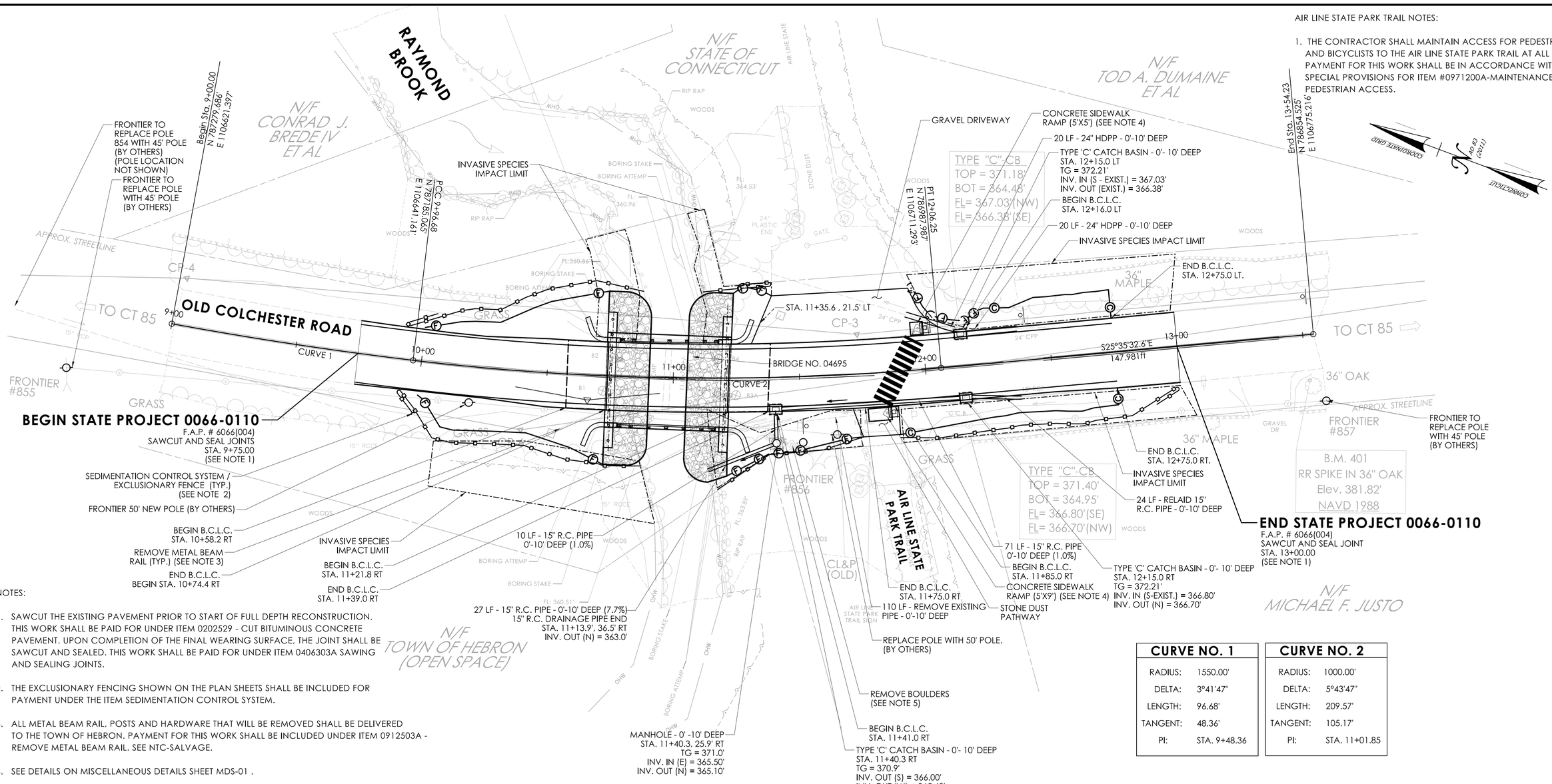
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TOWN(S): HEBRON
DRAWING TITLE: MISCELLANEOUS DETAILS

DRAWING NO. MDS-02
SHEET NO. 03.04

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PLOTTED DATE: 10/27/2025

AIR LINE STATE PARK TRAIL NOTES:

1. THE CONTRACTOR SHALL MAINTAIN ACCESS FOR PEDESTRIANS AND BICYCLISTS TO THE AIR LINE STATE PARK TRAIL AT ALL TIMES. PAYMENT FOR THIS WORK SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR ITEM #0971200A-MAINTENANCE PEDESTRIAN ACCESS.



NOTES:

1. SAWCUT THE EXISTING PAVEMENT PRIOR TO START OF FULL DEPTH RECONSTRUCTION. THIS WORK SHALL BE PAID FOR UNDER ITEM 0202529 - CUT BITUMINOUS CONCRETE PAVEMENT. UPON COMPLETION OF THE FINAL WEARING SURFACE, THE JOINT SHALL BE SAWCUT AND SEALED. THIS WORK SHALL BE PAID FOR UNDER ITEM 0406303A SAWING AND SEALING JOINTS.

2. THE EXCLUSIONARY FENCING SHOWN ON THE PLAN SHEETS SHALL BE INCLUDED FOR PAYMENT UNDER THE ITEM SEDIMENTATION CONTROL SYSTEM.

3. ALL METAL BEAM RAIL, POSTS AND HARDWARE THAT WILL BE REMOVED SHALL BE DELIVERED TO THE TOWN OF HEBRON. PAYMENT FOR THIS WORK SHALL BE INCLUDED UNDER ITEM 0912503A - REMOVE METAL BEAM RAIL. SEE NTC-SALVAGE.

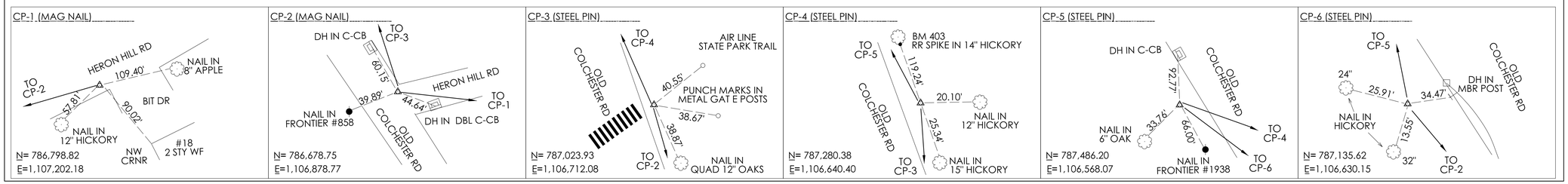
4. SEE DETAILS ON MISCELLANEOUS DETAILS SHEET MDS-01 .

5. REMOVAL AND DISPOSAL OF BOULDERS WHERE SHOWN ON THE PLAN SHEETS SHALL BE PAID FOR UNDER ITEM 0202000 EARTH EXCAVATION

CURVE NO. 1	
RADIUS:	1550.00'
DELTA:	3°41'47"
LENGTH:	96.68'
TANGENT:	48.36'
PI:	STA. 9+48.36

CURVE NO. 2	
RADIUS:	1000.00'
DELTA:	5°43'47"
LENGTH:	209.57'
TANGENT:	105.17'
PI:	STA. 11+01.85

SURVEY TIES



REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

0 20' 40'
HORIZONTAL SCALE 1" = 20'

SIGNATURE/ BLOCK:

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

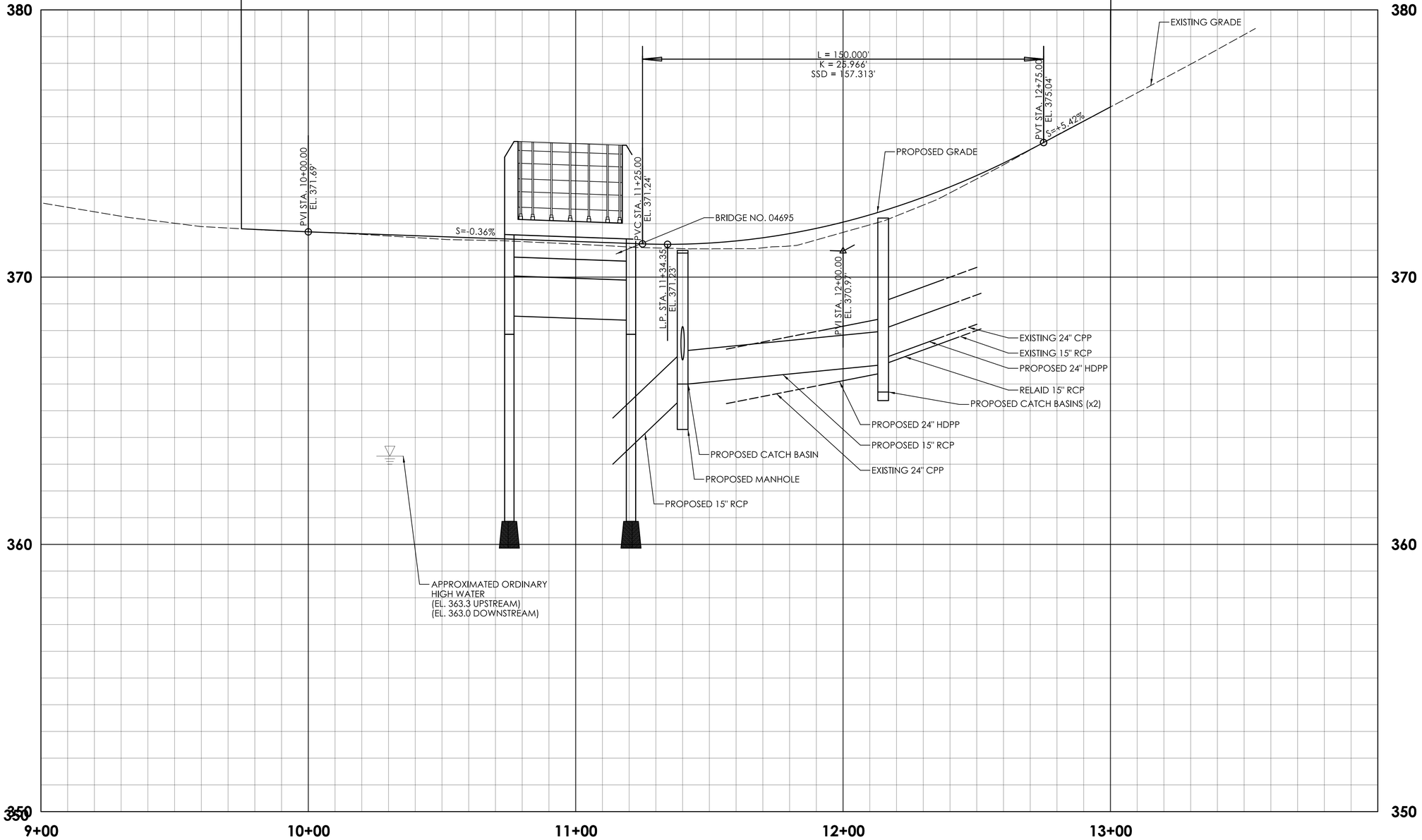
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PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: HIGHWAY PLAN

DRAWING NO. PLN-01
SHEET NO. 03.05

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PLOTTED DATE: 10/27/2025

BEGIN STATE PROJECT 0066-0110
F.A.P. # 6066(004)
CUT BITUMINIOUS CONCRETE PAVEMENT,
MATCH EXISTING PAVEMENT, SAWCUT
AND SEAL JOINT
STA. 9+75.00

END STATE PROJECT 0066-0110
F.A.P. # 6066(004)
CUT BITUMINOUS CONCRETE PAVEMENT
MATCH EXISTING PAVEMENT, SAWCUT
AND SEAL JOINT
STA. 13+00.00



REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

0 20 40
HORIZONTAL SCALE IN FEET
0 2 4
VERTICAL SCALE IN FEET

SIGNATURE/
BLOCK:

STATE OF CONNECTICUT
No. 27145
REGISTERED PROFESSIONAL ENGINEER

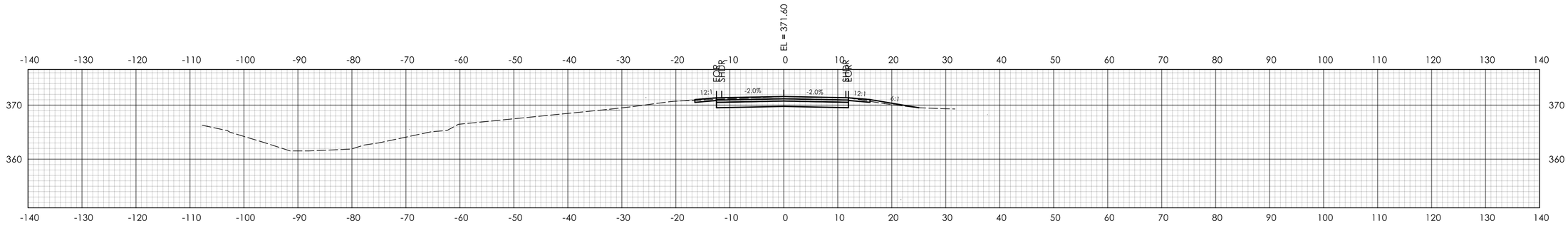
McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

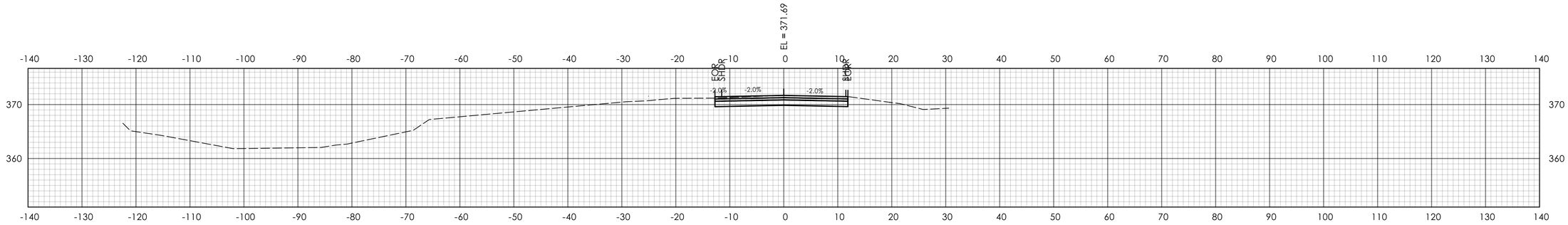
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PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: HIGHWAY PROFILE

DRAWING NO. PRO-01
SHEET NO. 03.06

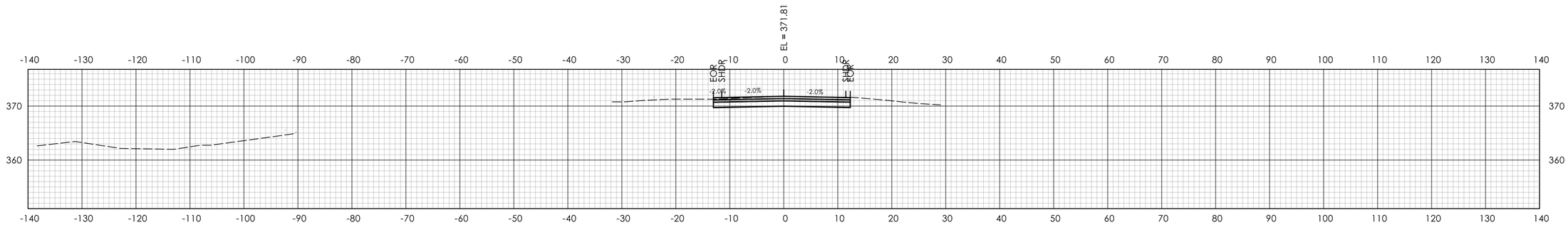
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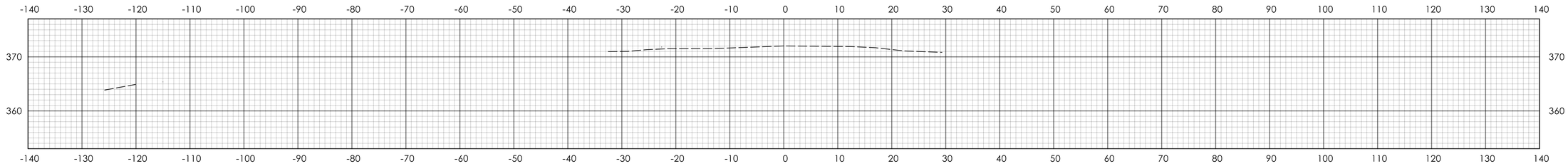
STA. 10+25.00



STA. 10+00.00



STA. 9+75.00



STA. 9+50.00

REVISION DESCRIPTION | DATE | REV.

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HORIZONTAL SCALE 1" = 10'

SIGNATURE/ BLOCK:

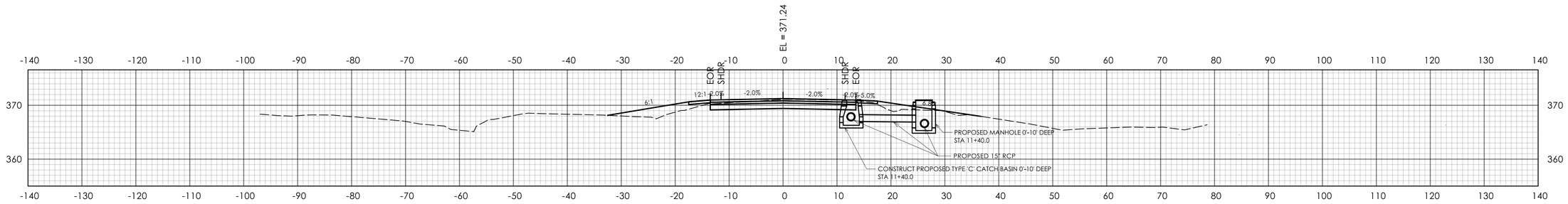
McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

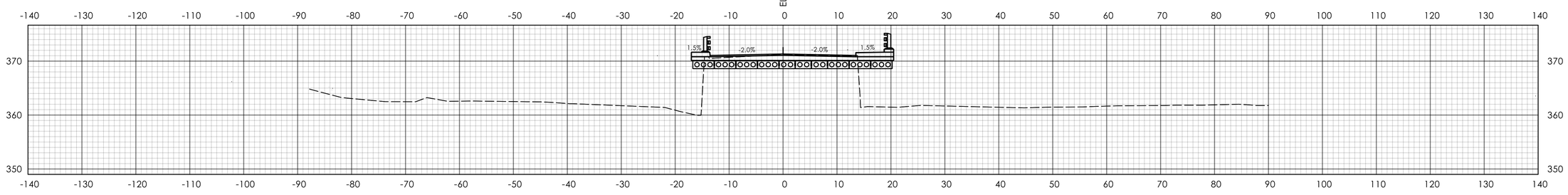
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TOWN(S): HEBRON
DRAWING TITLE: OLD COLCHESTER ROAD CROSS SECTIONS

DRAWING NO. XSC-01
SHEET NO. 03.07

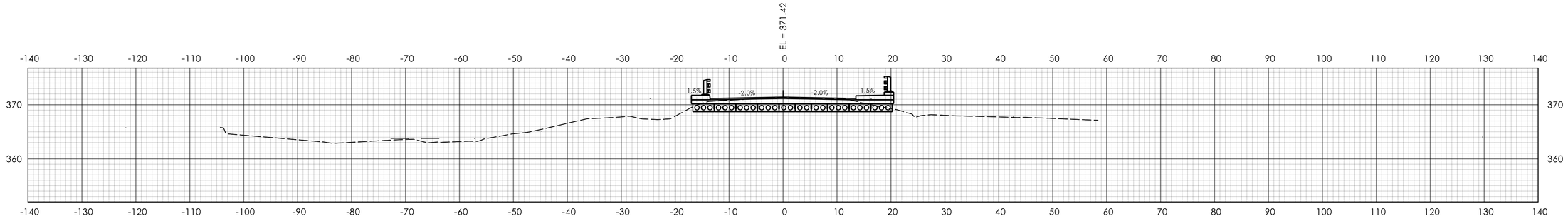
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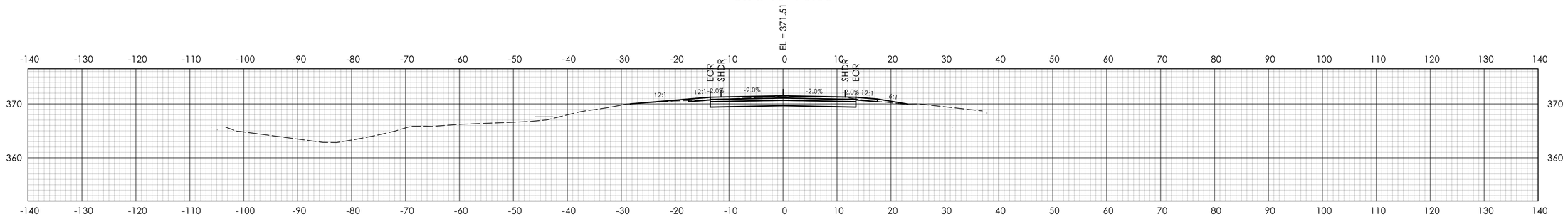
STA. 11+25.00



STA. 11+00.00



STA. 10+75.00



STA. 10+50.00

REVISION DESCRIPTION | DATE | REV.

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HORIZONTAL SCALE
1" = 10'

SIGNATURE/ BLOCK:

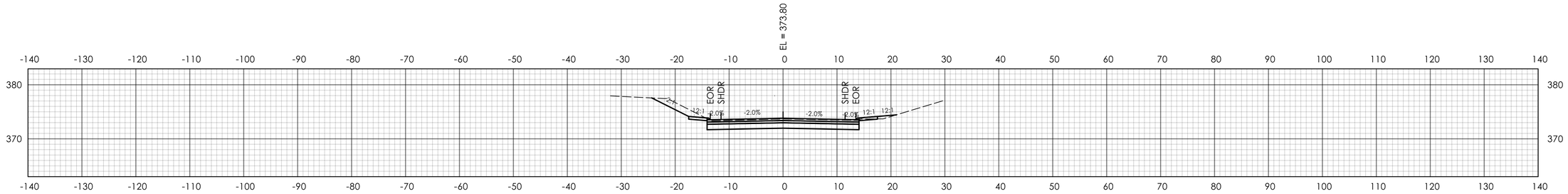
McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

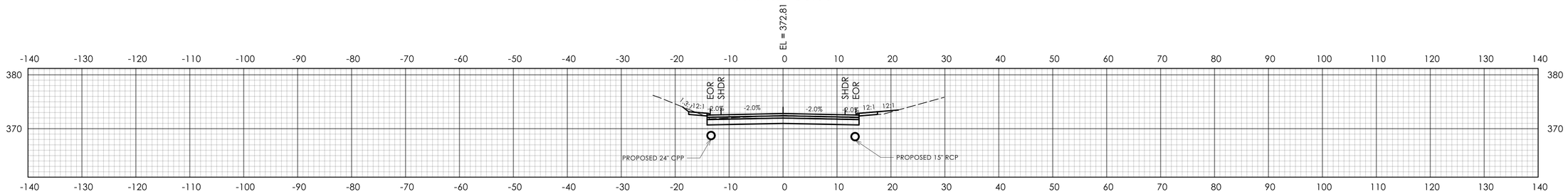
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PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: OLD COLCHESTER ROAD CROSS SECTIONS

DRAWING NO. XSC-02
SHEET NO. 03.08

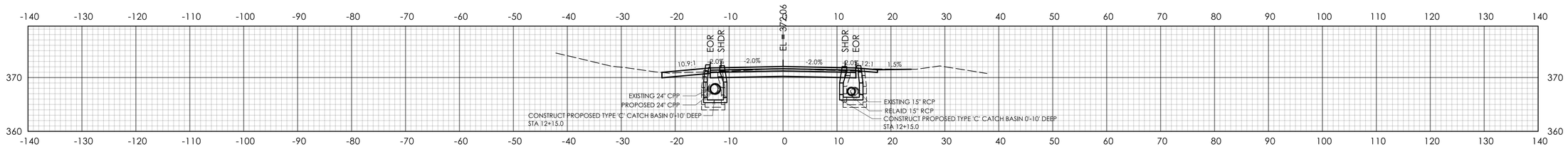
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PLOTTED DATE: 10/27/2025



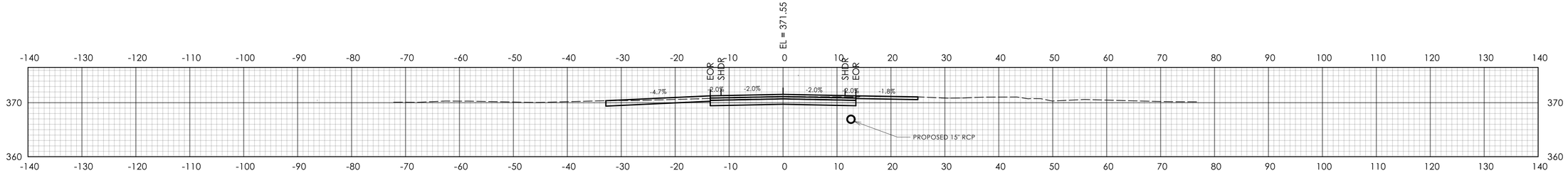
STA. 12+50.00



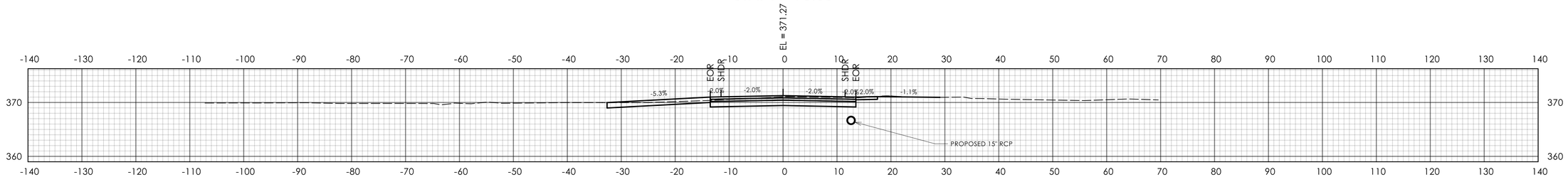
STA. 12+25.00



STA. 12+00.00



STA. 11+75.00



STA. 11+50.00

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

HORIZONTAL SCALE
1" = 10'

SIGNATURE/ BLOCK:

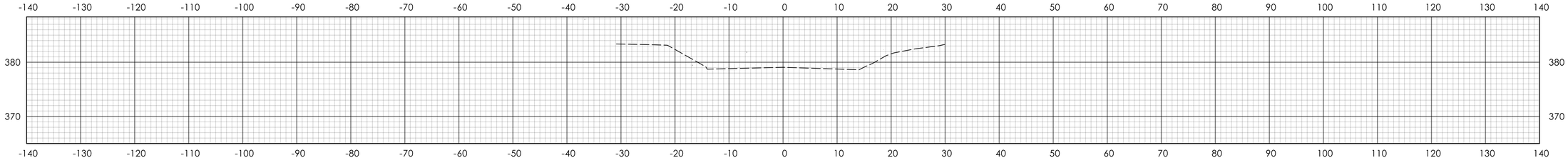
McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

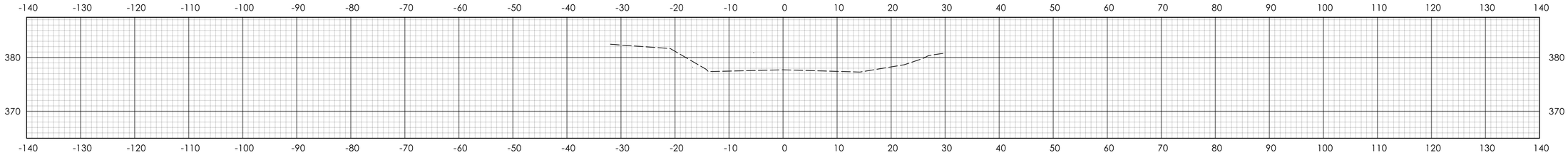
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PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: OLD COLCHESTER ROAD CROSS SECTIONS

DRAWING NO. XSC-03
SHEET NO. 03.09

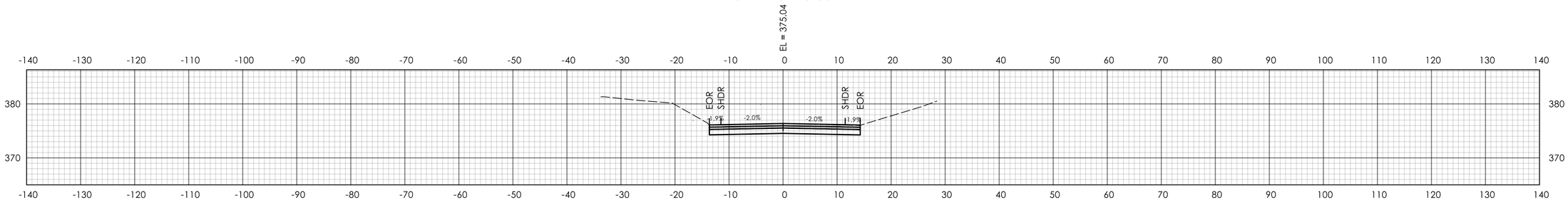
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PLOTTED DATE: 10/27/2025



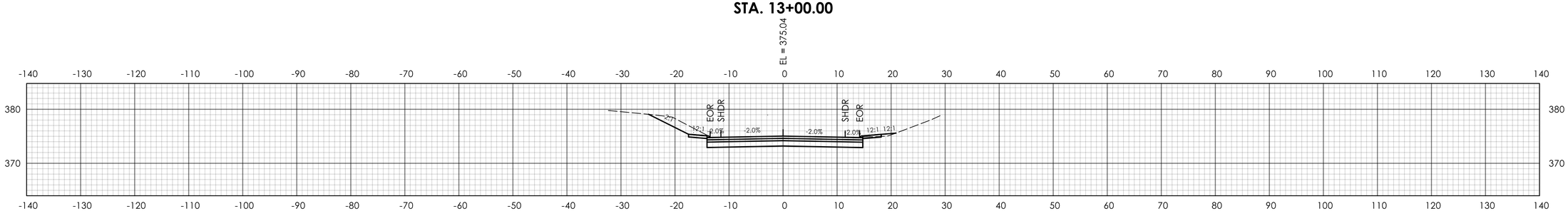
STA. 13+50.00



STA. 13+25.00



STA. 13+00.00



STA. 12+75.00

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

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HORIZONTAL SCALE
1" = 10'

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT · No. 27745 · REGISTERED PROFESSIONAL ENGINEER

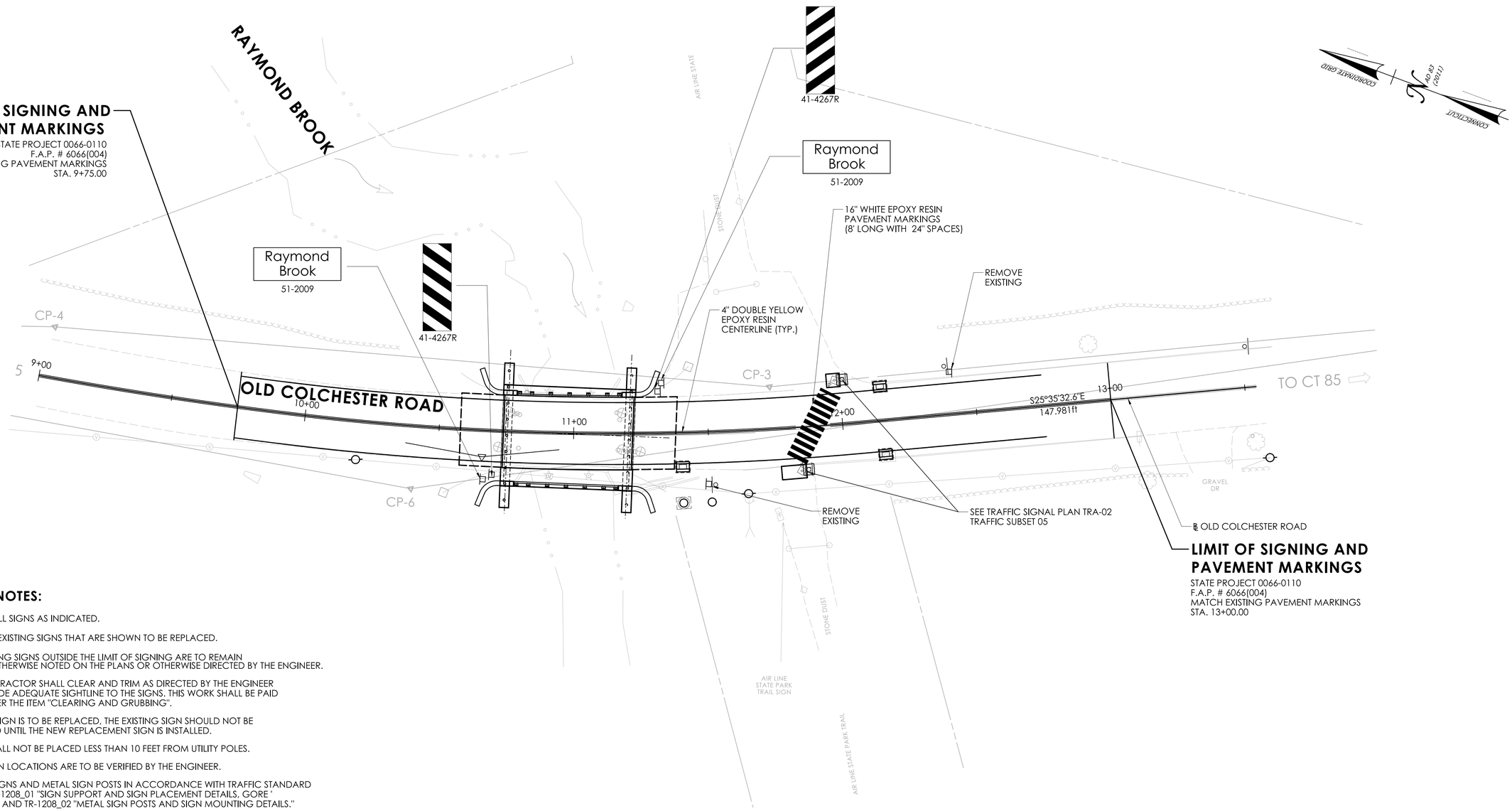
McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: OLD COLCHESTER ROAD CROSS SECTIONS

DRAWING NO. XSC-04
SHEET NO. 03.10

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PLOTTED DATE: 10/27/2025



SIGNING NOTES:

1. INSTALL ALL SIGNS AS INDICATED.
2. REMOVE EXISTING SIGNS THAT ARE SHOWN TO BE REPLACED.
3. ALL EXISTING SIGNS OUTSIDE THE LIMIT OF SIGNING ARE TO REMAIN UNLESS OTHERWISE NOTED ON THE PLANS OR OTHERWISE DIRECTED BY THE ENGINEER.
4. THE CONTRACTOR SHALL CLEAR AND TRIM AS DIRECTED BY THE ENGINEER TO PROVIDE ADEQUATE SIGHTLINE TO THE SIGNS. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "CLEARING AND GRUBBING".
5. WHEN A SIGN IS TO BE REPLACED, THE EXISTING SIGN SHOULD NOT BE REMOVED UNTIL THE NEW REPLACEMENT SIGN IS INSTALLED.
6. SIGNS SHALL NOT BE PLACED LESS THAN 10 FEET FROM UTILITY POLES.
7. FINAL SIGN LOCATIONS ARE TO BE VERIFIED BY THE ENGINEER.
8. INSTALL SIGNS AND METAL SIGN POSTS IN ACCORDANCE WITH TRAFFIC STANDARD SHEETS TR-1208_01 "SIGN SUPPORT AND SIGN PLACEMENT DETAILS, GORE ' EXIT SIGN" AND TR-1208_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS."
9. REMOVAL OF EXISTING SIGNS SHALL BE PAID FOR UNDER ITEM #1206013-REMOVAL OF EXISTING SIGNING
10. ALL NEW SIGNS SHALL BE PAID FOR UNDER ITEM 1208931A - SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING) OR ITEM 1208937A - SIGN FACE SHEET ALUMINUM (TYPE XI RETROREFLECTIVE SHEETING)
11. ALL REMOVED SIGNS THAT ARE NOT REUSED ON THE PROJECT SHALL BE RETURNED TO THE TOWN OF HEBRON. PAYMENT FOR THIS WORK SHALL BE INCLUDED UNDER ITEM 120613 - REMOVAL OF EXISTING SIGNING. SEE NTC-SALVAGE.

PAVEMENT MARKING NOTES:

1. ALL FINAL PAVEMENT MARKINGS ARE TO BE EPOXY RESIN.
2. INSTALL ALL PAVEMENT MARKINGS WITHIN THE LIMIT OF PAVEMENT MARKINGS UNLESS OTHERWISE DIRECTED BY THE ENGINEER. MATCH TO EXISTING PAVEMENT MARKINGS AT THE LIMIT OF PAVEMENT MARKINGS.
3. ALL PAVEMENT MARKINGS ARE TO BE INSTALLED IN ACCORDANCE WITH STANDARD SHEET TR-1210_03 "SPECIAL DETAILS AND TYPICAL PAVEMENT MARKINGS FOR TWO-WAY HIGHWAYS".

CONNDOT SIGN #	DIMENSIONS	NO.	S.F.	NO. OF POSTS	TYPE
41-4267R	12" x 36"	2	6	1	1208931
51-2009	18" x 12"	2	3	1	1208937
TOTALS		4	9.0 SF		

REVISION DESCRIPTION | DATE | REV

DESIGNER/DRAFTER: CHECKED BY:

0 20' 40'
HORIZONTAL SCALE 1" = 20'

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT — No. 27745 — REGISTERED PROFESSIONAL ENGINEER

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

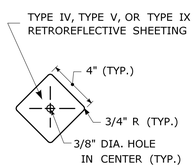
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PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: SIGNING AND PAVEMENT MARKING PLAN

DRAWING NO. SPM-01
SHEET NO. 03.11

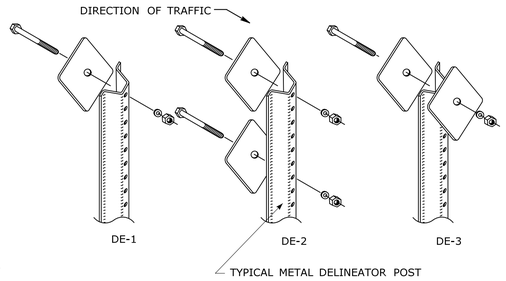
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PLOTTED DATE: 10/27/2025

DELINEATORS DE-1, DE-2, DE-3

INSTALLATION ON DELINEATOR POSTS



SIGN #51-5028 WHITE
SIGN #51-5029 YELLOW



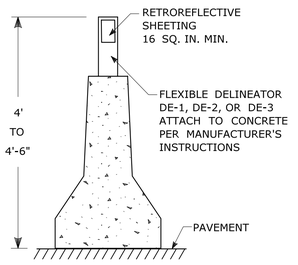
COLORS: - YELLOW OR WHITE.

DELINEATORS - .0625" THK. ALUMINUM ALLOY.

FACE SHALL BE PRESSURE SENSITIVE, SELF ADHERING, TYPE IV, TYPE V, OR TYPE IX RETROREFLECTIVE SHEETING.

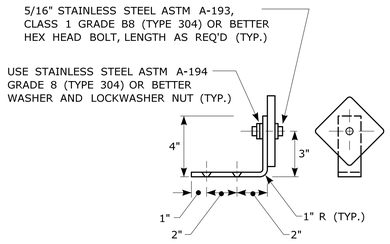
DELINEATORS SHALL BE FASTENED WITH 5/16" STAINLESS STEEL ASTM A-193 CLASS 1, GRADE B8 (TYPE 304) OR BETTER HEX HEAD BOLT (LENGTH AS REQUIRED), WASHER AND FIBER INSERT SELF LOCKING NUT, ON STANDARD METAL DELINEATOR POST.

INSTALLATION ON PERMANENT CONCRETE BARRIER, BRIDGE PARAPETS AND RETAINING WALLS

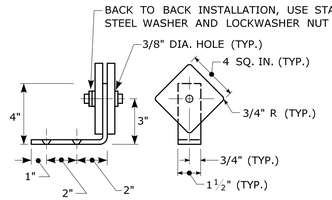


DELINEATORS DE-1, DE-2, DE-3 TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

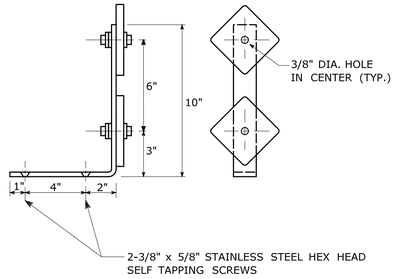
DELINEATORS DE-4, DE-4A, DE-5 FOR INSTALLATION ON METAL BRIDGE RAIL



DE-4



DE-4A

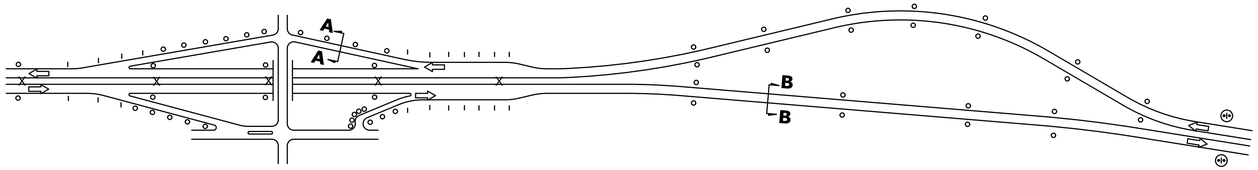


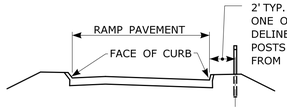
DE-5

COLORS: - YELLOW OR WHITE.
DELINEATORS - .0625" THK. ALUMINUM ALLOY.
BRACKET - .125" THK. ALUMINUM ALLOY, AND SHALL CONFORM TO SPECIFICATION M.18.07-03 BRIDGE RAIL MOUNTING BRACKETS.
FACE SHALL BE PRESSURE SENSITIVE, SELF ADHERING, TYPE IV, TYPE V, OR TYPE IX RETROREFLECTIVE SHEETING.
USE STAINLESS STEEL WASHERS ON FACE OF DELINEATORS, 5/8" O.D. X 3/8" I.D. X .032" THK. (TYP.)

DELINEATORS TYPE DE-4, DE-4A, AND DE-5 TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

TYPICAL MAINLINE & INTERCHANGE DELINEATION

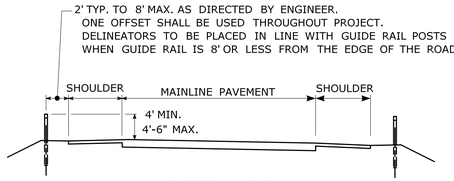




2' TYP. TO 8' MAX. AS DIRECTED BY ENGINEER.
ONE OFFSET SHALL BE USED THROUGHOUT PROJECT.
DELINEATORS TO BE PLACED IN LINE WITH GUIDE RAIL POSTS WHEN GUIDE RAIL IS 8' OR LESS FROM THE EDGE OF THE ROAD.

SECTION A-A

DELINEATOR PLACEMENT ON RAMPS
ON TANGENT SECTIONS - RIGHT SIDE OF RAMP
ON CURVED SECTIONS - BOTH SIDES OF CURVE



SECTION B-B

DELINEATOR PLACEMENT ON MAINLINE

DELINEATOR SPACING NOTES:

1) AT LOCATIONS WHERE THE MEDIAN WIDTH (BETWEEN SHOULDERS) IS 12' OR LESS, AND MEDIAN BEAM RAIL IS PRESENT, TYPE DE-3 DELINEATORS SHALL BE MOUNTED WITHIN THE MEDIAN BEAM RAIL.
2) SPACING ON MAINLINE EXPRESSWAY TANGENTS SHALL BE 400'.
3) SPACING ON MAINLINE EXPRESSWAY CURVES SHALL BE AS SPECIFIED IN TABLE 3F-1 OF THE MUTCD.
4) ON ACCELERATION AND DECELERATION LANES AND ON-RAMP TANGENT SECTIONS, DELINEATOR SPACING SHALL BE 100'.
5) ON CURVED PORTIONS OF RAMPS, DELINEATOR SPACING SHALL BE IN ACCORDANCE WITH TABLE 3F-1 OF THE MUTCD, BUT NOT TO EXCEED 100'.

LEGEND:

- o DE-1 DELINEATORS OR DE-4 DELINEATOR ASSEMBLY
- ı DE-2 DELINEATORS OR DE-5 DELINEATOR ASSEMBLY
- X DE-3 DELINEATORS ASSEMBLY OR DE-4A DELINEATOR
- (H1) D10-1, 2, 3, OR 4 ASSEMBLY TO BE INSTALLED WHERE SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

COLOR APPLICATION, FOR DE-1 THRU DE-5

LEFT SIDE OF ALL ROADWAYS AND RAMPS - YELLOW
RIGHT SIDE OF ALL ROADWAYS AND RAMPS - WHITE

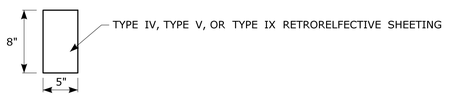
MUTCD TABLE 3F-1 APPROXIMATE SPACING FOR DELINEATORS ON HORIZONTAL CURVES

RADIUS (R) OF CURVE (feet)	APPROXIMATE SPACING (S) ON CURVE (feet)
50	20
115	25
180	35
250	40
300	50
400	55
500	65
600	70
700	75
800	80
900	85
1,000	90

DISTANCE IN FEET WERE ROUNDED TO THE NEAREST 5 FEET. SPACING FOR SPECIFIC RADII MAY BE INTERPOLATED FROM TABLE. THE MINIMUM SPACING SHOULD BE 20 FEET. THE SPACING ON CURVES SHOULD NOT EXCEED 300 FEET. IN ADVANCE OF OR BEYOND A CURVE, AND PROCEEDING AWAY FROM THE END OF THE CURVE, THE SPACING OF THE FIRST DELINEATOR IS 2S, THE SECOND IS 3S, AND THE THIRD 6S BUT NOT TO EXCEED 300 FEET.

S REFERS TO THE DELINEATOR SPACING FOR SPECIFIC RADII COMPUTED FROM THE FORMULA: $S=3\sqrt{R-50}$.

DELINEATORS DE-7, DE-7A, DE-7B, DE-7D FOR INSTALLATION ON TEMPORARY PRECAST CONCRETE BARRIER CURB AND TEMPORARY PRECAST CONCRETE BARRIER CURB (STRUCTURE)



DE-7 ONE WAY WHITE
DE-7A ONE WAY YELLOW
DE-7B TWO WAY YELLOW
DE-7D TWO WAY WHITE
TEMPORARY PRECAST CONCRETE BARRIER DELINEATORS ARE TO BE FABRICATED OF ALUMINUM, STEEL, PLASTIC, OR OF A MATERIAL APPROVED BY THE ENGINEER AND MOUNTED IN THE CENTER OF EACH SECTION OF TEMPORARY BARRIER AS REQUIRED AND PER MANUFACTURER'S INSTRUCTIONS.

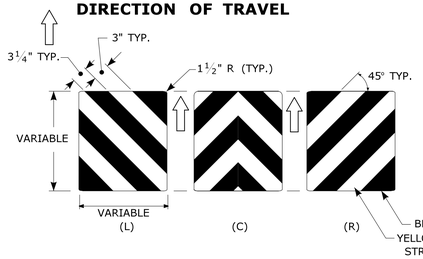
SPACING FOR TEMPORARY BARRIER CURB DELINEATORS:

ON THE LEADING TAPERED SECTION - EVERY 20',
ON THE FIRST 100' OF THE PARALLEL SECTION - EVERY 20',
ON THE REMAINING LENGTH - EVERY 100', MINIMUM OF 2 IF LESS THAN 100',
ALTERNATING ONE WAY TRAFFIC - EVERY 20',
ALL OTHER ROADWAYS SHALL BE DELINEATED IN ACCORDANCE WITH MUTCD.

DELINEATORS DE-7, DE-7A, DE-7B, AND DE-7D TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

ATTENUATOR REFLECTORS SIGN #40-4266

DIRECTION OF TRAVEL

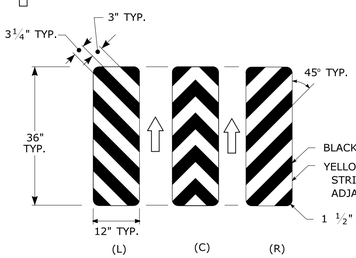


THIS SHEETING WITHOUT A SUBSTRATE TO BE INSTALLED ON THE NOSE OF THE IMPACT ATTENUATOR WITH ADHESIVE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
THE SHEETING SHALL COVER THE NOSE OF THE IMPACT ATTENUATOR.
ON A CURVED NOSE, THE WIDTH OF THE SHEETING SHALL EXTEND 1" BEYOND THE POINT OF CURVATURE ON EACH SIDE OF THE NOSE.
THE HEIGHT AND WIDTH OF THE SHEETING VARIES DEPENDING ON THE SIZE OF THE NOSE OF THE IMPACT ATTENUATOR.

ATTENUATOR REFLECTOR TO BE PAID FOR UNDER SECTION 18.0 IMPACT ATTENUATOR

TYPE 3 OBJECT MARKERS SIGN #41-4267

DIRECTION OF TRAVEL



SIGN #41-4267 MARKER MOUNTED ON 4lb. METAL SIGN POST.
BOTTOM OF SIGN #41-4267 TO BE 4' ABOVE ADJACENT EDGE OF PAVEMENT.
FINAL LOCATIONS OF SIGN #41-4267 MARKERS WILL BE AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

TYPE 3 OBJECT MARKER TO BE PAID FOR UNDER SECTION 12.08 SIGN FACE SHEET ALUMINUM

REVISION DESCRIPTION | DATE | REV.

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/ BLOCK: McFARLAND JOHNSON, 53 REGIONAL DRIVE, CONCORD, NH 03301

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: DELINEATION, DELINEATORS AND OBJECT MARKER DETAILS

DRAWING NO. TR-1205_01
SHEET NO. 03.12

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PLOTTED DATE: 10/27/2025

SUBSET 04 - STRUCTURES
INDEX OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
S-01	STRUCTURES INDEX OF DRAWINGS	S-27	3 - TUBE CURB MOUNTED BRIDGE RAIL DETAILS (3 OF 3)
S-02	GENERAL PLAN AND ELEVATION		
S-03	PROPOSED BRIDGE CROSS SECTION		
S-04	EXISTING CULVERT PLAN AND CROSS SECTION		
S-05	GENERAL NOTES		
S-06	LAYOUT PLAN		
S-07	BORING LOGS (1 OF 5)		
S-08	BORING LOGS (2 OF 5)		
S-09	BORING LOGS (3 OF 5)		
S-10	BORING LOGS (4 OF 5)		
S-11	BORING LOGS (5 OF 5)		
S-12	WATER HANDLING PLAN (STAGE 1)		
S-13	WATER HANDLING PLAN (STAGE 2)		
S-14	ABUTMENT 1 PLAN AND ELEVATION		
S-15	ABUTMENT 2 PLAN AND ELEVATION		
S-16	SUBSTRUCTURE DETAILS		
S-17	RETAINING WALL DETAILS		
S-18	FRAMING PLAN AND BEARING DETAILS		
S-19	PRESTRESSED BEAM DETAILS (1 OF 3)		
S-20	PRESTRESSED BEAM DETAILS (2 OF 3)		
S-21	PRESTRESSED BEAM DETAILS (3 OF 3)		
S-22	DECK PLAN AND REINFORCEMENT SECTION		
S-23	DECK END DETAILS		
S-24	APPROACH SLAB DETAILS		
S-25	3 - TUBE CURB MOUNTED BRIDGE RAIL DETAILS (1 OF 3)		
S-26	3 - TUBE CURB MOUNTED BRIDGE RAIL DETAILS (2 OF 3)		

DESIGNED BY:
MCFARLAND JOHNSON

STATE OF CONNECTICUT · SHANE M. LAU · 0036051 · LICENSED PROFESSIONAL ENGINEER

McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

REVISION DESCRIPTION | DATE | REV.

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

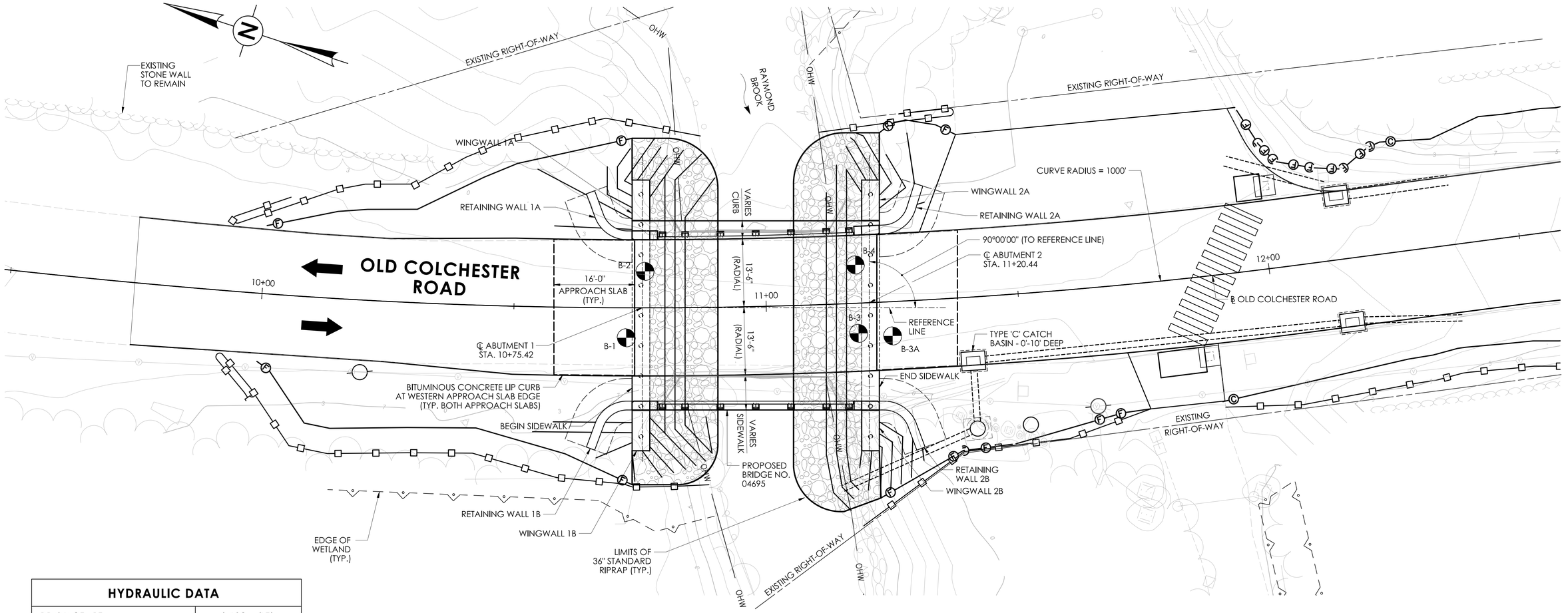
McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: STRUCTURES INDEX OF DRAWINGS

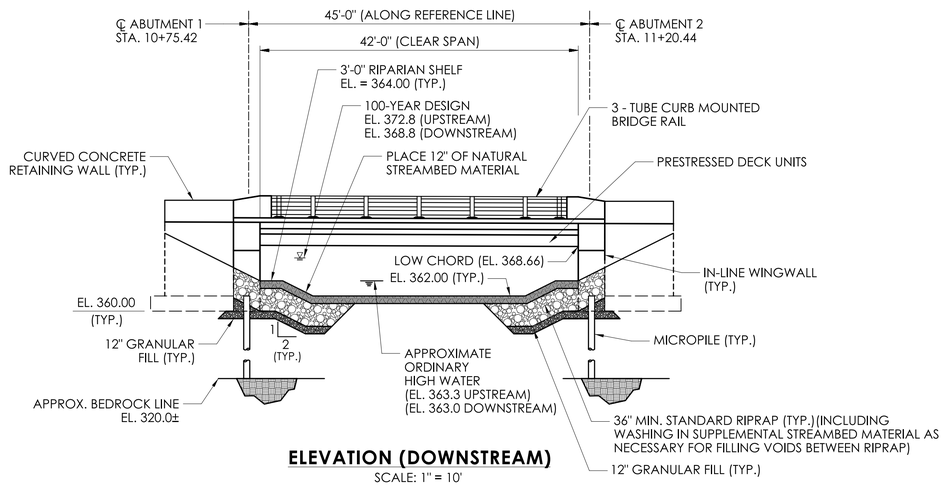
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SHEET NO. 04.01

LASTED SAVED BY: smerkwan **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_SubsetCoverSheet.dgn
PLOTTED DATE: 10/29/2025



GENERAL PLAN

SCALE: 1" = 10'



ELEVATION (DOWNSTREAM)

SCALE: 1" = 10'

HYDRAULIC DATA

DRAINAGE AREA	8.4 SQ. MILES
DESIGN FREQUENCY	100 YEAR
DESIGN DISCHARGE	2844 CFS
AVERAGE DAILY FLOW ELEVATION	362.3 FT (ESTIMATED)
UPSTREAM DESIGN WATER SURFACE ELEVATION	371.1 FT
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	369.0 FT
MAXIMUM SCOUR ELEVATION	358.9 FT
FREQUENCY	200 -YEAR
DISCHARGE	3584 CFS
WORST CASE SCOUR SUB-STRUCTURE UNIT	ABUTMENTS

TRANSPORTATION DIMENSIONS AND WEIGHT

MEMBER	SHIPPING LENGTH	SHIPPING HEIGHT	SHIPPING WIDTH	SHIPPING WEIGHT
B1 - B4 & B8 - B10	46'-6"	1.50'	4.00'	30500 LBS
B5 - B7	46'-6"	1.50'	3.00'	23800 LBS

NOTICE TO BRIDGE INSPECTORS

THE DEPARTMENT'S BRIDGE SAFETY PROCEDURES REQUIRE THIS BRIDGE TO BE INSPECTED FOR, BUT NOT LIMITED TO, ALL APPROPRIATE COMPONENTS INDICATED IN THE GOVERNING MANUALS FOR BRIDGE INSPECTION. ATTENTION MUST BE GIVEN TO INSPECTING THE FOLLOWING SPECIAL COMPONENTS AND DETAILS. (THE LISTING OF COMPONENTS FOR SPECIFIC ATTENTION SHALL NOT BE CONSTRUED TO REDUCE THE IMPORTANCE OF INSPECTION OF ANY OTHER COMPONENT OF THE STRUCTURE). THE FREQUENCY OF INSPECTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE GOVERNING MANUALS FOR BRIDGE INSPECTION, UNLESS OTHERWISE DIRECTED BY THE MANAGER OF BRIDGE SAFETY AND EVALUATION.

COMPONENTS OR DETAIL	STRUCTURE SHEET REFERENCE
NONE	NONE

LEGEND

- BORING LOCATION
- 36" STANDARD RIPRAP
- 12" NATURAL STREAMBED MATERIAL
- EXISTING OVERHEAD UTILITIES
- OHW — LIMITS OF ORDINARY HIGH WATER
- EDGE OF WATER

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

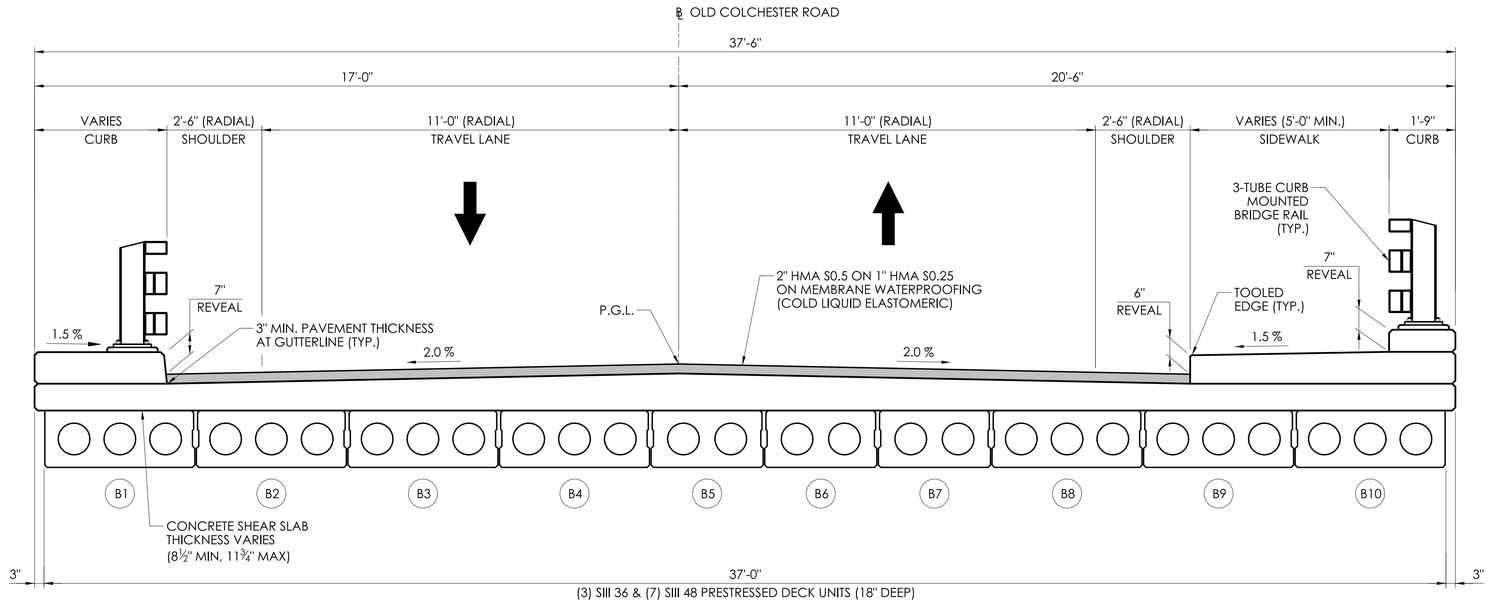
McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: GENERAL PLAN AND ELEVATION

DRAWING NO. S-02
SHEET NO. 04.02

LASTED SAVED BY: DKull **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_GenPLan.dgn
PLOTTED DATE: 10/29/2025



PROPOSED BRIDGE CROSS SECTION

SCALE: ½" = 1'-0"

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

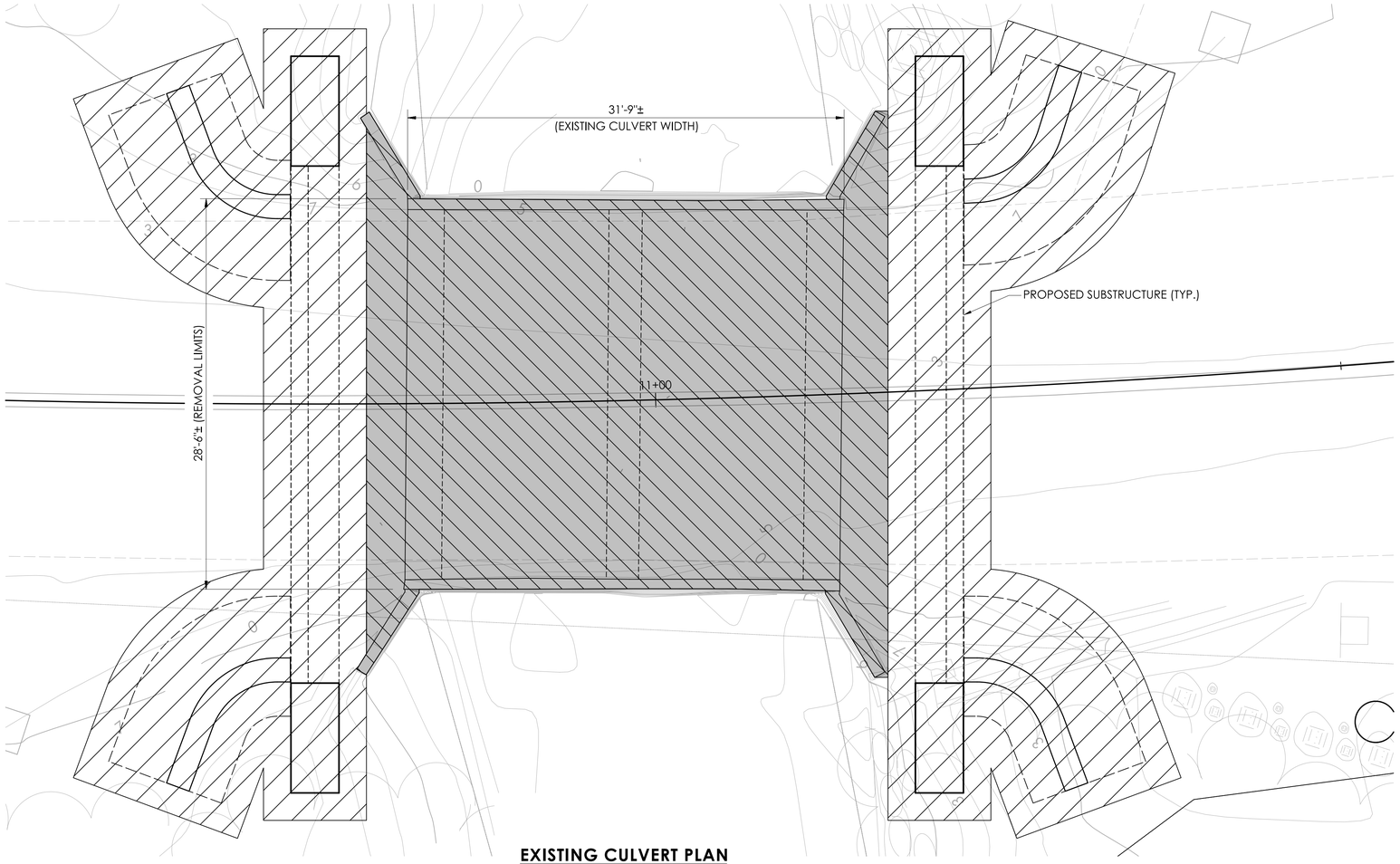
McFarland Johnson
273 Corporate Drive
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Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: PROPOSED BRIDGE CROSS SECTION

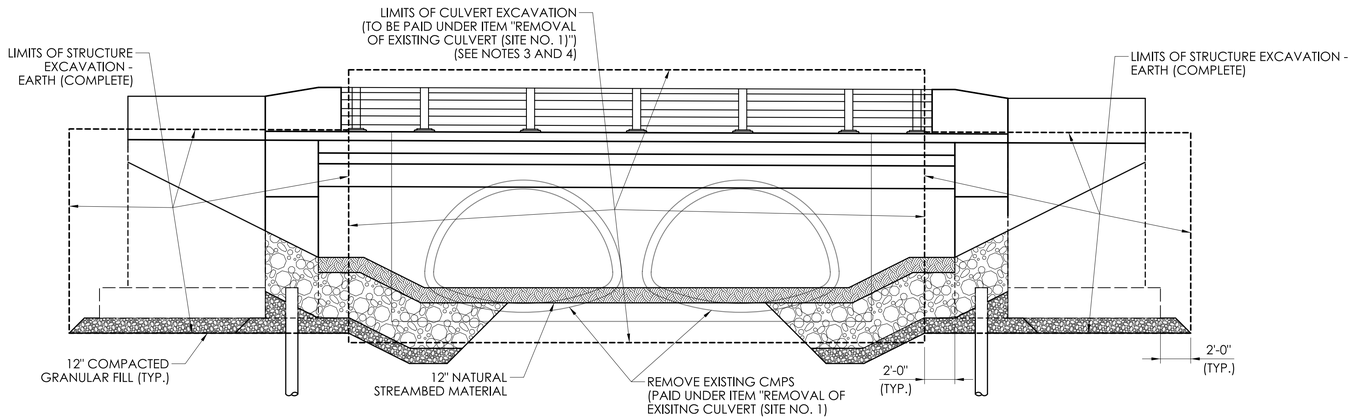
DRAWING NO. S-03
SHEET NO. 04.03

LASTED SAVED BY: eproulx **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Typical_Section.dgn
PLOTTED DATE: 10/29/2025



EXISTING CULVERT PLAN

SCALE: 1" = 5'



ELEVATION - EXISTING STRUCTURE EXCAVATION LIMITS

SCALE: 1" = 5'

EXISTING STRUCTURE EXCAVATION NOTES:

1. EXISTING WINGWALLS NOT SHOWN FOR CLARITY PURPOSES.
2. FOR EXCAVATION BEYOND STRUCTURE EXCAVATION - EARTH (COMPLETE) LIMITS, REFER TO HIGHWAY ITEM "EARTH EXCAVATION."
3. EXCAVATION BETWEEN THE VERTICAL LINES OF STRUCTURE EXCAVATION - EARTH (COMPLETE) IS INCLUDED IN THE "REMOVAL OF EXISTING CULVERT (SITE NO. 1).
4. "REMOVAL OF EXISTING CULVERT (SITE NO. 1)" INCLUDES EXCAVATION FROM TOP OF EXISTING GROUND SURFACE (INCLUDING ROADWAY PAVEMENT AND SUBBASE) DOWN TO THE BOTTOM OF THE NATURAL STREAMBED CHANNEL MATERIAL OR TO THE BOTTOM OF EXISTING FOUNDATION, WHICHEVER IS DEEPER.

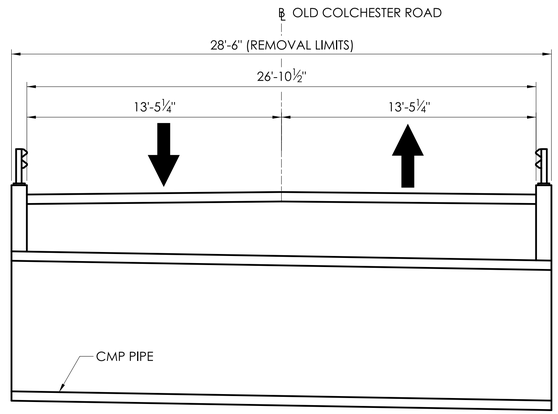
PAY LIMIT NOTES:

1. REMOVAL OF EXISTING CULVERT INCLUDING HEADWALLS, WINGWALLS, AND FOOTINGS, SHALL BE PAID FOR UNDER THE ITEM "REMOVAL OF EXISTING CULVERT (SITE NO. 1)".

LEGEND

LIMITS OF STRUCTURE EXCAVATION - EARTH (COMPLETE)

EXISTING CULVERT REMOVAL LIMITS
COST FOR EXISTING CULVERT REMOVAL SHALL BE INCLUDED IN ITEM "REMOVAL OF EXISTING CULVERT (SITE NO. 1)".



EXISTING BRIDGE CROSS SECTION

SCALE: ¼" = 1'-0"

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

McFarland Johnson
273 Corporate Drive
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03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: EXISTING CULVERT PLAN AND CROSS SECTION

DRAWING NO. S-04
SHEET NO. 04.04

LASTED SAVED BY: DKull **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Exist_Culvert_Plan_Cross Section.dgn
PLOTTED DATE: 10/29/2025

GENERAL NOTES

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 819 (2024), WITH SUPPLEMENTS DATED JANUARY 2025, AND SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS - 9TH EDITION, 2020 AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (2003) WITH REVISIONS THROUGH FEBRUARY 2024.

MATERIAL STRENGTHS:

CAST-IN-PLACE CONCRETE:
CLASS PCC04462 f'c = 4,000 PSI
CLASS PCC04660 f'c = 4,000 PSI
CLASS PCC03340 f'c = 3,000 PSI

PRESTRESSED DECK UNITS:
PRESTRESSED CONCRETE (FINAL) f'c = 6,500 PSI
PRESTRESSED CONCRETE (AT RELEASE) f'ci = 4,000 PSI

THE CONCRETE STRENGTH, f'c, USED IN DESIGN OF THE CONCRETE COMPONENTS IS NOTED ABOVE. THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF 6.01 - CONCRETE FOR STRUCTURES, AND M.03 - PORTLAND CEMENT CONCRETE FOR CAST-IN-PLACE COMPONENTS, SECTION 5.14 - PREFABRICATED AND CONCRETE STRUCTURAL COMPONENTS, M.14.01 - PREFABRICATED CONCRETE MEMBERS AND NOTICE TO CONTRACTORS - PRECAST/PRESTRESSED PORTLAND CEMENT CONCRETE (PRC) MIX CLASSIFICATIONS FOR PREFABRICATED COMPONENTS.

REINFORCEMENT:
(ASTM A615 GRADE 60) fy = 60,000 PSI

LIVE LOAD: HL93, LEGAL AND PERMIT VEHICLES

FUTURE PAVING ALLOWANCE: NONE

BITUMINOUS CONCRETE OVERLAY: THIS SHALL CONSIST OF TWO LIFTS, 2" HMA S0.5 TRAFFIC LEVEL 2 ON 1" HMA S0.25 TRAFFIC LEVEL 2.

SALVAGE: METAL BEAM RAIL, POSTS, HARDWARE AND ANY REMOVED SIGNS

PILE LOADS: THE VARIOUS GROUP LOADINGS NOTED ON SHEET S-16 REFERS TO THE GROUP LOADS AS GIVEN IN THE AASHTO LRFD BRIDGE DESIGN SPECFICIATIONS.

DIMENSIONS: WHEN DECIMAL DIMENSIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS

EXISTING DIMENSIONS: DIMENSIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THEY HAVE BEEN TAKEN FROM THE ORIGINAL DESIGN DRAWINGS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR REVIEW, THE FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER.

UTILITIES: THE FOLLOWING UTILITIES ARE LOCATED WITHIN THE PROJECT LIMITS AND SHALL BE TEMPORARILY RELOCATED DURING CONSTRUCTION:

COMCAST OF CONNECTICUT, INC.
SOUTHERN NEW ENGLAND TELEPHONE COMPANY dba FRONTIER COMMUNICATIONS OF CONNECTICUT
THE CONNECTICUT LIGHT AND POWER COMPANY dba EVERSOURCE ENERGY - ELECTRIC DISTRIBUTION

MASH TEST LEVEL: THE THREE TUBE CURB MOUNTED BRIDGE RAIL MEETS THE TL-4 CRITERIA FOR MASH 2016.

BRIDGE IDENTIFICATION PLACARDS: THE CONTRACTOR SHALL PROVIDE AND INSTALL NEW BRIDGE IDENTIFICATION SIGNS AT THE LEADING END OF EACH BRIDGE PARAPET ON THE TRAFFIC SIDE. THE SIGNS SHALL BE FABRICATED WITH 40 GAUGE ALUMINUM SHEET METAL. THE SIGNS SHALL BE 4" X 12" WITH 3" WHITE REFLECTIVE BLOCK LETTERS ON GREEN SHEETING. EACH SIGN SHALL READ: 04695. ALL COSTS ASSOCIATED WITH PROVIDING AND INSTALLING THE BRIDGE SIGNS SHALL BE COVERED UNDER THE ITEM "SIGN FACE-SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)". THE FINAL LOCATION AND ATTACHMENT METHOD FOR THE SIGNS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

CONCRETE NOTES

COMPOSITE CONSTRUCTION: NO TEMPORARY INTERMEDIATE SUPPORTS SHALL BE USED DURING THE PLACING AND SETTING OF THE CONCRETE DECK SLAB. TEMPORARY SUPPORTS MAY BE USED FOR STRUCTURAL STEEL ERECTION ONLY. CONSTRUCTION LOADS AND DEAD LOADS WILL BE PERMITTED WHEN DIRECTED BY THE ENGINEER BUT ONLY WHEN THE CONCRETE HAS REACHED A STRENGTH OF f'c=3500psi. LIVE LOADS (TRAFFIC) WILL BE PERMITTED ON THE STRUCTURE AFTER THE CONCRETE HAS REACHED A STRENGTH OF f'c=4000psi.

THE FOLLOWING PAY ITEMS AND CONCRETE CLASSES ARE REQUIRED FOR CAST-IN-PLACE BRIDGE COMPONENTS:

ITEM	BRIDGE COMPONENTS	PCC CLASS
FOOTING CONCRETE	RETAINING WALL FOOTINGS	PCC03340
ABUTMENT AND WALL CONCRETE	ABUTMENTS, WINGWALL STEMS, RETAINING WALLS STEMS	PCC03340
BRIDGE DECK CONCRETE	SHEAR SLAB, BACKWALL	PCC04462
BRIDGE SIDEWALK CONCRETE	CURBS AND SIDEWALK	PCC04462
BRIDGE PARAPET CONCRETE	RETAINING WALL CONCRETE END BLOCKS BRIDGE END BLOCKS	PCC04462
APPROACH SLAB CONCRETE	APPROACH SLAB	PCC04660

EXPOSED EDGES: EXPOSED EDGES SHALL BE BEVELED 1"x1" UNLESS DIMENSIONED OTHERWISE.

CONCRETE COVER: ALL REINFORCEMENT SHALL HAVE TWO INCHES COVER UNLESS DIMENSIONED OTHERWISE.

REINFORCEMENT: ALL REINFORCEMENT SHALL BE GALVANIZED AFTER FABRICATION UNLESS NOTED OTHERWISE. ALL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS. THE COST OF FURNISHING AND PLACING THIS REINFORCEMENT SHALL BE INCLUDED IN THE ITEM "DEFORMED STEEL BARS - GALVANIZED."

CONSTRUCTION JOINTS: CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS, WILL NOT BE PERMITTED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

PREFORMED EXPANSION JOINT FILLER: THE COST OF FURNISHING AND INSTALLING PREFORMED EXPANSION JOINT FILLER IS INCLUDED IN THE ITEMS "1" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES" AND "½" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES".

REV. | DATE | REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

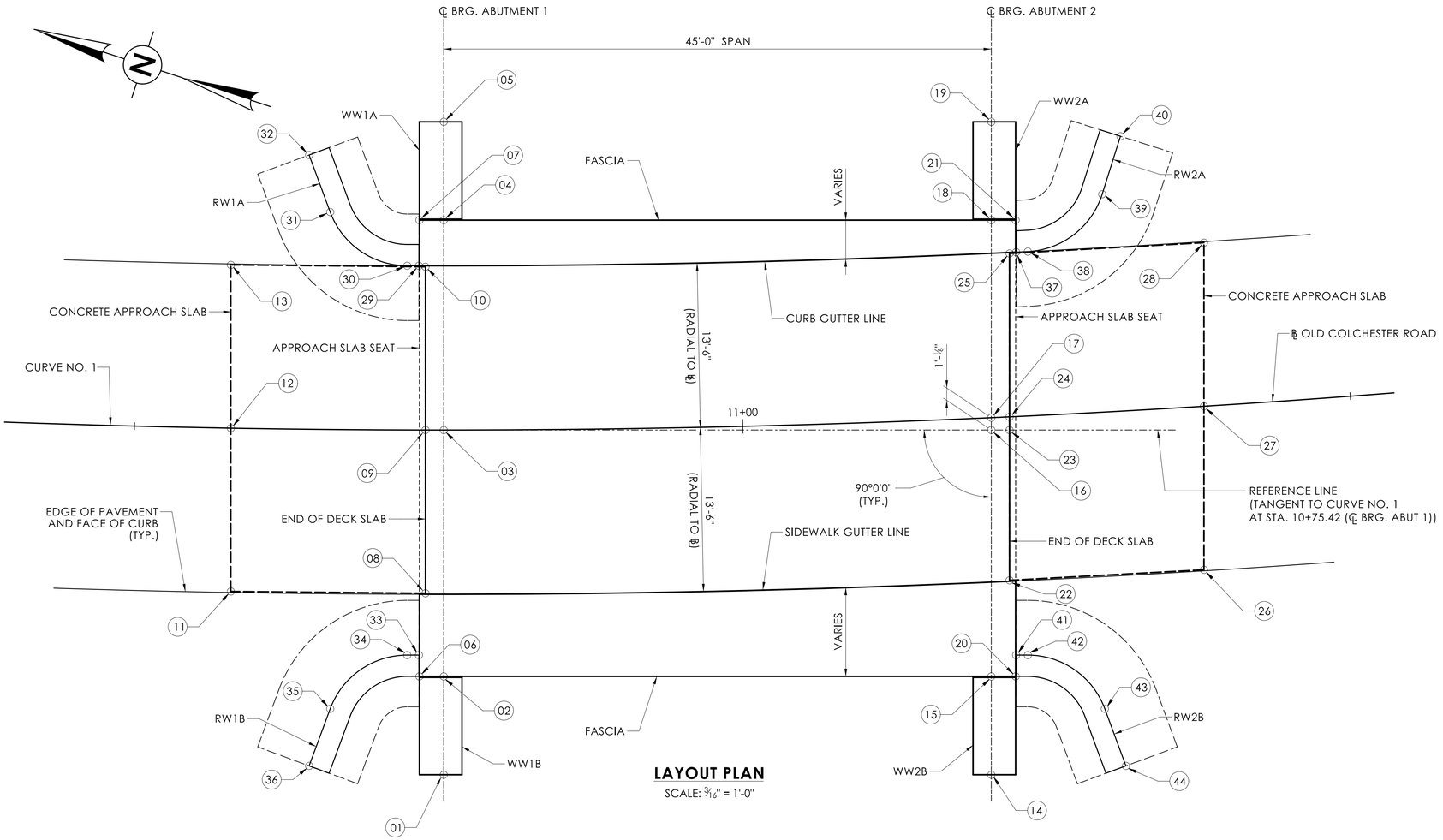
McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: GENERAL NOTES

DRAWING NO. S-05
SHEET NO. 04.05

LASTED SAVED BY: DKull **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_General_Notes.dgn
PLOTTED DATE: 10/29/2025



LAYOUT PLAN
SCALE: 3/16" = 1'-0"

CURVE NO. 1	
RADIUS:	1000'
DELTA:	12.007° Left
LENGTH:	209.185'
TANGENT:	105.169'
PI N:	787082.838
E:	1106665.864

WORKING POINT COORDINATES TABLE

LOCATION	W.P. #	STA.	OFFSET	NORTHING	EASTING
ABUTMENT 1	01	10+75.42	28.33 RT	787100.529	1106635.718
	02	10+75.42	20.33 RT	787103.014	1106643.322
	03	10+75.42	0.00 RT	787109.330	1106662.650
	04	10+75.42	17.33 LT	787114.714	1106679.126
	05	10+75.42	25.33 LT	787117.199	1106686.730
	06	10+73.46	20.25 RT	787104.941	1106642.780
	07	10+73.39	17.25 LT	787116.590	1106678.425
ABUTMENT 1 APPROACH SLAB	08	10+73.94	13.42 RT	787106.589	1106649.432
	09	10+73.92	0.00 RT	787110.756	1106662.185
	10	10+73.90	13.42 LT	787114.924	1106674.938
	11	10+58.16	13.42 RT	787121.843	1106644.605
	12	10+57.92	0.00 RT	787126.011	1106657.360
	13	10+57.69	13.42 LT	787130.180	1106670.115
ABUTMENT 2	14	11+19.16	29.32 RT	787057.755	1106649.696
	15	11+19.50	21.33 RT	787060.240	1106657.300
	16	11+20.39	1.01 RT	787066.556	1106676.628
	17	11+20.44	0.00 RT	787066.871	1106677.591
	18	11+21.19	16.30 LT	787071.940	1106693.104
	19	11+21.56	24.30 LT	787074.425	1106700.708
	20	11+21.46	21.33 RT	787058.365	1106658.001
	21	11+23.21	16.13 LT	787070.013	1106693.646
ABUTMENT 2 APPROACH SLAB	22	11+21.32	13.42 RT	787061.294	1106665.356
	23	11+21.89	1.08 RT	787065.130	1106677.094
	24	11+21.94	0.00 RT	787065.466	1106678.122
	25	11+22.57	13.42 LT	787069.639	1106690.889
	26	11+37.11	13.42 RT	787046.376	110.6671.136
	27	11+37.94	0.00 RT	787050.551	1106683.913
	28	11+38.79	13.42 LT	787054.727	1106696.692
RETAINING WALL 1A	29	10+73.35	13.50 LT	787115.465	1106674.850
	30	10+72.38	13.50 LT	787116.376	1106674.552
	31	10+65.92	17.87 LT	787123.765	1106676.779
	32	10+64.10	22.54 LT	787126.868	1106680.700
RETAINING WALL 1B	33	10+73.42	18.50 RT	787105.524	1106644.431
	34	10+72.48	18.50 RT	787106.435	1106644.133
	35	10+66.30	22.96 RT	787111.084	1106637.972
	36	10+64.66	27.66 RT	787111.273	1106632.976
RETAINING WALL 2A	37	11+23.13	13.50 LT	787069.158	1106691.161
	38	11+24.10	13.50 LT	787068.262	1106691.502
	39	11+30.55	17.89 LT	787063.914	1106697.879
	40	11+32.36	22.56 LT	787063.965	1106702.879
RETAINING WALL 2B	41	11+21.58	19.59 RT	787058.869	1106659.677
	42	11+22.52	19.63 RT	787057.958	1106659.975
	43	11+28.49	24.35 RT	787050.568	1106657.748
	44	11+29.93	29.13 RT	787047.466	1106653.827

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 00153 CARRYING QUARRY ROAD OVER I-95
TOWN(S): MILFORD
DRAWING TITLE: LAYOUT PLAN

DRAWING NO. S-06
SHEET NO. 04.06

LASTED SAVED BY: eproulx **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_WP-Layout_Quantities.dgn
PLOTTED DATE: 10/29/2025

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-1
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271	Northing:
Start Date: 5-9-22	Route No.:	Easting:
Finish Date: 5-11-22	Bridge No.: 4695	Surface Elevation:
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9.5		

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						ASPHALT		
	S-1	9 38 19 18	24	14			Brown, coarse to fine SAND, some Gravel, trace Brick.	
5	S-2	50/0"	0	0			Bouncing on BOULDER	
10	S-3	13 13 19 13	24	12			Grey / brown, silty, fine to medium SAND, trace Gravel.	
15	S-4	15 22 17 16	24	15			Grey / brown, silty, fine to medium SAND, trace Gravel.	
20	S-5	13 14 21 17	24	10			Brown, silty, fine to medium SAND, little Gravel.	
25	S-6	39 32 33 33	24	16			Brown, silty, fine to medium SAND, little Gravel.	
30	S-7	17 26 31 45	24	10			Brown, coarse to fine SAND, little Silt, trace Gravel.	
35	S-8	49 78 75 74	24	20			Grey, silty, fine SAND, trace Gravel.	
40	S-9	48 50/4"	10	7			Grey / brown, silty, fine SAND, trace Gravel.	
45	S-10	27 23 50/5"	17	12			Grey, fine SAND, some Silt, trace Clay Lenses	
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock:	NOTES:	Sheet 1 of 2
No. of Soil Samples: --- No. of Core Runs: ---		SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-1
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271	Northing:
Start Date: 5-9-22	Route No.:	Easting:
Finish Date: 5-11-22	Bridge No.: 4695	Surface Elevation:
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9.5		

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
50	S-11	15 26 28 34	24	12			Grey, fine SAND, some Silt, trace Clay Lenses	
55	S-12	28 35 36 50/5"	23	16			Grey, fine SAND, some Silt, trace Clay Lenses	
60	C-1		60	48	54.2	Schist & Quartz	SCHISTS and QUARTZ	
65	C-2		60	56	93		SCHISTS and QUARTZ	
70							END OF BORING 70ft	
75								
80								
85								
90								
95								
100								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock:	NOTES:	Sheet 2 of 2
No. of Soil Samples: --- No. of Core Runs: ---		SM-001-M REV. 1/02

REV. | DATE | REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: BORING LOGS (1 OF 5)

DRAWING NO. S-07
SHEET NO. 04.07

LASTED SAVED BY: smerkwan **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Boring_Logs.dgn
PLOTTED DATE: 10/29/2025

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-2
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271	Northing:
Start Date: 5-4-22	Route No.:	Easting:
Finish Date: 5-9-22	Bridge No.: 4695	Surface Elevation:
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9.5		

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						ASPHALT		
	S-1	10 9 10 10	24	7			Brown, fine to coarse SAND and GRAVEL, trace Silt.	
5	S-2	13 18 15 14	24	17			Brown, fine to coarse SAND and GRAVEL, trace Silt, trace brick	
10	S-3	27 11 10 9	24	6			Brown, silty, fine SAND, trace Gravel.	
15	S-4	10 13 17 21	24	23			Brown, silty, fine SAND, trace Gravel.	
20	S-5	9 10 18 18	24	12			Brown, silty, fine SAND, trace Gravel.	
25	S-6	8 11 13 22	24	8			Brown, silty, fine SAND, trace Gravel.	
30	S-7	31 34 45 42	24	16			Brown, silty, fine SAND, trace Gravel.	
35	S-8	28 70 100/5"	17	13			Brown, silty, fine SAND, trace Gravel.	
40	S-9	44 67 50/1"	13	11			Grey / orange, silty, fine SAND, trace fine Gravel.	
45	S-10	33 50 61 59	24	18			Grey, silty, fine SAND, trace fine Gravel.	
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in	NOTES:	Sheet 1 of 2
Earth: Rock:		
No. of Soil Samples: --- No. of Core Runs: ---		SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-2
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271	Northing:
Start Date: 5-4-22	Route No.:	Easting:
Finish Date: 5-9-22	Bridge No.: 4695	Surface Elevation:
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9.5		

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
50	S-11	41 55 100/5"	17	10			Grey, silty, fine SAND, trace fine Gravel.	
55	S-12	27 26 35 38	24	13			Grey, silty, fine SAND, trace fine Gravel.	
60	C-1		60	30	30		Grey MICA SCHISTS	
65	C-2		60	53	63.2		Grey MICA SCHISTS	
70							END OF BORING 70ft	
75								
80								
85								
90								
95								
100								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in	NOTES:	Sheet 2 of 2
Earth: Rock:		
No. of Soil Samples: --- No. of Core Runs: ---		SM-001-M REV. 1/02

REVISION DESCRIPTION | DATE | REV.

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

McFarland Johnson
275 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: BORING LOGS (2 OF 5)

DRAWING NO. S-08
SHEET NO. 04.08

LASTED SAVED BY: smerkwan **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Boring_Logs.dgn
PLOTTED DATE: 10/29/2025

Driller: Rick Posa	**Connecticut DOT Boring Report**		Hole No.: B-3
Inspector: Robert	Town: Hebron, CT		Stat./Offset:
Engineer:	Project No.: C15271		Northing:
Start Date: 4-29-22	Route No.:		Easting:
Finish Date: 5-3-22	Bridge No.: 4695		Surface Elevation:
Project Description: Old Colchester Rd Over Raymon Brook			
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8		Core Barrel Type:
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @9			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						ASPHALT		
	1	11 14 11 18	24	18			Orange / brown, fine to coarse SAND, little Gravel, trace Silt.	
5	2	3 1 8 12	24	12			brown fine to coarse SAND, little Gravel, little Silt, trace wood.	
10	3	13 16 6 11	24	2			broken cobble pieces	
15	4	11 13 14 20	24	13			brown, fine to medium SAND, little Silt, trace Gravel.	
20	5	8 7 8 11	24	12			brown fine SAND, some Silt, trace fine Gravel.	
25	6	15 25 20 36	24	13			Grey / brown, fine SAND, some Silt, little fine to medium Gravel.	
30	7	52 50/1"	7	7			Grey / brown, fine SAND, some Silt, little fine to medium Gravel.	
35	8	50 50/4"	10	7			Grey, silty, fine SAND, trace fine Gravel.	
40	9	33 40 39 45	24	21			grey, silty, fine SAND, trace Gravel.	
45	10	19 35 31 40	24	17			grey, silty, fine SAND, trace Gravel.	
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES: casing broke, could not get barrel down in hole.	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**		Hole No.: B-3
Inspector: Robert	Town: Hebron, CT		Stat./Offset:
Engineer:	Project No.: C15271		Northing:
Start Date: 4-29-22	Route No.:		Easting:
Finish Date: 5-3-22	Bridge No.: 4695		Surface Elevation:
Project Description: Old Colchester Rd Over Raymon Brook			
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8		Core Barrel Type:
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @9			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
50	11	14 26 30 43	24	13			grey, silty, fine SAND, trace Gravel.	
55	12	30 100 50/1"	13	12			grey, silty, fine SAND, trace Gravel.	
60	13	41 50/1"	7	6			grey, silty, fine SAND, trace Gravel.	
							END OF BORING 60.583ft	
65								
70								
75								
80								
85								
90								
95								
100								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES: casing broke, could not get barrel down in hole.	Sheet 2 of 2 SM-001-M REV. 1/02

REVISION DESCRIPTION | DATE | REV.

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: BORING LOGS (3 OF 5)

DRAWING NO. S-09
SHEET NO. 04.09

LASTED SAVED BY: smerkwan **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Boring_Logs.dgn
PLOTTED DATE: 10/29/2025

Driller: Rick Posa	**Connecticut DOT Boring Report**		Hole No.: B-3A
Inspector: Robert	Town: Hebron, CT		Stat./Offset:
Engineer:	Project No.: C15271		Northing:
Start Date: 5-12-22	Route No.:		Easting:
Finish Date: 5-12-22	Bridge No.: 4695		Surface Elevation:
Project Description: Old Colchester Rd Over Raymon Brook			
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8		Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @9			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0								
5								
10								
15								
20								
25								
30								
35								
40								
45								
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock:	NOTES: Casing broke on B-3, redrilled to 60.0 and cored Rock 60.0 - 70.0	Sheet 1 of 2
No. of Soil Samples: --- No. of Core Runs: ---		SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**		Hole No.: B-3A
Inspector: Robert	Town: Hebron, CT		Stat./Offset:
Engineer:	Project No.: C15271		Northing:
Start Date: 5-12-22	Route No.:		Easting:
Finish Date: 5-12-22	Bridge No.: 4695		Surface Elevation:
Project Description: Old Colchester Rd Over Raymon Brook			
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8		Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @9			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
50								
55								
60	C-1		60	49	89		Grey SCHESTS with QUARTZ	
65								
70	C-2		60	58	94		Grey SCHESTS with QUARTZ END OF BORING 70ft	
75								
80								
85								
90								
95								
100								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock:	NOTES: Casing broke on B-3, redrilled to 60.0 and cored Rock 60.0 - 70.0	Sheet 2 of 2
No. of Soil Samples: --- No. of Core Runs: ---		SM-001-M REV. 1/02

REVISION DESCRIPTION | DATE | REV.

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

McFarland Johnson
275 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: BORING LOGS (4 OF 5)

DRAWING NO. S-10
SHEET NO. 04.10

LASTED SAVED BY: smerkwan **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Boring_Logs.dgn
PLOTTED DATE: 10/29/2025

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-4
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271	Northing:
Start Date: 5-3-22	Route No.:	Easting:
Finish Date: 5-4-22	Bridge No.: 4695	Surface Elevation:
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9		

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	4 7 8 11	24	7		ASPHALT	orange / brown, fine to medium SAND, little Gravel and Silt, trace Brick.	
5	S-2	8 9 12 12	24	7			orange / brown, fine to medium SAND, little Gravel and Silt, trace Brick, broken cobble pieces.	
10	S-3	17 15 12 13	24	12			grey / brown, fine to medium SAND, some Silt and Gravel.	
15	S-4	19 25 14 14	24	12			brown fine to coarse SAND and GRAVEL, little Silt.	
20	S-5	50/0"	0	0		BOULDER	Bouncing on BOULDER	
25	S-6	100/5"	5	0			NO RECOVERY bouncing on Boulder	
30	S-7	26 53 46 41	24	13			Grey, silty, fine SAND, trace fine Gravel.	
35	S-8	28 43 51 54	24	7			Grey, silty, fine SAND, trace fine Gravel.	
40	S-9	19 42 51 55	24	16			Grey, fine, silty SAND, trace fine Gravel.	
45	S-10	57 44 51 56	24	20			Grey, fine SAND, some Silt, trace fine Gravel.	
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in	NOTES:	Sheet 1 of 2
Earth: Rock:		
No. of Soil Samples: --- No. of Core Runs: ---		SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-4
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271	Northing:
Start Date: 5-3-22	Route No.:	Easting:
Finish Date: 5-4-22	Bridge No.: 4695	Surface Elevation:
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9		

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
50	S-11	28 39 39 48	24	21			Grey, fine SAND, some Silt, trace fine Gravel, with lenses of fine Sand.	
55	S-12	29 36 41 49	24	20			Grey, fine SAND, some Silt, trace fine Gravel, with lenses of fine Sand.	
60	C-1		60	50	72		Grey SCHISTS.	
65							END OF BORING 65ft	
70								
75								
80								
85								
90								
95								
100								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in	NOTES:	Sheet 2 of 2
Earth: Rock:		
No. of Soil Samples: --- No. of Core Runs: ---		SM-001-M REV. 1/02

REVISION DESCRIPTION | DATE | REV.

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

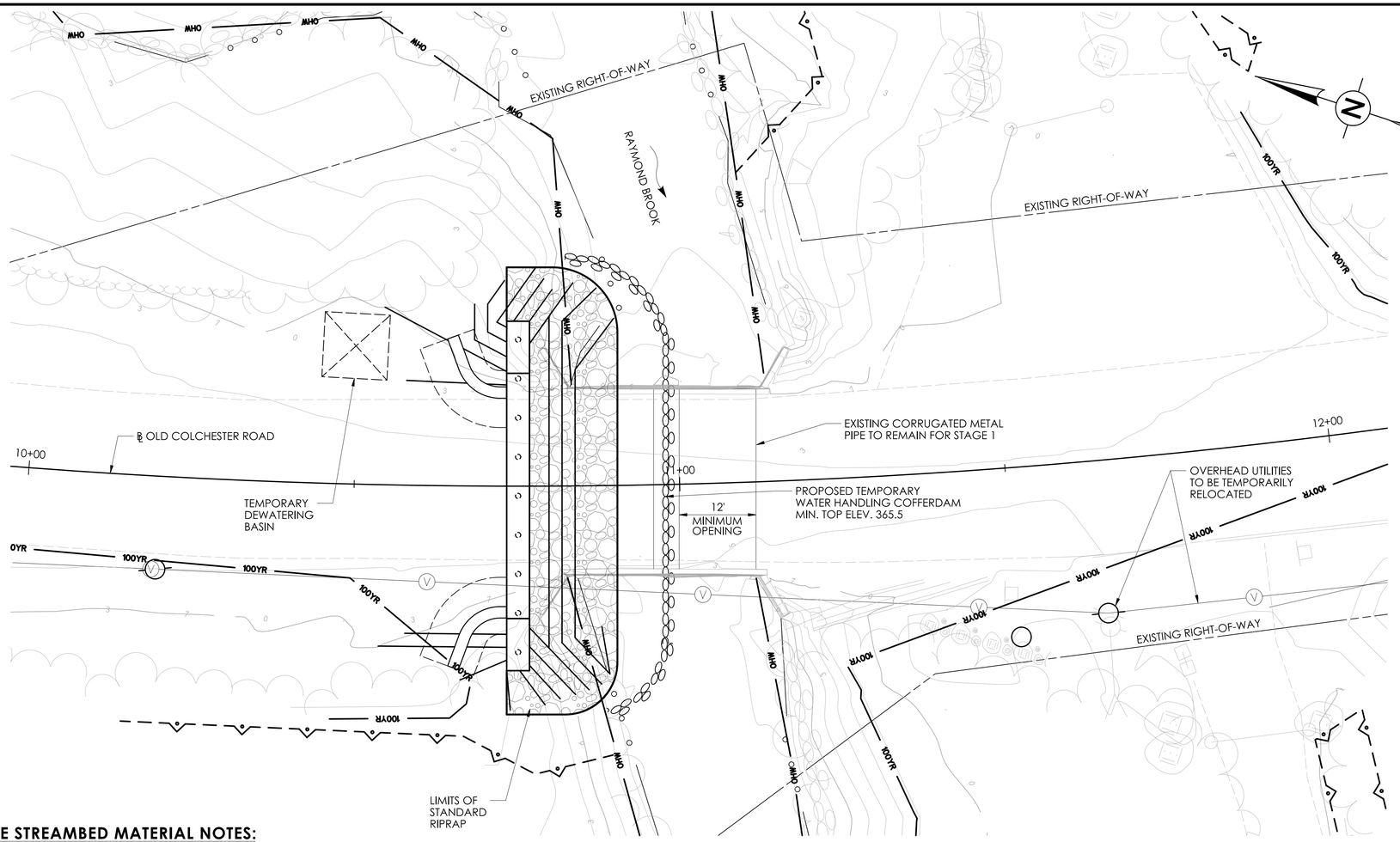
McFarland Johnson
275 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: BORING LOGS (5 OF 5)

DRAWING NO. S-11
SHEET NO. 04.11

LASTED SAVED BY: smerkwan **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Boring_Logs.dgn
PLOTTED DATE: 10/29/2025



WATER HANDLING PLAN (STAGE 1)

SCALE: 1" = 10'

WATER HANDLING NOTES:

1. THE CONTRACTOR SHALL DESIGN THE TEMPORARY WATER HANDLING COFFERDAMS AND SUBMIT MEANS AND METHODS OF HANDLING WATER TO THE ENGINEER FOR APPROVAL.
2. THE COST OF THE TEMPORARY WATER HANDLING COFFERDAMS, TEMPORARY BYPASS PIPES, TEMPORARY DRAINAGE PIPES, STREAM DIVERSION STRUCTURES, PUMPS, AND ANY OTHER NECESSARY INCIDENTAL APPURTENANCES REQUIRED TO HANDLE THE WATER SHALL BE INCLUDED IN THE COST OF THE ITEM "HANDLING WATER".
3. ALL WATER PUMPED FROM WITHIN THE TEMPORARY WATER HANDLING COFFERDAMS TO BE HANDLED THROUGH THE TEMPORARY SEDIMENTATION BASIN. THE SMALL TEMPORARY SEDIMENTATION BASIN AND PUMP(S) SHALL BE SIZED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. COST OF TEMPORARY SEDIMENTATION BASIN SHALL BE INCLUDED IN THE COST OF ITEM "HANDLING WATER".
4. TOP OF TEMPORARY WATER HANDLING COFFERDAM SHALL BE MINIMUM EL. 365.5.
5. THE CLEAR SPAN BETWEEN TEMPORARY WATER HANDLING COFFERDAMS SHALL BE APPROXIMATELY 12'.

SUGGESTED CONSTRUCTION SEQUENCE:

1. IMPLEMENT THE DETOUR.
2. INSTALL SEDIMENTATION CONTROL SYSTEM AND CLEAR AND GRUB SITE AS REQUIRED.
3. RELOCATE UTILITIES
4. CONSTRUCT SEDIMENTATION BASINS, INSTALL TEMPORARY WATER HANDLING COFFERDAM, AND DEWATER SITE AS REQUIRED.
5. EXCAVATE AND DEMOLISH WESTERN HALF OF EXISTING CULVERT. LEAVE EXISTING PIPE ADJACENT TO ABUTMENT 2 FOR TEMPORARY WATER DIVERSION STRUCTURE.
6. EXCAVATE FOR PROPOSED ABUTMENT. INSTALL MICROPILES AND PERFORM MICROPILE TESTS AS REQUIRED.
7. CONSTRUCT PROPOSED ABUTMENT 1 AND WINGWALLS, GRADE THE PROPOSED EMBANKMENTS AND CHANNEL. NOTE THAT THE ABUTMENTS ARE NOT TO BE BACKFILLED UNTIL THE PRESTRESSED DECK UNITS ARE ERECTED AND GROUTED.
8. PERFORM FINAL CHANNEL GRADING WITHIN CONFINEMENT
9. REMOVE STAGE 1 TEMPORARY WATER HANDLING COFFERDAM.
10. INSTALL STAGE 2 TEMPORARY DEWATERING BASIN.
11. CONSTRUCT STAGE 2 WATER HANDLING COFFERDAM, DIVERT WATER TO CHANNEL ADJACENT TO ABUTMENT 1.
12. REMOVE REMAINING PORTION OF EXISTING STRUCTURE.
13. EXCAVATE FOR PROPOSED ABUTMENT, INSTALL MICROPILES AND PERFORM MICROPILE TESTS AS REQUIRED.
14. CONSTRUCT PROPOSED ABUTMENT 2 AND WINGWALLS, GRADE THE PROPOSED EMBANKMENTS AND CHANNEL.
15. INSTALL PROPOSED DRAINAGE OUTLET AND PROPOSED DRAINAGE.
16. ESTABLISH GRADES IN THE STREAMBED AND ALONG BANKS.
17. REMOVE TEMPORARY WATER HANDLING COFFERDAM SYSTEM.
18. ERECT PRESTRESSED DECK UNITS.
19. BACKFILL ABUTMENTS UP TO BOTTOM OF APPROACH SLABS.
20. POUR APPROACH SLABS AND SHEAR SLAB.
21. CONSTRUCT ROADWAY APPROACHES AND PERFORM FINAL GRADING.
22. REMOVE EROSION AND SEDIMENTATION CONTROL UPON PERMANENT STABILIZATION.

UNCONFINED IN-STREAM WORK:

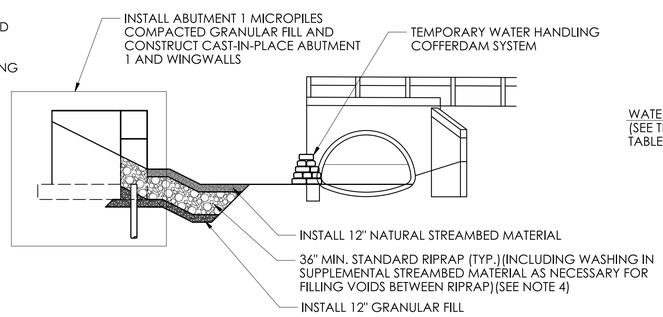
1. UNCONFINED IN-STREAM WORK WITHIN THE WATERCOURSE IS RESTRICTED TO THE PERIOD FROM JUNE 1ST TO SEPTEMBER 30TH, INCLUSIVE.
2. CONTACT MIKE STEEVES AT MichaelE.Steeves@ct.gov or DEEP FISHERIES AT deep.fisheries@ct.gov TEN DAYS BEFORE THE CHANNEL BOTTOM IS REGRADED.

NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE REMOVAL OF THE EXISTING STRUCTURE AND THE INSTALLATION OF THE NEW STRUCTURE SHALL BE STOCKPILED AND THEN REPLACED AT THE LOCATIONS AND TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION FOR ITEM NO. 0202216A - EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL.
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISION FOR ITEM NO. 0202217A - SUPPLEMENTAL STREAMBED CHANNEL MATERIAL.
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE OF THE WETLAND LIMITS AND PROTECTED WITH A SEDIMENTATION CONTROL SYSTEM.
4. THE WASHING IN OF SUPPLEMENTAL STREAMBED MATERIAL AS NECESSARY FOR FILLING IN THE VOIDS BETWEEN THE RIPRAP SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISION "WASHING-IN SUPPLEMENTAL STREAMBED MATERIAL".

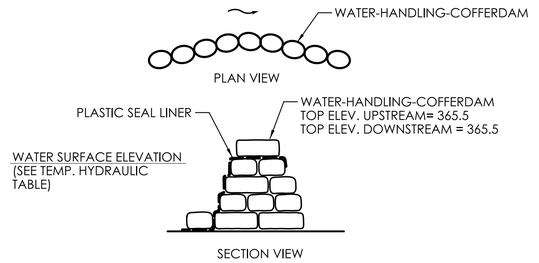
LEGEND

FW	FEMA FLOODWAY
	LIMITS OF FEDERAL AND STATE WETLANDS
OHW	LIMITS OF ORDINARY HIGH WATER
	EDGE OF WATER
	FEMA 100-YR. FLOOD ELEVATION (CALCULATED) LIMIT
	TEMPORARY WATER HANDLING COFFERDAM



WATER HANDLING ELEVATION (STAGE 1)

SCALE: 1" = 10'



WATER-HANDLING-COFFERDAM SANDBAGS

SCALE: NOT TO SCALE

TEMPORARY HYDRAULIC SUMMARY DATA	STAGE 1	STAGE 2
AVERAGE DAILY FLOW (ADF)	15 CFS	15 CFS
AVERAGE SPRING FLOW (ASF)	30 CFS	30 CFS
2 - YEAR DESIGN FREQUENCY	384 CFS	384 CFS
TEMPORARY FREQUENCY	1.25 YEAR	1.25 YEAR
TEMPORARY DISCHARGE	180 CFS	180 CFS
TEMPORARY DESIGN SURFACE ELEVATION (UPSTREAM)	364.6 FEET	364.4 FEET
TEMPORARY DESIGN SURFACE ELEVATION (DOWNSTREAM)	363.9 FEET	364.1 FEET

REV. | DATE | REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

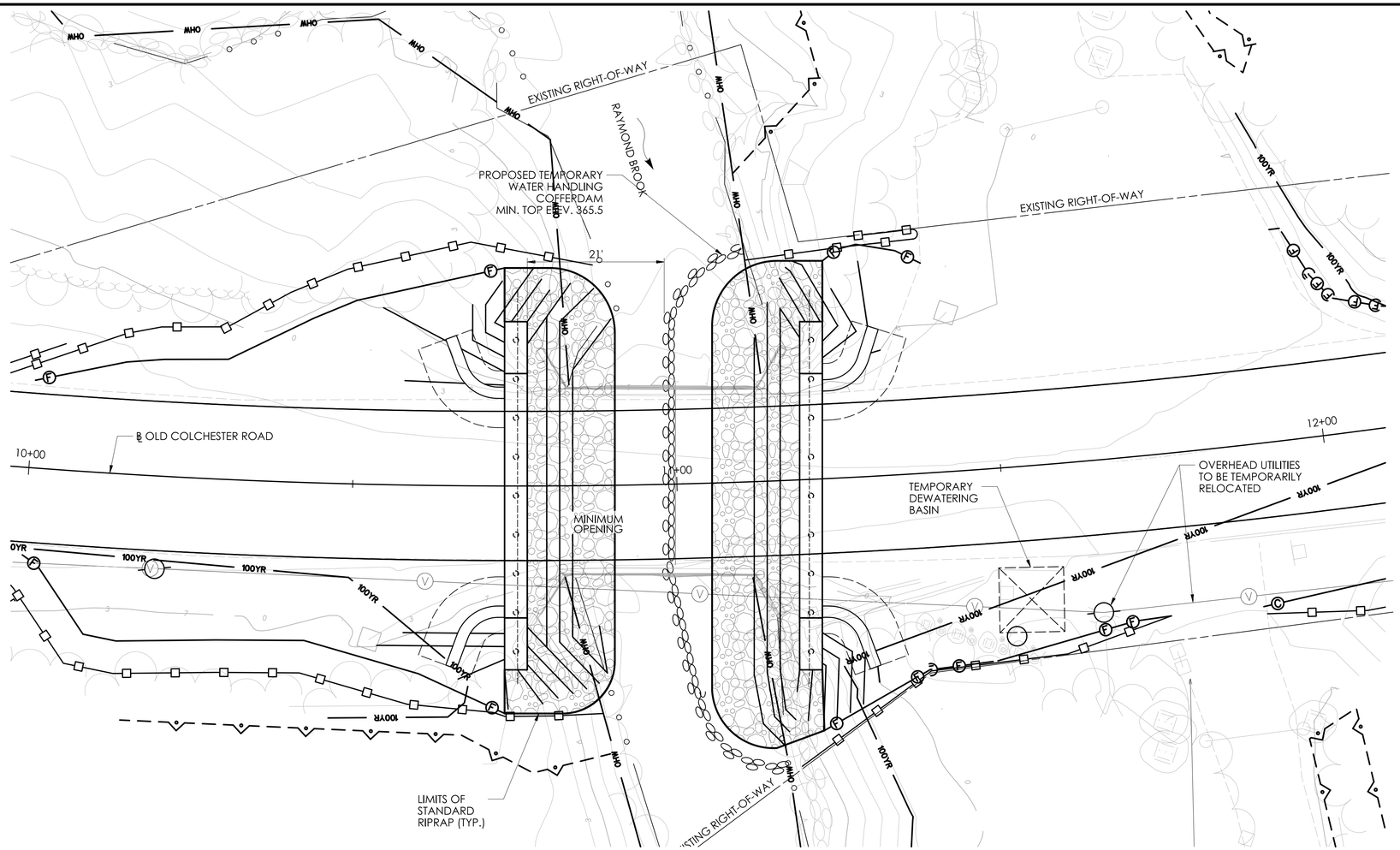
McFarland Johnson
275 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: WATER HANDLING PLAN (STAGE 1)

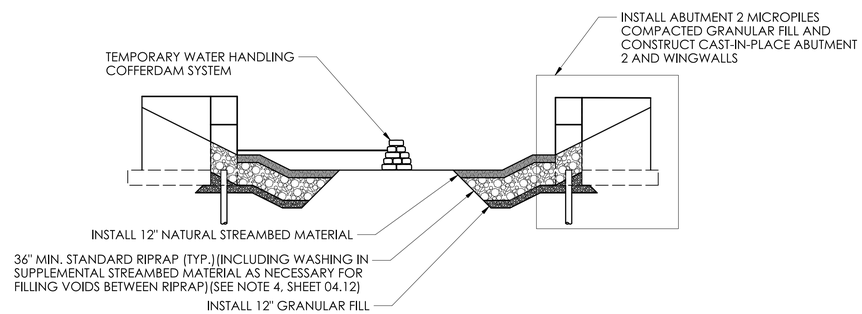
DRAWING NO. S-12
SHEET NO. 04.12

LASTED SAVED BY: DKull **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Water_Handling_Plan_Stage 1.dgn
PLOTTED DATE: 10/29/2025



WATER HANDLING PLAN (STAGE 2)

SCALE: 1" = 10'



WATER HANDLING ELEVATION (STAGE 2)

SCALE: 1" = 10'

TEMPORARY HYDRAULIC SUMMARY DATA	STAGE 1	STAGE 2
AVERAGE DAILY FLOW (ADF)	15 CFS	15 CFS
AVERAGE SPRING FLOW (ASF)	30 CFS	30 CFS
2 - YEAR DESIGN FREQUENCY	384 CFS	384 CFS
TEMPORARY FREQUENCY	1.25 YEAR	1.25 YEAR
TEMPORARY DISCHARGE	180 CFS	180 CFS
TEMPORARY DESIGN SURFACE ELEVATION (UPSTREAM)	364.6 FEET	364.4 FEET
TEMPORARY DESIGN SURFACE ELEVATION (DOWNSTREAM)	363.9 FEET	364.1 FEET

NOTES

1. FOR WATER HANDLING NOTES, SEE SHEET S-12.

LEGEND

- FEMA FLOODWAY
- LIMITS OF FEDERAL AND STATE WETLANDS
- LIMITS OF ORDINARY HIGH WATER
- EDGE OF WATER
- FEMA 100-YR. FLOOD ELEVATION (CALCULATED) LIMIT
- TEMPORARY COFFERDAM

REV. | DATE | REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

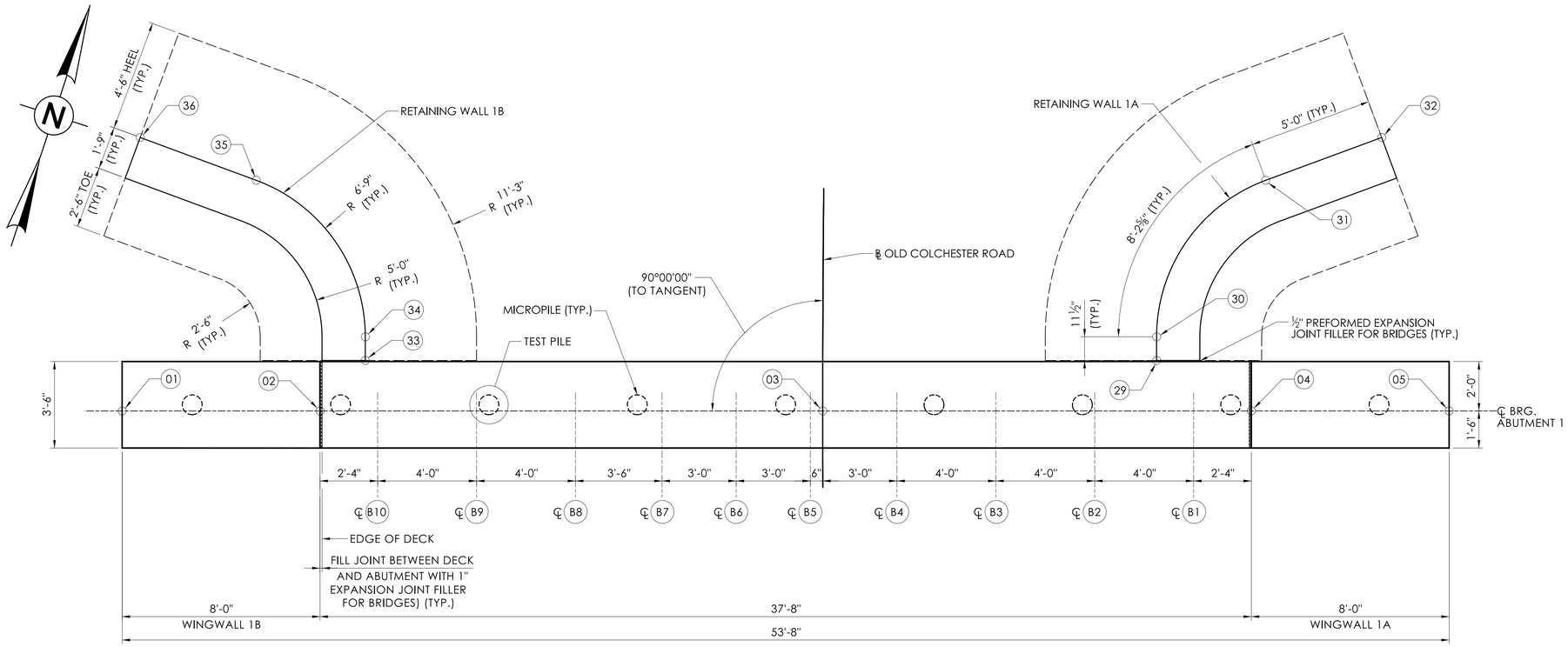
McFarland Johnson
273 Corporate Drive
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Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: WATER HANDLING PLAN (STAGE 2)

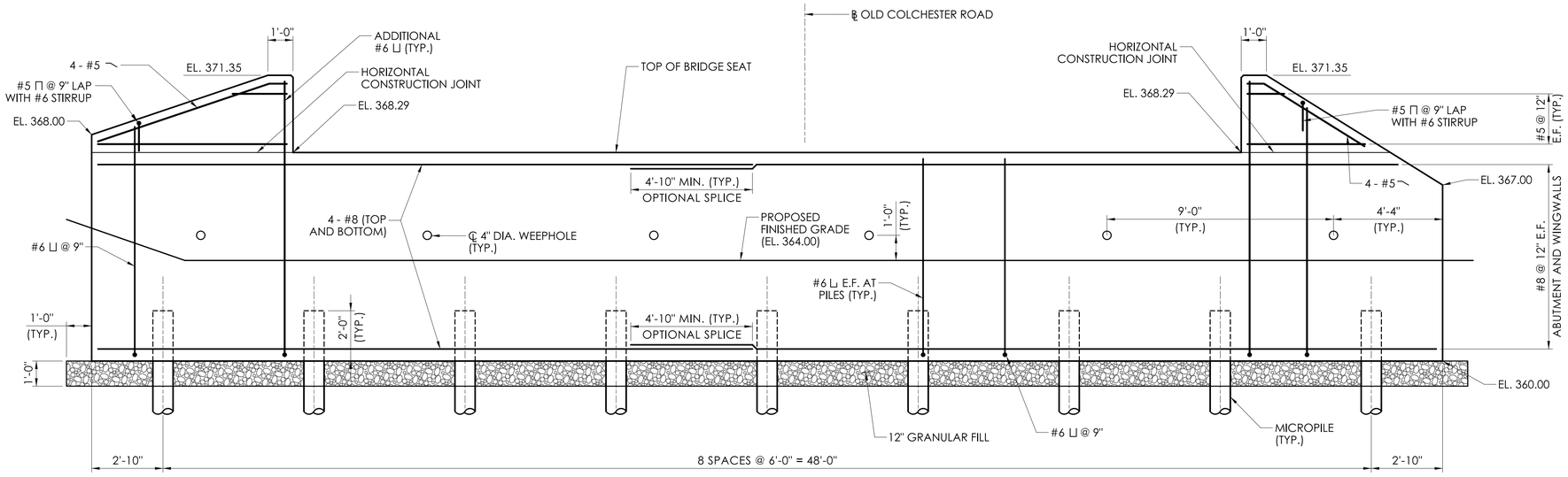
DRAWING NO. S-13
SHEET NO. 04.13

LASTED SAVED BY: DKull **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Water_Handling_Plan_Stage 2.dgn
PLOTTED DATE: 10/29/2025



ABUTMENT 1 PLAN

SCALE: ⅜" = 1'-0"



ABUTMENT 1 ELEVATION

SCALE: ⅜" = 1'-0"

ABUTMENT NOTES:

1. BOTH ABUTMENTS SHALL BE BACKFILLED SIMULTANEOUSLY. NO MORE THAN 12 INCHES OF DIFFERENTIAL BACKFILL SHALL BE PERMITTED. BACKFILLING SHALL NOT BEGIN UNTIL THE ABUTMENT AND BEAM ERECTION IS COMPLETE AND THE ANCHOR RODS HAVE BEEN GROUTED AND CURED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STABILITY OF THE ABUTMENTS AND DECK BEAMS UNTIL THE SHEAR SLAB HAS CURED.
3. THE COST OF 12"x12"x12" BAGGED STONE AT EACH WEEPHOLE TO BE INCLUDED IN THE ITEM "PERVIOUS STRUCTURE BACKFILL".
4. THE COST OF 4" DIA. WEEPHOLE TO BE INCLUDED IN THE ITEM "ABUTMENT AND WALL CONCRETE".
5. THE COST OF ½" PREFORMED EXPANSION JOINT FILLER TO BE INCLUDED IN THE ITEM "½" EXPANSION JOINT FILLER FOR BRIDGES".
6. THE COST OF 1" PREFORMED EXPANSION JOINT FILLER TO BE INCLUDED IN THE ITEM "1" EXPANSION JOINT FILLER FOR BRIDGES".

BEAM SEAT ELEVATION NOTES:

1. BEAM SEAT ELEVATIONS ARE BASED ON AN AVERAGE CAMBER AT ERECTION OF 1.52". CAMBER AT ERECTION EQUALS PRESTRESS CAMBER MINUS DEFLECTIONS DUE TO BEAM, DECK AND COMPOSITE DEAD LOADS. CAMBER SHALL BE MANAGED SO A MAXIMUM CAMBER AT ERECTION OF 1.52" IS ACHIEVED. CAMBER VALUES LESS THAN 1.52" ARE PERMITTED AND CAN BE ACCOMMODATED WITH STEEL SHIMS AT THE BEARINGS. SEE NOTE 3 FOR PAYMENT INFORMATION.
2. THE BEAM SEAT ELEVATION MAY BE ADJUSTED DUE TO THE MEASURED CAMBER OF THE BEAMS PRIOR TO ERECTION. ANY MODIFICATION TO THE BEAM SEAT ELEVATION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
3. STEEL SHIMS (IF REQUIRED) SHALL BE STAINLESS STEEL AND SIZED TO FIT THE RESPECTIVE BEARINGS. THE STEEL SHIMS SHALL BE COATED WITH AN EPOXY BONDING AGENT ON THE TOP SURFACE TO BE MATED WITH THE BEARING PRIOR TO BEARING PLACEMENT. COSTS FOR THE STEEL SHIMS SHALL BE INCLUDED IN THE ITEM "ELASTOMERIC BEARING PADS".
4. REFER TO SHEET S-19 FOR FURTHER INFORMATION ON THE CAMBER AND REQUIRED SLAB THICKNESS AT THE CENTERLINES OF BEARINGS.

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

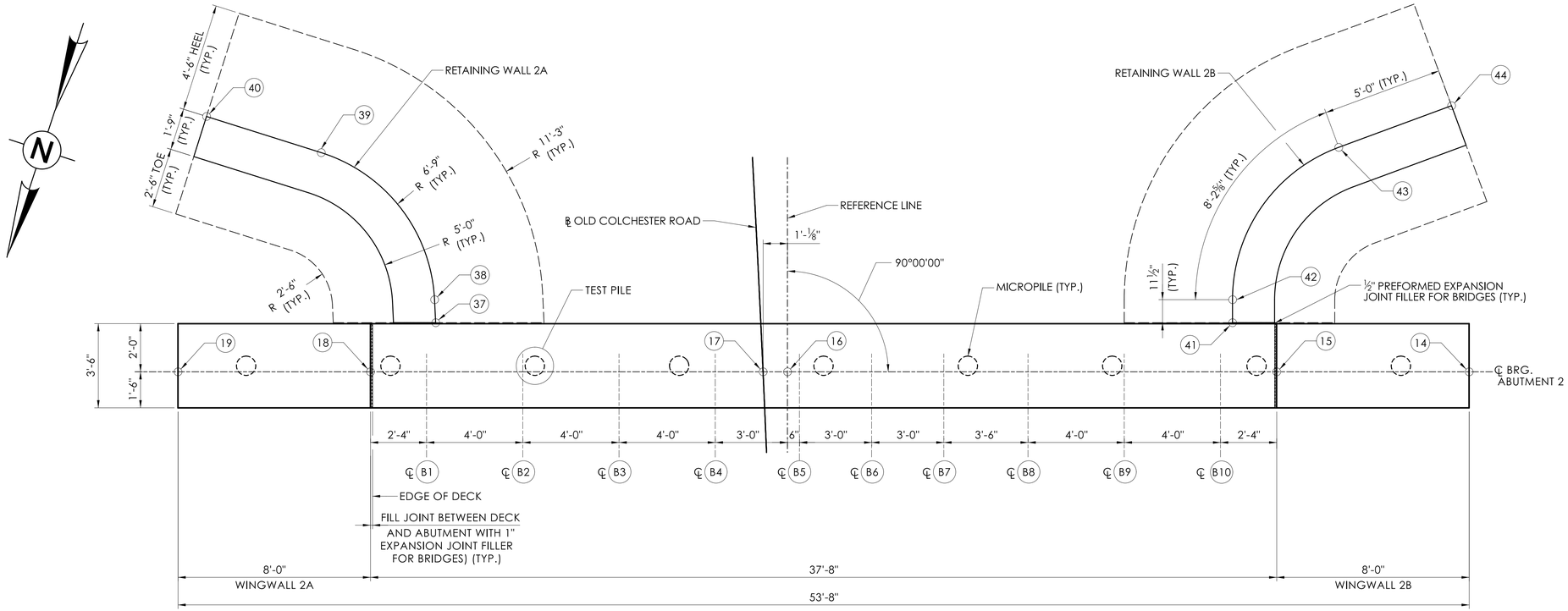
McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: ABUTMENT 1 PLAN AND ELEVATION

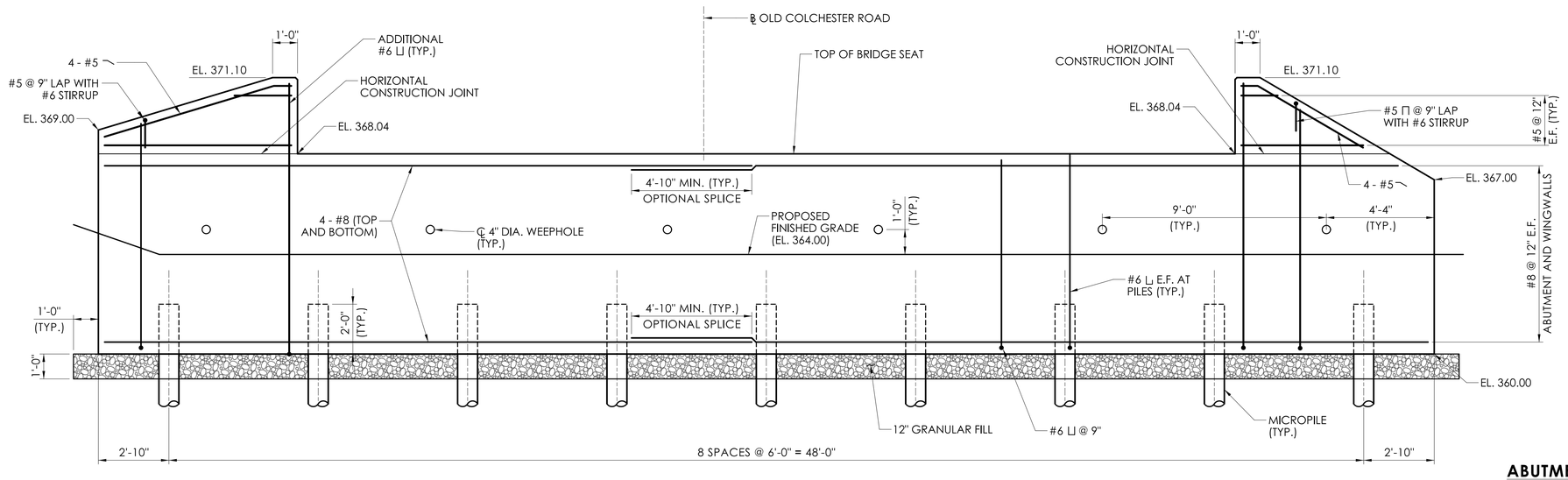
DRAWING NO. S-14
SHEET NO. 04.14

LASTED SAVED BY: eproulx **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Abutment.dgn
PLOTTED DATE: 10/29/2025



ABUTMENT 2 PLAN

SCALE: ⅜" = 1'-0"



ABUTMENT 2 ELEVATION

SCALE: ⅜" = 1'-0"

ABUTMENT NOTES:

1. FOR ABUTMENT NOTES AND BEAM SEAT NOTES, SEE SHEET S-14.

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

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TOWN OF HEBRON, CT.

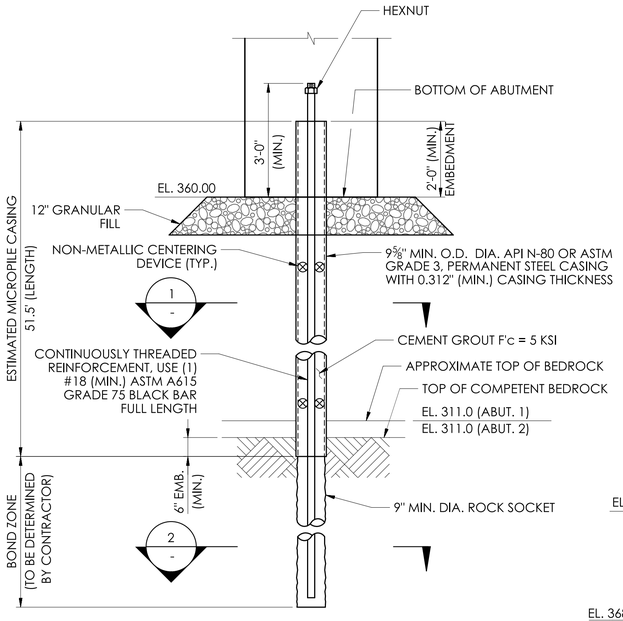
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PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: ABUTMENT 2 PLAN AND ELEVATION

DRAWING NO. S-15
SHEET NO. 04.15

LASTED SAVED BY: eproulx **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Abutment.dgn
PLOTTED DATE: 10/29/2025

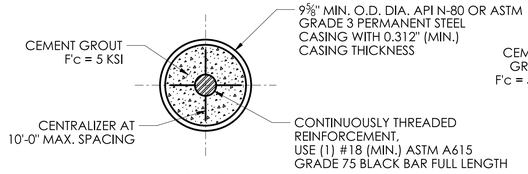
MICROPILE NOTES:

1. THE MICROPILE SHALL BE DESIGNED BY THE CONTRACTOR ACCORDING TO THE PROJECT SPECIFICATIONS, THE LATEST VERSION OF AASHTO LRFD BRIDGE DESIGN SPECIFICATION INCLUDING CURRENT INTERIM SPECIFICATIONS AND THE LATEST VERSION OF THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL.
2. THE CONTRACTOR SHALL SELECT AND DESIGN THE MICROPILE TYPE, SIZE, PILE TOP ATTACHMENT, INSTALLATION MEANS AND METHODS, ESTIMATE THE GROUND-GROUT BOND VALUE AND DETERMINE THE REQUIRED GROUT BOND LENGTH AND FINAL MICROPILE DIAMETER, TAKING INTO CONSIDERATION THE MINIMUM DESIGN REQUIREMENTS INDICATED ON THIS DRAWING.
3. THE MICROPILE LOAD CAPACITIES SHALL BE CONFIRMED AND VERIFIED BY VERIFICATION AND PROOF LOAD TESTING AS REQUIRED AND MUST MEET THE ACCEPTANCE CRITERIA SPECIFIED IN CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 819 (2024) WITH SUPPLEMENTAL SPECIFICATIONS DATED JANUARY 2025.
4. NO SPLICING WILL BE ALLOWED WITHIN THE FIRST 10 FEET OF THE MICROPILE.
5. MECHANICAL SPLICE COUPLERS SHALL DEVELOP 125% IN TENSION AND COMPRESSION, OF THE SPECIFIED YIELD STRENGTH OF THE BAR BEING SPLICED.
6. CASING JOINTS ARE NOT PERMITTED TO BE LOCATED WITHIN 10 FEET OF THE BOTTOM OF THE PILE CAP.
7. THE MICROPILE CONNECTION/ANCHORAGE OF THE PILE TO THE FOOTING SHALL BE DESIGNED BY THE CONTRACTOR AND SHALL EFFECTIVELY DISTRIBUTE THE DESIGN FORCE TO THE CAST-IN-PLACE CONCRETE INTEGRAL ABUTMENT. THE CONNECTION SHALL BE DESIGNED FOR 100% OF THE EXTREME LIMIT OF THE PILE.
8. PROPOSED CENTRAL BAR SHALL EXTEND TO THE FULL LENGTH OF THE MICROPILE FROM THE PILE HEAD TO THE BOTTOM OF THE ROCK SOCKET. IF MULTIPLE REINFORCEMENT BARS ARE USED, INCLUDE SPACERS TO ASSURE BOND STRENGTH IS MAINTAINED.
9. MICROPILES SHALL BE SOCKETED INTO COMPETENT BEDROCK, AS DETERMINED BY THE CONTRACTOR'S ENGINEER AND CONFIRMED BY THE MUNICIPALITY. THE CONTRACTOR'S ENGINEER SHALL DETERMINE THE ROCK SOCKET LENGTH TO DEVELOP THE NOMINAL GEOTECHNICAL RESISTANCE FROM THE COMPETENT BEDROCK, GROUT BOND WITH TIP RESISTANCE DISCOUNTED.
10. MICROPILES SHALL BE DESIGNED FOR THE EXTREME LIMIT STATE FOR THE LOADS PROVIDED AND THE CHANGED FOUNDATION CONDTIONS RESULTING FROM SCOUR. THE MICROPILES SHALL BE ASSUMED TO BE UNBRACED FROM THE BOTTOM OF THE PILE CAP TO THE MAXIMUM SCOUR ELEVATION OF EL. 358.90 FOR THE EXTREME LIMIT STATE.
11. THE MICROPILES SHALL BE DESIGNED USING PERMANENT STEEL CASINGS. THE CASING SHALL EXTEND INTO BEDROCK.
12. FOR MICROPILE LOCATIONS, SEE SHEETS S-14 & S-15.
13. PRIOR TO THE INSTALLATION OF THE MICROPILES, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL HIS METHOD AND SEQUENCE OF MICROPILE INSTALLATION.
14. REFER TO GEOTECHNICAL ENGINEERING REPORT FOR BRIDGE NO. 04695 DATED 07/25/2024 FOR ADDITIONAL INFORMATION.



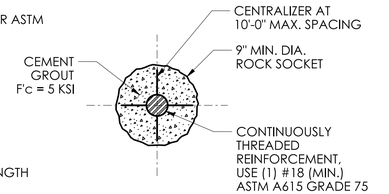
TYPICAL MICROPILE

SCALE: ½" = 1'-0"



SECTION 1 (CASED MICROPILE)

SCALE: 1½" = 1'-0"

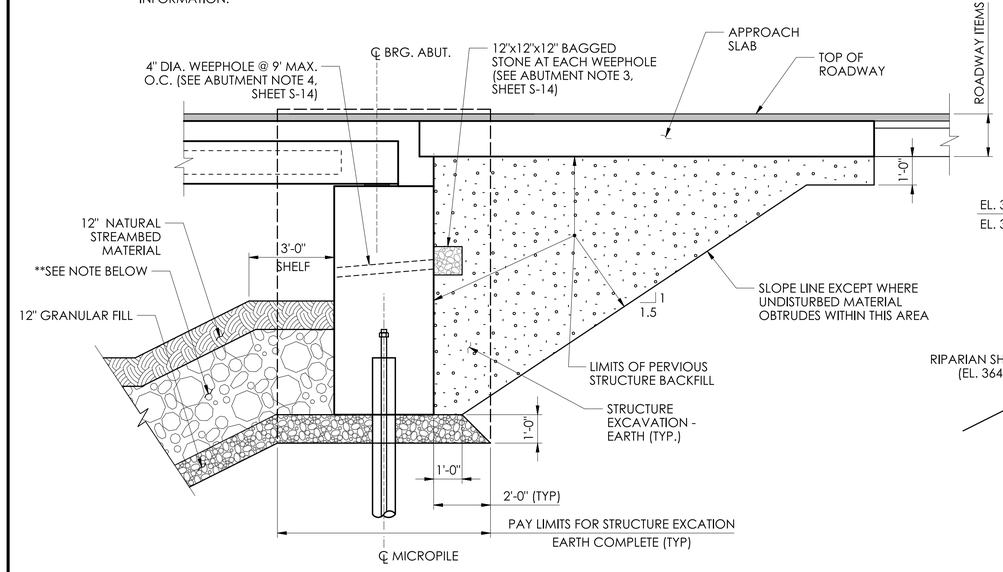


SECTION 2 (UNCASED MICROPILE)

SCALE: 1½" = 1'-0"

MAXIMUM DESIGN PILE LOADS

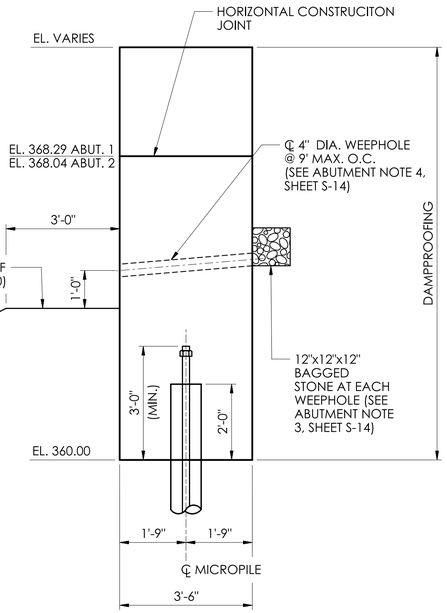
	AXIAL	LATERAL	MOMENT
SERVICE LIMIT STATE	98 KIPS	14 KIPS	52 KIP-FT
STRENGTH LIMIT STATE	137 KIPS	21 KIPS	80 KIP-FT
EXTREME LIMIT STATE	85 KIPS	24 KIPS	88 KIP-FT
NOMINAL GEOTECHNICAL RESISTANCE	140 KIPS	--	--



TYPICAL EARTHWORK PAY LIMITS

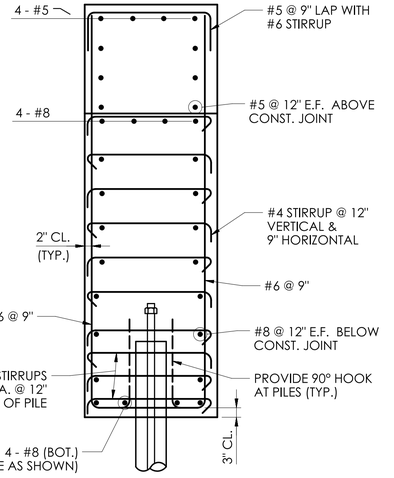
SCALE: ⅜" = 1'-0"

** 36" MIN. STANDARD RIPRAP (TYP.) (INCLUDING WASHING IN SUPPLEMENTAL STREAMBED MATERIAL AS NECESSARY FOR FILLING VOIDS BETWEEN RIPRAP) (SEE NOTE 4, SHEET 04.12)



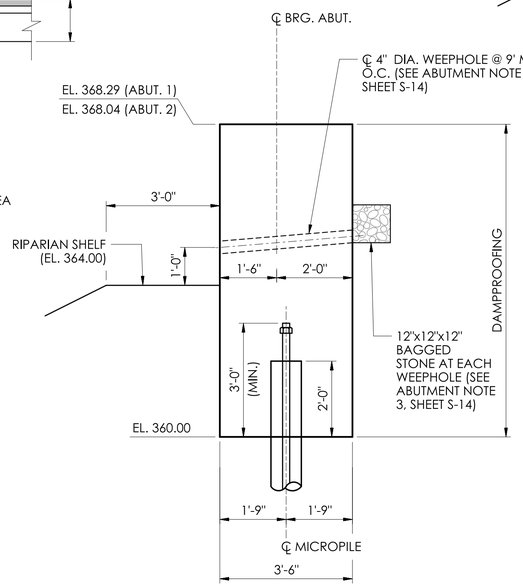
TYPICAL WINGWALL SECTION

SCALE: ½" = 1'-0"



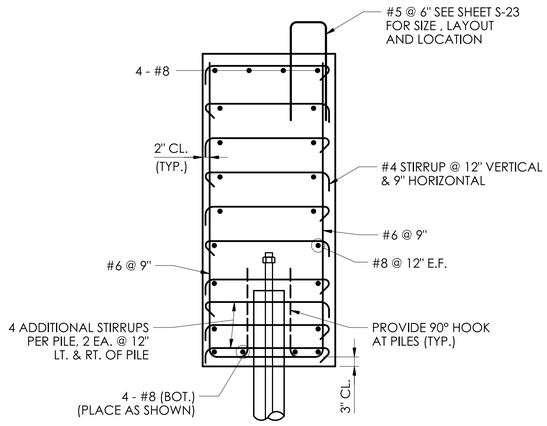
TYPICAL WINGWALL REINFORCEMENT SECTION

SCALE: ½" = 1'-0"



TYPICAL ABUTMENT SECTION

SCALE: ½" = 1'-0"



TYPICAL ABUTMENT REINFORCEMENT SECTION

SCALE: ½" = 1'-0"

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

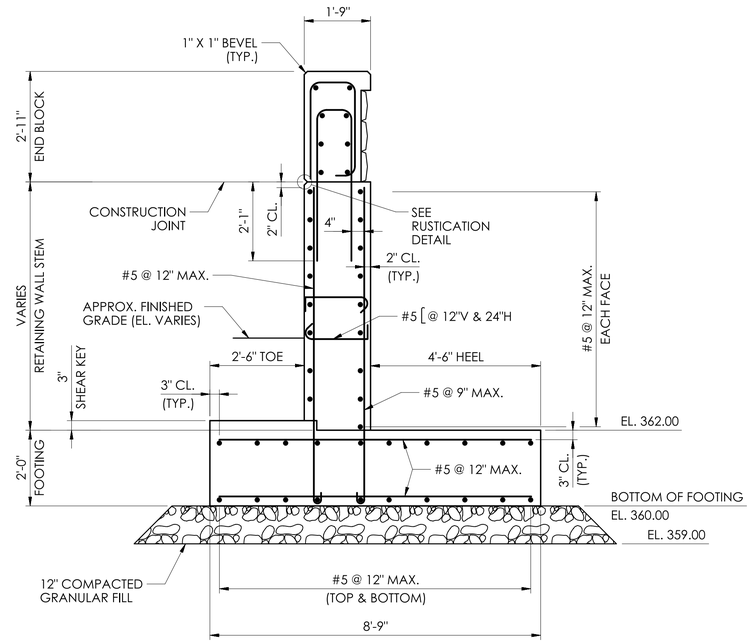
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TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: SUBSTRUCTURE DETAILS

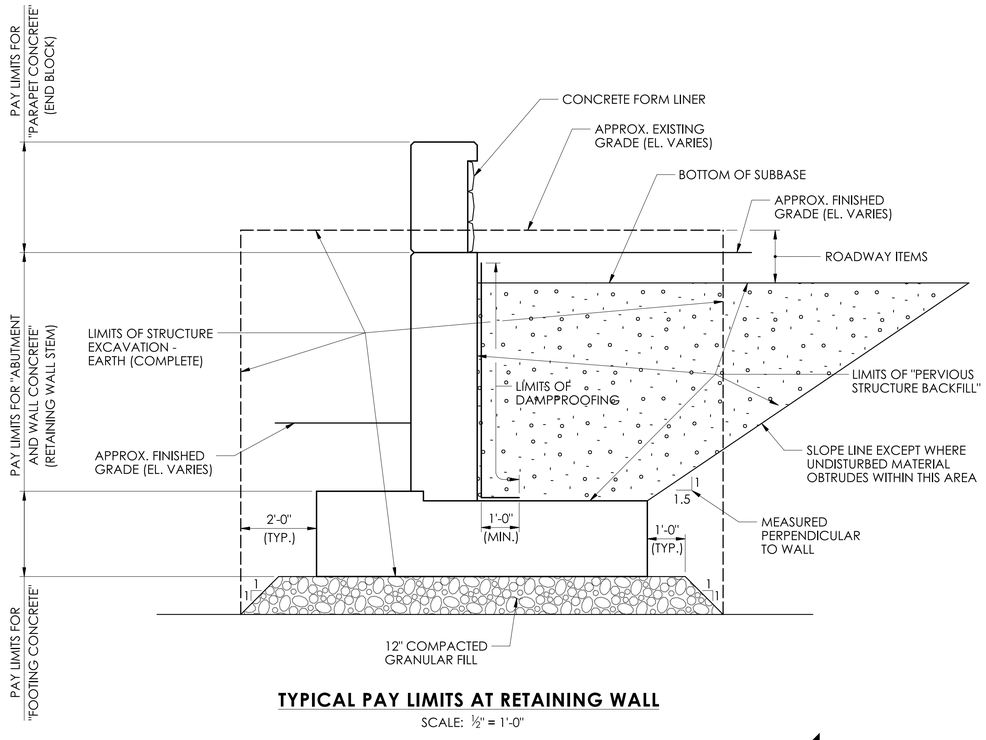
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SHEET NO. 04.16

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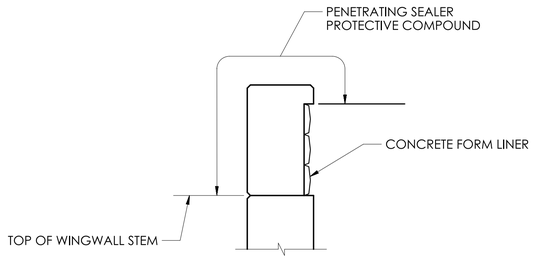
RETAINING WALL TYPICAL SECTION

SCALE: ½" = 1'-0"



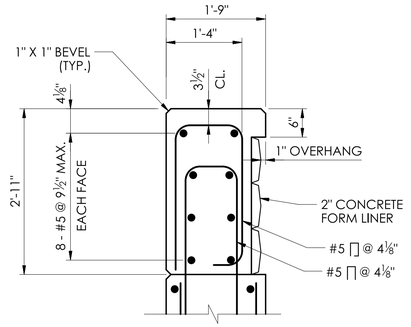
TYPICAL PAY LIMITS AT RETAINING WALL

SCALE: ½" = 1'-0"



PENETRATING SEALER PROTECTIVE COMPOUND DETAIL (AT RETAINING WALL)

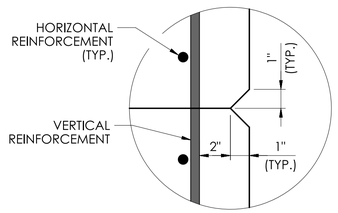
SCALE: ½" = 1'-0"



RETAINING WALL END BLOCK SECTION

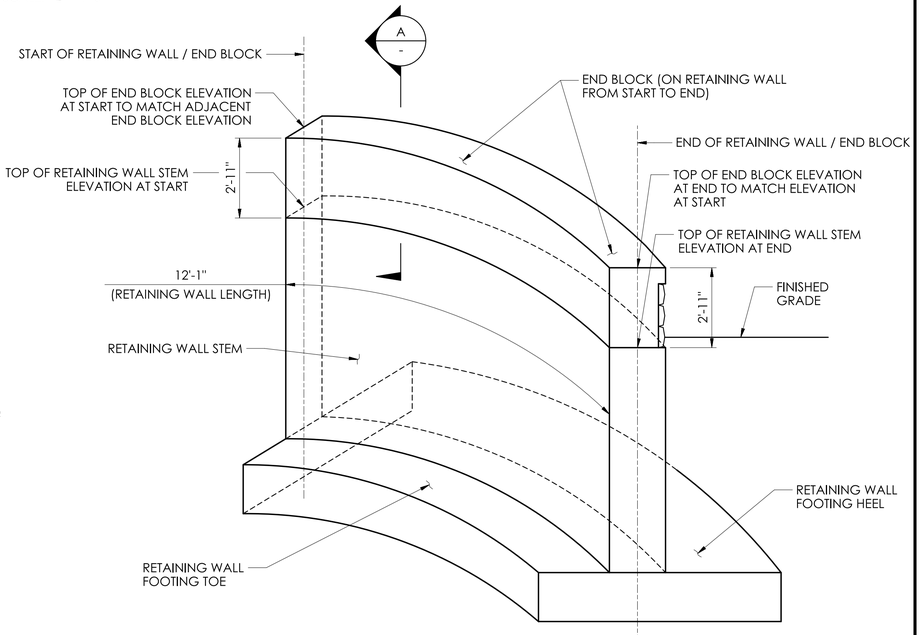
A
-

SCALE: ¾" = 1'-0"



TYPICAL RUSTICATION DETAIL

SCALE: NOT TO SCALE



TYPICAL CURVED RETAINING WALL

SCALE: NOT TO SCALE

RETAINING WALL NOTES

1. PENETRATING SEALER PROTECTIVE COMPOUND IS NOT TO BE APPLIED TO CONCRETE FORM LINER SURFACES.

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE, BLOCK:

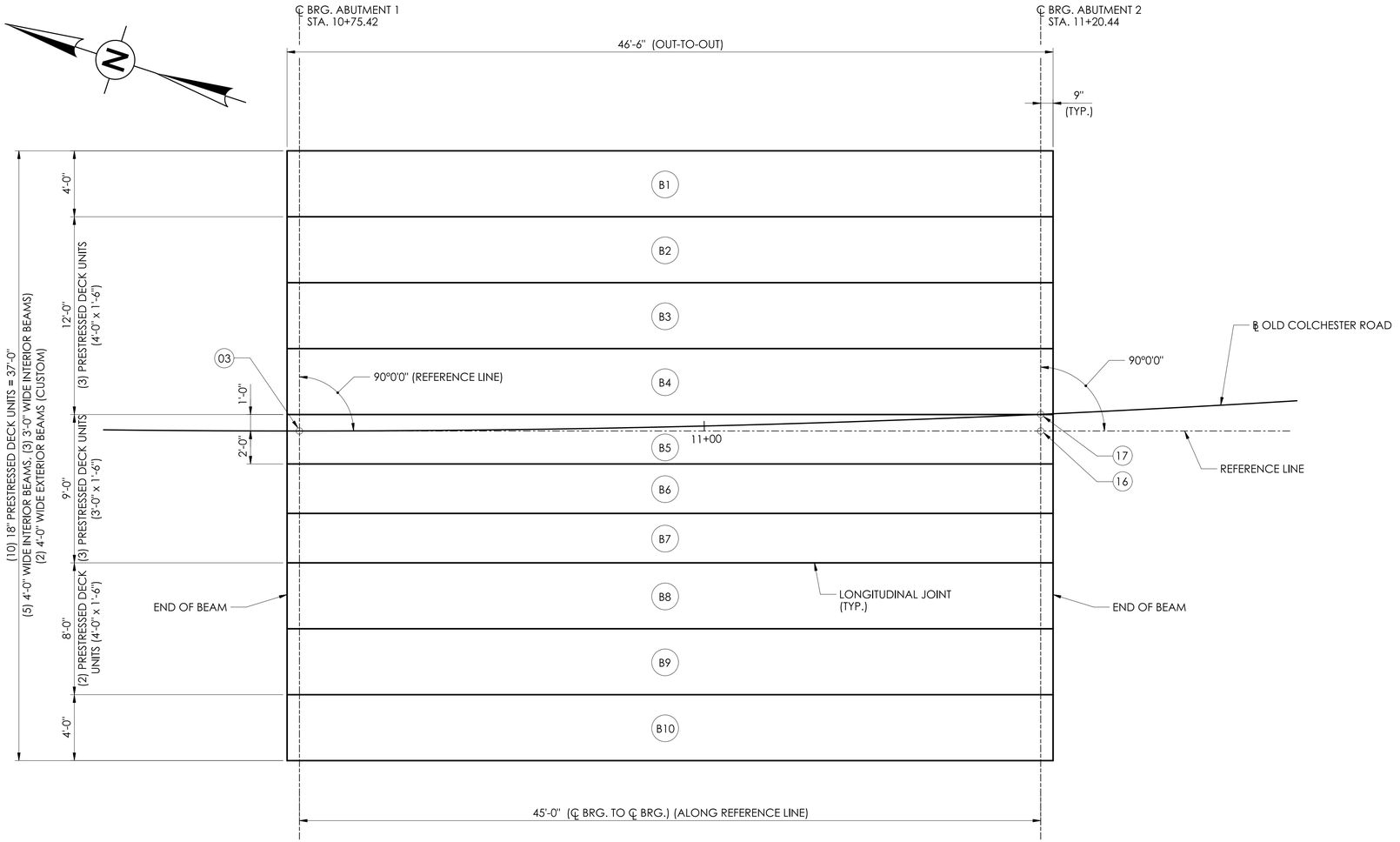
McFarland Johnson
275 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: RETAINING WALL DETAILS

DRAWING NO. S-17
SHEET NO. 04.17

LASTED SAVED BY: DKull **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\SB_CP_0066_0110_Sub_Details.dgn
PLOTTED DATE: 10/29/2025



FRAMING PLAN

NOTE: VOIDS NOT SHOWN FOR CLARITY

SCALE: ¼" = 1'-0"

FRAMING NOTES:

1. THE BEAMS SHALL BE PLACED AT THE NOMINAL SPACING SHOWN ON THE FRAMING PLAN WITH A GAP BETWEEN THE UNITS. THE WIDTH OF THE GAPS WILL VARY DUE TO THE SWEEP OF THE UNITS.
2. EACH DECK UNIT SHALL REST ON TWO INDIVIDUAL BEARINGS PER END.
3. THE DRILLING OF HOLES IN (OR THE USE OF POWER ACTUATED TOOLS ON) THE PRESTRESSED MEMBERS WILL NOT BE PERMITTED.
4. THE COST FOR NON-SHRINK GROUT USED TO FILL THE DECK UNIT LONGITUDINAL SHEAR KEYS SHALL BE INCIDENTAL TO THE WORK FOR INSTALLING THE PRESTRESSED DECK UNITS. SEE DETAILS ON SHEET S-21.

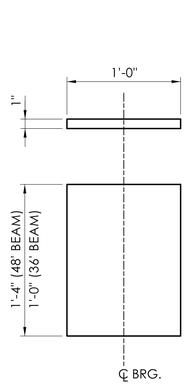
BEARING NOTES:

1. THE ELASTOMERIC BEARINGS ARE DESIGNED USING "METHOD A" OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
2. ELASTOMER HARDNESS SHALL BE GRADE 50, SHORE A.
3. ELASTOMER SHALL HAVE A SHEAR MODULUS WITHIN THE RANGE OF 0.095 - 0.130 KSI.
4. THE ELASTOMERIC BEARINGS SHALL BE INSTALLED WHEN THE AMBIENT AIR AND BEAM TEMPERATURES ARE BETWEEN 40 DEG. AND 80 DEG. FARHENHEIT AND HAVE BEEN WITHIN THIS RANGE FOR AT LEAST 2 HOURS.
5. THE COST OF FURNISHING AND INSTALLING THE ELASTOMERIC BEARING SHALL BE PAID FOR UNDER THE ITEM "ELASTOMERIC BEARING PADS".

ELASTOMERIC BEARING DESIGN LOADS (SERVICE):

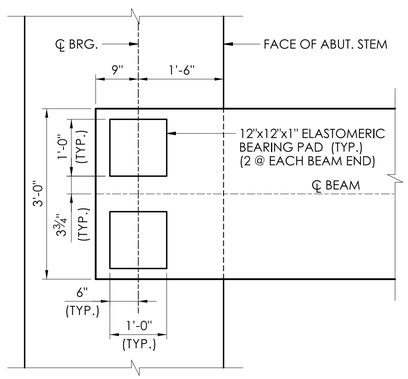
DEAD LOAD = 21 KIPS

LIVE LOAD = 35 KIPS



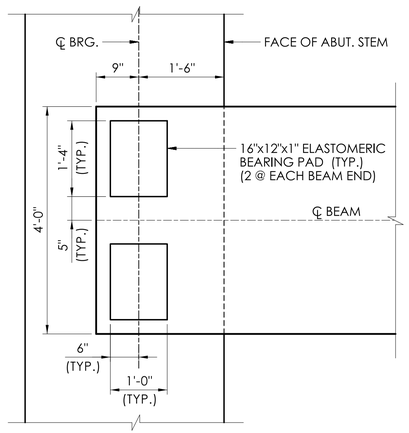
ELASTOMERIC BEARING PAD DETAIL

SCALE: 1½" = 1'-0"



36" BEAM BEARING LAYOUT (BEAMS B5-B7)

SCALE: ¾" = 1'-0"



48" BEAM BEARING LAYOUT (BEAMS B1-B4, B8-B10)

SCALE: ¾" = 1'-0"

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

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TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110

PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK

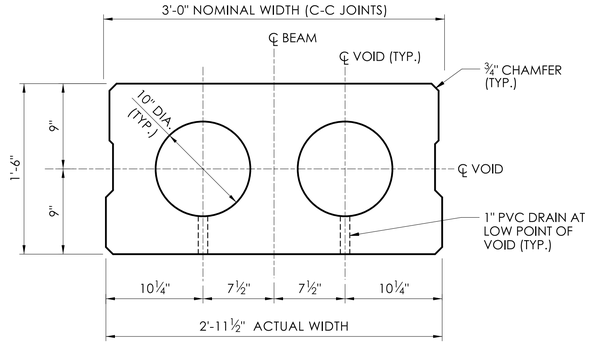
TOWN(S): HEBRON

DRAWING TITLE: FRAMING PLAN AND BEARING DETAILS

DRAWING NO. S-18

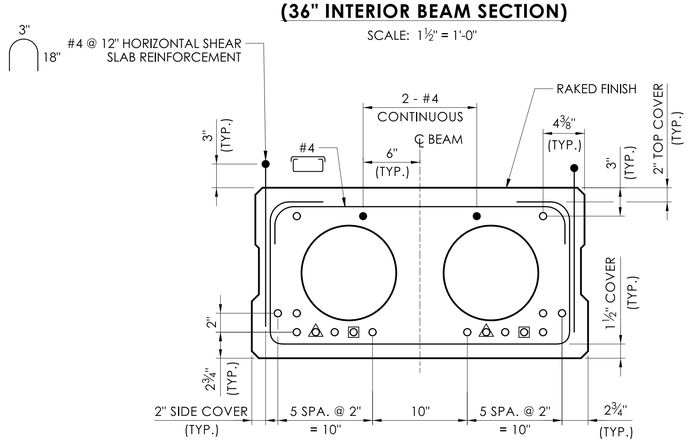
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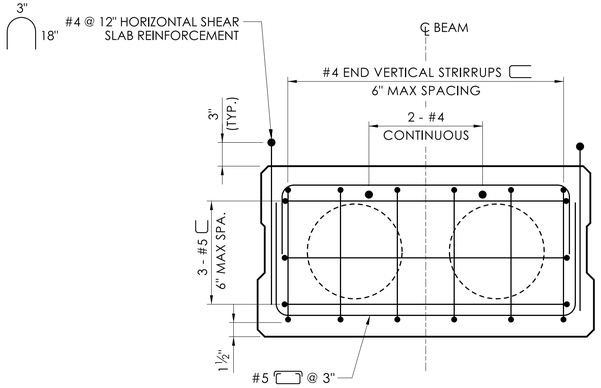
PRESTRESSED VOIDED SLAB BEAM (36" INTERIOR BEAM SECTION)

SCALE: 1½" = 1'-0"



PRESTRESSED VOIDED SLAB BEAM 36" INTERIOR BEAM REINFORCING

SCALE: 1½" = 1'-0"



END BLOCK REINFORCING 36" INTERIOR BEAM REINFORCING

SCALE: 1½" = 1'-0"

PRESTRESSED DECK UNIT NOTES:

1. PRESTRESSED CONCRETE CLASS PRC06060 SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

   MIN. COMPRESSIVE STRENGTH AT TRANSFER (f'ci) = 4,000 PSI

   MIN. COMPRESSIVE STRENGTH (f'c) = 6,500 PSI

2. PRESTRESSED STRANDS SHALL BE 0.6" DIA. UNCOATED, 7 WIRE, LOW RELAXATION STRANDS CONFORMING TOTHE REQUIREMENTS OF AASHTO M203 (ASTM A416), GRADE 270, AND SHALL ALSO CONFORM TO THE FOLLOWING REQUIREMENTS:

   ULTIMATE JACKING STRENGTH (fs) = 270 KSI

   INITIAL JACKING TENSION = 44 KIPS PER STRANDS

3. THE DRILLING OF HOLES (OR THE USE OF POWER ACTUATED TOOLS) ON PRESTRESSED MEMBERS WILL NOT BE PERMITTED.
4. ALL LONGITUDINAL REINFORCEMENT WILL BE CONTINUOUS.
5. LIFTING HOOKS SHALL BE LOCATED AND INSTALLED PER THE FABRICATOR'S STANDARD DETAILS. FABRICATOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES WHICH SHALL BE ADEQUATE FOR THE FACTORS OF SAFETY REQUIRED BY THE ERECTION PROCEDURE.
6. AFTER BEAMS ARE IN PLACE AND SECURED, BURN OFF EXPOSED PORTION OF LIFTING HOOKS, GROUT CONCRETE SURFACE OF DECK UNIT AT THESE LOCATIONS TO RAKED FINISH.
7. SHEAR KEYS SHALL BE OMITTED ON THE OUTSIDE FACES OF FASCIA BEAMS B1 AND B10.
8. TOP OF HORIZONTAL SHEAR REINFORCEMENT SHALL EXTEND INTO SHEAR SLAB MAXIMUM 3 INCHES.
9. FOUR (4) FULLY BONDED STRANDS IN THE BOTTOM ROW OF EACH BEAM SHALL BE EXTENDED INTO THE CAST-IN-PLACE CONCRETE BACKWALL.
10. TOPS OF BEAMS ARE TO BE TRANSVERSELY RAKED FINISHED TO ASSIST WITH COMPOSITE ACTION WITH THE CAST-IN-PLACE CONCRETE SHEAR SLAB.
11. HORIZONTAL LEGS OF THE VERTICAL STIRRUPS ARE EQUAL TO THE DEPTH OF THE BEAMS (1'-6").

PRESTRESSING LEGEND:

- ○ FULLY BONDED PRESTRESSING STRAND
- □ STRAND DEBONDED 4'-0" FROM EACH BEAM END
- △ STRAND DEBONDED 6'-9" FROM EACH BEAM END

MEMBER	TOTAL # OF STRANDS	C.G. AT MIDSPAN
B1	20	4.38
B2	20	4.58
B3	20	4.58
B4	20	4.58
B5	16	4.78
B6	16	4.78
B7	16	4.78
B8	20	4.58
B9	20	4.58
B10	20	4.38

ESTIMATED CAMBER AT MIDSPAN (IN) - EXTERIOR 48" BEAM SECTIONS					
	AT TRANSFER	AT ERECTION	AFTER SLAB POUR	AT BRIDGE OPENING	FINAL
PRESTRESS	1.562	2.811	2.811	2.811	3.412
SELF WT.	-0.656	-1.214	-1.214	-1.214	-1.592
SLAB	-	-	-0.515	-0.515	-1.153
SIDEWALK	-	-	-	-0.045	-0.135
RAILING	-	-	-	-0.034	-0.102
WS	-	-	-	-0.074	-0.222
TOTAL	0.905	1.597	1.082	0.929	0.209

ESTIMATED CAMBER AT MIDSPAN (IN) - INTERIOR 48" BEAM SECTIONS					
	AT TRANSFER	AT ERECTION	AFTER SLAB POUR	AT BRIDGE OPENING	FINAL
PRESTRESS	1.486	2.674	2.674	2.674	3.276
SELF WT.	-0.689	-1.275	-1.275	-1.275	-1.653
SLAB	-	-	-0.484	-0.484	-1.122
SIDEWALK	-	-	-	-0.045	-0.135
RAILING	-	-	-	-0.034	-0.102
WS	-	-	-	-0.074	-0.222
TOTAL	0.797	1.400	0.915	0.762	0.042

ESTIMATED CAMBER AT MIDSPAN (IN) - INTERIOR 36" BEAM SECTIONS					
	AT TRANSFER	AT ERECTION	AFTER SLAB POUR	AT BRIDGE OPENING	FINAL
PRESTRESS	1.489	2.680	2.680	2.680	3.282
SELF WT.	-0.711	-1.316	-1.316	-1.316	-1.694
SLAB	-	-	-0.484	-0.484	-1.122
SIDEWALK	-	-	-	-0.045	-0.135
RAILING	-	-	-	-0.034	-0.102
WS	-	-	-	-0.074	-0.222
TOTAL	0.778	1.365	0.880	0.728	0.007

NOTES:

1. AT TRANSFER: CAMBER DUE TO PRETENSIONING FORCE AT TRANSFER LESS THE DEFLECTION TO BEAM WEIGHT.
2. AT ERECTION: CAMBER (DUE TO PRETENSIONING FORCE LESS THE DEFLECTION DUE TO BEAM WEIGHT) THAT IS PRESENT AT APPROXIMATELY 30 DAYS AFTER TRANSFER.
3. AFTER SLAB POUR: CAMBER AT ERECTION (APPROXIMATELY 30 DAYS AFTER TRANSFER) LESS THE DEFLECTION DUE TO SLAB POUR.
4. AT BRIDGE OPENING: CAMBER AFTER SLAB POUR LESS THE DEFLECTION DUE TO ALL SUPERIMPOSED DEAD LOADS.
5. FINAL: LONG-TERM CAMBER THAT IS PRESENT AFTER LONG TERM CREEP AND RELAXATION HAVE TAKEN PLACE.
6. MANAGE CAMBER TO BE WITHIN 3/4" OF LISTED CAMBER VALUES AT ERECTION.

SHEAR SLAB THICKNESS TABLE			
LOCATION	LEFT EDGE OF SHEAR SLAB	PROFILE GRADE LINE	RIGHT EDGE OF SHEAR SLAB
CL BRGS. @ ABUT.	9.582"	12.822"	9.582"
MIDSPAN	8.500"	11.740"	8.500"
CL BRGS. @ ABUT.	9.582"	12.822"	9.582"

NOTES:

1. THIS TABLE INDICATES THE DESIGN THICKNESS OF THE SHEAR SLAB IN INCHES BASED UPON ASSUMED BEAM CAMBERS AFTER THE SHEAR SLAB CONCRETE POUR. SEE "AFTER SLAB POUR" CAMBER VALUES IN "ESTIMATED CAMBER AT MIDSPAN" TABLES.
2. THE ACTUAL SLAB THICKNESS WILL BE A FUNCTION OF ACTUAL BEAM CAMBERS. THE CONTRACTOR SHALL SUBMIT MEASURED CAMBER VALUES AT TRANSFER AND ESTIMATED CAMBER VALUES AT ERECTION TO THE ENGINEER FOR REVIEW. THE ENGINEER IS TO PROVIDE AN UPDATED SLAB THICKNESS TABLE AND FINAL SEAT ELEVATIONS TO THE CONTRACTOR PRIOR TO THE ERECTION OF THE DECK UNITS.
3. A 8" MINIMUM SLAB THICKNESS SHALL BE MAINTAINED.

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DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

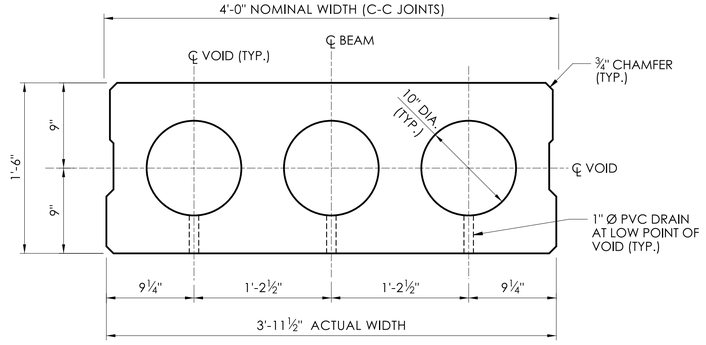
SIGNATURE/ BLOCK: McFarland Johnson, 275 Corporate Drive, Suite 200, Portsmouth, NH 03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: PRESTRESSED BEAM DETAILS (1 OF 3)

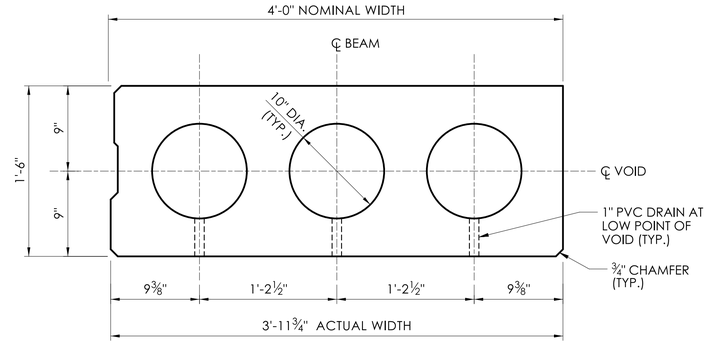
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SHEET NO. 04.19

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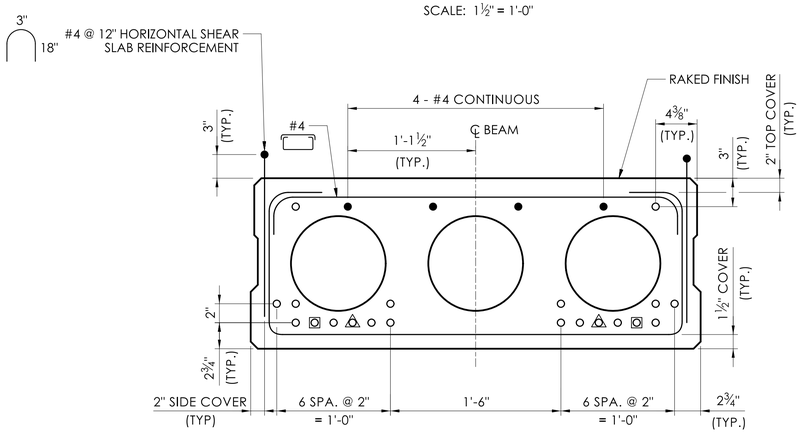
PRESTRESSED VOIDED SLAB BEAM (48" INTERIOR BEAM SECTION)

SCALE: 1½" = 1'-0"



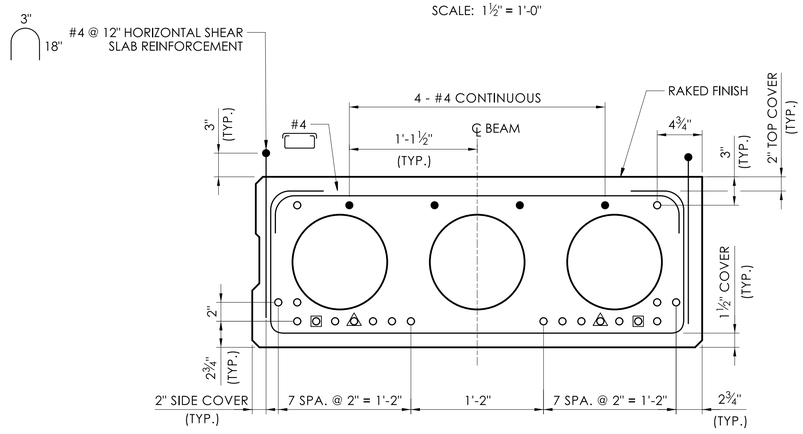
PRESTRESSED VOIDED SLAB BEAM (48" EXTERIOR BEAM SECTION)

SCALE: 1½" = 1'-0"



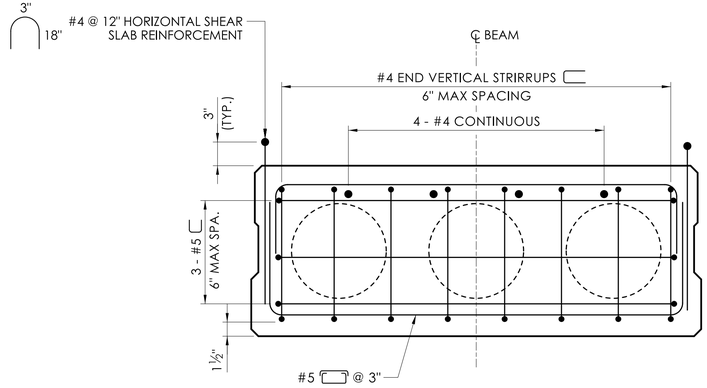
PRESTRESSED VOIDED SLAB BEAM 48" INTERIOR BEAM REINFORCING

SCALE: 1½" = 1'-0"



PRESTRESSED VOIDED SLAB BEAM 48" EXTERIOR BEAM REINFORCING

SCALE: 1½" = 1'-0"



END BLOCK REINFORCING 48" INTERIOR BEAM REINFORCING

SCALE: 1½" = 1'-0"

PRESTRESSING LEGEND:

- ○ FULLY BONDED PRESTRESSING STRAND
- □ STRAND DEBONDED 4'-0" FROM EACH BEAM END
- △ STRAND DEBONDED 6'-9" FROM EACH BEAM END

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

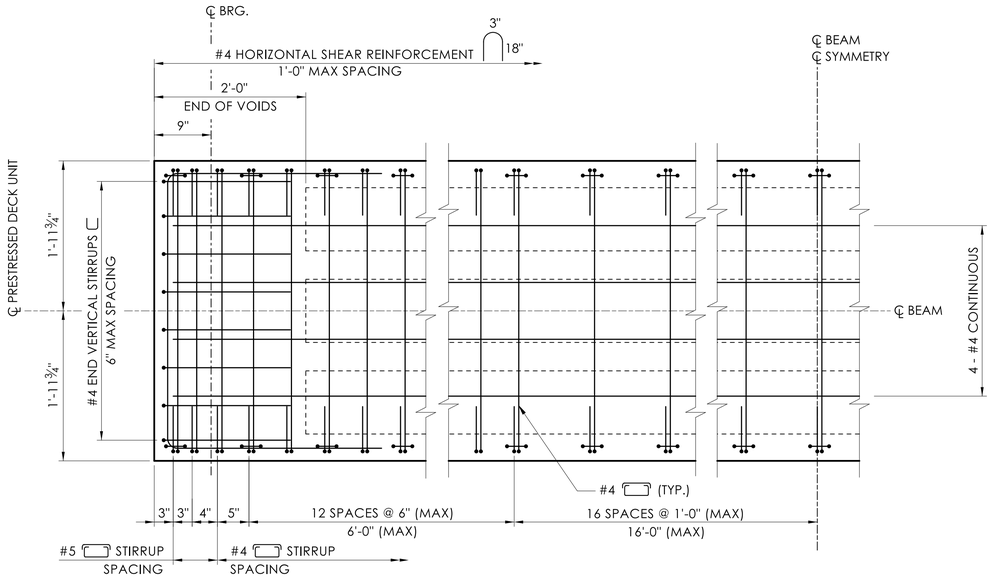
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TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: PRESTRESSED BEAM DETAILS (2 OF 3)

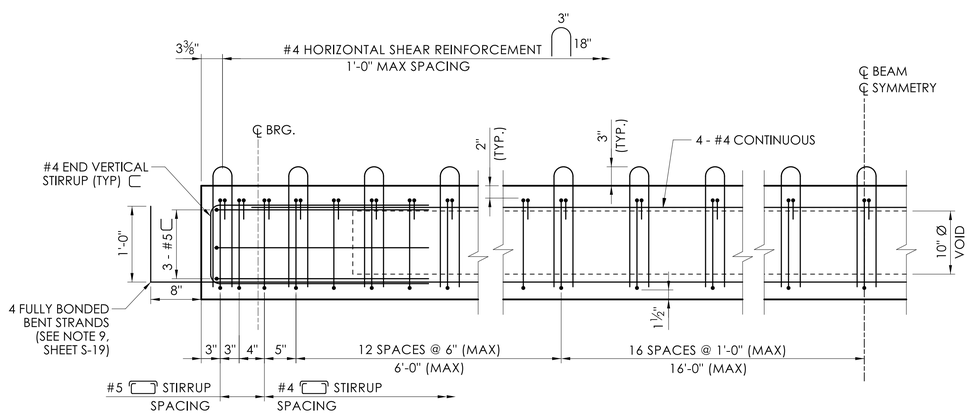
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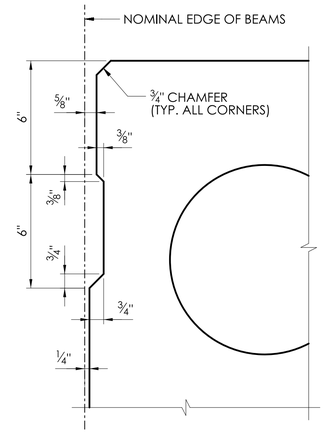
END BLOCK REINFORCING
INTERIOR PRESTRESSED DECK UNIT PLAN

(REINFORCING TYPICAL FOR BOTH BEAM ENDS)
(REINFORCING SIMILAR FOR EXTERIOR BEAMS)
SCALE: 1" = 1'-0"



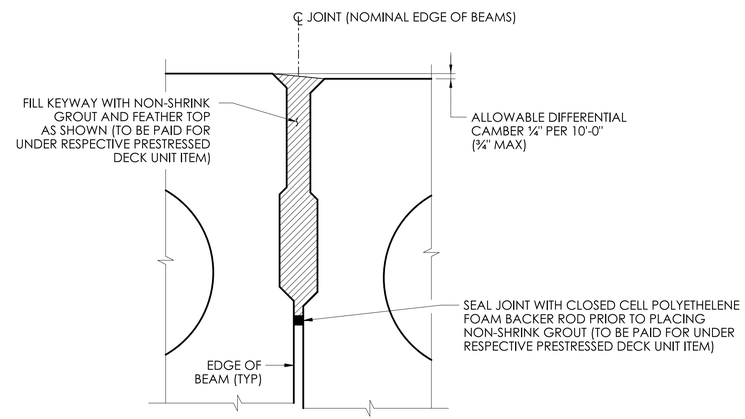
PRESTRESSED DECK UNIT
LONGITUDINAL BEAM SECTION

SCALE: 1" = 1'-0"



SHEAR KEY DETAIL

SCALE: 3" = 1'-0"



LONGITUDINAL JOINT DETAIL

SCALE: 3" = 1'-0"

NOTES:

1. THE BEAMS SHALL BE PLACED AT THE NOMINAL SPACING AS SHOWN ON THE PLAN WITH A GAP BETWEEN THE UNITS. THE WIDTH OF THE GAPS WILL VARY DUE TO THE SWEEP OF THE UNITS.
2. GROUT FOR SHEAR KEYS SHALL BE RODDED OR VIBRATED TO ENSURE THAT ALL VOIDS IN THE SHEAR KEYS ARE FILLED.

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

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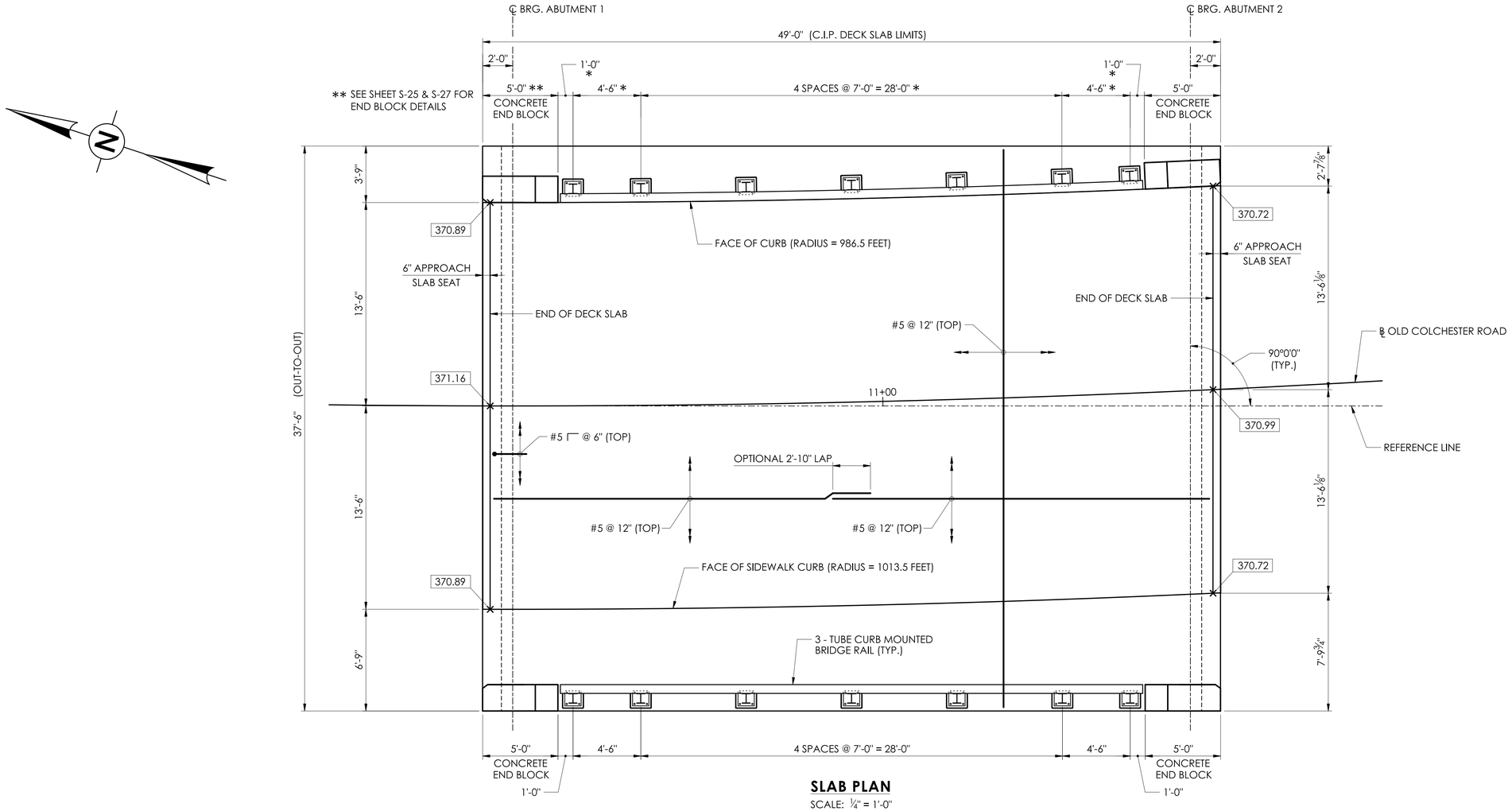
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TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: PRESTRESSED BEAM DETAILS (3 OF 3)

DRAWING NO. S-21
SHEET NO. 04.21

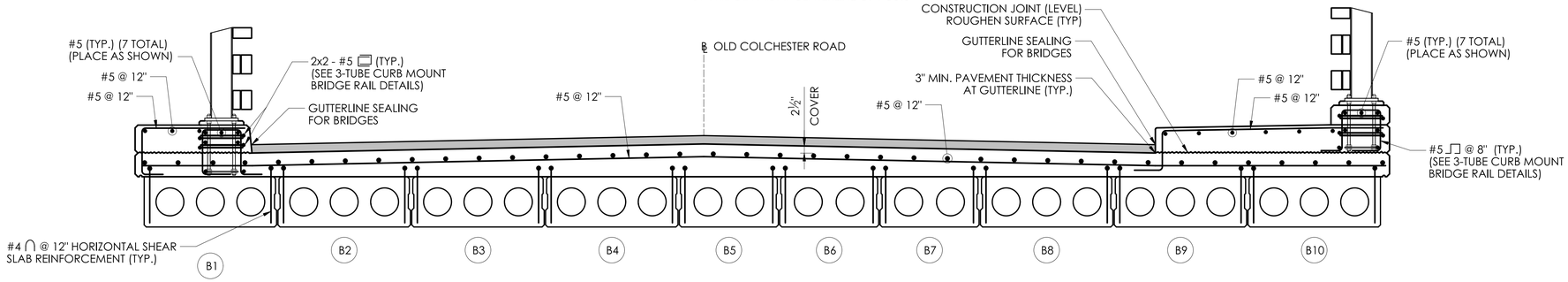
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PLOTTED DATE: 10/29/2025



SLAB PLAN

SCALE: ¼" = 1'-0"

* (RADIAL) - DIMENSIONS TAKEN ALONG BACK FACE OF BRIDGE RAIL AT CENTERLINE OF POSTS



PROPOSED BRIDGE CROSS SECTION - REINFORCEMENT

SCALE: ½" = 1'-0"

NOTE: BEAM REINFORCEMENT (EXCLUDING SHEAR STIRRUPS) NOT SHOWN FOR CLARITY

LEGEND

XXX.XX TOP OF SLAB ELEVATION

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TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110

PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK

TOWN(S): HEBRON

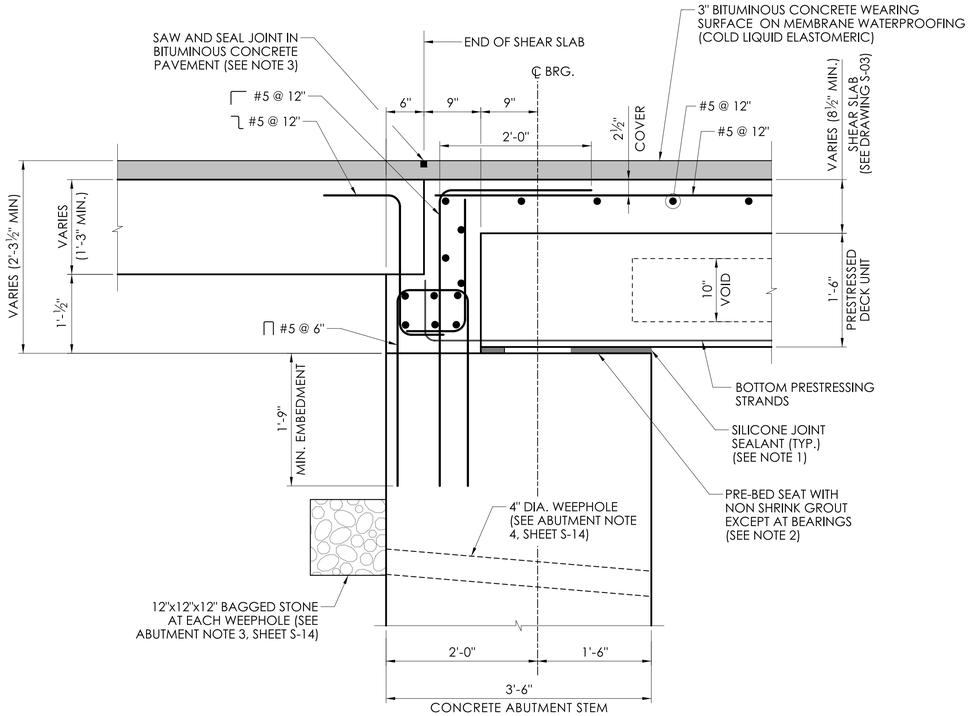
DRAWING TITLE: DECK PLAN AND REINFORCEMENT SECTION

DRAWING NO. S-22

SHEET NO. 04.22

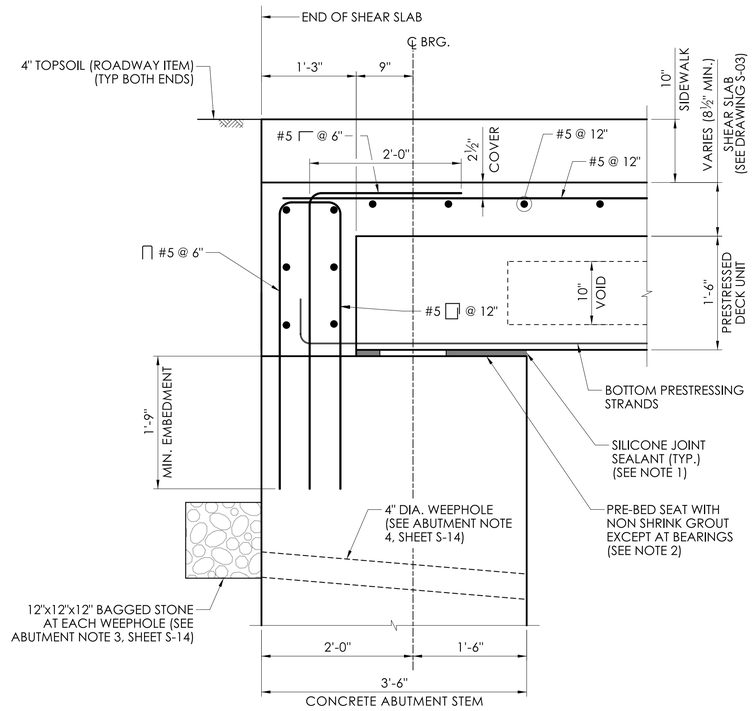
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PLOTTED DATE: 10/29/2025



TYPICAL END OF DECK AT ABUTMENT DETAIL

SCALE: 1" = 1'-0"



TYPICAL END OF DECK AT SIDEWALK DETAIL

SCALE: 1" = 1'-0"

NOTES:

1. THE COST OF SILICONE JOINT SEALANT SHALL BE INCLUDED IN THE RESPECTIVE PRESTRESSED DECK UNIT ITEM.
2. THE COST OF NON-SHRINK GROUT SHALL BE INCLUDED IN THE RESPECTIVE PRESTRESSED DECK UNIT ITEM. NON-SHRINK GROUT SHALL BE PLACED AFTER THE BEARINGS ARE PLACED, AND PLACED AROUND ALL SIDES OF THE BEARINGS. GROUT SHALL BE PLACED LEVEL WITH THE TOP OF THE BEARINGS.
3. THE COST OF SAWING AND SEALING JOINTS IN BITUMINOUS CONCRETE PAVEMENT SHALL BE INCLUDED IN THE ITEM "SAWING AND SEALING JOINTS".

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

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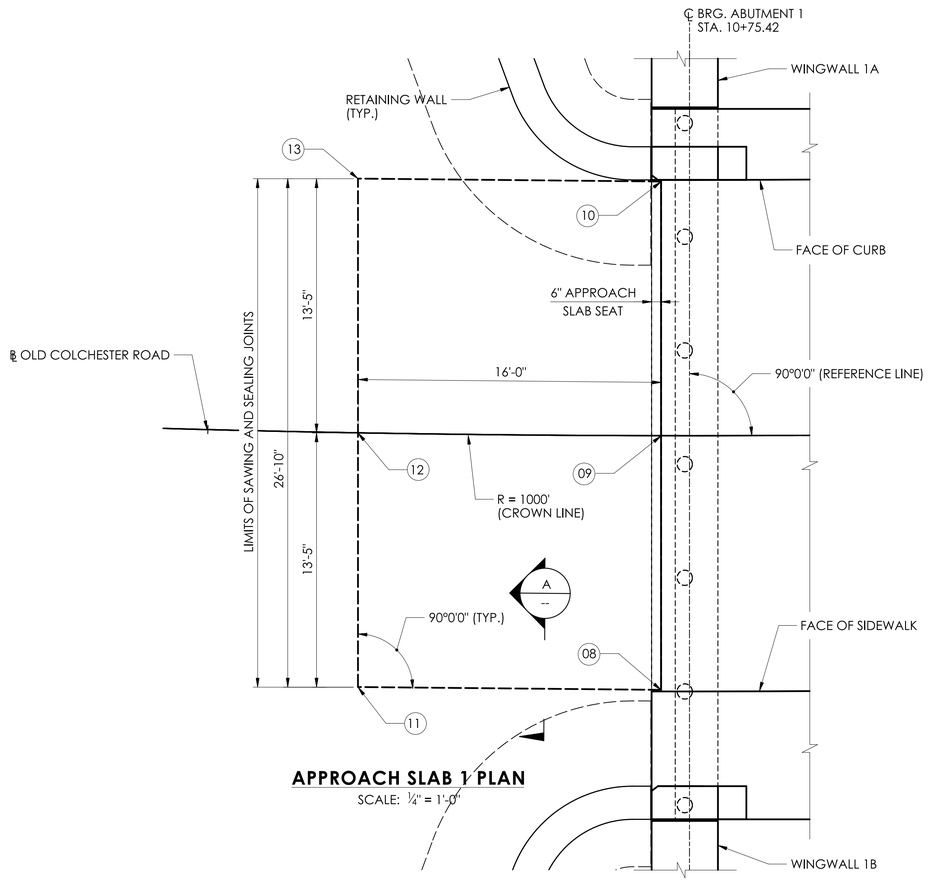
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TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: DECK END DETAILS

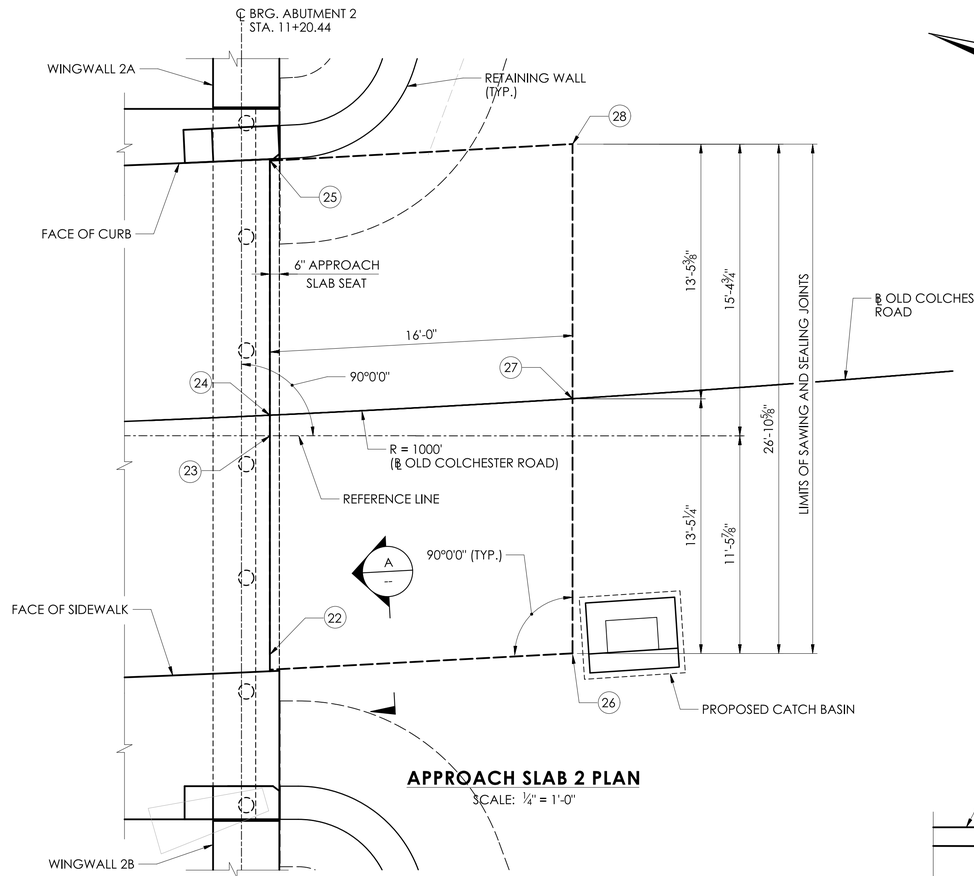
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PLOTTED DATE: 10/29/2025



APPROACH SLAB 1 PLAN

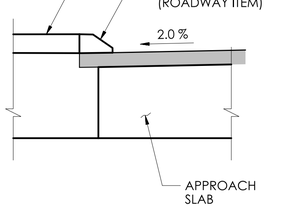
SCALE: ¼" = 1'-0"



APPROACH SLAB 2 PLAN

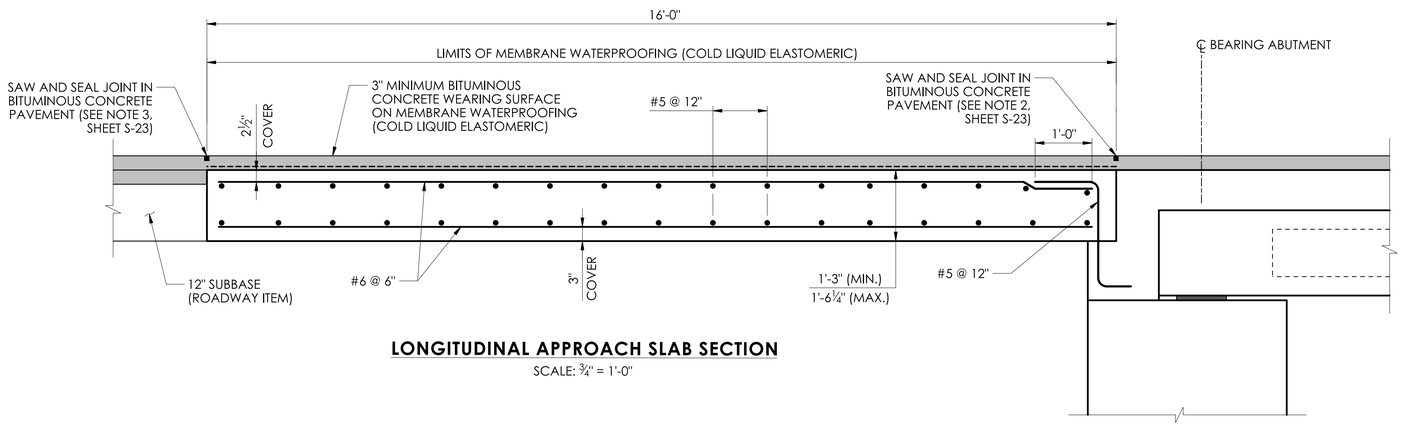
SCALE: ¼" = 1'-0"

APPROACH SLAB ELEVATION TABLE	
W.P. #	ELEVATION
08	370.89
09	371.16
10	370.90
11	370.95
12	371.22
13	370.95
22	370.72
23	370.97
24	370.99
25	370.72
26	370.70
27	370.97
28	370.70



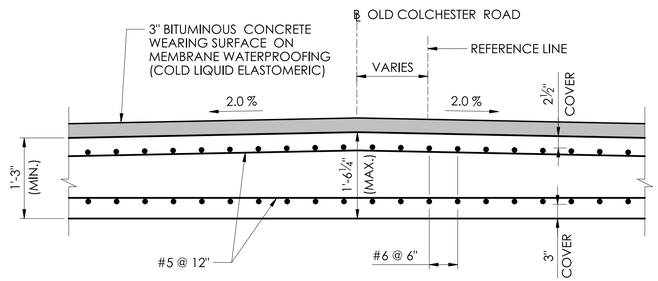
SECTION A-A

SCALE: ¾" = 1'-0"



LONGITUDINAL APPROACH SLAB SECTION

SCALE: ¾" = 1'-0"



TRANSVERSE APPROACH SLAB SECTION

(LOOKING UPSTATION)
SCALE: ¾" = 1'-0"

REVISION DESCRIPTION | DATE | REV.

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

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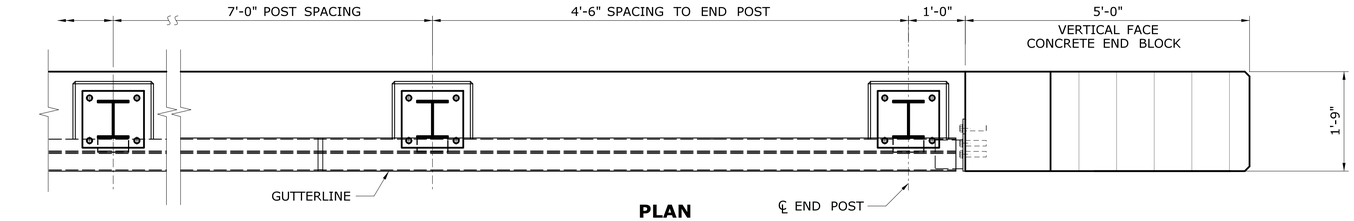
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TOWN(S): HEBRON
DRAWING TITLE: APPROACH SLAB DETAILS

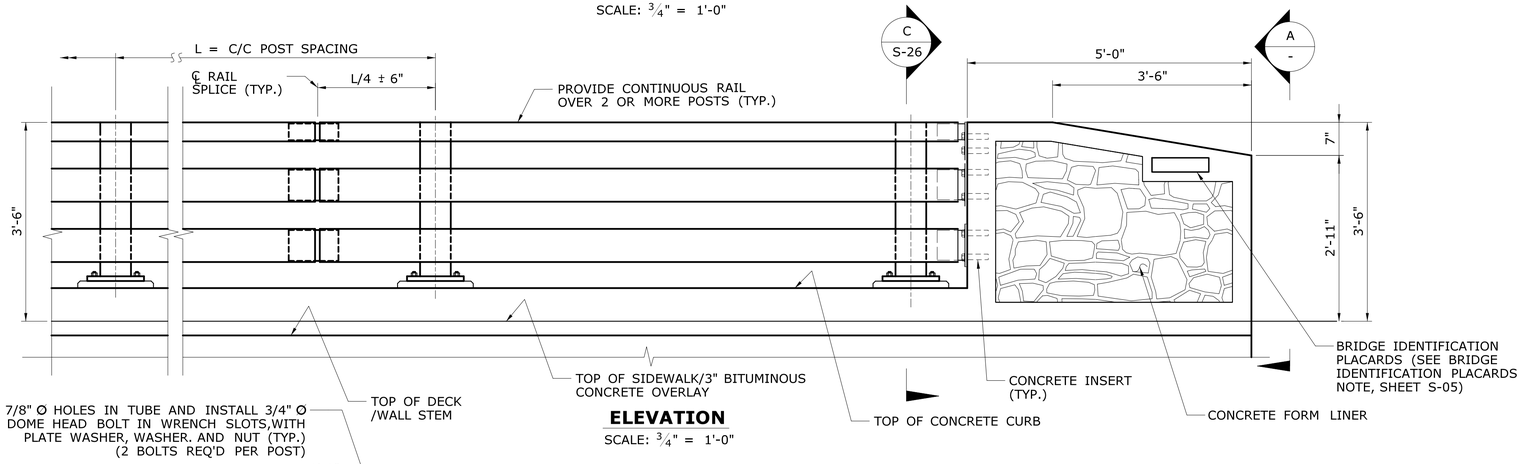
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SHEET NO. 04.24

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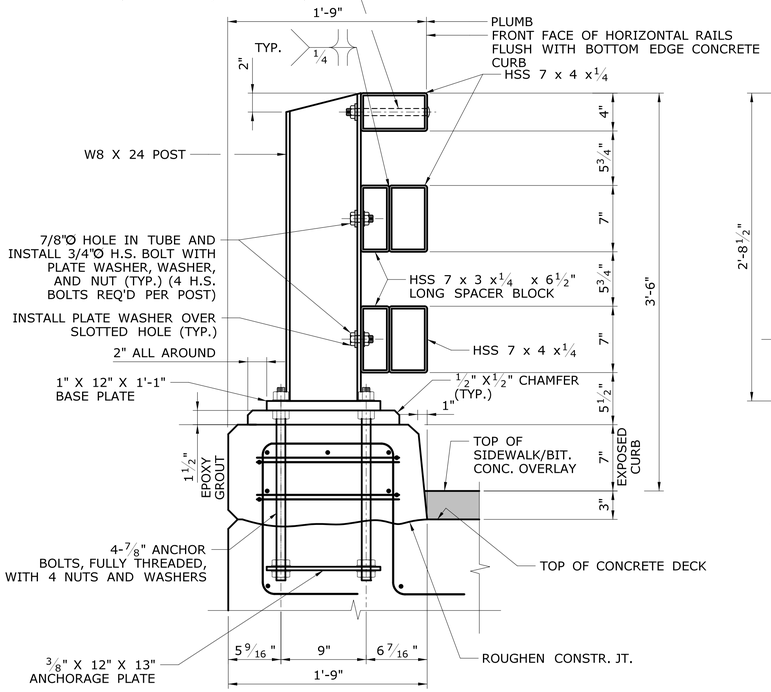
PLAN

SCALE: $\frac{3}{4}$" = 1'-0"

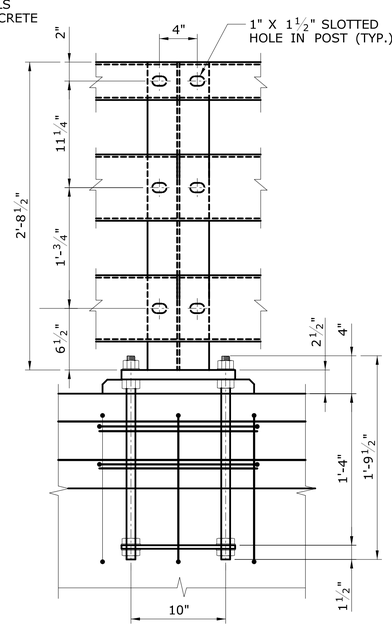


ELEVATION

SCALE: $\frac{3}{4}$" = 1'-0"



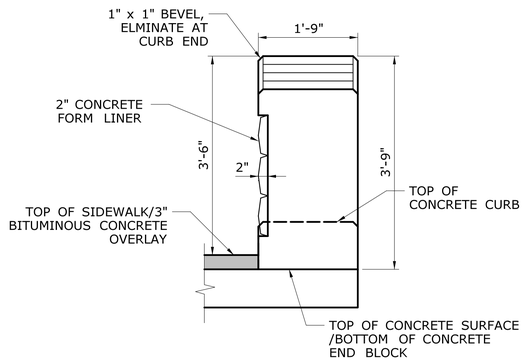
TYPICAL SECTION AT POST



ELEVATION AT POST

CURB AND POST DETAILS

SCALE: $1\frac{1}{2}$" = 1'-0"



SECTION A-

SCALE: $\frac{3}{4}$" = 1'-0"

BRIDGE RAIL NOTES

THE 3-TUBE CURB MOUNTED BRIDGE RAIL HAS BEEN EVALUATED AT TEST LEVEL 4 (TL-4) AND COMPLIES WITH MASH 2016.

CONCRETE FOR THE CURB AND END BLOCK SHALL BE CLASS PCC04462. THE COMPRESSIVE STRENGTH OF THE CONCRETE, BASED ON TEST CYCLINDERS, SHALL BE NO LESS THAN 4,000 PSI PRIOR INSTALLING THE EPOXY GROUT BELOW THE BASEPLATES.

PRIOR TO ALLOWING THE RAIL, CURB AND END BLOCK TO BE PLACED IN SERVICE FOR THE PROTECTION OF VEHICULAR TRAFFIC, THE COMPRESSIVE STRENGTH OF THE GROUT, BASED ON STRENGTH GAIN OVER TIME LISTED IN THE GROUT MANUFACTURER'S DATA SHEET, SHALL BE NO LESS THAN 5,000 PSI.

THE REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 AND BE HOT-DIP GALVANIZED.

THE 1 IN. DIAMETER PIPE SHALL CONFORM TO ASTM A53, GRADE B OR ASTM A501 AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A123.

HOLLOW STRUCTURAL SHAPES SHALL CONFORM TO ASTM A500 GRADE C OR ASTM A501, GRADE B.

ALL OTHER STEEL SHALL CONFORM TO ASTM A572, GRADE 50 UNLESS NOTED OTHERWISE.

THE SILICON CONTENT OF THE STEEL USED FOR THE EXPOSED MEMBERS AND PLATE COMPONENTS SHALL FALL WITHIN THE RANGE OF 0 TO 0.04% OR 0.15% TO 0.25%.

ALL STEEL SHAPES, PLATES AND HOLLOW STRUCTURAL SECTIONS SHALL BE METALLIZED IN ACCORDANCE WITH "METALLIZING STRUCTURAL STEEL (SITE NO. 1)"

THE ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 105. THE NUTS SHALL CONFORM TO ASTM A563, GRADE DH. THE WASHERS SHALL CONFORM TO ASTM F436. THE BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329 OR ASTM B695, CLASS 55.

ALL HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM F3125 GRADE A325, TYPE 1. NUTS SHALL CONFORM TO ASTM A563, GRADE DH. CIRCULAR, FLAT, HARDENED STEEL WASHERS SHALL CONFORM TO ASTM F436. THE BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329 OR ASTM B695, CLASS 55.

DOME HEAD BOLTS WITH WRENCH SLOTS USED FOR THE TOP RAIL SHALL CONFORM TO ASTM F3125 GRADE A325, TYPE 1 OR ASTM A449, GRADE 1. SUBSTITUTION OF DOME HEAD BOLTS WITH BOLTS MEETING DIFFERENT MATERIAL REQUIREMENTS IS NOT PERMITTED. NUTS SHALL CONFORM TO ASTM A563, GRADE DH. CIRCULAR, FLAT, HARDENED STEEL WASHERS SHALL CONFORM TO ASTM F436. THE BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM F2329 OR ASTM B695, CLASS 55.

RAIL ELEMENTS SHALL BE FABRICATED TO THE HORIZONTAL AND VERTICAL ALIGNMENT OF THE STRUCTURE. POSTS SHALL BE INSTALLED NORMAL TO GRADE IN THE LONGITUDINAL DIRECTION AND VERTICAL IN THE TRANSVERSE DIRECTION.

ALL BRIDGE RAIL MATERIALS, INCLUDING ANCHOR PLATES, ANCHOR BOLTS, CONCRETE INSERTS, HARDWARE AND EPOXY GROUT, SHALL BE PAID FOR UNDER THE ITEM "3-TUBE CURB MOUNTED BRIDGE RAIL".

ALL REPAIRS TO DAMAGED SURFACES WILL BE COMPLETED IN STRICT COMPLIANCE WITH THE SPECIAL PROVISION FOR THE ITEM "3-TUBE CURB MOUNTED BRIDGE RAIL".

3-TUBE CURB MOUNTED BRIDGE RAIL COLOR SHALL BE IN ACCORDANCE WITH AMS-STD-27038 "ANA 514 (SEMI-GLOSS)"

ALL EXPOSED GALVANIZED BOLT HEADS, WASHERS AND NUTS SHALL BE HAND TOOL CLEANED TO THE SATISFACTION OF THE ENGINEER PRIOR TO FIELD COLOR TOP COAT APPLICATION.

THE COLORED TOPCOAT USED TO PAINT THE EXPOSED GALVANIZED BOLT HEADS, WASHERS AND NUTS SHALL BE FROM THE SAME MANUFACTURER AND LOT OF COLORED TOP COAT THAT THE SHOP APPLIED TO THE METALLIZED STEEL POSTS, TUBES AND PLATES.

THE METALLIZING, ALONG WITH THE FIELD TOUCH UP PAINTING AND SEALING OF THE STEEL PLATES, POSTS AND RAILS ARE INCLUDED FOR PAYMENT UNDER THE ITEM "METALLIZING STRUCTURAL STEEL (SITE NO. 1)".

THE FIELD TOUCH UP PAINTING OF THE GALVANIZED FASTENERS IS INCLUDED FOR PAYMENT UNDER THE ITEM "METALLIZING STRUCTURAL STEEL (SITE NO. 1)".

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

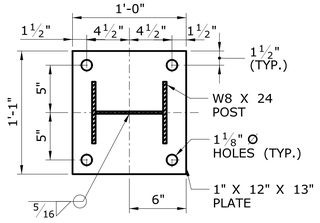
McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: 3 - TUBE CURB MOUNTED BRIDGE RAIL DETALS (1 OF 3)

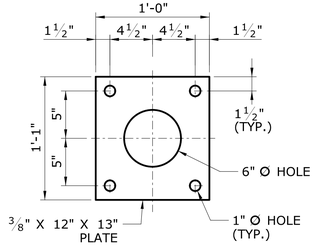
DRAWING NO. S-25
SHEET NO. 04.25

LASTED SAVED BY: eproulx **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\3-Tube Curb Mount Bridge Rail Details (1 OF 3).dgn
PLOTTED DATE: 10/29/2025



BASE PLATE DETAIL

SCALE: 1½" = 1'-0"



ANCHOR PLATE DETAIL

SCALE: 1½" = 1'-0"

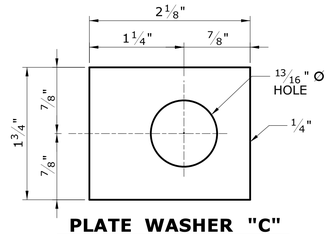
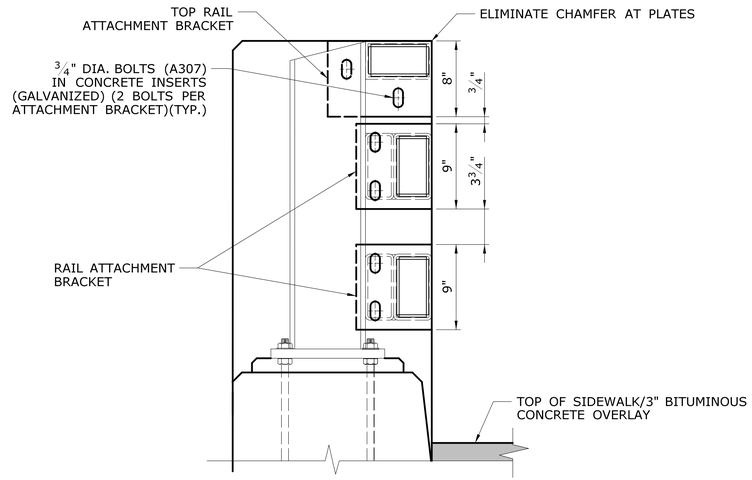


PLATE WASHER "C"

SCALE: FULL SCALE



SECTION C

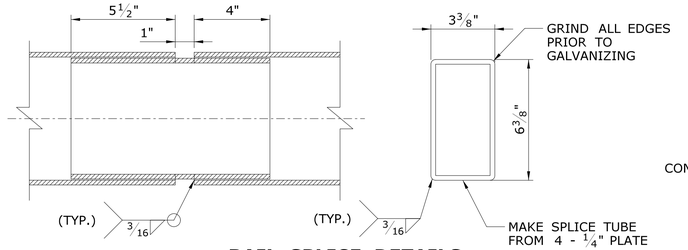
SCALE: 1½" = 1'-0"

S-25

CONCRETE INSERT NOTES

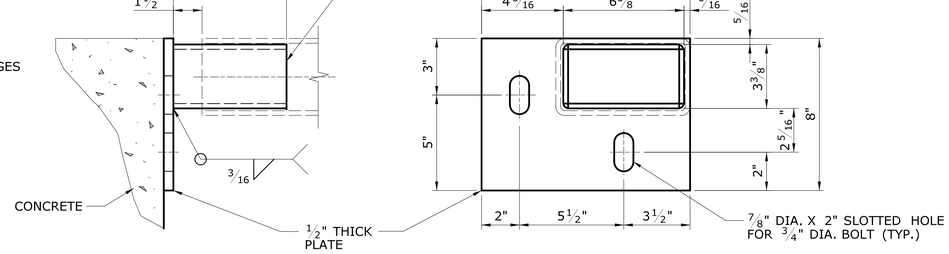
THE CONCRETE INSERTS SHALL BE HOT-DIP GALVANIZED, EXPANDED COIL CONCRETE INSERTS WITH A CLOSED-BACK. THE INSERTS SHALL BE THREADED TO RECEIVE ¾" DIA. ASTM A307 BOLTS. THE INSERTS SHALL MEET THE FOLLOWING REQUIREMENTS:

MINIMUM INSERT LENGTH = 4½"
MINIMUM SAFE WORKING LOAD IN TENSION = 4000 LBS.



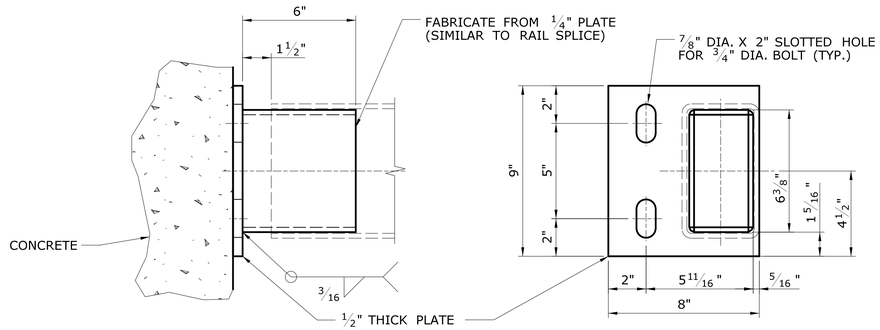
RAIL SPLICE DETAILS

SCALE: 3" = 1'-0"



TOP RAIL ATTACHMENT BRACKET

SCALE: 3" = 1'-0"



RAIL ATTACHMENT BRACKET

SCALE: 3" = 1'-0"

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

SIGNATURE/ BLOCK:

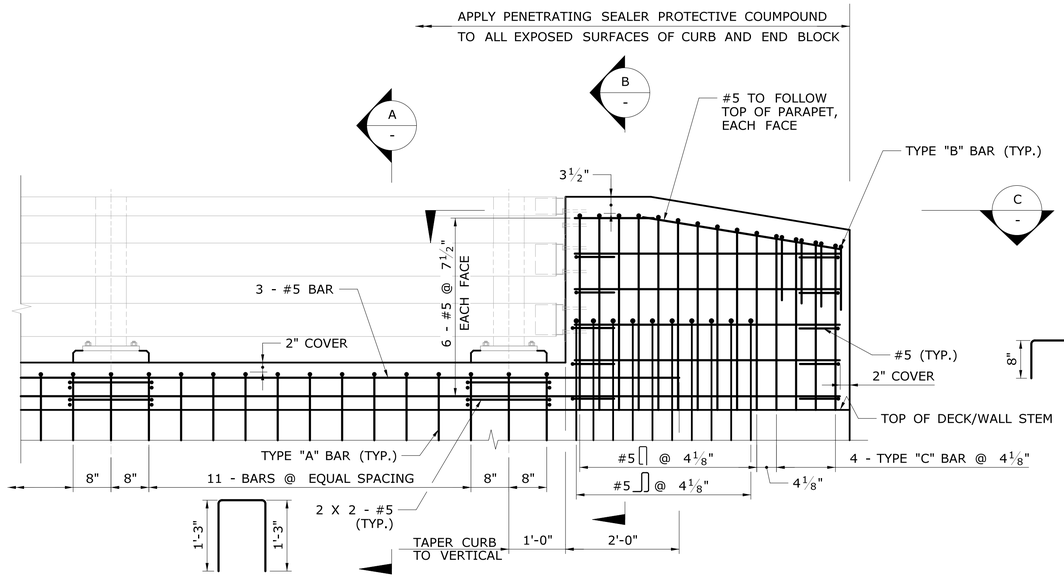
McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: 3 - TUBE CURB MOUNTED BRIDGE RAIL DETALS (2 OF 3)

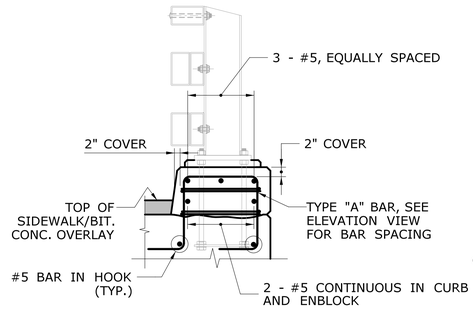
DRAWING NO. S-26
SHEET NO. 04.26

LASTED SAVED BY: eproulx **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\3-Tube Curb Mount Bridge Rail Details (2 OF 3).dgn
PLOTTED DATE: 10/29/2025

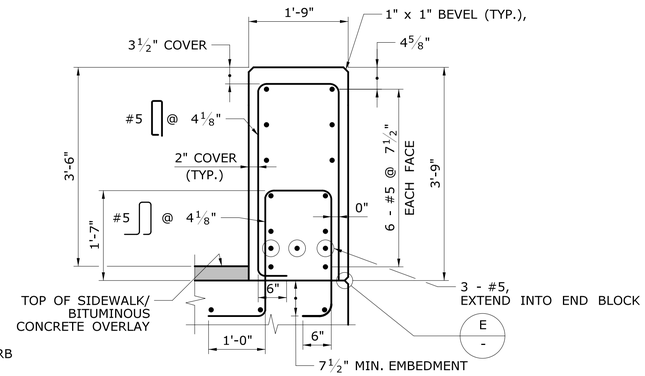


ELEVATION - CURB AND END BLOCK REINFORCEMENT

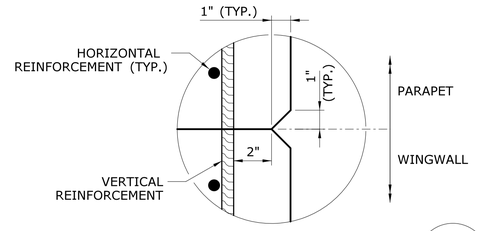
SCALE: ¾" = 1'-0"



SECTION A - SCALE: ¾" = 1'-0"



SECTION B - SCALE: ¾" = 1'-0"



TYPICAL RUSTICATION DETAIL - SCALE: 3" = 1'-0"

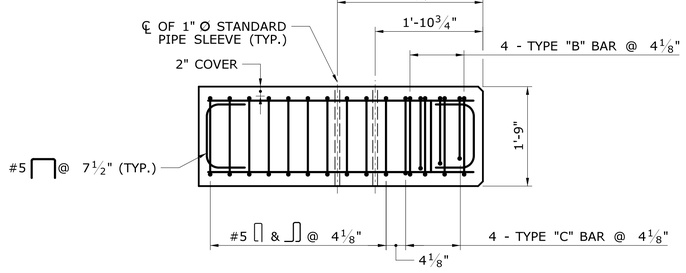
E -

REINFORCEMENT SPLICE NOTES:

1. THE SPLICE LENGTH FOR THE LONGITUDINAL REINFORCEMENT IN THE CURB AND END BLOCK SHALL BE AS FOLLOWS UNLESS DIMENSIONED OTHERWISE:

BAR SIZE	SPLICE LENGTH
#5	2'-4"

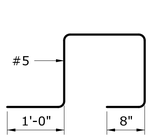
2. THE SPLICES SHALL BE ALTERNATED SO THAT 50% OR LESS OF THE LONGITUDINAL BARS ARE SPLICED AT THE SAME LOCATION.



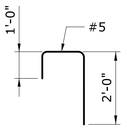
PLAN SECTION - END BLOCK REINFORCEMENT

SCALE: ¾" = 1'-0"

C -

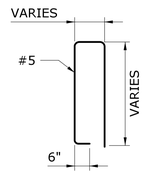


TYPE "A" BAR



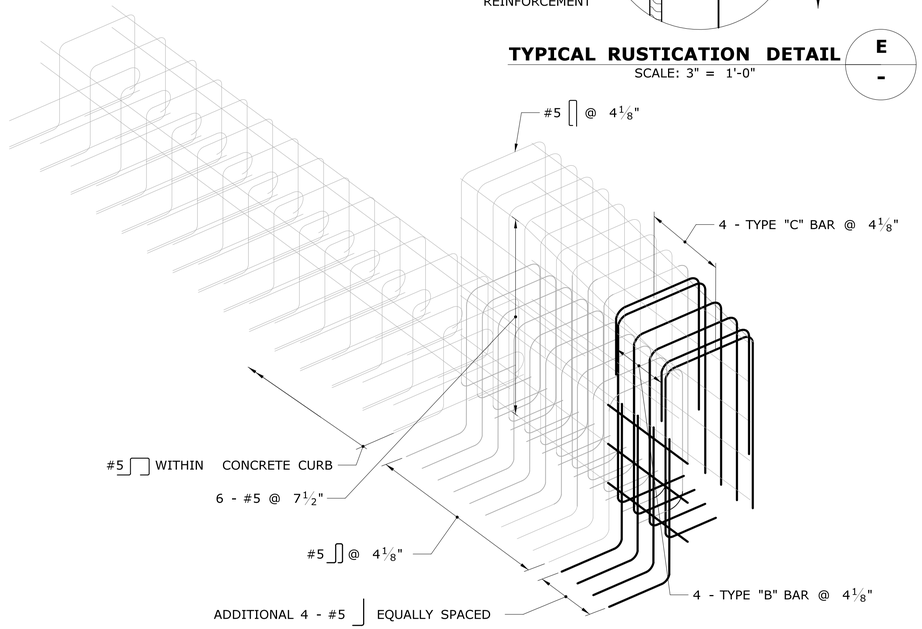
TYPE "B" BAR

SCALE: N.T.S.



TYPE "C" BAR

SCALE: N.T.S.



ISOMETRIC VIEW - REINFORCEMENT DETAIL AT END BLOCK

SCALE: N.T.S.

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: EAP/SLM CHECKED BY: DMK

HORIZONTAL SCALE 1" = 0'

SIGNATURE/ BLOCK:

McFarland Johnson
273 Corporate Drive
Suite 200
Portsmouth, NH
03801

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: 3 - TUBE CURB MOUNTED BRIDGE RAIL DETALS (3 OF 3)

DRAWING NO. S-27
SHEET NO. 04.27

LASTED SAVED BY: smerkwan **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Bridge\Contract_Plans\3-Tube Curb Mount Bridge Rail Details (3 OF 3).dgn
PLOTTED DATE: 10/29/2025

SUBSET 05 - TRAFFIC
INDEX OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
INX-01	INDEX OF DRAWINGS	TR-GS_02	SIGN FACE SHEET ALUMINIUM S&W SERIES TYPICAL SIGN DETAILS
TRA-01	DETOUR PLAN	TR-GS_03	SIGN FACE SHEET ALUMINIUM D,RS,E,I,&M SERIES TYPICAL SIGN DETAILS
TRA-02	TRAFFIC SIGNAL PLAN		
TR-GS_01	SIGN FACE SHEET ALUMINIUM R-SERIES TYPICAL SIGN DETAILS		

DESIGNED BY:
CONSULTANT COMPANY NAME

STATE OF CONNECTICUT · EUGENE W. McCARTHY · No. 27145 · LICENSED PROFESSIONAL ENGINEER

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

REV. | DATE | REVISION DESCRIPTION

DESIGNER/DRAFTER: | CHECKED BY:

SIGNATURE/ BLOCK:

STATE OF CONNECTICUT · EUGENE W. McCARTHY · No. 27145 · LICENSED PROFESSIONAL ENGINEER

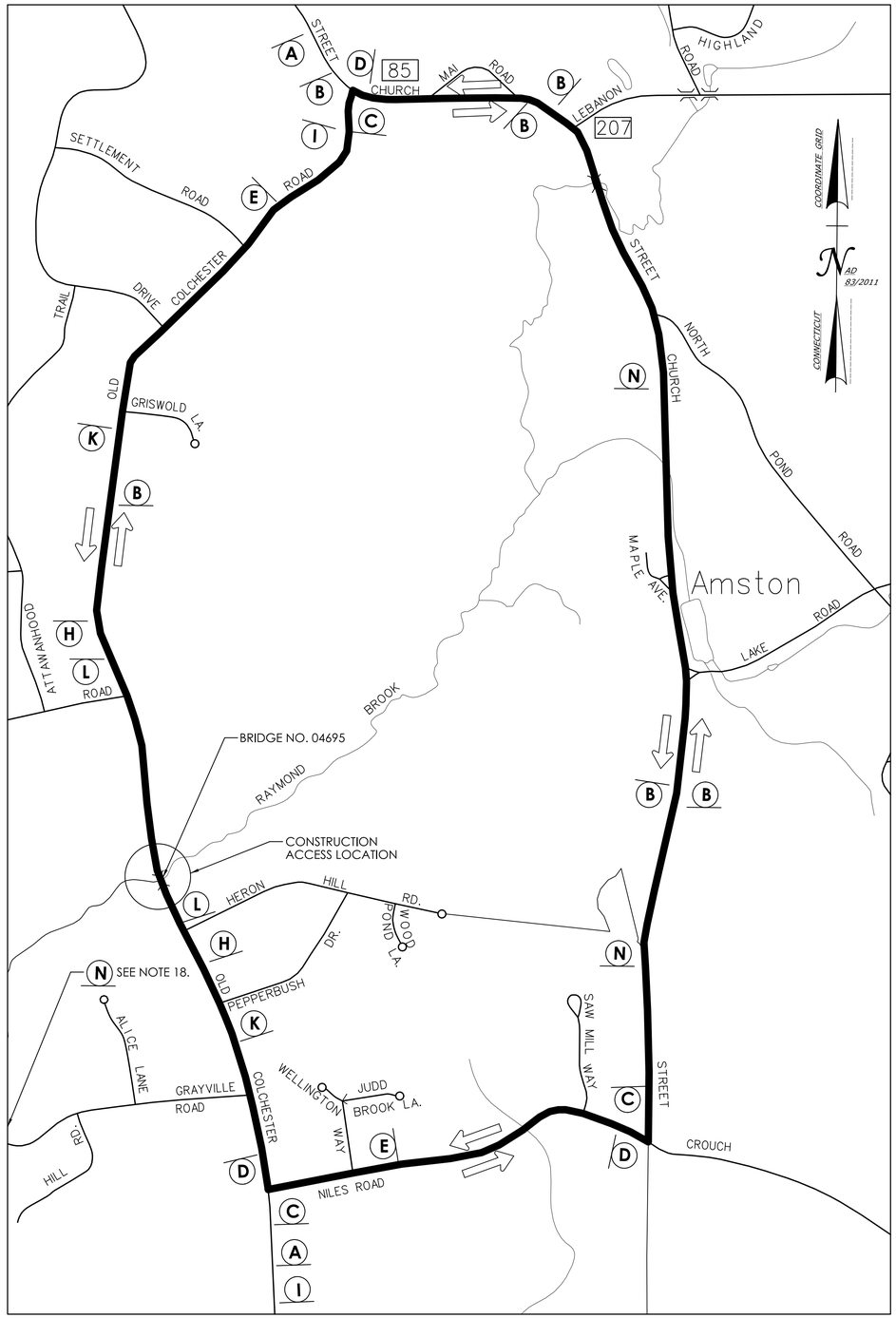
McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: INDEX OF DRAWINGS

DRAWING NO. INX-01
SHEET NO. 05.01

LASTED SAVED BY: MDoreo **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Traffic\Contract_Plans\TRA_CP_0066_0110_SubsetCoverSheet.dgn
PLOTTED DATE: 10/30/2025

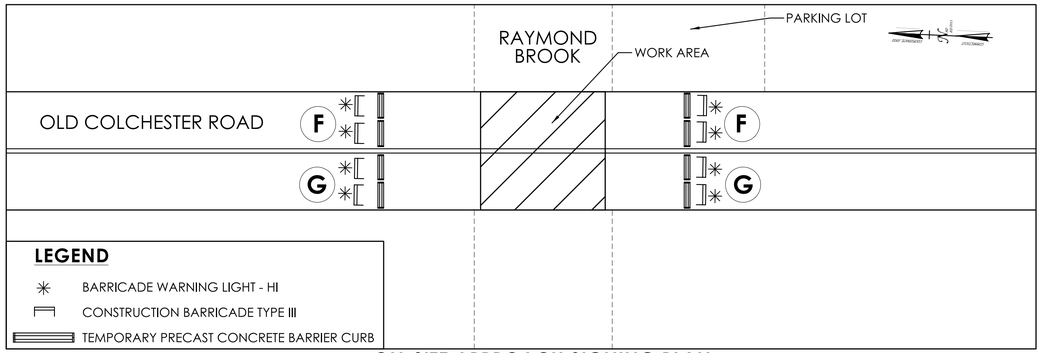


DETOUR PLAN
NOT TO SCALE

GENERAL NOTES

1. THE "STOP" SIGN AND SIGN F ARE TO BE MOUNTED ON TEMPORARY CONSTRUCTION BARRICADES.
2. SIGN CLUSTER A, B, C, D, H ARE A LIST ONLY AND DO NOT REPRESENT A SEQUENCE. ALL SIGNS SHALL BE INSTALLED PER STATE STANDARDS.
3. REFER TO THE SPECIAL PROVISIONS AND SPECIFICATIONS "MAINTENANCE AND PROTECTION OF TRAFFIC" AND "PROSECUTION AND PROGRESS" FOR ADDITIONAL REQUIREMENTS.
4. ALL ROADWAY CLOSURES AND OPENINGS SHALL BE COORDINATED WITH THE TOWN OF HEBRON.
5. COVER ALL CONFLICTING EXISTING DIRECTIONAL SIGNING AS DIRECTED BY THE ENGINEER.
6. ALL DETOUR SIGNS ARE TO BE PAID FOR UNDER ITEM NO. 1220027A - CONSTRUCTION SIGNS.
7. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL PLACE ON SITE APPROACH SIGNING AND BARRICADES AS SHOWN ON THIS DRAWING, AND SHALL COORDINATE THE REMOVAL OF ANY SITE APPROACH SIGNING WITH THE TOWN OF HEBRON.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ON-SITE APPROACH SIGNING AND ALL OFF-SITE DETOUR SIGNING FOR THE DURATION OF THIS PROJECT.
9. THE CORRECT SEQUENCE AND SPACING OF SIGNS, EITHER PERMANENT OR TEMPORARY MUST BE MAINTAINED AT ALL TIMES IN ACCORDANCE WITH THE MUTCD. ALL SIGN LOCATIONS ARE APPROXIMATE AND EXACT LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.
10. ALL TEMPORARY SIGNS, INCLUDING GUIDE SIGNS, SHALL INDICATE ACCURATE CONDITIONS AT ALL TIMES AND SHALL BE COVERED, MOVED, REMOVED OR CHANGED AS DIRECTED BY THE ENGINEER. SIGNS SHALL NOT BE PLACED AT LOCATIONS WHERE THEY ARE OBSCURED BY TEMPORARY OR PERMANENT OBJECTS OR ARE A HAZARD TO PUBLIC SAFETY.
11. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE TOWN OF HEBRON AT LEAST TWO WEEKS PRIOR TO THE ROADWAY CLOSURE TO ENSURE AMPLE TIME IS PROVIDED TO NOTIFY ALL TOWN DEPARTMENTS, EMERGENCY SERVICES, BUSES AND ANY OTHER ENTITY THAT MAY BE AFFECTED BY THE DETOUR.
12. THE CONTRACTOR MUST MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES UNLESS COORDINATED WITH THE ENGINEER AND THE AFFECTED RESIDENCE OR BUSINESS.
13. AT LEAST TWO WEEKS PRIOR TO INITIATING THE DETOUR, INSTALL SIGN NO. 80-9079 (SIGN I) ON COLCHESTER ROAD AS SHOWN ON DETOUR PLAN
14. AT LEAST TWO WEEKS PRIOR TO INITIATING DETOUR, INSTALL SIGN NO. 80-9078 (SIGN M) IN THE TRAIL PARKING LOT.
15. ALL CONSTRUCTION/DETOUR SIGNS TO BE INSTALLED ON BREAKAWAY POSTS PER TRAFFIC STANDARD SHEET TR-1208-2 AND TR-1220-2.
16. ANY EXISTING SIGNING DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT NO COST TO THE TOWN OF HEBRON.
17. THE CONTRACTOR MUST MAINTAIN ACCESS AT ALL TIMES TO THE AIR LINE STATE PARK TRAIL IN ACCORDANCE WITH THE SPECIAL PROVISION FOR ITEM # 0971200A-MAINTENANCE PEDESTRIAN ACCESS.
18. SIGN N IS TO BE PLACED AT AIR LINE TRAIL ENDS. THE TRAIL END ON GRAYVILLE ROAD IS NOT PICTURED IN THE DETOUR DRAWING.

SIGN DESIGNATION	CONNDOT SIGN #	DIMENSIONS	NO.	S.F.	NO. OF POSTS	SIGN FACE
A	80-9928 80-9916	60" x 30" 48" x 10"	2	32	2	OLD COLCHESTER ROAD CLOSED LOCAL TRAFFIC ONLY / FOLLOW DETOUR
B	80-9919 80-9710	30" x 10" 30" x 24"	6	42.5	1	Old Colchester Road / DETOUR ↑
C	80-9919 80-9710	30" x 10" 30" x 24"	3	22.5	1	Old Colchester Road / DETOUR →
D	80-9919 80-9710	30" x 10" 30" x 24"	3	22.5	1	Old Colchester Road / DETOUR ←
E	80-9708	24" x 18"	2	6	1	END DETOUR
F	80-9080	48" x 30"	2	20	N/A	ROAD CLOSED
G	31-0552	30" x 30"	2	12.5	N/A	STOP
H	80-9080 80-9916	48" x 30" 48" x 10"	2	27	2	ROAD CLOSED / RESIDENT ACCESS ONLY
I	80-9079	72" x 48"	2	48	2	OLD COLCHESTER ROAD CLOSED TO THRU TRAFFIC FROM 00/00 TO 00/00
K	80-9603	36" x 36"	2	18	2	ROAD WORK AHEAD
L	80-5957	96" x 60"	2	80	2	PROJECT FUNDED BY THE Bipartisan Infrastructure Law INVESTING IN AMERICA
M	80-9078	60" x 30"	1	12.5	2	OLD COLCHESTER ROAD CLOSED FROM 00/00 TO 00/00 TRAIL TO REMAIN OPEN
N	80-9058	72" x 30"	3	45	2	ROAD CONSTRUCTION INT. OF AIR LINE TRAIL & OLD COLCHESTER RD
TOTALS			48	386 SF		



ON-SITE APPROACH SIGNING PLAN
NOT TO SCALE

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/ BLOCK: STATE OF CONNECTICUT No. 21145 REGISTERED PROFESSIONAL ENGINEER

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: DETOUR PLAN

DRAWING NO. TRA-01
SHEET NO. 05.02

LASTED SAVED BY: MDoreo **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Traffic\Contract_Plans\TRA_CP_0066_0110_DETOUR.dgn
PLOTTED DATE: 10/30/2025

MOVEMENT DIAGRAM

		NTOR			PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9		
		FLASH	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL
FACE #	1																														
	2																														
	3																														
	4																														
	5																														
	6																														
	7																														
	8																														
	9																														
	10																														
	11																														
	12																														
	13																														
	14																														
	15																														
INTERVALS	MIN GRN																														
	WALK																														
	PED CLR																														
	VEH EXT																														
	MAX 1																														
	MAX 2																														
	YELLOW																														
	RED																														
	ADD INIT																														
	MAX INIT																														
	TBR																														
	TTR																														
	MIN GAP																														
	MODE																														
	INIT START																														

SIGN LEGEND:

Ⓐ REMOVE EXISTING AND RELOCATE RECTANGULAR RAPID FLASHING BEACON ASSEMBLY TYPE B TO HAVE ADA COMPLIANT ARROW PUSHBUTTON, AUDIBLE WALK INDICATION, AND LOCATOR TONE. TOWN OWNED AND MAINTAINED.

Ⓑ REMOVE EXISTING AND RELOCATE RECTANGULAR RAPID FLASHING BEACON ASSEMBLY TYPE B TO HAVE ADA COMPLIANT ARROW PUSHBUTTON, AUDIBLE WALK INDICATION, AND LOCATOR TONE. TOWN OWNED AND MAINTAINED.

Ⓒ REMOVE EXISTING AND SALVAGE — 31-0510

Ⓓ REMOVE EXISTING AND RELOCATE — 41-4831 (BACK TO BACK ON RRFB ASSEMBLY); 41-2607 41-2609 (BACK TO BACK ON RRFB ASSEMBLY)

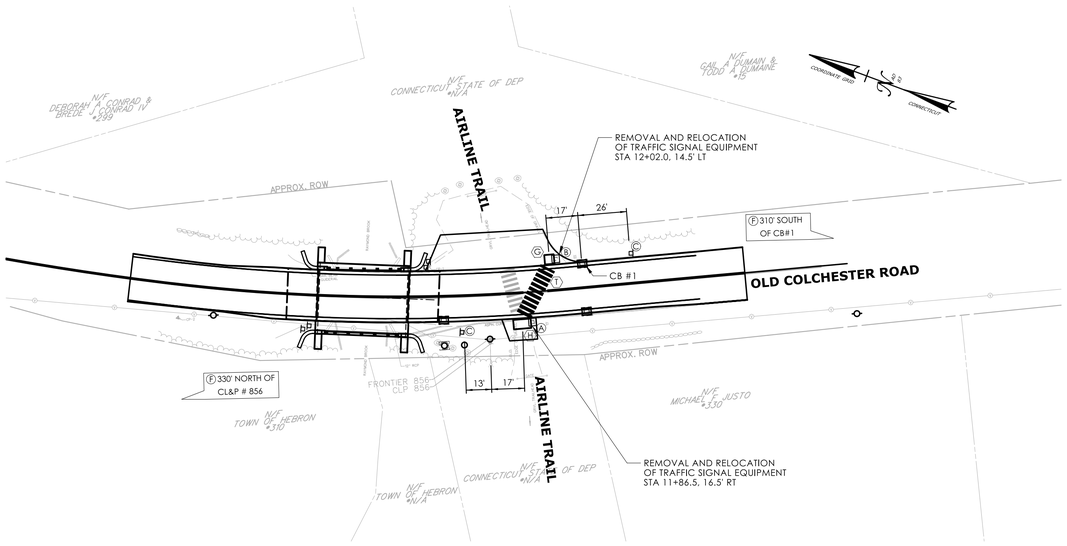
Ⓔ REMOVE EXISTING AND RELOCATE — 31-0858 (ON RRFB ASSEMBLY)

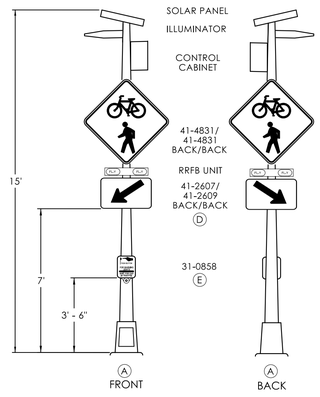
Ⓕ SIGNS TO BE COVERED WHEN EXISTING RRFB ASSEMBLIES ARE TAKEN OUT OF SERVICE — 41-4828; AHEAD 41-6126

TECHNICAL NOTES	OFFICE RECORD
RECTANGULAR RAPID FLASHERS TO FLASH FOR 16 SECONDS UPON ACTUATION.	REV # TIR # N/A SM # N/A SIGNAL REVISED: RRFB INSTALLED:
(9-18 SECOND ADJUSTABLE.)	INSTALLED RECTANGULAR RAPID FLASHING BEACON (RRFB) UNDER PROJECT
16 SECOND TIMER SHOULD RESET UPON EACH ACTUATION.	NUMBER 0172-0505.
SPEECH MESSAGE "WARNING LIGHTS ARE FLASHING" SHALL BE SPOKEN TWICE	REV# RRFB REVISED DATE:
UPON PUSHBUTTON ACTUATION.	RRFB REMOVED & REINSTALLED UNDER PROJECT 0066-0110

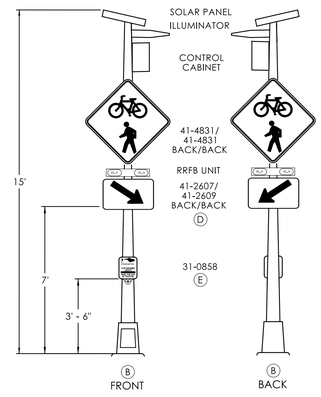
RRFB CONSTRUCTION NOTES:

1. COORDINATE WITH UTILITY COMPANY REPRESENTATIVES LISTED IN THE SPECIAL PROVISION, 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES.
2. REMOVE, LOAD, TRANSPORT AND UNLOAD FOR STORAGE AT THE TOWN OF HEBRON, PUBLIC WORKS DEPARTMENT THE EXISTING RRFB TYPE B SOLAR POWERED ASSEMBLIES IN THEIR ENTIRETY INCLUDING THE PEDESTAL FOUNDATION AT THE LOCATIONS INDICATED ON THE PLAN SHEET. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT".
3. REMOVE THE EXISTING CONCRETE LANDING AREAS AS SHOWN ON THE PLANS. THIS WORK SHALL BE PAID UNDER THE ITEM "REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT".
4. REMOVE EXISTING DETECTABLE WARNING STRIP. THIS WORK SHALL BE PAID UNDER THE ITEM "REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT".
5. REMOVE SIGNS DESIGNATED AS C, D AND E. THE REMOVAL, LOADING, TRANSPORTING AND UNLOADING FOR STORAGE AND/OR SALVAGE TO THE TOWN OF HEBRON PUBLIC WORKS DEPARTMENT IS INCLUDED FOR PAYMENT UNDER THE ITEM "REMOVAL OF EXISTING SIGNS".
6. LOAD, TRANSPORT AND DELIVER TO PROJECT SITE FROM TOWN OF HEBRON, PUBLIC WORKS DEPARTMENT THE RRFB TYPE B SOLAR POWERED ASSEMBLIES INCLUDING THE PEDESTAL FOUNDATIONS. THIS WORK SHALL BE PAID UNDER THE ITEM "REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT".
7. 7. INSTALL Ⓖ 5' X 5' CONCRETE LANDING AREA WITH DETECTABLE WARNING PANEL ON WEST SIDE OF OLD COLCHESTER ROAD AND INSTALL Ⓗ 5' X 9' CONCRETE LANDING AREA WITH DETECTABLE WARNING PANEL ON THE EAST SIDE OF OLD COLCHESTER ROAD. THE CONCRETE LANDING AREAS SHALL BE PAID FOR UNDER THE ITEM "CONCRETE SIDEWALK RAMP" AND THE DETECTABLE WARNING SURFACE SHALL BE PAID FOR UNDER THE ITEM "DETECTABLE WARNING SURFACE". PROVIDE REGRADING TO ACCOMMODATE THE CONCRETE LANDING AREAS. (SEE SHEET 3.03 FOR DETAILS)
8. STAKE ALL R.O.W. PRIOR TO EXCAVATION UNLESS OTHERWISE DIRECTED BY THE ENGINEER
9. ANY PROPOSED REVISIONS TO THE LOCATION OF THE APPURTENANCES SHOWN ON THE PLAN MUST BE SUBMITTED FOR REVIEW AND APPROVAL BY THE TOWN OF HEBRON PRIOR TO INSTALLATION
10. INSTALL RELOCATED RECTANGULAR RAPID FLASHING BEACONS WHICH ARE PEDESTRIAN ACTUATED, SOLAR POWERED AND WIRELESS ACTIVATED. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT".
11. INSTALL RELOCATED RRFB ASSEMBLIES ON 15' PEDESTALS. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT".
12. INSTALL RELOCATED PEDESTAL FOUNDATIONS ADJACENT TO THE LANDING AREAS AND WITHIN R.O.W. THIS WORK SHALL BE PAID FOR UNDER THE ITEM "REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT".
13. SOLAR PANELS TO FACE SOUTH.
14. INSTALL NEW CROSSWALK ACROSS OLD COLCHESTER ROAD AS NOTED ON PLAN.
15. CONTRACTOR AND THE ENGINEER TO REVIEW SITE LINES TO THE CROSSING AND ALL SIGNS PERTAINING TO IT. ANY TRIMMING OF TREE LIMBS OR VEGETATION REQUIRED TO BE COMPLETED WITHIN THE STREET LINE SHALL BE PAID FOR UNDER THE ITEM "CLEARING AND GRUBBING".





RRFB ASSEMBLY TYPE A
DETAILS NOT TO SCALE



RRFB ASSEMBLY TYPE B
DETAILS NOT TO SCALE

RRFB ASSEMBLY

NOTES:

RECTANGULAR RAPID FLASHING BEACON AND ALL ASSOCIATED EQUIPMENT, INCLUDING SIGNS, TO BE OWNED AND MAINTAINED BY THE TOWN OF HEBRON

Ⓣ BAR TYPE CROSSWALK - TOWN MAINTAINED

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

BACK TO BACK RRFB

REVISION DESCRIPTION | DATE | REV.

LEGEND:
R, Y, G RED, YEL, GRN
R RED ARROW
Y YELLOW ARROW
G GREEN ARROW
WØ WALK/ PED. CLR
D.W. DON'T WALK
FL. FLASHING
DET. LEADS IN SAW CUT
PROPOSED RMC
EXISTING RMC
PROPOSED WOOD SPAN POLE
EXISTING WOOD SPAN POLE
PROPOSED STEEL SPAN POLE
EXISTING STEEL SPAN POLE
PROPOSED UTILITY POLE
EXISTING UTILITY POLE
PEDESTAL MOUNTING
PEDESTRIAN PUSH BUTTON & SIGN
DIRECTIONAL ARW. FOR PUSH BUTTON
TRAFFIC SIGNAL FACE
PEDESTRIAN SIGNAL FACE
LOOP DETECTOR
CABLE CLOSURE
VIDEO DETECTION ZONE
AUXILIARY TERMINATION CABINET
AUXILIARY EQUIPMENT CABINET
PROPOSED CONTROLLER
EXISTING CONTROLLER
IP DETECTOR
RADAR DETECTOR
THERMAL DETECTOR
360° CAMERA ASSEMBLY
AUDIO DETECTOR
OPTICAL DETECTOR
SD SYSTEM DETECTOR
VC VIDEO CAMERA CABLE
RC RADAR CABLE
GUY WIRE
PROPOSED HANDHOLE
EXISTING HANDHOLE

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: TRAFFIC SIGNAL PLAN

0 40' 80'
HORIZONTAL SCALE 1" = 40'

DRAWING NO. TRA-02
SHEET NO. 05.03

LASTED SAVED BY: MDoreo **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Traffic\Contract_Plans\TR_CP_0172_0505_TRAFFIC SIGNAL.dgn
PLOTTED DATE: 10/30/2025

R1 - SERIES

R1-1 *



LEGEND - WHITE
BACKGROUND - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.85	18	31-0532	1	.080
5.19	30	31-0552	1	.080
7.98	36	31-0553	1	.080
13.3	48	31-0557	2	.100

R1-2 *



LEGEND - RED
BACKGROUND -WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
0.97	18	31-0520	1	.080
3.90	36	31-0523	1	.080
6.77	48	31-0522	2	.100
10.83	60	31-0528	2	.100

R1-3P *



LEGEND - WHITE
BACKGROUND - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
0.75	18X6	31-0508		.080

R2 - SERIES

R2-1



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-5505	1	.080
7.50	30X36	31-5504	1	.080
12.00	36X48	31-5506	2	.100
20.00	48X60	31-5507	2	.100

R2-4a



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
32	48X96	31-5510	2	.125

R3 - SERIES

R3-1



LEGEND - BLACK
BACKGROUND - WHITE
CIRCLE & DIAGONAL - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	31-1604	1	.080
9.00	36X36	31-1627	2	.080

R3-2



LEGEND - BLACK
BACKGROUND - WHITE
CIRCLE & DIAGONAL - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	31-1603	1	.080
9.00	36X36	31-1629	2	.080

R3-3



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	31-1648	1	.080
9.00	36X36	31-1647	2	.080

R3-4



LEGEND - BLACK
BACKGROUND - WHITE
CIRCLE & DIAGONAL - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	31-1622	1	.080
9.00	36X36	31-1632	2	.080

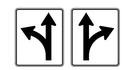
R3-5



31-0183 31-0184

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36		1	.080

R3-6



31-0157 31-0158

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36		1	.080

R3-7



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30	31-0117	1	.080
9.00	36X36	31-0120	2	.080

R3-7



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30	31-0118	1	.080
9.00	36X36	31-0123	2	.080

R3-6



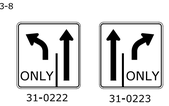
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X24	31-0175	1	.080

R3-8



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	36X30	31-0290	1	.080

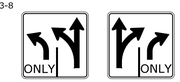
R3-8



31-0222 31-0223

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30		1	.080

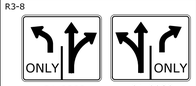
R3-8



31-0262 31-0261

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30		1	.080

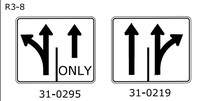
R3-8



31-0282 31-0283

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	36X30		2	.080

R3-8



31-0295 31-0219

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	36X30		2	.080

R3-8



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.75	42X30	31-0279	2	.100

R3-8

31-0371

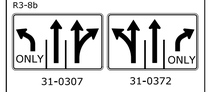
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.75	42X30		2	.100

R3-8b



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
10.00	48X30	31-0302	2	.100

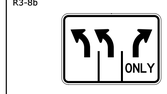
R3-8b



31-0307 31-0372

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
10.00	48X30		2	.100

R3-8b



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.75	42X30	31-0334	2	.100

R3-8b



31-0370 31-0371

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.75	42X30		2	.100

R4 - SERIES

R4-1



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-1502	1	.080

R4-16



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
20.00	48X60	31-1574	2	.100

R4-3



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-1562	1	.080
20.00	48X60	31-1564	2	.100

R4-7



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-1526	1	.080
12.00	36X48	31-1536	2	.100
20.00	48X60	31-1546	2	.100

R5 - SERIES

R5-1 *



LEGEND - WHITE
BACKGROUND - WHITE
CIRCLE - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30	31-1119	1	.080
9.00	36X36	31-1120	2	.080
16.00	48X48	31-1121	2	.100

R5-1a *



LEGEND - WHITE
BACKGROUND - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.00	36X24	31-1122	2	.080
8.75	42X30	31-1123	2	.100

R5-10a(CT)



LEGEND - BLACK
TOP SECTION BACKGROUND - YELLOW
BOTTON SECTION BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
32.50	60X78	31-1719	2	.125

R5-10c



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	31-1774	1	.080

R5-10a(CT)



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36X36	31-1775	2	.100

R5-11



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	30X24	31-1790	1	.080
20.00	48X36	31-1792	2	.100

R6 - SERIES

R6-1 *



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.00	36X12	31-1188	1	.080
6.75	54X18	31-1189	2	.100

R6-1 *



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.00	36X12	31-1177	1	.080
6.75	54X18	31-1178	2	.100

R7 - SERIES

R7-1



(R)
(D)
(L)

LEGEND - RED
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.50	12X18	31-0630	1	.080

R7-2a



VARIABLE TIMES
(R)
(D)
(L)

LEGEND - RED
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.50	12X18	31-0603	1	.080

R8 - SERIES

R8-7



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
12.00	48X36	31-0670	2	.100

R9 - SERIES

R9-3



LEGEND - BLACK
BACKGROUND - WHITE
CIRCLE & DIAGONAL - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.25	18X18	31-1705	1	.080
4.00	24x24	31-1769	1	.080
6.25	30x30	31-1770	1	.080

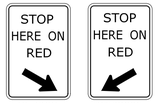
R9-3a



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.50	12X18	31-1702	1	.080

R10 - SERIES

R10-6



31-0801 31-0802

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.00	24X36		1	.080

R10-7



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-0806	1	.080

R10-11a



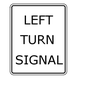
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36	31-0830	1	.080
12.00	36X48	31-0819	2	.100

R10-11b



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36X36	31-0816	2	.080

R10-10L



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36	31-0852	1	.080

R10-11c(CT)



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	30X36	31-0847	1	.080

R10-15 *



31-1626 31-1625

LEGEND AND SYMBOLS - BLACK
YIELD SYMBOL - RED
BACKGROUND:
TOP - FLUORESCENT YELLOW-GREEN
BOTTOM - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30X30		1	.080

R11 - SERIES

R11-1



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	31-1915	1	.080
20.00	48X60	31-1918	2	.100

RETROREFLECTIVE STRIP



LEGEND - N/A
BACKGROUND - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.00	4X48	31-5003	1	.080
2.00	4X72	31-5004	1	.080

NOTES:

1. FOR SPECIFIC SIGN DESIGN CONTACT CONN. D.O.T., DIVISION OF TRAFFIC ENGINEERING. FOR BOLT HOLE PATTERN REFER TO FHWA PUBLICATION "STANDARD HIGHWAY SIGNS". SIGNS OF DIFFERENT DIMENSIONS TO BE ERECTED ON THE SAME POSTS, OR SPAN/MAST ARM MOUNTED, MAY REQUIRE SPECIAL BOLT HOLE PATTERNS.
2. POSTS - SEE STANDARD SHEET TR-1208_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS."
3. POSTS SHALL BE 4 LBS./FT.
4. SIGNS SHALL BE FABRICATED OF ONE CONTINUOUS PIECE OF SHEET ALUMINUM. SPLICING OF SHEET ALUMINUM WILL NOT BE ACCEPTED.
5. FLUORESCENT YELLOW RETROREFLECTIVE STRIPS SHALL BE INSTALLED ON ALL SIGN POSTS FOR W1-6 AND W1-8 SIGNS. FLUORESCENT YELLOW GREEN RETROREFLECTIVE STRIPS SHALL BE INSTALLED ON ALL SIGN POSTS FOR S1-1 AND W11-2 SIGNS LOCATED AT CROSSINGS. RETROREFLECTIVE STRIPS SHOULD NOT BE INSTALLED ON ADVANCE CROSSING WARNING SIGNS. SEE STANDARD SHEET TR-1208_01 "SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS" FOR RETROREFLECTIVE STRIP DETAILS AND INSTALLATION.

COLORS:

BACKGROUND - YELLOW - EXCEPT AS NOTED.
LEGEND - BLACK - EXCEPT AS NOTED.
ALL SIGNS TO USE TYPE XI RETROREFLECTIVE SHEETING.

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/ BLOCK:



McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: SIGN FACE SHEET ALUMINUM R-SERIES TYPICAL SIGN DETAILS

DRAWING NO. TR-GR_01
SHEET NO. 05.04

LASTED SAVED BY: MDoreo **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Highways\Contract_Plans\HW_CP_0066_0110_spm.dgn
PLOTTED DATE: 10/30/2025

S - SERIES

S1-1



LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.75	36	41-2112	1	.080
12.00	48	41-2113	2	.100

W1 - SERIES

W1-1L



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4006	1	.080
9.00	36	41-4031	1	.080

W1-1R



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4005	1	.080
9.00	36	41-4160	1	.080

W1-6



LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW
(LEFT OR RIGHT)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.00	48X24	41-4223	2	.100
12.50	60X30	41-4262	2	.100

W1-2



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4029	1	.080
9.00	36	41-4169	1	.080

W1-2



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4168	1	.080
9.00	36	41-4032	1	.080

W1-7



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
8.00	48X24	41-4207	2	.100
12.50	60X30	41-4208	2	.100

W1-8

LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW
(LEFT OR RIGHT)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.00	18X24	41-3951	1	.080
7.50	30X36	41-4211	1	.080
12.00	36X48	41-4260	2	.080

W2 - SERIES

W2-1



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4226	1	.080
9.00	36	41-4236	1	.080

W2-2



(LEFT OR RIGHT)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4225	1	.080
9.00	36	41-4235	1	.080

W3 - SERIES

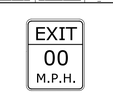
W3-1



OCTAGON - RED

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-0501	1	.080
16.00	48	41-0503	2	.100

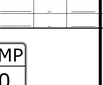
W3-2



TRIANGLE - RED & WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-0504	1	.080
16.00	48	41-0506	2	.100

W3-3



SYMBOL & LEGEND - BLACK
BACKGROUND - YELLOW
TOP CIRCLE - RED
BOTTOM CIRCLE - GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-0835	1	.080
16.00	48	41-0848	2	.100

WHEN FLASHING STOP AHEAD

W/ FLASHERS

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
25.00	60	41-0534	2	.125

W4 - SERIES

W4-1



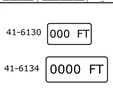
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4448	1	.080
16.00	48	41-4452	2	.100

W4-1



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4449	1	.080
16.00	48	41-4459	2	.100

W4-2

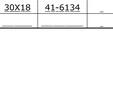


AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4442	1	.080
16.00	48	41-4446	2	.100

W4-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4441	1	.080
16.00	48	41-4447	2	.100

W4-3



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4468	1	.080
16.00	48	41-4435	2	.100

W4-3

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4470	1	.080
16.00	48	41-4434	2	.100

W5 - SERIES

W5-1



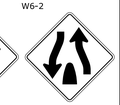
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4402	1	.080
16.00	48	41-4404	2	.100

W6 - SERIES

W6-1

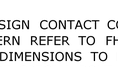


W6-2



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4335	1	.080
16.00	48	41-4330	2	.100
		41-4329	1	.080
		41-4331	2	.100

W6-3



W7 - SERIES

W7-1



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4506	1	.080
9.00	36	41-4530	1	.080
16.00	48	41-4508	2	.100

W8 - SERIES

W8-5



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4519	1	.080
9.00	36	41-4520	1	.080
16.00	48	41-4521	2	.100

W9 - SERIES

W9-1



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4443	1	.080
16.00	48	41-4444	2	.100

W9-1



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4440	1	.080
16.00	48	41-4445	2	.100

W9-2



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4454	1	.080
16.00	48	41-4456	2	.100

W9-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4453	1	.080
16.00	48	41-4455	2	.100

W11 - SERIES

W11-2



LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4829	1	.080
9.00	36	41-4830	1	.080

W11-8

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4680	1	.080
9.00	36	41-4681	1	.080

W12 - SERIES

W12-1



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.25	30	41-4213	1	.080
9.00	36	41-4215	1	.080

LEFT LANE

(SUBPLATE)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	30X24	41-4721		.080

W12-2



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
9.00	36	41-4706	1	.080
16.00	48	41-4708	2	.100

RIGHT LANE

(SUBPLATE)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	30X24	41-4722		.080

W13 - SERIES

W13-1P



(SUBPLATE)

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.25	18X18	41-5566		.080
4.00	24X24	41-5567		.080
6.25	30X30	41-5574		.080

W13-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
12.00	36X48	41-5596	2	.100

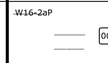
W13-3



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
12.00	36X48	41-5581	2	.100

W16 - SERIES

W16-2aP



(SUBPLATE)
USE AT ADVANCE SIGN LOCATION
LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	41-6140		.080

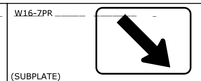
W16-7PL



(SUBPLATE)
USE AT CROSSWALK
LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	41-2617		.080

W16-7PR



(SUBPLATE)
USE AT CROSSWALK
LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	41-2619		.080

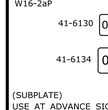
W16-9P



(SUBPLATE)
USE AT ADVANCE SIGN LOCATION
LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	41-6126		.080
3.75	30X18	41-6137		.080

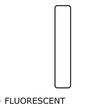
W16-2aP



(SUBPLATE)
USE AT ADVANCE SIGN LOCATION

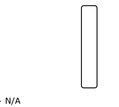
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	24X12	41-6130		.080
3.75	30X18	41-6134		.080

RETROREFLECTIVE STRIP



LEGEND - N/A
BACKGROUND - FLUORESCENT YELLOW GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.00	4X72	41-5010	1	.080



LEGEND - N/A
BACKGROUND - FLUORESCENT YELLOW

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.50	4X48	41-5001	1	.080
2.00	4X72	41-5006	1	.080

NOTES:

1. FOR SPECIFIC SIGN DESIGN CONTACT CONN. D.O.T., DIVISION OF TRAFFIC ENGINEERING. FOR BOLT HOLE PATTERN REFER TO FHWA PUBLICATION "STANDARD HIGHWAY SIGNS". SIGNS OF DIFFERENT DIMENSIONS TO BE ERECTED ON THE SAME POSTS, OR SPAN/MAST ARM MOUNTED, MAY REQUIRE SPECIAL BOLT HOLE PATTERNS.
2. POSTS - SEE STANDARD SHEET TR-1208_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS."
3. POSTS SHALL BE 4 LBS./FT.
4. SIGNS SHALL BE FABRICATED OF ONE CONTINUOUS PIECE OF SHEET ALUMINUM. SPLICING OF SHEET ALUMINUM WILL NOT BE ACCEPTED.
5. FLUORESCENT YELLOW RETROREFLECTIVE STRIPS SHALL BE INSTALLED ON ALL SIGN POSTS FOR W1-6 AND W1-8 SIGNS. FLUORESCENT YELLOW GREEN RETROREFLECTIVE STRIPS SHALL BE INSTALLED ON ALL SIGN POSTS FOR S1-1 AND W11-2 SIGNS LOCATED AT CROSSINGS. RETROREFLECTIVE STRIPS SHOULD NOT BE INSTALLED ON ADVANCE CROSSING WARNING SIGNS. SEE STANDARD SHEET TR-1208_01 "SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS" FOR RETROREFLECTIVE STRIP DETAILS AND INSTALLATION.

COLORS:

BACKGROUND - YELLOW - EXCEPT AS NOTED.
LEGEND - BLACK - EXCEPT AS NOTED.
ALL SIGNS TO USE TYPE XI RETROREFLECTIVE SHEETING.

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/ BLOCK:



McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: SIGN FACE SHEET ALUMINUM S&W SERIES TYPICAL SIGN DETAILS

DRAWING NO. TR-GS_02
SHEET NO. 05.05

LASTED SAVED BY: MDoreo **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Highways\Contract_Plans\HW_CP_0066_0110_spm.dgn
PLOTTED DATE: 10/30/2025

D1 - SERIES

D1-1
51-5202 Variable →

D1-2
51-5203 Variable / Variable →

VARIABLE LEGEND & ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	60X12	51-5202	2	.100
10.00	60X24	51-5203	2	.100

D3 - SERIES

D3-1
Variable Road Name

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.00	48X18	51-2004	2	.100
7.50	60X18	51-2001	2	.100
9.00	72X18	51-2002	2	.125
10.50	84X18	51-2003	2	.125

D4 - SERIES

D4-2
PARK - RIDE

VARIABLE ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	51-6006	1	.080
7.50	30X36	51-6007	1	.080

D4-2
EXIT OOO
PARK - RIDE

VARIABLE EXIT NUMBER

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
38.50	84X66	51-2082	3	.125

D4-2
PARK - RIDE

VARIABLE ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	51-6033	1	.080
7.50	30X36	51-6034	1	.080

D4-2
EXIT OOO
PARK - RIDE

VARIABLE EXIT NUMBER

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
38.50	84X66	51-2095	3	.125

D4-2
PARK - RIDE

VARIABLE ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
5.00	24X30	51-6044	1	.080
7.50	30X36	51-6045	1	.080

D4-2
EXIT OOO
PARK - RIDE

VARIABLE EXIT NUMBER

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
38.50	84X66	51-2097	3	.125

D4-2
EXIT OOO
PARK - RIDE

VARIABLE EXIT NUMBER

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
38.50	84X66	51-2099	3	.125

D5 - SERIES

D5-2b
REST AREA

LEGEND - WHITE
BACKGROUND - BLUE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
42.25	78X78	51-6901	2	.125

SERVICE PLAZA

LEGEND - WHITE
BACKGROUND - BLUE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
39.00	72X78	51-6158	2	.125

D7 - SERIES

D-7
51-6802 Variable →
51-6803 Variable / Variable →

W or W/O ARROW
VARIABLE ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.17	60X12	51-6802	2	.100
8.33	60X24	51-6803	2	.100

D9 - SERIES

D9-2
H

** FOR ARROW SUBPLATES USE M5 & M6 SERIES

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-6788	1	.080

51-6705 DIESEL →
51-6706 FOOD →
51-6708 GAS →
51-6709 LODGING →

VARIABLE ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.25	36X9		2	.080

51-5405 STATE POLICE →
51-6714 CAMPING →
51-6960 INFO →

VARIABLE ARROW DIRECTION

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.25	36X9		2	.080

D10 - SERIES

D10-4
NORTH / INTERSTATE 95 / MILE 000

CARDINAL DIRECTION, SHIELD AND NUMERALS ARE VARIABLE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
6.75	18X54	51-5307	1	.080

RECREATIONAL RS- SERIES

RS-054

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-6873	1	.080

RS-117

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-7872	1	.080

51-2705
51-2706 L or R

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
2.19	21X15	51-2705		.080
2.19	21X15	51-2706		.080

E5 - SERIES

E5-1a
EXIT

FOR USE AT "NO NUMBERED" EXITS

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
30.00	72X60	51-6150	2	.125

EXIT 00 ←
EXIT 00 →
51-6125 51-6124

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
32.50	78X60		2	.125

EXIT 00 B ←
EXIT 00 B →
51-6127 51-6126

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
45.00	108X60		2	.125

EXIT 00 A-B ←
EXIT 00 A-B →
51-6129 51-6128

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
57.50	138X60		2	.125

I - SERIES

I-3
(Variable) River

VARIABLE: RIVER, BROOK, CREEK

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
1.50	18X12	51-2009	1	.080
4.50	36X18	51-2007	2	.080
12.00	48X36	51-2051	2	.100

(Town Name)
(INCORPORATED OR SETTLED) (DATE)
TOWN LINE

VARIABLE: TOWN / CITY

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	40X27	51-2020	2	.080

I-7

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-1448	1	.080
6.25	30X30	51-1445	1	.080

PARKING AREA PATROLLED

LEGEND - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
7.50	36X30	51-5937	2	.080

INCIDENT MANAGEMENT

N 0 .0 | N 0 0 .0 | N 0 0 0 .0

CARDINAL DIRECTION VARIABLE - N, S, E, W

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.00	12X36	51-5103	1	.080
4.00	12X48	51-5104	1	.080
5.00	12X60	51-5105	1	.080

SYMBOL - WHITE
BACKGROUND - BLUE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.00	18X24	51-5943	1	.080

51-6504 Variable
51-6505 Variable / Variable

TO BE SUBMOUNTED W/ 51-5943
LEGEND - WHITE
BACKGROUND - BLUE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
0.75	18X6	51-6504		.080
1.50	18X12	51-6505		.080

M1 - SERIES

M1-1
INTERSTATE CONNECTICUT 00 — 51-6662 / 51-6666 VARIABLE: 1 or 2 DIGITS
INTERSTATE CONNECTICUT 000 — 51-6663 / 51-6667 VARIABLE: 3 DIGITS

LEGEND - WHITE
BACKGROUND - RED & BLUE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
3.20	24X24	51-6662	1	.080
3.99	30X24	51-6663	1	.080
7.20	36X36	51-6666	2	.080
8.99	45X36	51-6667	2	.100

M1-4
00 — 51-6615 / 51-6635 VARIABLE: 1 or 2 DIGITS
000 — 51-6644 / 51-6645 VARIABLE: 3 DIGITS

LEGEND - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-6615	1	.080
5.00	30X24	51-6644	1	.080
9.00	36X36	51-6635	2	.080
11.25	45X36	51-6645	2	.100

M1-5
00 — 51-6616 / 51-6636 VARIABLE: 1 or 2 DIGITS
000 — 51-6647 / 51-6646 VARIABLE: 3 DIGITS

LEGEND - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS	ALUM. THK.
4.00	24X24	51-6616	1	.080
5.00	30X24	51-6647	1	.080
9.00	36X36	51-6636	2	.080
11.25	45X36	51-6646	2	.100

M2 - SERIES

M2-1
JCT

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-6640	(1)	.080
2.19	21X15	51-6610	(2)	.080

M3 - SERIES

M3-1
NORTH

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.00	24X12	51-6651	(1)	.080
2.00	24X12	51-6611	(2)	.080
4.50	36X18	51-6655	(1)	.080
4.50	36X18	51-6625	(2)	.080

M3-4
WEST

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.00	24X12	51-6654	(1)	.080
2.00	24X12	51-6614	(2)	.080
4.50	36X18	51-6658	(1)	.080
4.50	36X18	51-6628	(2)	.080

M3-2
EAST

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.00	24X12	51-6652	(1)	.080
2.00	24X12	51-6612	(2)	.080
4.50	36X18	51-6656	(1)	.080
4.50	36X18	51-6626	(2)	.080

M3-3
SOUTH

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.00	24X12	51-6653	(1)	.080
2.00	24X12	51-6613	(2)	.080
4.50	36X18	51-6657	(1)	.080
4.50	36X18	51-6627	(2)	.080

M4 - SERIES

M4-5
TO

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.00	24X12	51-6650	(1)	.080
2.00	24X12	51-6620	(2)	.080

M5 - SERIES

M5-1
51-2690 51-2630 ← / 51-2691 51-2631 →

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2690	(1)	.080
2.19	21X15	51-2691	(1)	.080
2.19	21X15	51-2630	(2)	.080
2.19	21X15	51-2631	(2)	.080

M5-2
51-2692 51-2632 ↖ / 51-2693 51-2633 ↗

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2692	(1)	.080
2.19	21X15	51-2693	(1)	.080
2.19	21X15	51-2632	(2)	.080
2.19	21X15	51-2633	(2)	.080

M6 - SERIES

M6-1
→ L or R

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2686	(1)	.080
2.19	21X15	51-2626	(2)	.080

M6-2
51-2688 51-2629 ↖ / 51-2689 51-2628 51-2609 ↗

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2688	(1)	.080
2.19	21X15	51-2689	(1)	.080
2.19	21X15	51-2628	(2)	.080
2.19	21X15	51-2629	(2)	.080
4.38	30X21	51-2609	(2)	.080

M6-3
↑

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2685	(1)	.080
2.19	21X15	51-2625	(2)	.080

M6-4

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	COLOR	ALUM. THK.
2.19	21X15	51-2687	(1)	.080
2.19	21X15	51-2627	(2)	.080

NOTES:

1. FOR SPECIFIC SIGN DESIGN CONTACT CONN. D.O.T., DIVISION OF TRAFFIC ENGINEERING. FOR BOLT HOLE PATTERN REFER TO FHWA PUBLICATION "STANDARD HIGHWAY SIGNS". SIGNS OF DIFFERENT DIMENSIONS TO BE ERECTED ON THE SAME POSTS, OR SPAN/MAST ARM MOUNTED, MAY REQUIRE SPECIAL BOLT HOLE PATTERNS.
2. POSTS - SEE STANDARD SHEET TR-1208_02 - "METAL SIGN POSTS AND SIGN MOUNTING DETAILS."
3. POSTS SHALL BE 4 LBS./FT.
4. SIGNS SHALL BE FABRICATED OF ONE CONTINUOUS PIECE OF SHEET ALUMINUM. SPLICING OF SHEET ALUMINUM WILL NOT BE ACCEPTED.

COLORS:

D - SERIES
D1, 2, 3, 4, 10 BACKGROUND-GREEN, LEGEND-WHITE
D7, RS BACKGROUND-BROWN, LEGEND-WHITE
D9 BACKGROUND-BLUE, LEGEND-WHITE
ALL OTHER D-SERIES AS NOTED

E - SERIES
BACKGROUND-GREEN, LEGEND-WHITE

I - SERIES
BACKGROUND-GREEN, LEGEND-WHITE (EXCEPT AS NOTED)

M2 - M6 SERIES
(1) BACKGROUND-BLUE, LEGEND-WHITE
(2) BACKGROUND-WHITE, LEGEND-BLACK

ALL SIGNS TO USE TYPE XI RETROREFLECTIVE SHEETING WITH THE EXCEPTION OF SIDE MOUNTED SIGNS WITH WHITE BACKGROUND WHICH SHALL BE TYPE IX RETROREFLECTIVE SHEETING.

REVISION DESCRIPTION | DATE | REV.

DESIGNER/DRAFTER: CHECKED BY:

SIGNATURE/BLOCK:

McFARLAND JOHNSON
53 REGIONAL DRIVE
CONCORD, NH 03301

TOWN OF HEBRON, CT.

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: SIGN FACE SHEET ALUMINUM D,RS,E,I,&M SERIES TYPICAL SIGN DETAILS

DRAWING NO. TR-GS_03
SHEET NO. 05.06

LASTED SAVED BY: MDoreo **FILE NAME:** M:\DDE\Worksets\CTDOT\0066-0110\Highways\Contract_Plans\HW_CP_0066_0110_spm.dgn
PLOTTED DATE: 10/30/2025

07 - ENVIRONMENTAL
INDEX OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
ENV-01	INDEX OF DRAWINGS		
ENV-02	PROJECT SOIL CONDITIONS		
ENV-03	WASTE STOCKPILE AREA (WSA) DETAILS		

STATE OF CONNECTICUT THOMAS R. BATTLES LICENSED PROFESSIONAL ENGINEER NO. 15472

Thomas Battles

Digitally signed by Thomas Battles
DN: E=Thomas.battles@hrpassociates.com, CN=Thomas Battles, O="HRP Associates, Inc.", OU=ALN:8f8f8144-47b3-e311-b3f0-1c6f65d1b2f6, L=Farmington, S=Connecticut, C=US
Reason: I am approving this document
Date: 2025.07.07 14:00:47-04'00'

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: WAS/BOB CHECKED BY: TRB

SIGNATURE/ BLOCK:

HRP

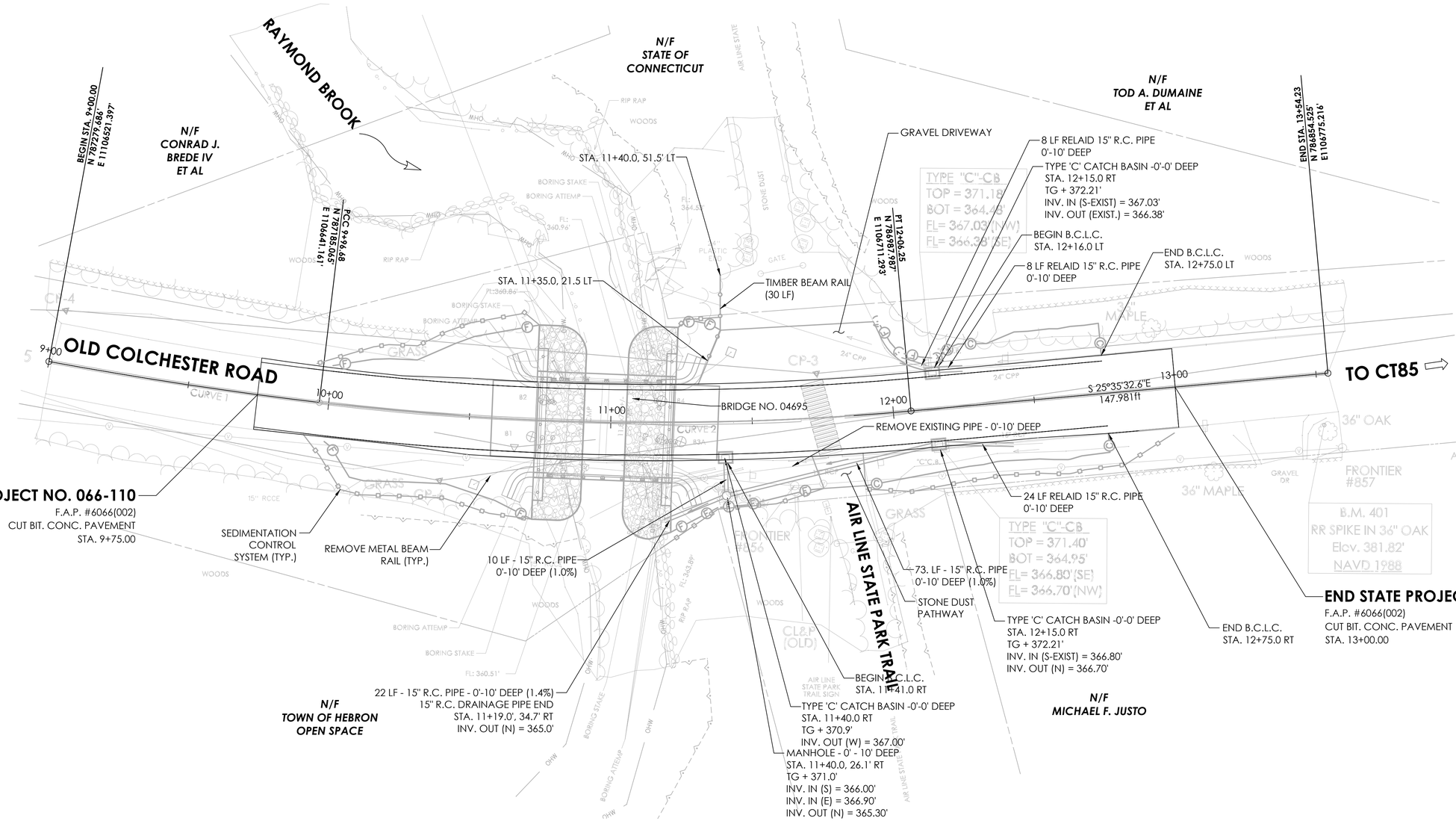
HRP ASSOCIATES, INC.
241 ROCKRIMMON RD
SUITE 200
COLCHESTER, CT 06415
203-380-1395
HRPASSOCIATES.COM

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: INDEX OF DRAWINGS

DRAWING NO. ENV-01
SHEET NO. 07.01

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PLOTTED DATE: 07/07/2025



NOTES:
1. ALL SURPLUS SOILS EXCAVATED FROM THE PROJECT LIMITS SHALL BE HANDLED IN ACCORDANCE WITH ITEM NO. 0202315A - DISPOSAL OF CONTROLLED MATERIALS.

NORTH

STATE OF CONNECTICUT
THOMAS R. BATTISTA
No. 15472
LICENSED
PROFESSIONAL ENGINEER

REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: WAS/BOB CHECKED BY: TRB

0 20 40
HORIZONTAL SCALE
1" = 20'

SIGNATURE/
BLOCK:

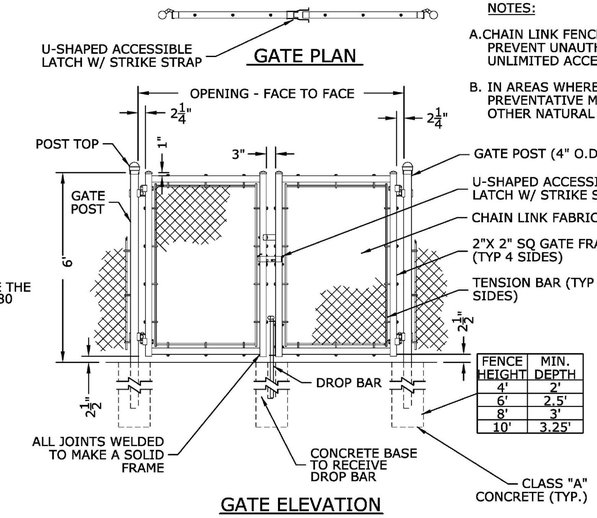
HRP
HERE YOUR ENVIRONMENT FORWARD
395 ROCKWELL T DR VE
2ND FLOOR
QUERY, CT 06418
203-380-1395
HRPASSOCIATES.COM

STATE OF CONNECTICUT
DEPARTMENT
OF
TRANSPORTATION

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: PROJECT SOIL CONDITIONS

DRAWING NO.
ENV-02
SHEET NO.
07.02

LASTED SAVED BY: BEAULIEU **FILE NAME:** V:\Data\V:\Data\C\CONND - CONNECTICUT DEPARTMENT OF TRANSPORTATION\HEBRON - HEBRON\REPLACEMENT OF BRIDGE NO. 04695\CTD510131\CAD\Figures\ENV_PLAN_SHEETS
PLOTTED DATE: 07/07/2025



FENCE HEIGHT	MIN. DEPTH
4'	2'
6'	2.5'
8'	3'
10'	3.25'

NOTE:

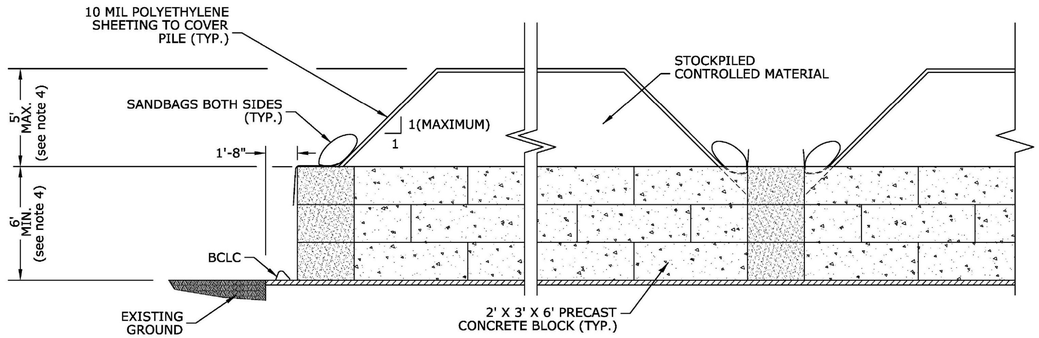
GATES SHOULD HAVE THE ABILITY TO SWING 180 DEGREES.

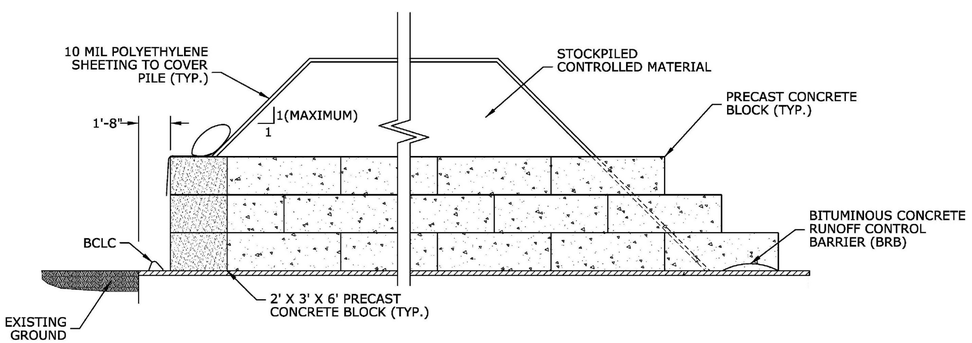
NOTES:

A. CHAIN LINK FENCE MAY BE UTILIZED IN RESIDENTIAL NEIGHBORHOODS TO PREVENT UNAUTHORIZED ENTRY ONTO STOCKPILES WHERE THERE IS UNLIMITED ACCESS AVAILABLE TO PEDESTRIANS AND/OR TRAFFIC.

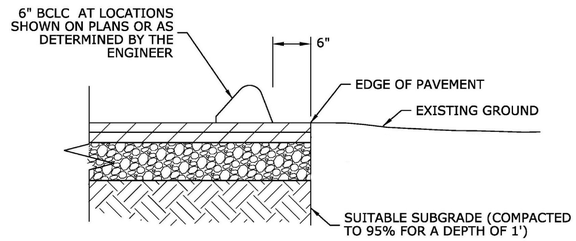
B. IN AREAS WHERE THERE IS LIMITED ACCESS, OTHER APPROPRIATE PREVENTATIVE MEASURES MAY BE ACCOMPLISHED THROUGH THE USE OF OTHER NATURAL OR ARTIFICIAL BARRIERS.

1 TYPICAL DOUBLE SWING GATES





2 WASTE STOCKPILE AREA DETAIL



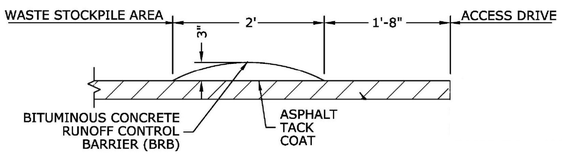
NOTE:

IF THE WSA IS TO BE LOCATED ON EXISTING PAVEMENT SUCH AS ROADWAY AND OR PARKING LOT A COMPOSITE PAVEMENT STRUCTURE WILL NOT BE REQUIRED.

3 COMPOSITE PAVEMENT STRUCTURE DETAIL

GENERAL NOTES

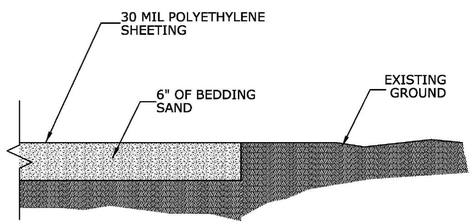
1. WSA MAINTENANCE AND ALL REQUIRED MATERIALS ARE AS INDICATED ON THE WASTE STOCKPILE AREA (WSA) DETAILS SHEET.
2. WHERE FEASIBLE, A MINIMUM DISTANCE OF 5' IMMEDIATELY OUTSIDE THE PERIMETER OF THE WSA CONCRETE BLOCK WALLS SHALL REMAIN CLEAR AND FREE OF ANY OBJECT TO PROVIDE ACCESS FOR MAINTENANCE.
3. HEIGHT OF THE CONCRETE BLOCKS, STOCKPILED CONTROLLED MATERIAL AND CONFIGURATION OF THE BIN(S) MAY VARY BASED ON THE SIZE AS INDICATED ON THE WASTE STOCKPILE AREA (WSA) DETAILS SHEET OR AS DIRECTED BY THE ENGINEER.
4. THE WSA SURFACE SHALL BE SUFFICIENTLY IMPERVIOUS TO PREVENT OR MINIMIZE THE TRANSFER OR INFILTRATION OF CONTAMINANTS FROM THE STOCKPILES TO THE GROUND. THE WSA SURFACE WILL VARY BASED ON PROJECT SPECIFICS AND MAY BE MAINTAINED ON NEW OR EXISTING PAVEMENT, BEDDING SAND, OR OTHER MATERIALS AS SHOWN ON THE WASTE STOCKPILE AREA (WSA) DETAILS SHEET.
5. MATERIALS STORED WITHIN THE WSA ARE TO BE COVERED AT ALL TIMES AS DEPICTED, OR AS DIRECTED BY THE ENGINEER.
6. CONTROLLED MATERIAL COVERS MUST BE SECURED AND PROTECTED AGAINST HEAVY RAIN AND WIND WITH PROPER WEIGHTS.



NOTE:

INSTALLATION OF BRB SHALL BE ON PAVEMENT ONLY AND IS BASED ON FIELD CONDITIONS OR AS DETERMINED BY THE ENGINEER.

4 BITUMINOUS CONCRETE RUNOFF CONTROL BARRIER (BRB) DETAIL



5 BEDDING SAND OVER EXISTING GROUND DETAIL



REV.	DATE	REVISION DESCRIPTION

DESIGNER/DRAFTER: WAS/BOB CHECKED BY: TRB

SIGNATURE/ BLOCK:

HRP
HEBRON RIVER ASSOCIATES, Professional Engineers
241 ROOSEVELT DRIVE
P.O. BOX
GLASTONBURY, CT 06033
203-380-3306
HRPASSOCIATES.COM

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

PROJECT NUMBER: 0066-0110
PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE NO. 04695 OLD COLCHESTER ROAD OVER RAYMOND BROOK
TOWN(S): HEBRON
DRAWING TITLE: WASTE STOCKPILE AREA (WSA) DETAILS

DRAWING NO. ENV-03
SHEET NO. 07.03

LASTED SAVED BY: BEAULIEU **FILE NAME:** V:\Data\V:\Data\C\CONND - CONNECTICUT DEPARTMENT OF TRANSPORTATION\HEBRON - HEBRON\REPLACEMENT OF BRIDGE NO. 04695\CTD510131\CAD\Figures\ENV_PLAN_SHEETS
PLOTTED DATE: 07/07/2025

*ONLY STANDARD SHEETS MARKED WITH AN "✓" ARE IN THIS PROJECT # 0066-0110 **REVISED OR ADDED

✓*	SHEET NO.	TITLE	APPROVAL DATE**
	HW-211_01	ANTI-TRACKING PAD	11-09-22
✓	HW-286_01	DRAINAGE TRENCH EXCAVATION	11-09-22
	HW-505 01a	STRAIGHT ENDWALLS	01-21-25
	HW-505 01b	STEEL REINFORCING FOR STRAIGHT ENDWALLS (2" DIFF BASE TO FLOW LINE)	01-05-24
	HW-505 01c	STEEL REINFORCING FOR STRAIGHT ENDWALLS (STANDARD RIPRAP APPLICATION)	01-05-24
	HW-505_02	TYPE "D-G" & "L" ENDWALLS	01-05-24
✓	HW-586_01	CATCH BASIN AND DROP INLET TYPES "C" AND "C-L" STRUCTURES	01-05-24
	HW-586_02	CATCH BASIN (TYPES "C" AND "C-L") FOR DOUBLE GRATE TYPE I STRUCTURES	01-05-24
	HW-586_03	CATCH BASIN (TYPES "C" AND "C-L") FOR DOUBLE GRATE TYPE II STRUCTURES	01-05-24
✓	HW-586_04	PRECAST CATCH BASIN AND ROUND STRUCTURE	10-17-24
	HW-586_05	PRECAST CATCH BASIN TYPES FOR DOUBLE GRATE TYPE I	10-17-24
	HW-586_06	PRECAST CATCH BASIN TYPES FOR DOUBLE GRATE TYPE II	10-17-24
✓	HW-586 07a	CATCH BASIN TYPE "C" AND "C-L" TOPS	01-05-24
	HW-586 07b	CATCH BASIN TYPE "C" AND "C-L" DOUBLE GRATE TYPE I TOPS	11-09-22
	HW-586 07c	CATCH BASIN TYPE "C" AND "C-L" DOUBLE GRATE TYPE II TOPS	11-08-22
	HW-586 07d	CATCH BASIN TYPE "C-G" AND "C-M" BARRIER CURB TOPS	11-09-22
✓	HW-586_08	CATCH BASIN FRAMES AND GRATES	11-09-22
	HW-586_09	CATCH BASIN LOCK DOWN TOPS	11-09-22
✓	HW-586_10a	MANHOLE FRAME AND COVER	01-05-24
	HW-586_10b	MANHOLE FRAME AND GRATE	01-05-24
✓	HW-586_10c	REINFORCED PRECAST CONCRETE MANHOLE	11-08-22
	HW-586_10d	MANHOLE NON-PRECAST CONCRETE UNIT	11-08-22
✓	HW-686_01a	CONCRETE PIPE CONNECTION SHEET 1	11-08-22
✓	HW-686_01b	CONCRETE PIPE CONNECTION SHEET 2	11-08-22
	HW-686_02a	DRAINANGE PIPE ENDS SHEET 1 [CORRUGATED METAL PIPE]	11-08-22
✓	HW-686_02b	DRAINAGE PIPE ENDS SHEET 2 [CONCRETE PIPE]	11-08-22
	HW-751_01	UNDERDRAINS AND UNDERDRAIN OUTLETS	10-17-24
	HW-803_01	PAVED APRONS	11-08-22
	HW-811_01	CONCRETE CURBING	11-08-22
	HW-813_01	GRANITE STONE TRANSITION CURBING	11-08-22
	HW-813_02	STONE CURBING	11-08-22
✓	HW-815_01	BITUMINOUS CONCRETE CURBING	11-08-22

✓*	SHEET NO.	TITLE	APPROVAL DATE**
	HW-821_01a	TRANSITION - 45" F-SHAPE TO 45" VERTICAL SHAPE SHEET 1	11-08-22
	HW-821_01b	TRANSITION - 45" F-SHAPE TO 45" VERTICAL SHAPE SHEET 2	11-08-22
	HW-821_01c	TRANSITION - 45" F-SHAPE TO 45" VERTICAL SHAPE SHEET 3	11-08-22
	HW-821_02a	45" F-SHAPE PRECAST CONCRETE BARRIER CURB SHEET 1	11-08-22
	HW-821_02b	45" F-SHAPE PRECAST CONCRETE BARRIER CURB SHEET 2	11-08-22
	HW-821_03a	TRANSITION - 32" JERSEY SHAPE TO 45" VERTICAL SHAPE SHEET 1	11-08-22
	HW-821_03b	TRANSITION - 32" JERSEY SHAPE TO 45" VERTICAL SHAPE SHEET 2	11-08-22
	HW-821_03c	TRANSITION - 32" JERSEY SHAPE TO 45" VERTICAL SHAPE SHEET 3	11-08-22
	HW-821_03d	TRANSITION - 32" JERSEY SHAPE TO 45" VERTICAL SHAPE SHEET 4	11-08-22
	HW-821_03e	TRANSITION - 32" JERSEY SHAPE TO 45" F-SHAPE	11-08-22
	HW-821_04a	MERRITT PARKWAY NARROW MEDIAN BARRIER	11-08-22
	HW-821_04b	MERRITT PARKWAY - 2' WIDE MEDIAN BARRIER AND ROADSIDE BARRIER	11-08-22
	HW-821_05a	TRANSITION - 45" F-SHAPE TO 54" VERTICAL SHAPE SHEET 1	11-08-22
	HW-821_05b	TRANSITION - 45" F-SHAPE TO 54" VERTICAL SHAPE SHEET 2	11-08-22
	HW-821_06	54" VERTICAL SHAPE BARRIER	11-08-22
	HW-821_07	MISCELLANOUS DETAILS FOR BARRIER TRANSITIONS	08-20-25
	HW-821_08a	F-SHAPE CONC. BARRIER CURB (21"x45") TRANSITION FOR THRIE-BEAM	10-17-24
	HW-821_08b	F-SHAPE CONC. BARRIER CURB (21"x45") TRANSITION FOR THRIE-BEAM - REINF.	11-08-22
	HW-821_09a	SINGLE SLOPE CONC. BARRIER CURB (20"x42") TRANS. FOR THRIE-BEAM	11-08-22
	HW-821_09b	SINGLE SLOPE CONC. BARRIER CURB (20"x42") TRANS. FOR THRIE-BEAM - REINF.	11-08-22
	HW-821_10a	VERTICAL FACE CONC. (21"x54") TRANSITION FOR THRIE-BEAM	11-08-22
	HW-821 10b	VERTICAL FACE CONC. (21"x54") TRANSITION FOR THRIE-BEAM REINF.	11-08-22
	HW-821_11a	42" SINGLE SLOPE PRECAST CONCRETE BARRIER CURB -SHEET 1	01-05-24
	HW-821_11b	42" SINGLE SLOPE PRECAST CONCRETE BARRIER CURB -SHEET 2	01-05-24
✓	HW-822_01	TEMPORARY PRECAST CONCRETE BARRIER CURB	11-08-22
✓	HW-822 02a	TEMPORARY TRAFFIC BARRIER - DETAILS	11-08-22
	HW-822 02b	TEMPORARY TRAFFIC BARRIER (BOLTED)	01-23-25
	HW-822 02c	TEMPORARY TRAFFIC BARRIER & TEMPORARY TRAFFIC BARRIER (PINNED)	01-23-25
	HW-905_01	STONE WALL FENCE	11-09-22
	HW-906_01	WIRE FENCE	11-08-22

NOT TO SCALE

SIGNATURE BLOCK:
OFFICE OF ENGINEERING
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

CONNECTICUT DEPARTMENT OF TRANSPORTATION

CTDOT STANDARD SHEET

STANDARD SHEET TITLE:
HIGHWAY STANDARD SHEET INDEX

STANDARD SHEET NO.:
1 of 2

PLOTTED DATE: 1/23/2025

*ONLY STANDARD SHEETS MARKED WITH AN " ✓ " ARE IN THIS PROJECT # 0066-0110 **REVISED OR ADDED

✓*	SHEET NO.	TITLE	APPROVAL DATE**
	HW-910_01	W-BEAM METAL BEAM RAIL HARDWARE	11-08-22
	HW-910_02	METAL BEAM RAIL (TYPE R-B 350) GUIDERAIL	11-08-22
	HW-910_03	METAL BEAM RAIL (TYPE MD-B 350) GUIDERAIL	11-08-22
	HW-910_04	METAL BEAM RAIL (TYPE R-B 350) SYSTEMS 5, 5A, & 6	11-08-22
	HW-910_05	METAL BEAM RAIL R-B 350 SPAN TYPE I, II, III SECTIONS	11-08-22
	HW-910_06	R-B 350 BRIDGE ATTACHMENT SAFETY SHAPE PARAPET	11-08-22
	HW-910_07	R-B 350 BRIDGE ATTACHMENT VERTICAL SHAPE PARAPET	11-08-22
	HW-910_09a	MISCELLANEOUS GUIDERAIL TRANSITIONS SHEET 1	11-08-22
	HW-910_09b	MISCELLANEOUS GUIDERAIL TRANSITIONS SHEET 2	11-08-22
	HW-910_10	METAL BEAM RAIL 8" x 6" BOX BEAM	11-08-22
	HW-910_11	CURVED GUIDERAIL TREATMENT DETAIL	11-08-22
	HW-910_12a	MERRITT PARKWAY GUIDERAIL LEADING END ATTACHMENTS AND SYSTEMS 2&3	11-08-22
	HW-910_12b	MERRITT PARKWAY GUIDERAIL HARDWARE DETAILS	11-08-22
	HW-910_12c	MERRITT PARKWAY GUIDERAIL TRAILING END ATTACHMENTS	11-02-22
	HW-910_12d	MERRITT PARKWAY MEDIAN GUIDERAIL AND END ANCHOR	10-17-24
	HW-910_13a	THRIE-BEAM METAL BEAM RAIL HARDWARE	11-08-22
	HW-910_13b	THRIE-BEAM TRANSITIONS	11-08-22
	HW-910_14a	THRIE-BEAM 350 BRIDGE ATTACHMENT	11-08-22
	HW-910_14b	THRIE-BEAM 350 GUIDERAIL TRANSITION TO R-B 350 GUIDERAIL	11-08-22
	HW-910_15	MD-B 350 MEDIAN BARRIER SAFETY SHAPE ATTACHMENT TYPE I	11-08-22
	HW-910_16	MD-B 350 MEDIAN BARRIER SAFETY SHAPE ATTACHMENT TYPE II	11-08-22
	HW-910_17	R-B TERMINAL SECTION	11-08-22
	HW-910_18	METAL BEAM RAIL (TYPE MD-I) GUIDERAIL	11-08-22
	HW-910_19a	METAL BEAM RAIL (MODIFIED TYPE R-I) AND END ANCHORAGE TYPE I	10-17-24
	HW-910_19b	METAL BEAM RAIL (MODIFIED TYPE R-I) AND END ANCHORAGE TYPE II	10-17-24
	HW-910_19c	METAL BEAM RAIL (MODIFIED TYPE R-I) SYSTEMS 2 AND 3	11-08-22
	HW-910_20	MASH W-BEAM HARDWARE	10-17-24
	HW-910_21	METAL BEAM RAIL (R-B MASH) GUIDERAIL	01-05-24
	HW-910_22	METAL BEAM RAIL (MD-B MASH) GUIDERAIL	11-08-22
	HW-910_23	METAL BEAM RAIL (R-B MASH) HALF & QUARTER POST SPACING GUIDERAIL	11-08-22
	HW-910_24	METAL BEAM RAIL SPAN SECTION TYPES II AND III	11-08-22

✓*	SHEET NO.	TITLE	APPROVAL DATE**
	HW-910_25a	METAL BEAM RAIL TRANSITION 350 TO MASH	10-17-24
	HW-910_25b	METAL BEAM RAIL MEDIAN APPLICATION TRANSITION 350 TO MASH GUIDERAIL	01-05-24
	HW-910_26	THRIE-BEAM ATTACHMENT HARDWARE	11-08-22
	HW-910_27	THRIE-BEAM ATTACHMENT	11-08-22
	HW-910_29	THRIE-BEAM BRIDGE ATTACHMENT TRAILING END	02-02-24
	HW-910_30a	METAL BEAM RAIL (6 X 6 BOX BEAM) GUIDERAIL - HARDWARE	01-28-25
	HW-910_30b	METAL BEAM RAIL (6 X 6 BOX BEAM) GUIDERAIL	01-28-25
	HW-911_01	R-B END ANCHORAGE TYPE I AND II	10-17-24
	HW-911_02	MD-B END ANCHORAGE TYPE I	10-17-24
	HW-911_03	ANCHOR IN EARTH CUT SLOPE & ANCHOR IN ROCK CUT SLOPE	01-05-24
	HW-911_06a	METAL BEAM RAIL (6 x 6 BOX BEAM) END ANCHORAGE TYPE I - HARDWARE	01-28-25
	HW-911_06b	METAL BEAM RAIL (6 x 6 BOX BEAM) END ANCHORAGE TYPE I	01-28-25
	HW-911_05	MERRITT PARKWAY GUIDERAIL END ANCHORS	11-08-22
	HW-913_01a	CHAIN LINK FENCE	11-08-22
	HW-913_01b	CHAIN LINK FENCE HARDWARE	11-08-22
	HW-913_02	CHAIN LINK FENCE GATES	11-08-22
	HW-918_01a	THREE CABLE GUIDERAIL (I-BEAM POSTS) SHEET 1	11-08-22
	HW-918_01b	THREE CABLE GUIDERAIL (I-BEAM POSTS) SHEET 2	11-08-22
	HW-918_01c	THREE CABLE GUIDERAIL (I-BEAM POSTS) SHEET 3	11-08-22
✓	HW-921_01	CONCRETE SIDEWALKS	11-08-22
	HW-922_01	BITUMINOUS CONCRETE SIDEWALK AND BITUMINOUS CONCRETE DRIVEWAY	11-08-22
	HW-924_01	CONCRETE DRIVEWAY RAMPS	10-17-24
	HW-930_01	OBJECT MARKER (MAINTENANCE)	10-17-24
	HW-949_01a	LANDSCAPE PLANTING	11-09-22
	HW-949_01b	TREE STAKING	11-02-22
	HW-1800_01	GRADING PLAN FOR IMPACT ATTENUATION SYSTEMS (FLARED AND TANGENTIAL)	10-17-24
	HW-1800_02	GRADING PLAN FOR IMPACT ATTENUATION SYSTEMS (MEDIAN/GORE)	10-17-24

NOT TO SCALE

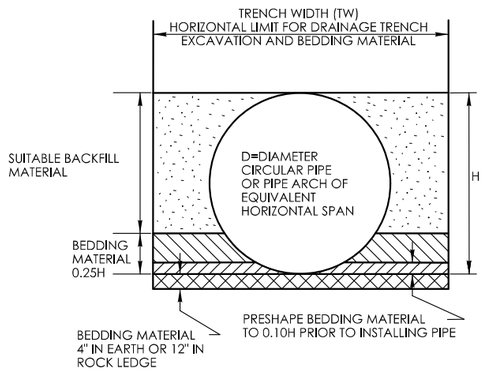
SIGNATURE BLOCK:
OFFICE OF ENGINEERING
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

CONNECTICUT DEPARTMENT OF TRANSPORTATION

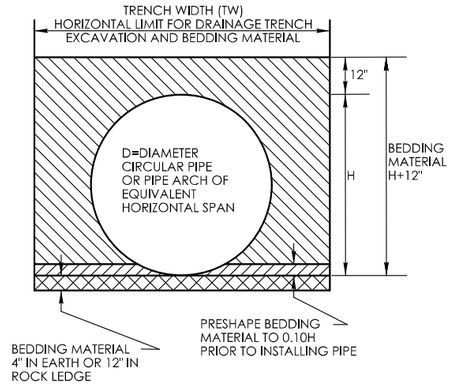
CTDOT STANDARD SHEET

STANDARD SHEET TITLE:
HIGHWAY STANDARD SHEET INDEX

STANDARD SHEET NO.:
2 OF 2



PIPE TRENCH
FOR PIPES LESS THAN 48"



PIPE TRENCH
FOR PIPES GREATER THAN
OR EQUAL TO 48"

TRENCH WIDTH (TW) CHART

PIPE, PIPE-ARCH, OR DRAINAGE STRUCTURE	TRENCH WIDTH
PIPE OR PIPE-ARCH WITH NOMINAL INSIDE HORIZONTAL SPAN LESS THAN 30"	2' GREATER THAN NOMINAL INSIDE HORIZONTAL SPAN
PIPE OR PIPE-ARCH WITH NOMINAL INSIDE HORIZONTAL SPAN GREATER THAN OR EQUAL TO 30"	3' GREATER THAN NOMINAL INSIDE HORIZONTAL SPAN
PIPE OR PIPE-ARCH FABRICATED FROM STRUCTURAL PLATES	4' GREATER THAN NOMINAL INSIDE HORIZONTAL SPAN
DRAINAGE STRUCTURES	2' BEYOND ALL EXTERIOR OR FOUNDATION WALLS

NOT TO SCALE

SIGNATURE BLOCK:
OFFICE OF ENGINEERING
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

SUBMITTED BY:
Digitally signed by Leo Fontaine, P.E.
Date: 2024.12.16 10:12:03-05'00'

APPROVED BY:
Digitally signed by Michael N. Calabrese, P.E.
Date: 2025.01.21 12:25:59-05'00'

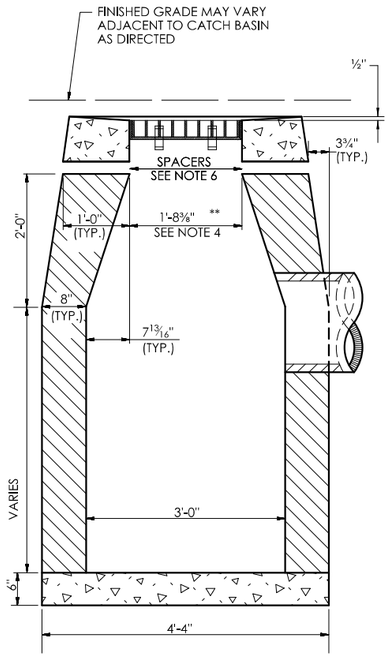
CONNECTICUT DEPARTMENT OF TRANSPORTATION

CTDOT STANDARD SHEET

STANDARD SHEET TITLE:
DRAINAGE TRENCH EXCAVATION

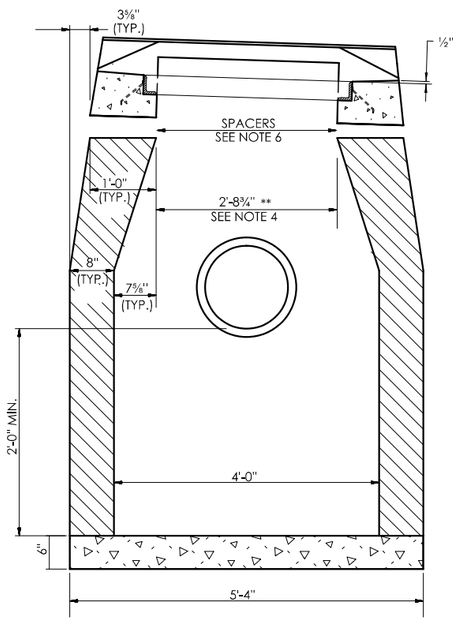
STANDARD SHEET NO.:
HW-286_01

PLOTTED DATE: 10/22/2024



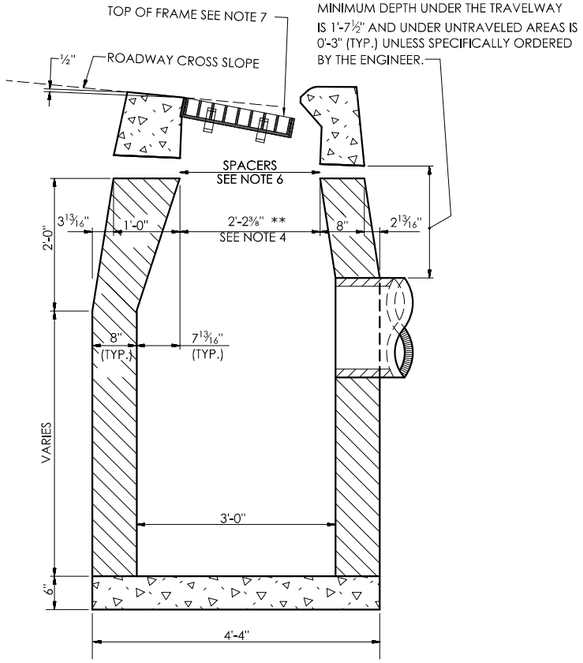
SECTION B

TYPE "C-L" CATCH BASIN



SECTION A

TYPE "C" & "C-L" CATCH BASIN (TYPE "C" TOP SHOWN)

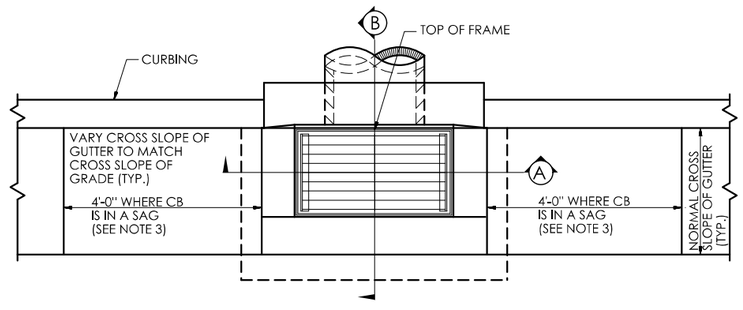


SECTION B

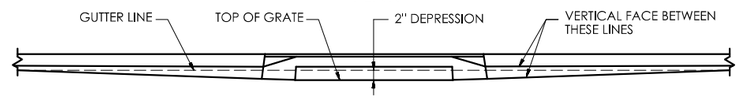
TYPE "C" CATCH BASIN

GENERAL NOTES:

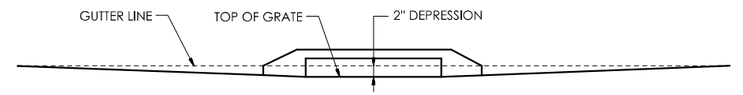
1. FOR CATCH BASIN TOPS, SEE SHEET NO. HW-586_07.
2. ALL FACES OF STRUCTURES IN CONTACT WITH CONCRETE PAVEMENT SHALL BE COVERED WITH A LAYER OF TAR PAPER OR APPROVED EQUAL.
3. USE 6'-0" ON UPGRADE SIDE (SEE PLAN VIEW) OF CONTINUOUS GRADE AND 1'-0" ON DOWNGRADE SIDE OF CONTINUOUS GRADE OR AS DIRECTED BY THE ENGINEER.
4. IF MASONRY UNITS ARE REQUIRED, THE BASIN SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE DIMENSIONS SHOWN. CORBELLING SHALL BE PERMITTED TO A MAXIMUM OF 3". NO PROJECTION SHALL EXTEND INSIDE THE LIMITS FOR THE CATCH BASIN OPENINGS SHOWN IN THE SECTION VIEWS **.
5. WALL THICKNESS OF ALL CATCH BASINS OVER 10' DEEP SHALL BE INCREASED TO 12" THICK. INSIDE DIMENSION SHALL REMAIN THE SAME. 12" THICKNESS SHALL START AFTER THE FIRST 10'.
6. FOR GRADE ADJUSTMENT OF THE CATCH BASIN TOP (TO MATCH THE ROADWAYS' PROFILE AND CROSS-SLOPE SHOWN ON THE PLANS) USE; SPACERS EITHER CONCRETE MASONRY UNIT OR PRECAST WITH THE REQUIRED REINFORCING (RECOMMENDED BY THE MANUFACTURER) COMBINED WITH MORTAR AS NEEDED TO PROVIDE THE PROPER GRADE ADJUSTMENTS.
7. TOP OF FRAME ELEVATION SHALL BE MEASURED IN THE CENTER OF GRATE AT GUTTER LINE.



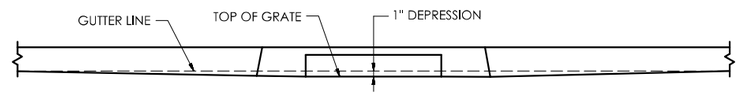
PLAN



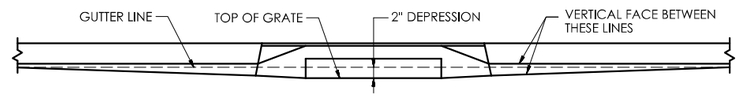
CATCH BASINS IN A LINE WITH 4" CONCRETE PARK CURBING OR 4" BITUMINOUS CONCRETE PARK CURBING



CATCH BASINS WHERE NO CURBING OF ANY TYPE EXISTS OR IS PROPOSED

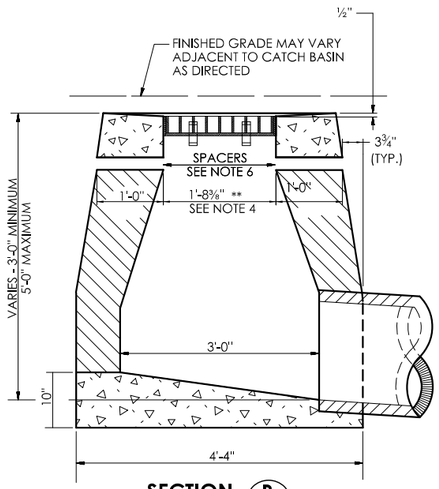


CATCH BASINS IN A LINE WITH 6" CONCRETE CURBING OR 6" STONE CURBING



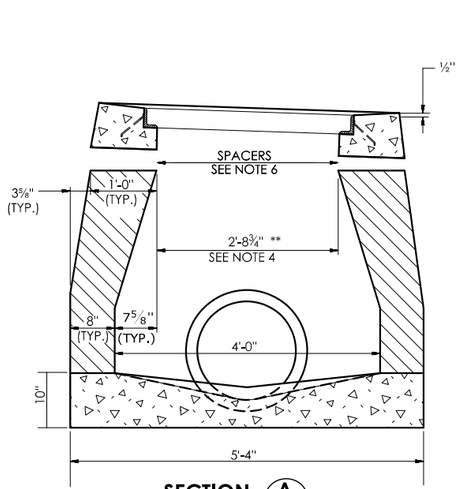
CATCH BASINS IN A LINE WITH 6" BITUMINOUS CONCRETE LIP CURBING (MACHINE FORMED)

DETAILS OF DEPRESSED GUTTER STRIP FOR TYPE "C" CATCH BASIN



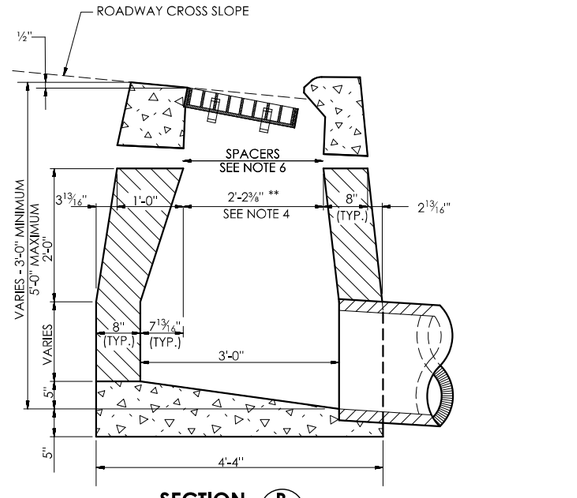
SECTION B

TYPE "C-L" DROP INLET



SECTION A

TYPE "C" & "C-L" DROP INLET (TYPE "C-L" TOP SHOWN)

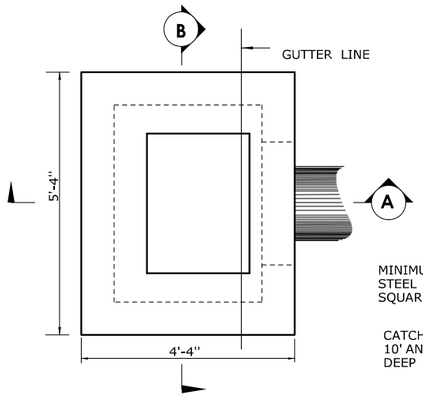


SECTION B

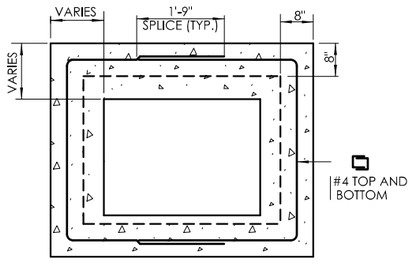
TYPE "C" DROP INLET

	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.16 10:09:07-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.21 12:35:34-05'00'	CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: CATCH BASIN AND DROP INLET TYPES "C" AND "C-L" STRUCTURES / STANDARD SHEET NO.: HW-586_01

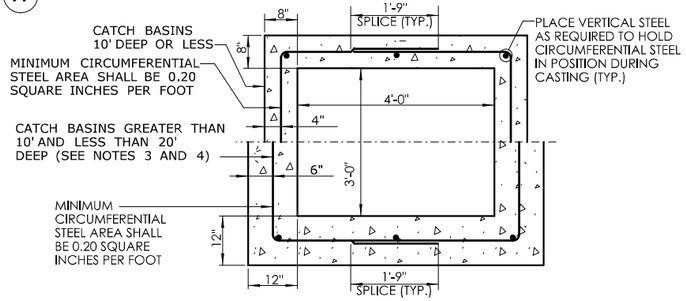
PLOTTED DATE: 10/22/2024



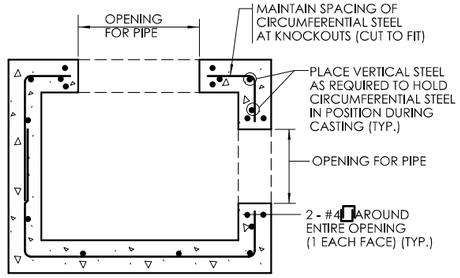
PLAN



REDUCER SECTION (TYP.)



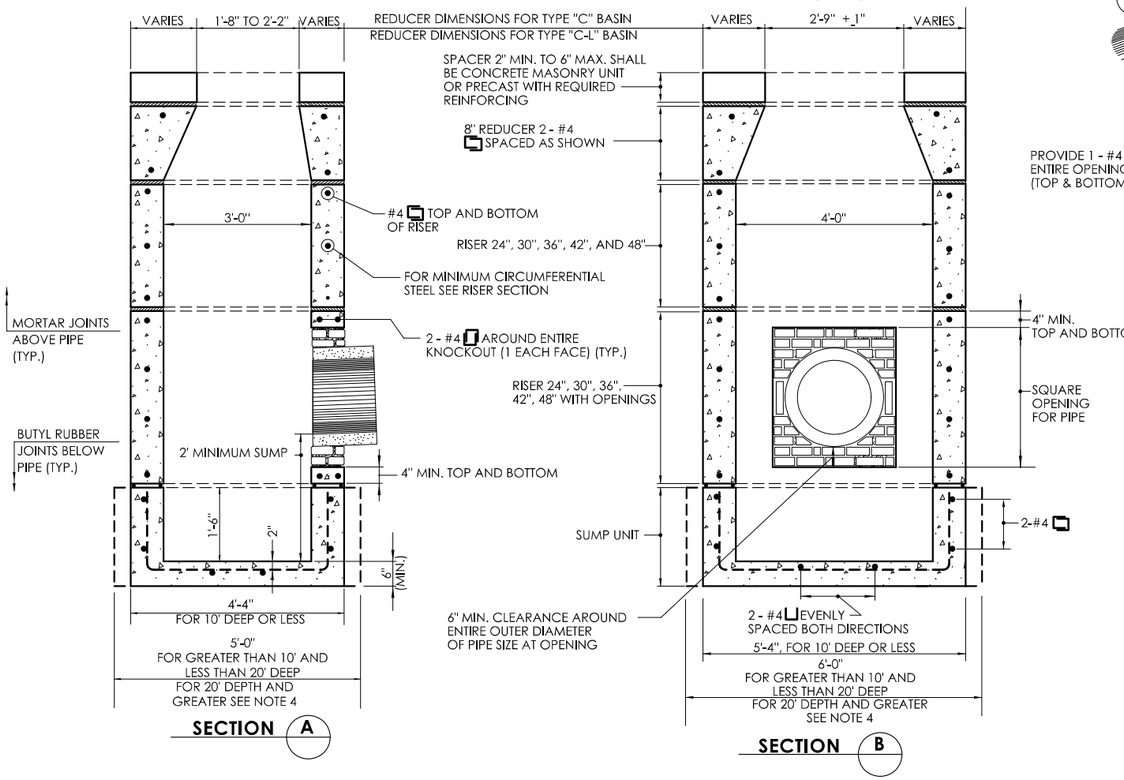
RISER SECTION (TYP.)



TYPICAL SECTION THROUGH RISER WITH OPENING

GENERAL NOTES:

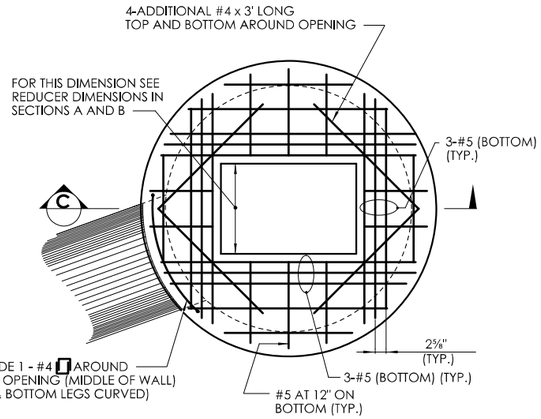
1. WELDED WIRE FABRIC WITH AN AREA EQUAL TO OR GREATER THAN THE REINFORCING SHOWN MAY BE SUBSTITUTED AS APPROVED BY THE ENGINEER.
2. ALL REINFORCEMENT SHALL HAVE A MINIMUM CLEAR COVER OF 2 INCHES, EXCEPT FOR BENEATH BOTTOM REINFORCEMENT IN TOP SLABS, WHERE THE MINIMUM MAY BE 1½ INCHES.
3. WALL THICKNESS OF ALL CATCH BASINS OVER 10 FEET DEEP SHALL BE INCREASED TO 12 INCHES. INSIDE DIMENSIONS SHALL REMAIN THE SAME. THE 12 INCH THICKNESS SHALL START AFTER THE FIRST 10 FEET.
4. BASES AND RISERS AT A DEPTH OF 20 FEET AND GREATER SHALL BE DESIGNED BY THE CONTRACTOR AND WORKING DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
5. RISERS MAY BE PREFABRICATED WITH PIPE OPENINGS IN ALL FOUR WALLS. ADEQUATE REINFORCING AROUND PIPE OPENINGS SHALL BE PROVIDED. RISERS USED WHERE A PIPE OPENING IS TO REMAIN IN PLACE MUST BE FORMED UP WITH BRICK AS DIRECTED BY THE ENGINEER.
6. RISERS SHALL NEVER HAVE CORNER PIPE ENTRIES. ROUND STRUCTURES SHALL BE USED WHEN PIPES CANNOT ALIGN WITH A RECTANGULAR STRUCTURE KNOCKOUT.
7. SHRINKAGE AND TEMPERATURE REINFORCEMENT SHALL BE PROVIDED IN THE TOPS OF SLABS. THE TOTAL AREA OF REINFORCEMENT PROVIDED SHALL BE AT LEAST 0.125 SQUARE INCHES PER FOOT IN EACH DIRECTION. THE MAXIMUM SPACING OF THIS REINFORCEMENT SHALL NOT EXCEED 18 INCHES.
8. THE DETAILS SHOWN IN THE PLAN VIEW FOR PRECAST CONCRETE ROUND STRUCTURES SHALL ALSO BE USED FOR CONVERTING MANHOLES TO CATCH BASINS.
9. FOR CATCH BASIN TOPS, SEE SHEET NO. HW-586_07 FOR RECTANGULAR OPENING OR SHEET NOS. HW-586_10a, HW-586_ 10b OR HW-586_ 10c FOR CIRCULAR OPENING.



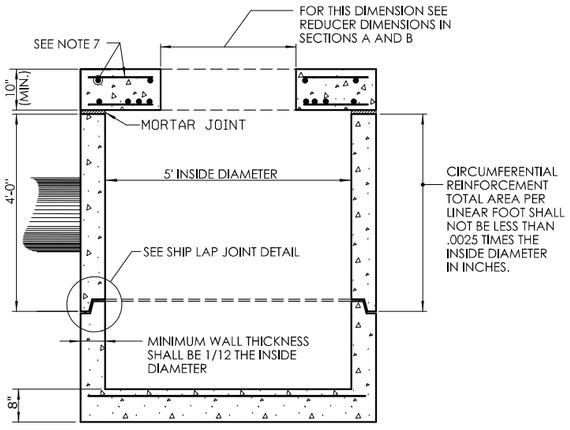
SECTION A

SECTION B

PRECAST CONCRETE TYPE "C" AND "C-L" CATCH BASIN
(UNDER 10' DEEP SHOWN)

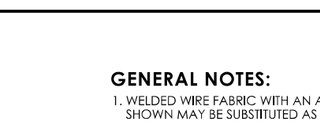


PLAN
(SEE NOTE 9)



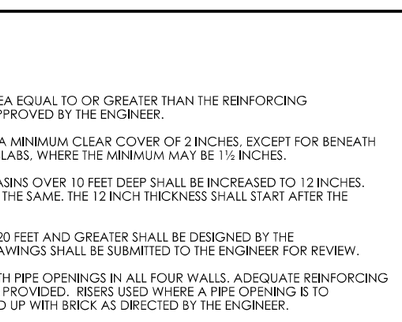
SECTION C

PRECAST CONCRETE
TYPE "C" AND "C-L" ROUND STRUCTURE
(SEE NOTE 6)

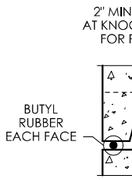


MORTAR JOINT DETAIL

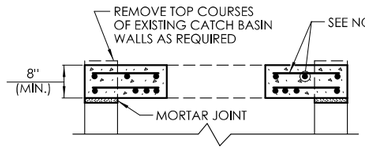
BUTYL RUBBER JOINT DETAIL



PLAN



SHIP LAP JOINT DETAIL
(FOR USE WITH ROUND STRUCTURES ONLY)



SECTION D

TOP SLAB TO CONVERT CATCH BASIN TO MANHOLE

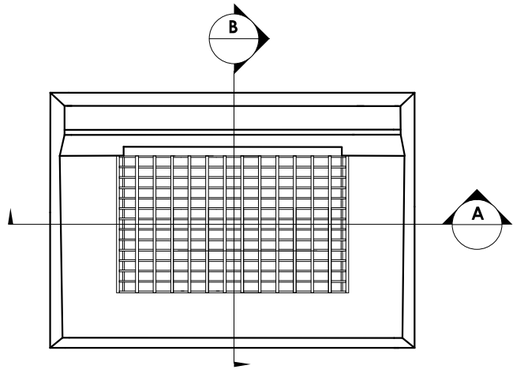
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PLOTTED DATE: 11/25/2024

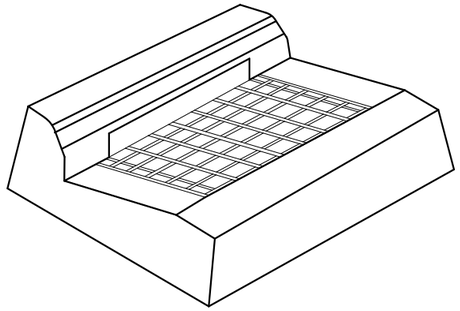
GENERAL NOTES:

1. SEE SHEET HW-586_08, FOR CATCH BASIN FRAMES AND GRATES AND HW-586_09 FOR CATCH BASIN LOCK DOWN TOPS.
2. SEE SHEET HW-586_01, CATCH BASIN AND DROP INLET TYPES "C" AND "C-L" TO DETERMINE THE TOP OF FRAME DEPRESSION AT THE GUTTER.
3. ALL BARS SHALL HAVE A MINIMUM 2" COVER.
4. Manufacturing Dimensional Tolerance Table

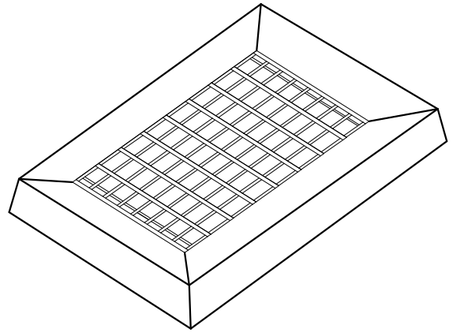
Any Dimension (D)	Allowable Tolerance
D < 5"	± ¼"
5" ≤ D ≤ 10"	± ½"
D > 10"	± 1"



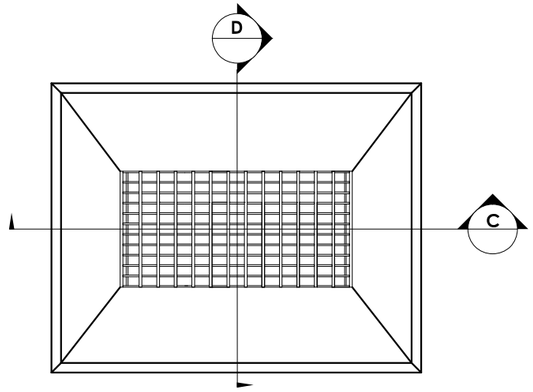
TYPE "C" CATCH BASIN TOP PLAN



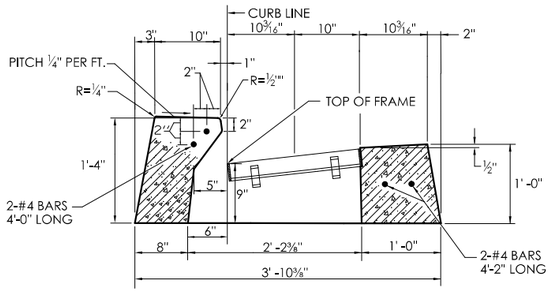
TYPE "C" CATCH BASIN TOP



TYPE "C-L" CATCH BASIN TOP

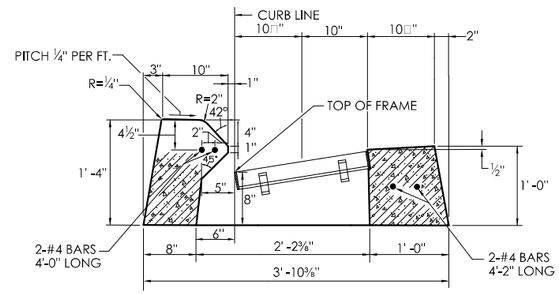


TYPE "C-L" CATCH BASIN TOP PLAN



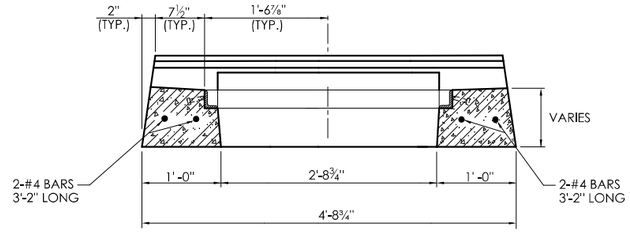
TYPE "C" CATCH BASIN TOP FOR 6" CONCRETE CURBING OR 6" STONE CURBING

SECTION B



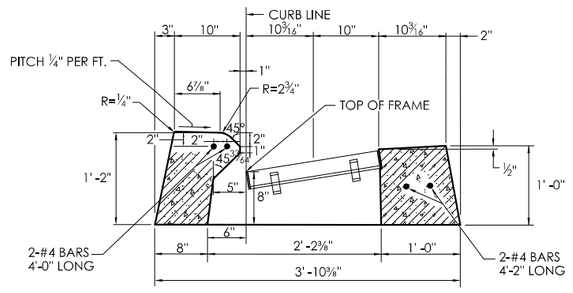
TYPE "C" CATCH BASIN TOP FOR 6" BITUMINOUS CONCRETE LIP CURBING

SECTION B



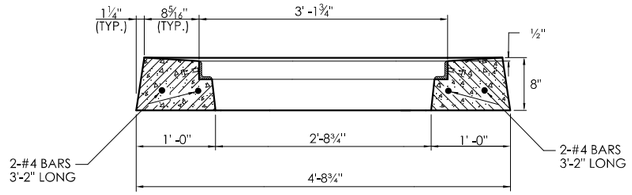
TYPE "C" CATCH BASIN TOP

SECTION A



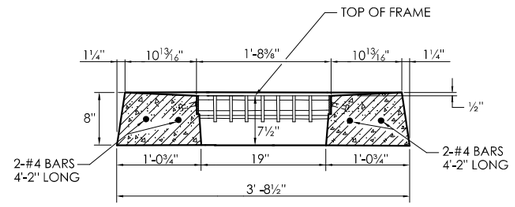
TYPE "C" CATCH BASIN TOP FOR 4" CONCRETE PARK CURBING OR 4" BITUMINOUS CONCRETE PARK CURBING

SECTION B



TYPE "C-L" CATCH BASIN TOP

SECTION C

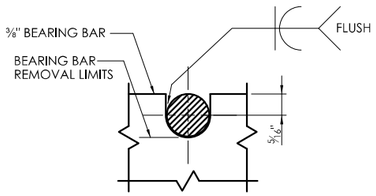


TYPE "C-L" CATCH BASIN TOP

SECTION D

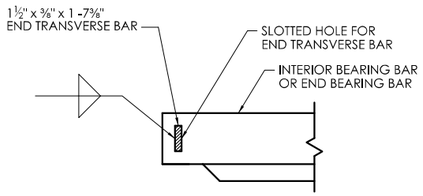
	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.16 10:20:48-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.21 12:42:28-05'00'	CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: CATCH BASIN TYPE "C" AND "C-L" TOPS	STANDARD SHEET NO.: HW-586_07a

PLOTTED DATE: 10/22/2024

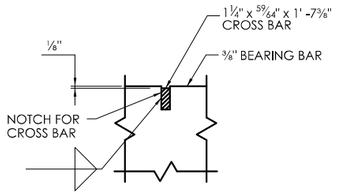


NOTE:
⅝" DIA. ROUND BAR SHALL CONTACT BEARING BAR AT BOTTOM AND BE FLUSH AT TOP.

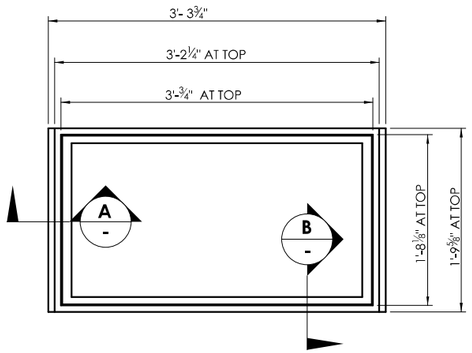
ROUND BAR ATTACHMENT
CATCH BASIN GRATE TYPE A



END TRANSVERSE BAR ATTACHMENT
CATCH BASIN GRATE TYPE A AND B



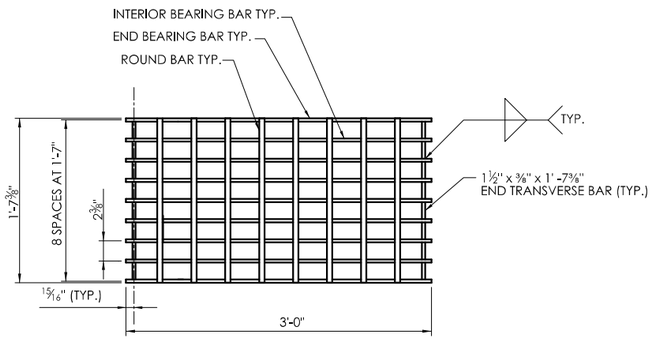
CROSS BAR ATTACHMENT
CATCH BASIN GRATE TYPE B



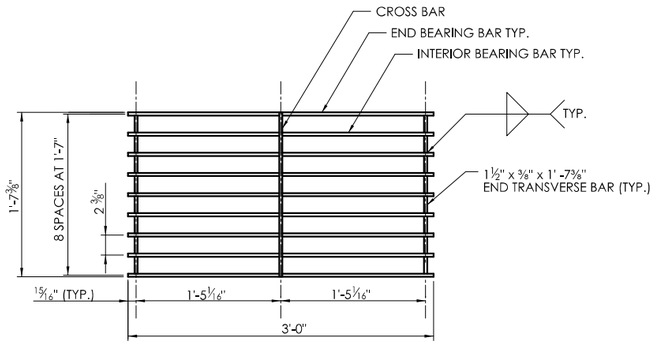
PLAN

GENERAL NOTES:

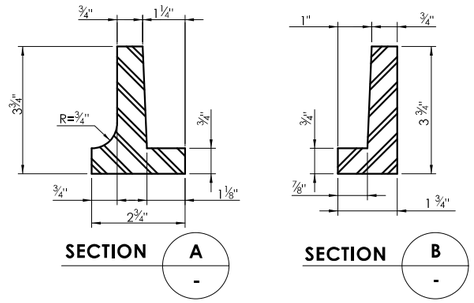
1. STEEL OR CAST IRON SHALL BE USED FOR FRAMES. STEEL SHALL BE USED FOR TYPE "A" AND "B" GRATES.
2. TYPE "A" GRATES SHALL BE USED ON ALL ROADWAYS WHERE BICYCLE TRAFFIC IS ALLOWED OR ON HEAVY DUTY LOCK DOWN TOPS AS DIRECTED BY THE ENGINEER.
3. TYPE "B" GRATES SHALL BE USED ON ALL LIMITED ACCESS HIGHWAYS, RAMPS AND WHERE BICYCLE TRAFFIC IS NOT ALLOWED OR AS DIRECTED BY THE ENGINEER.
4. DO NOT GALVANIZE CAST IRON FRAMES.
5. DIMENSIONAL TOLERANCES SHALL BE ± 3/16".
6. ALL STEEL BARS SHALL BE WELDED AT ALL INTERSECTIONS.



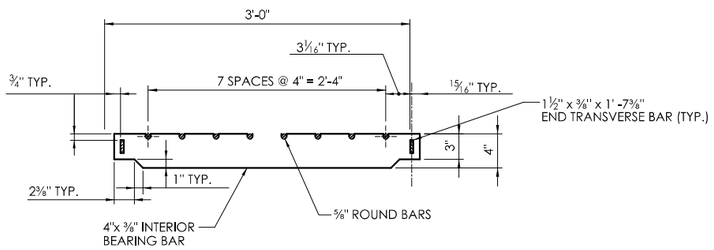
PLAN



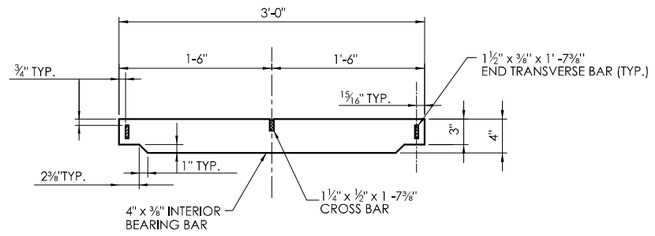
PLAN



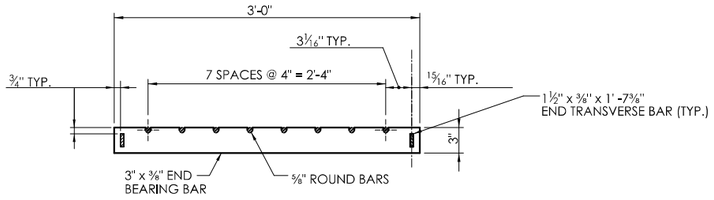
CAST IRON FRAME ALTERNATE



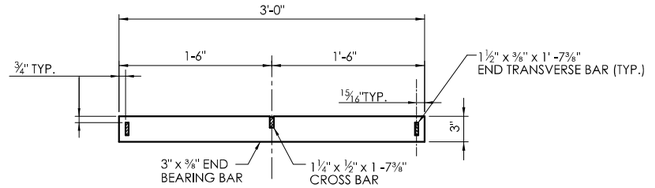
ELEVATION- INTERIOR BEARING BAR



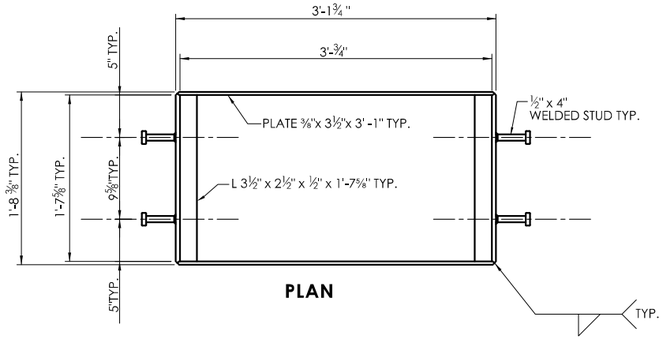
ELEVATION- INTERIOR BEARING BAR



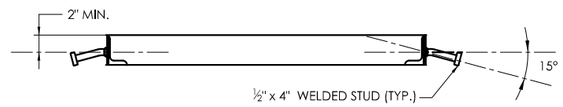
ELEVATION- END BEARING BAR
CATCH BASIN GRATE TYPE A



ELEVATION- END BEARING BAR
CATCH BASIN GRATE TYPE B



PLAN



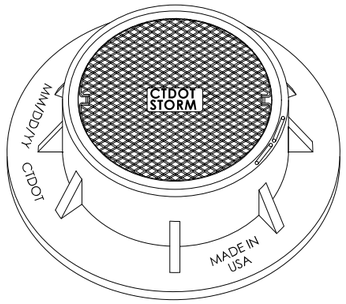
WELDED STUD ANCHOR DETAILS
STEEL FRAME

	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.16 10:16:20-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.21 13:02:17-05'00'	CTDOT CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: CATCH BASIN FRAMES AND GRATES	STANDARD SHEET NO.: HW-586_08

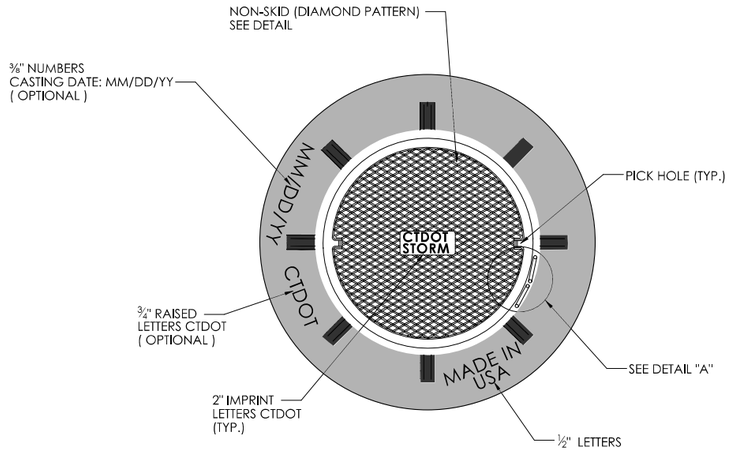
PLOTTED DATE: 10/22/2024

GENERAL NOTES:

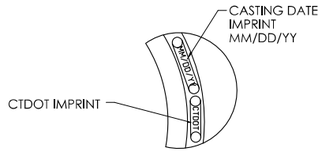
1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
2. CASTING DATE SHALL BE INDICATED ON EACH; FRAME (SEE DETAIL A) AND COVER (PLACED ON UNDERSIDE).



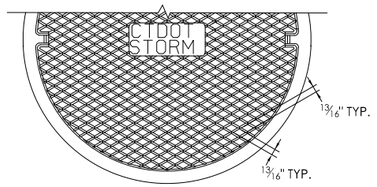
MANHOLE FRAME AND COVER



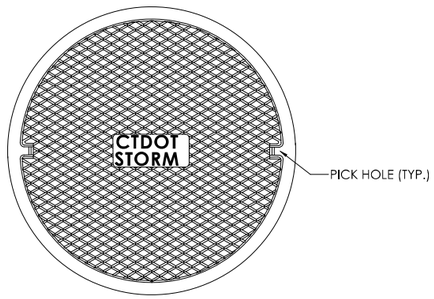
PLAN



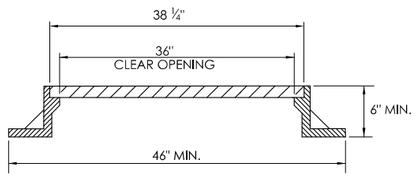
DETAIL "A"



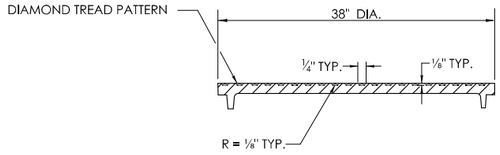
DIAMOND PATTERN PLAN



MANHOLE COVER PLAN



MANHOLE FRAME AND COVER



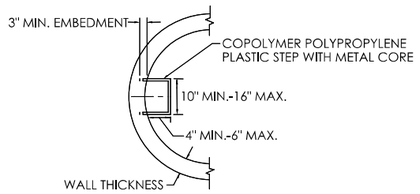
MANHOLE COVER WITH DIAMOND PATTERN

	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.16 10:15:43-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.21 13:03:50-05'00'	CTDOT CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: MANHOLE FRAME AND COVER / STANDARD SHEET NO.: HW-586_10a

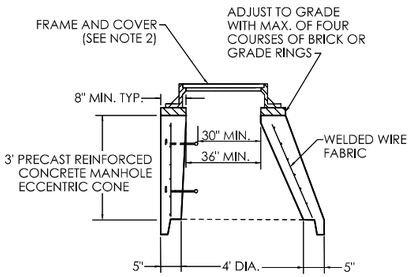
PLOTTED DATE: 10/22/2024

GENERAL NOTES:

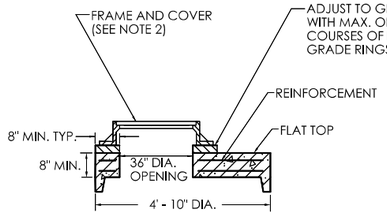
1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE.
2. SEE SHEETS HW-586_10a, AND HW-586_10b FOR MANHOLE FRAME, GRATE AND COVER DETAIL.



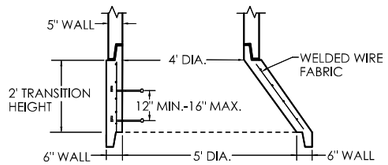
STEP DETAIL



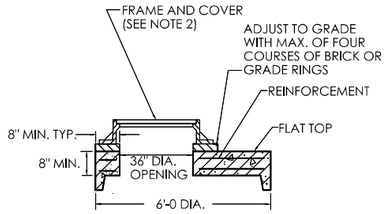
ECCENTRIC CONE SECTION



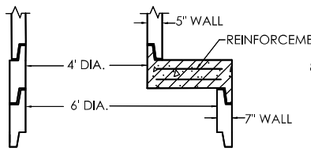
FLAT SLAB TOP FOR RISER SECTION



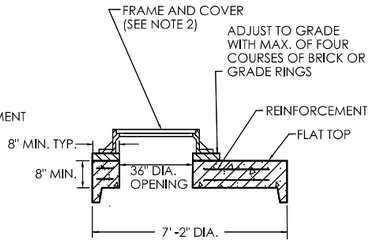
TRANSITION SECTION



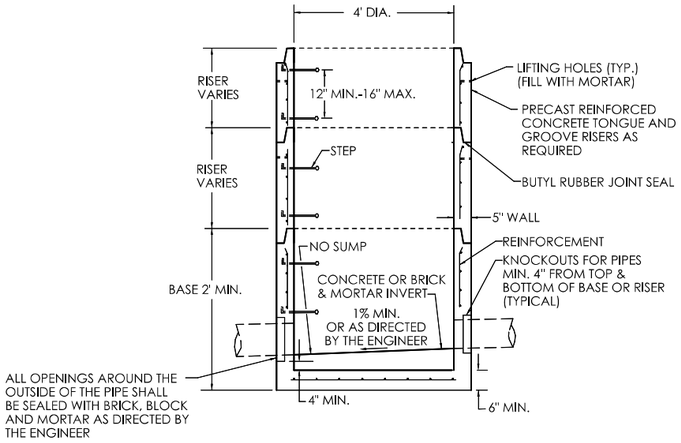
FLAT SLAB TOP FOR RISER SECTION



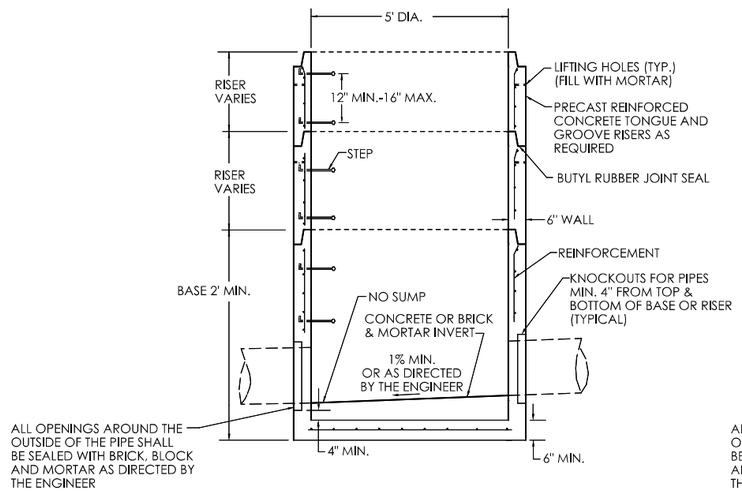
REDUCER SECTION



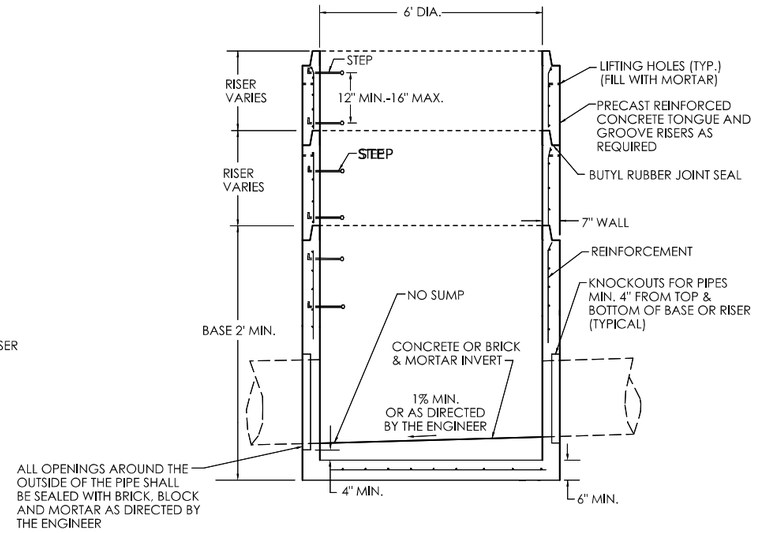
FLAT SLAB TOP FOR RISER SECTION



4' DIAMETER REINFORCED PRECAST CONCRETE MANHOLE SECTION



5' DIAMETER REINFORCED PRECAST CONCRETE MANHOLE SECTION



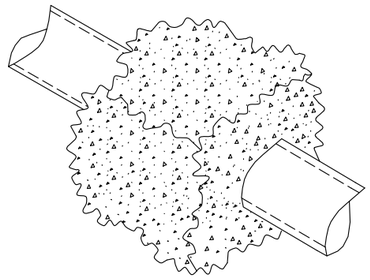
6' DIAMETER REINFORCED PRECAST CONCRETE MANHOLE SECTION

	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.16 10:15:25-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.21 13:04:29-05'00'	CTDOT CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: REINFORCED PRECAST CONCRETE MANHOLE	STANDARD SHEET NO.: HW-586_10c

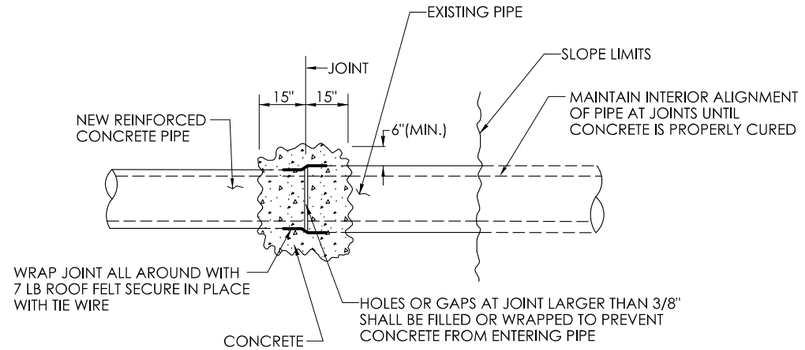
PLOTTED DATE: 10/22/2024

GENERAL NOTES:

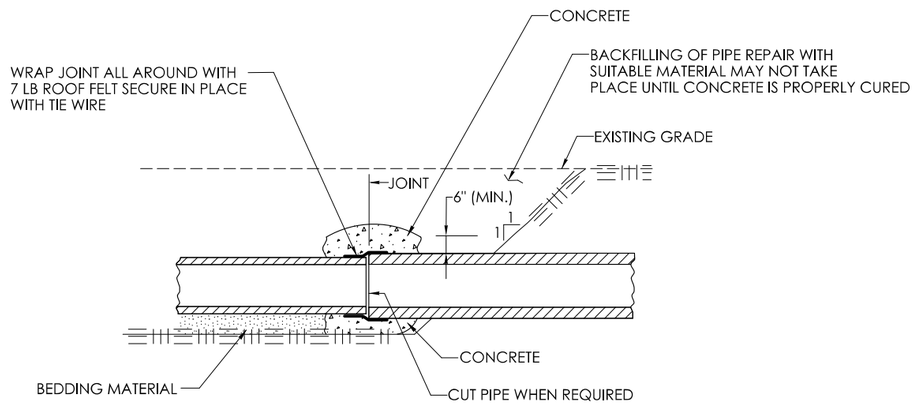
1. "CONCRETE PIPE CONNECTION" IS INTENDED FOR USE WHERE A REINFORCED CONCRETE PIPE REPAIR OR MODIFICATION IS NEEDED SOMEWHERE WITHIN A PIPE RUN WHERE A BELL/SPIGOT JOINT CANNOT BE ACHIEVED.
2. MAINTAIN INTERIOR ALIGNMENT OF PIPE AT JOINTS UNTIL CONCRETE IS PROPERLY CURED.
3. BACKFILL OF PIPE REPAIR WITH SUITABLE MATERIAL MAY NOT TAKE PLACE UNTIL THE CONCRETE IS PROPERLY CURED.
4. CONTRACTOR SHALL MAINTAIN LINE AND GRADE OF PIPE REPAIR OR MODIFICATION BY METHODS APPROVED BY THE ENGINEER
5. HOLES OR GAPS AT JOINT LARGER THAN ⅜" SHALL BE FILLED OR WRAPPED TO PREVENT CONCRETE FROM ENTERING THE PIPE.



CONCRETE PIPE AT THE JOINT



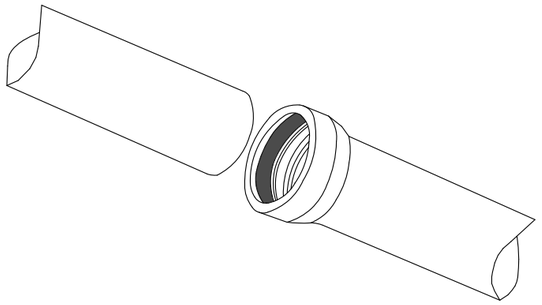
PLAN



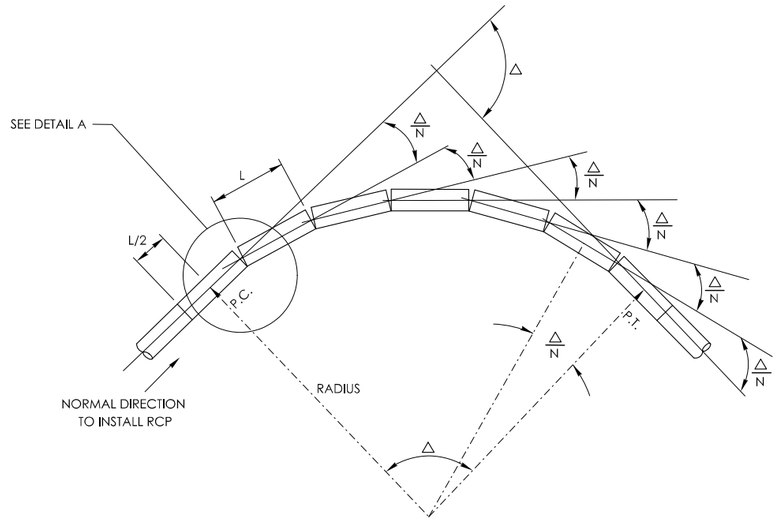
SECTION
CONCRETE PIPE CONNECTION

	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.16 14:02:25-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.21 13:07:29-05'00'	CTDOT CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: CONCRETE PIPE CONNECTION SHEET 1	STANDARD SHEET NO.: HW-686_01a

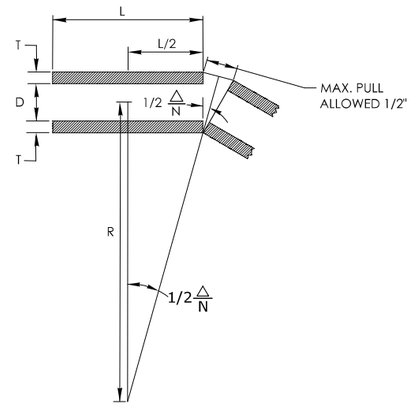
PLOTTED DATE: 10/22/2024



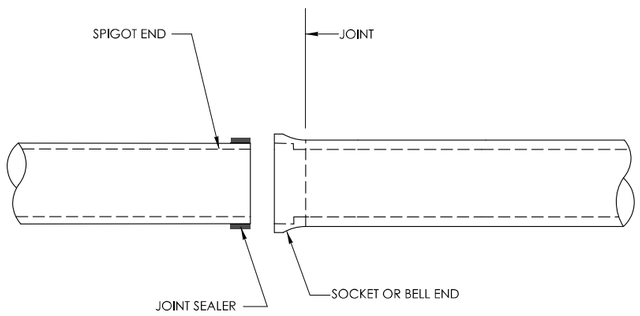
CONCRETE PIPE ASSEMBLY AT THE JOINT



CURVED ALIGNMENT USING DEFLECTED STRAIGHT PIPE FOR MAXIMUM PULL 1/2"



DETAIL A
DEFLECTING STANDARD FOR RCP



STANDARD CONNECTION FOR CONCRETE PIPE

MINIMUM RADII FOR RCP PIPE ON CURVED ALIGNMENT

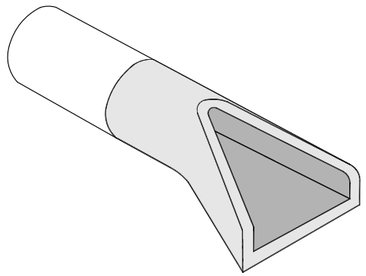
DIAMETER (D)	MINIMUM RADII USING 8' PIPE LENGTHS
IN.	FT.
15	337
18	392
21	401
24	452
30	617
36	729
42	842
48	953
54	1066
60	1178
72	1403

NOTES:

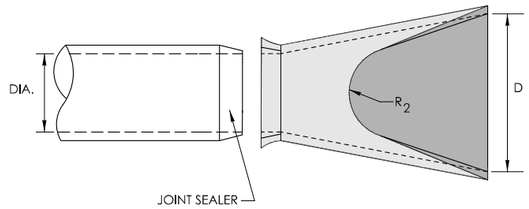
1. N IS THE NUMBER OF PIPE SEGMENTS
2. D IS PIPE DIAMETER
3. L IS LENGTH OF PIPE
4. T IS PIPE THICKNESS
5. △ IS THE DEGREE OF CURVATURE

	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.16 14:02:42-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.21 13:08:17-05'00'	CTDOT CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: CONCRETE PIPE CONNECTION SHEET 2	STANDARD SHEET NO.: HW-686_01b

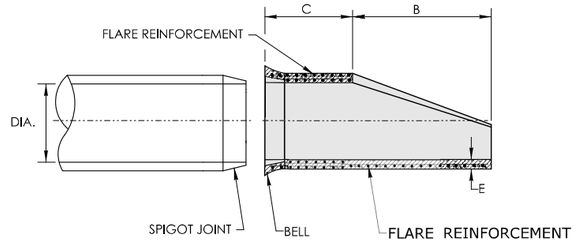
PLOTTED DATE: 10/22/2024



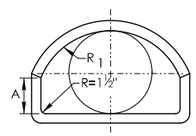
PRECAST CONCRETE PIPE END



PLAN



SECTION



ELEVATION

END SECTION FOR REINFORCED CONCRETE PIPE END								FLARE REINFORCEMENT ONE LAYER ONLY IN CENTER OF WALL	
PIPE DIAMETER INCHES	A INCHES	B INCHES	C INCHES	D INCHES	E INCHES	R_1 INCHES	R_2 INCHES	MIN. AREA OF LONGITUDINAL STEEL SQ. IN PER FT.	MIN. AREA OF TRANSVERSE STEEL STEEL SQ. IN PER FT.
12	4	24	48 7/8	24	3	10 1/4	9	0.048	0.048
15	6	27	46	30	3	12 1/2	11	0.054	0.054
18	9	27	46	36	3	15 1/2	12	0.060	0.060
24	9 1/2	43 1/2	30	48	3	16 13/16	14	0.072	0.072
30	12	54	19 3/4	60	3 1/2	18 1/2	15	0.084	0.084
36	15	63	34 3/4	72	4	24 5/16	20	0.096	0.096
42	21	63	35	78	4 1/2	27 1/2	22	0.108	0.108
48	24	72	26	84	5	28 1/2	22	0.120	0.120
54	27	65	35	90	5 1/2	33 1/8	24	0.132	0.132
60	30	60	39	96	6	36 1/16	24	0.144	0.144

NOT TO SCALE

SIGNATURE BLOCK:
OFFICE OF ENGINEERING
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

SUBMITTED BY:
Digitally signed by Leo Fontaine, P.E.
Date: 2024.12.16 14:01:43-05'00'

APPROVED BY:
Digitally signed by Michael N. Calabrese, P.E.
Date: 2025.01.21 13:10:02-05'00'

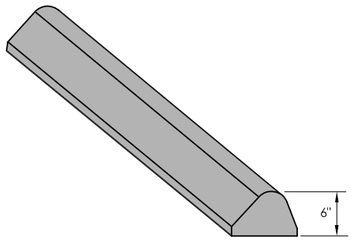
CONNECTICUT DEPARTMENT OF TRANSPORTATION

CTDOT STANDARD SHEET

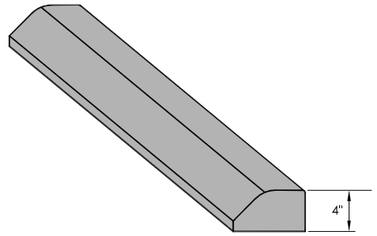
STANDARD SHEET TITLE:
DRAINAGE PIPE ENDS SHEET 2

STANDARD SHEET NO.:
HW-686_02b

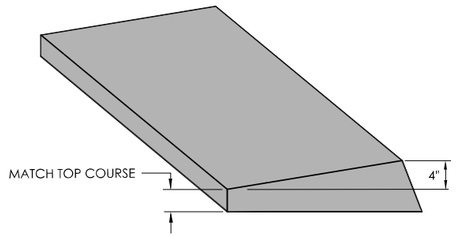
PLOTTED DATE: 10/22/2024



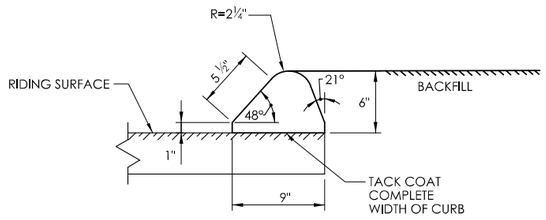
BITUMINOUS CONCRETE LIP CURBING
(6" HIGH)



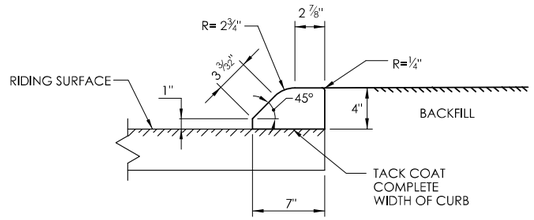
BITUMINOUS CONCRETE PARK CURBING
(4" HIGH)



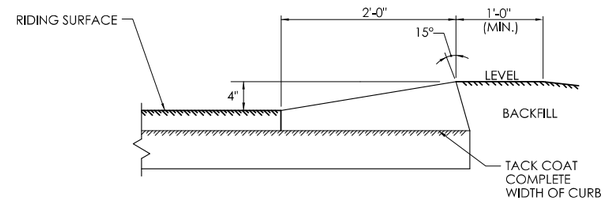
BITUMINOUS CONCRETE BERM CURBING
(4" HIGH)



SECTION



SECTION



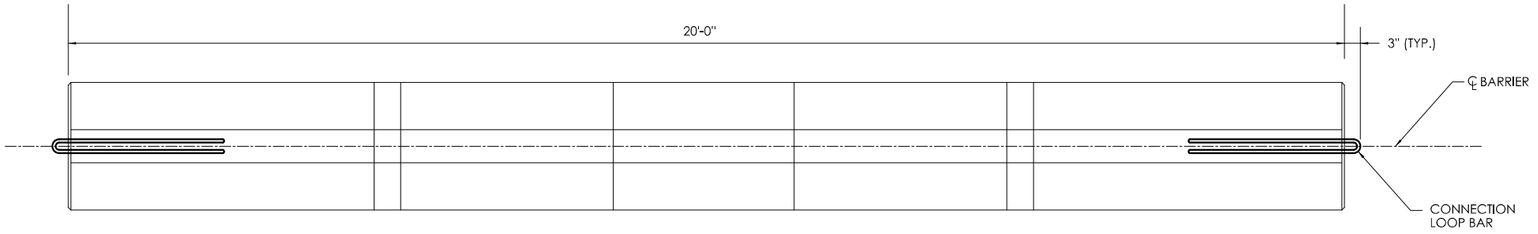
SECTION

	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.16 14:00:18-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.21 13:16:01-05'00'	CTDOT CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: BITUMINOUS CONCRETE CURBING / STANDARD SHEET NO.: HW-815_01

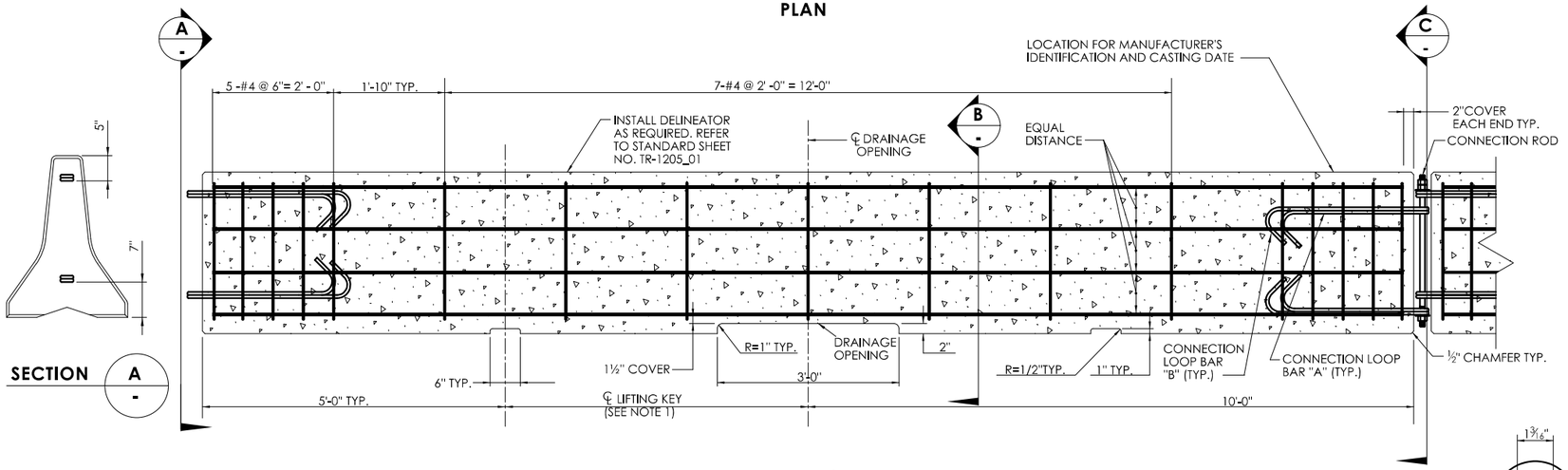
PLOTTED DATE: 10/22/2024

GENERAL NOTES:

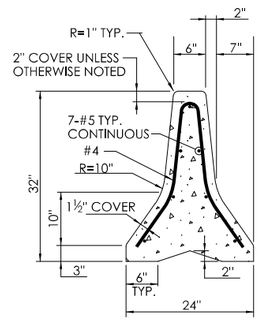
1. ALTERNATE DESIGNS FOR LIFTING KEYS, HOLES OR OTHER HANDLING DEVICES MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
2. EXPECTED PERMANENT DYNAMIC DEFLECTION IS 3'-6" BASED ON TL-3 CRASH TESTS WITH 240' OF TPCBC.



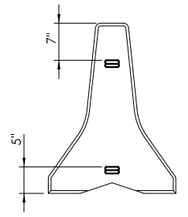
PLAN



ELEVATION



SECTION B -



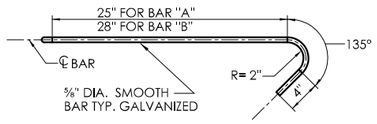
END VIEW C -



WASHER DETAIL



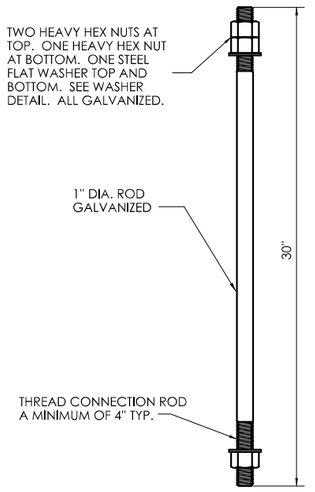
PLAN



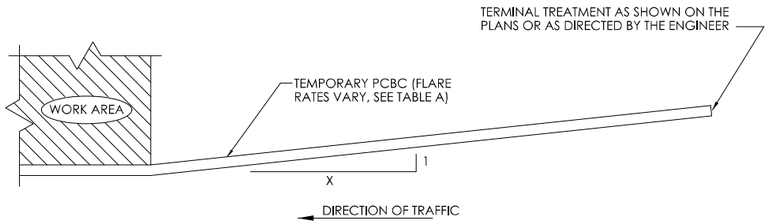
ELEVATION

BAR " A " = 6' - 0" TOTAL
BAR " B " = 6' - 6" TOTAL

CONNECTION LOOP BAR



CONNECTION ROD



PLAN - TYPICAL INSTALLATION

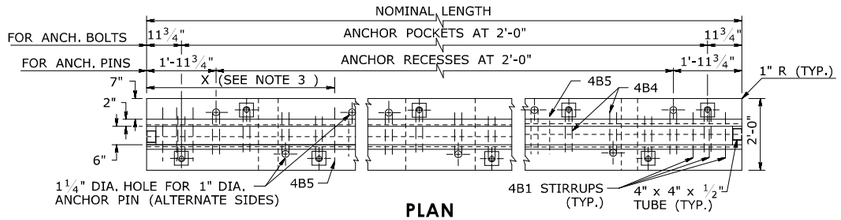
TABLE A FLARE RATES

* SPEED	FLARE RATE (X : 1)
≤ 30MPH	4 : 1
> 30MPH BUT < 45MPH	6 : 1
≥ 45MPH NON-LIMITED ACCESS HIGHWAYS	8 : 1
ALL LIMITED ACCESS HGHWAYS	10 : 1

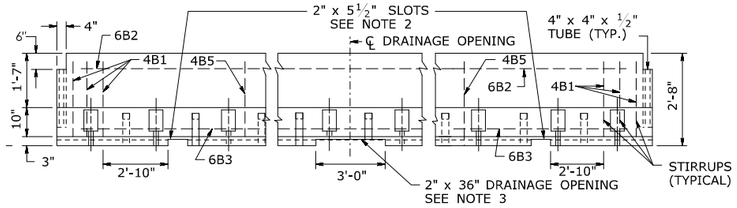
* DESIGN SPEED THROUGH THE WORK AREA.

	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.16 14:21:58-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.21 13:39:44-05'00'	CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: TEMPORARY PRECAST CONCRETE BARRIER CURB	STANDARD SHEET NO.: HW-822_01

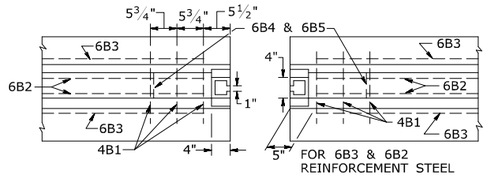
PLOTTED DATE: 10/22/2024



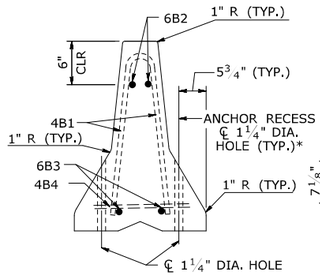
PLAN



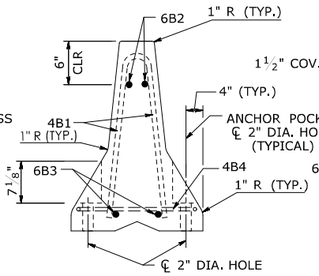
ELEVATION



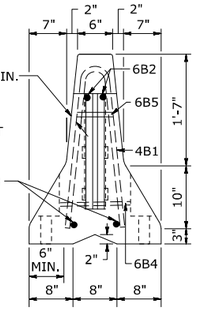
PLAN - BARRIER END



SECTION A-A



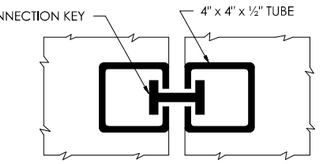
SECTION B-B



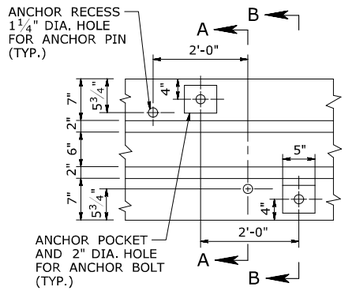
SECTION D-D

GENERAL NOTES:

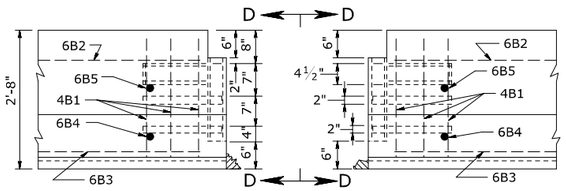
1. CONCRETE CLEAR COVER FOR REINFORCEMENT STEEL IS 1½" (MIN.).
2. 2" x 5½" SLOTS - TWO REQUIRED IN SECTIONS 12 FEET AND GREATER. ONE REQUIRED IN 8 FOOT AND 10 FOOT SECTIONS.
3. 2" x 36" DRAINAGE OPENING IS ONLY REQUIRED FOR TEMPORARY TRAFFIC BARRIER UNITS OF 20 FEET IN LENGTH, LOCATED IN MIDDLE OF THE BARRIER UNIT.
4. A TEMPORARY TRAFFIC BARRIER UNIT IS 20 FEET IN LENGTH; HOWEVER OTHER LENGTHS MAY BE USED TO MEET FIELD CONDITIONS. THE NUMBER AND PLACEMENT OF THE 4B4 AND 4B5 REINFORCEMENT STEEL WILL VARY WITH THE LENGTH OF THE BARRIER UNIT AS SHOWN ON THE TABLE OF VARIABLE REINFORCEMENT STEEL. THE 6B2 AND 6B3 REINFORCEMENT STEEL TO BE PLACED 10 INCHES SHORTER THAN THE NOMINAL LENGTH OF THE BARRIER UNITS.
5. ANCHOR RECESS HOLES OR ANCHOR POCKETS WITH ASSOCIATED REINFORCEMENT STEEL ARE ONLY REQUIRED FOR THE ASSOCIATED TEMPORARY TRAFFIC BARRIER (PINNED) OR TEMPORARY TRAFFIC BARRIER (BOLTED).



KEY IN PLACE



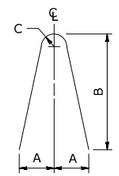
PLAN - ANCHOR RECESS/POCKET
SEE NOTE 5



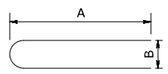
ELEVATION

TABLE OF VARIABLE REINFORCEMENT STEEL			
NOMINAL LENGTH OF BARRIER UNIT	MARK	"X"	NO. EACH SECTION
20'	4B4	N.A.	19
20'	4B5	6'-11"	2
18'	4B4	N.A.	17
18'	4B5	6'-5"	2
16'	4B4	N.A.	15
16'	4B5	5'-11"	2
14'	4B4	N.A.	13
14'	4B5	7'-0"	1
12'	4B4	N.A.	11
12'	4B5	6'-0"	1
10'	4B4	N.A.	9
10'	4B5	5'-0"	1
8'	4B4	N.A.	7
8'	4B5	-	0
"X" DISTANCE FROM END OF BARRIER TO 4B5 REINFORCEMENT STEEL			

TEMPORARY TRAFFIC BARRIER

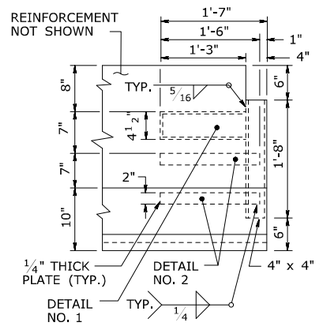


TYPE "I" REINFORCEMENT STEEL

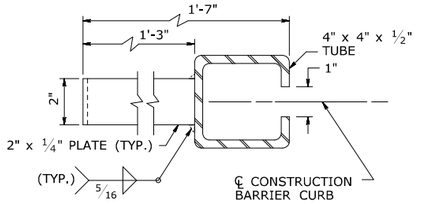


TYPE "II" REINFORCEMENT STEEL

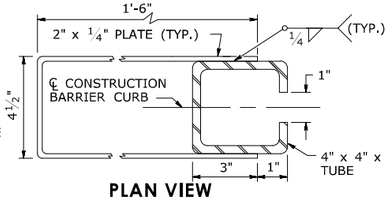
REINFORCEMENT STEEL LIST (EACH BARRIER SECTION)								
MARK	SIZE	NUMBER IN EACH SECTION	LENGTH	TYPE	A	B	C	LOCATION
4B1	#4	6	4'-11"	I	5"	26"	2"	STIRRUPS
4B4	#4	SEE NOTE 4	3'-1"	II	15½"	4"		STIRRUPS
4B5	#4	SEE NOTE 4	4'-11"	I	5"	26"	2"	STIRRUPS
6B2	#6	2	SEE NOTE 4	STR.				LONGITUDINAL (TOP) NORMAL SECTION
6B3	#6	2	SEE NOTE 4	STR.				LONGITUDINAL (BOTTOM) NORMAL SECTION
6B4	#6	2	1'-2"	STR.				TRANSVERSE (BOTTOM) NORMAL SECTION
6B5	#6	2	0'-6"	STR.				TRANSVERSE (TOP) NORMAL SECTION



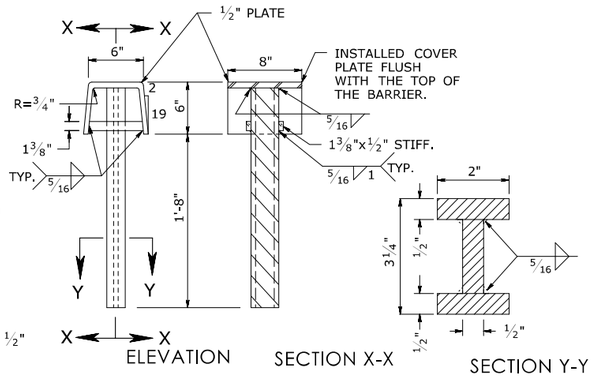
ELEVATION



PLAN VIEW
DETAIL NO. 1



PLAN VIEW
DETAIL NO. 2



ELEVATION SECTION X-X SECTION Y-Y

CONNECTION KEY

TEMPORARY TRAFFIC BARRIER CONNECTION DETAILS

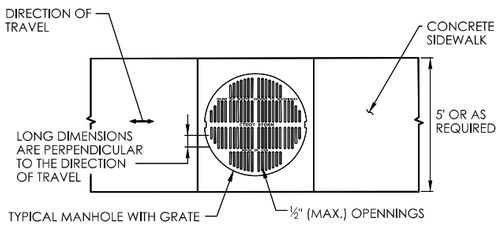
MASH 2016 COMPLIANT
APPROVAL ID. 2021-01

	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.16 14:21:13-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.21 13:41:21-05'00'	CTDOT CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: TEMPORARY TRAFFIC BARRIER - DETAILS	STANDARD SHEET NO.: HW-822_02a

PLOTTED DATE: 10/22/2024

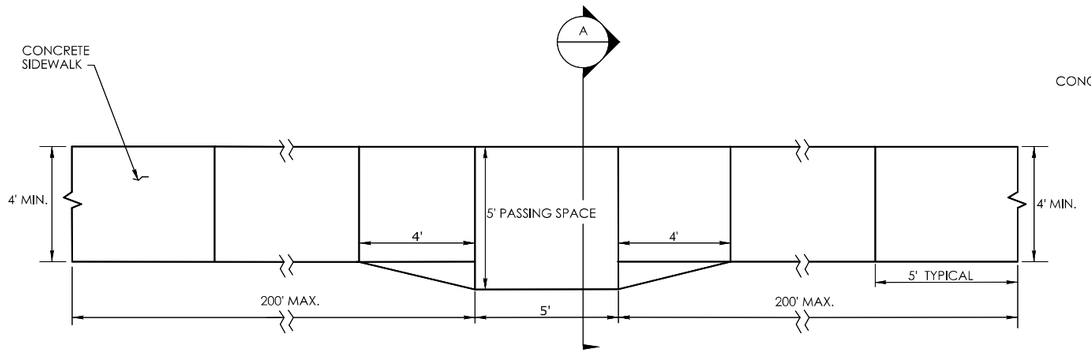
GENERAL NOTES:

1. SEE CONCRETE SIDEWALK RAMPS GUIDE SHEETS FOR PEDESTRIAN RAMP TYPES.
2. ALL CURBING SHALL BE INSTALLED AS EITHER PRECAST OR CAST IN PLACE AS DIRECTED.



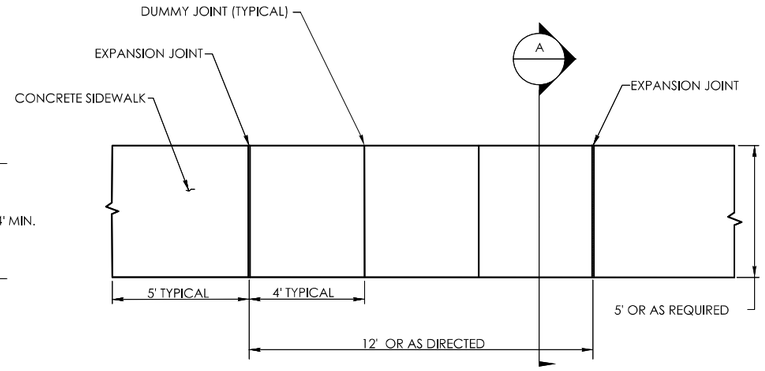
PEDESTRIAN ACCESS ROUTE OVER A MANHOLE WITH GRATE

1. HORIZONTAL OPENINGS IN GRATES AND JOINTS MUST NOT BE MORE THAN ½ INCH
2. ELONGATED OPENINGS IN GRATES MUST BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DIRECTION OF TRAVEL

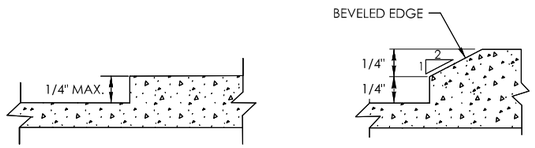


5' PASSING SPACE FOR 4' WIDE SIDEWALK PLAN

PASSING SPACES SHALL BE PROVIDED AT INTERVALS OF 200' MAXIMUM FOR SIDEWALKS LESS THAN 5' IN WIDTH

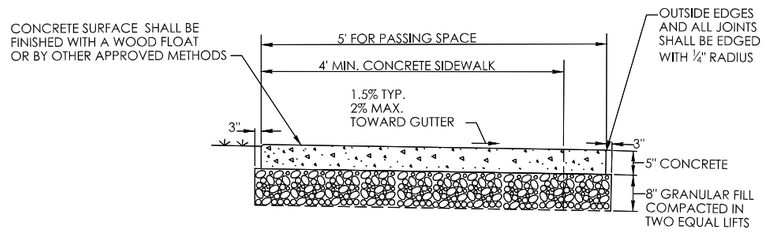


5' WIDE SIDEWALK PLAN



VERTICAL SURFACE DISCONTINUITIES

VERTICAL SURFACE DISCONTINUITIES MUST BE BEVELED TO A HEIGHT NOT GREATER THAN ¼ INCH. THE BEVEL MUST BE THE ENTIRE WIDTH OF THE DISCONTINUITY



5' PASSING SPACE FOR 4' WIDE SIDEWALK

SECTION (A)

	NOT TO SCALE	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Digitally signed by Leo Fontaine, P.E. Date: 2024.12.19 15:11:56-05'00'	APPROVED BY: Digitally signed by Michael N. Calabrese, P.E. Date: 2025.01.29 12:47:10-05'00'	CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: CONCRETE SIDEWALKS	STANDARD SHEET NO.: HW-921_01

PLOTTED DATE: 10/23/2024

ONLY STANDARD SHEETS MARKED WITH AN "✓" ARE IN THIS PROJECT # 0066-0110

****REVISED OR ADDED**

	SHEET NO.	TITLE	APPROVAL DATE**
☐	TR-1000_01	GENERAL CLAUSES (TEST PROCEDURES)	1/2014
☐	TR-1001_01	TRENCHING & BACKFILLING, ELECTRICAL CONDUIT	2/2024
☐	TR-1002_01	TRAFFIC CONTROL FOUNDATIONS	2/2024
☐	TR-1010_01	CONCRETE HANDHOLE	2/2024
☐	TR-1102_01	PEDESTALS, PEDESTRIAN SIGNALS	4/2012
☐	TR-1105_01	TRAFFIC SIGNALS AND CABLE ASSIGNMENTS	8/2018
☐	TR-1107_01	PEDESTRIAN PUSH BUTTON	8/2018
☐	TR-1108_01	CONTROLLERS	5/2013
☐	TR-1111_01	LOOP VEHICLE DETECTOR AND SAWCUT	4/2014
☐	TR-1113_01	CONTROL CABLE	4/2014
☐	TR-1114_01	BONDING & UTILITY POLE ATTACHMENT DETAILS, SIGN HANGER, "Y" CLAMP DETAILS	8/2018
☑	TR-1205_01	DELINEATION, DELINEATOR AND OBJECT MARKER DETAILS	8/2018
☑	TR-1208_01	SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS	8/2018
☑	TR-1208_02	METAL SIGN POSTS AND SIGN MOUNTING DETAILS	6/2017
☑	TR-1210_04	PAVEMENT MARKINGS LINES AND SYMBOLS	8/2018
☐	TR-1210_05	PAVEMENT MARKINGS FOR DIVIDED HIGHWAYS	4/2017
☐	TR-1210_06	PAVEMENT MARKINGS FOR DIVIDED HIGHWAYS	8/2018
☐	TR-1210_07	PAVEMENT MARKINGS FOR EXIT RAMPS	4/2017
☑	TR-1210_08	PAVEMENT MARKINGS FOR NON FREEWAYS	8/2018
☐	TR-1210_09	PAVEMENT MARKINGS FOR BICYCLE LANES, PARKING STALLS, AND RR CROSSINGS	4/2017
☑	TR-1220_01	SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS	8/2018
☑	TR-1220_02	CONSTRUCTION SIGN SUPPORTS AND CHANNELIZING DEVICES	8/2018

STANDARD SHEETS SHALL BE USED WITH STANDARD SPECIFICATIONS

NOT TO SCALE

SIGNATURE BLOCK:
OFFICE OF ENGINEERING
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

SUBMITTED BY:

APPOVED BY:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

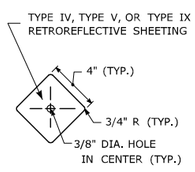
CTDOT STANDARD SHEET

STANDARD SHEET TITLE:
TRAFFIC STANDARD SHEET INDEX

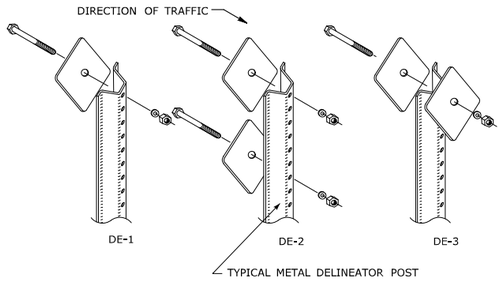
STANDARD SHEET NO.:
TR-STD_INDEX

DELINEATORS DE-1, DE-2, DE-3

INSTALLATION ON DELINEATOR POSTS



SIGN #51-5028 WHITE
SIGN #51-5029 YELLOW



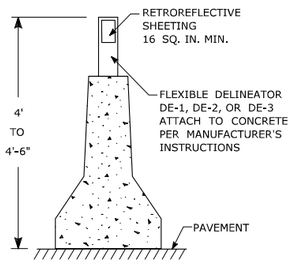
COLORS: - YELLOW OR WHITE.

DELINEATORS - .0625" THK. ALUMINUM ALLOY.

FACE SHALL BE PRESSURE SENSITIVE, SELF ADHERING, TYPE IV, TYPE V, OR TYPE IX RETROREFLECTIVE SHEETING.

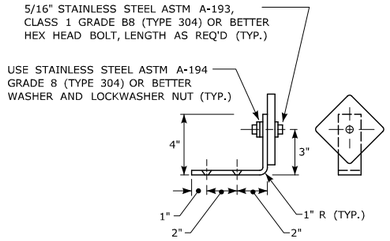
DELINEATORS SHALL BE FASTENED WITH 5/16" STAINLESS STEEL ASTM A-193 CLASS 1, GRADE B8 (TYPE 304) OR BETTER HEX HEAD BOLT (LENGTH AS REQUIRED), WASHER AND FIBER INSERT SELF LOCKING NUT, ON STANDARD METAL DELINEATOR POST.

INSTALLATION ON PERMANENT CONCRETE BARRIER, BRIDGE PARAPETS AND RETAINING WALLS

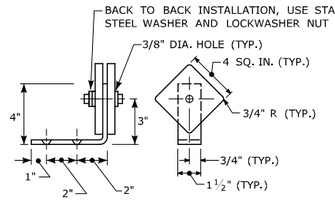


DELINEATORS DE-1, DE-2, DE-3 TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

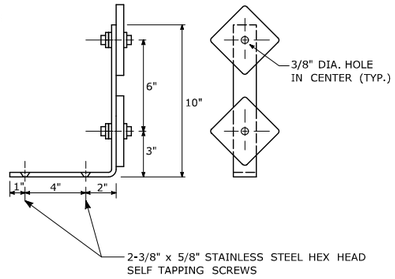
DELINEATORS DE-4, DE-4A, DE-5 FOR INSTALLATION ON METAL BRIDGE RAIL



DE-4



DE-4A

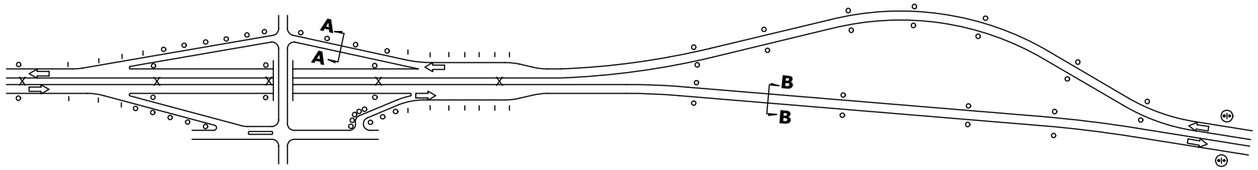


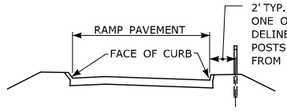
DE-5

COLORS: - YELLOW OR WHITE.
DELINEATORS - .0625" THK. ALUMINUM ALLOY.
BRACKET - .125" THK. ALUMINUM ALLOY, AND SHALL CONFORM TO SPECIFICATION M.18.07-03 BRIDGE RAIL MOUNTING BRACKETS.
FACE SHALL BE PRESSURE SENSITIVE, SELF ADHERING, TYPE IV, TYPE V, OR TYPE IX RETROREFLECTIVE SHEETING.
USE STAINLESS STEEL WASHERS ON FACE OF DELINEATORS, 5/8" O.D. X 3/8" I.D. X .032" THK. (TYP.)

DELINEATORS TYPE DE-4, DE-4A, AND DE-5 TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

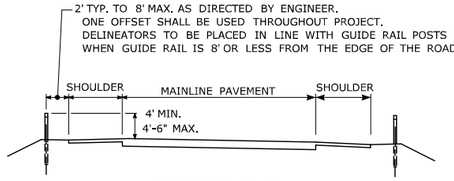
TYPICAL MAINLINE & INTERCHANGE DELINEATION





SECTION A-A

DELINEATOR PLACEMENT ON RAMPS
ON TANGENT SECTIONS - RIGHT SIDE OF RAMP
ON CURVED SECTIONS - BOTH SIDES OF CURVE



SECTION B-B

DELINEATOR PLACEMENT ON MAINLINE

DELINEATOR SPACING NOTES:

1) AT LOCATIONS WHERE THE MEDIAN WIDTH (BETWEEN SHOULDERS) IS 12' OR LESS, AND MEDIAN BEAM RAIL IS PRESENT, TYPE DE-3 DELINEATORS SHALL BE MOUNTED WITHIN THE MEDIAN BEAM RAIL.

2) SPACING ON MAINLINE EXPRESSWAY TANGENTS SHALL BE 400'.

3) SPACING ON MAINLINE EXPRESSWAY CURVES SHALL BE AS SPECIFIED IN TABLE 3F-1 OF THE MUTCD.

4) ON ACCELERATION AND DECELERATION LANES AND ON-RAMP TANGENT SECTIONS, DELINEATOR SPACING SHALL BE 100'.

5) ON CURVED PORTIONS OF RAMPS, DELINEATOR SPACING SHALL BE IN ACCORDANCE WITH TABLE 3F-1 OF THE MUTCD, BUT NOT TO EXCEED 100'.

LEGEND:

- ° DE-1 DELINEATORS OR DE-4 DELINEATOR ASSEMBLY
- ı DE-2 DELINEATORS OR DE-5 DELINEATOR ASSEMBLY
- X DE-3 DELINEATORS ASSEMBLY OR DE-4A DELINEATOR
- (D1) D10-1, 2, 3, OR 4 ASSEMBLY TO BE INSTALLED WHERE SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

COLOR APPLICATION, FOR DE-1 THRU DE-5

LEFT SIDE OF ALL ROADWAYS AND RAMPS - YELLOW
RIGHT SIDE OF ALL ROADWAYS AND RAMPS - WHITE

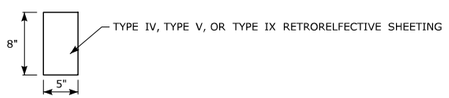
MUTCD TABLE 3F-1 APPROXIMATE SPACING FOR DELINEATORS ON HORIZONTAL CURVES

RADIUS (R) OF CURVE (feet)	APPROXIMATE SPACING (S) ON CURVE (feet)
50	20
115	25
180	35
250	40
300	50
400	55
500	65
600	70
700	75
800	80
900	85
1,000	90

DISTANCE IN FEET WERE ROUNDED TO THE NEAREST 5 FEET. SPACING FOR SPECIFIC RADII MAY BE INTERPOLATED FROM TABLE. THE MINIMUM SPACING SHOULD BE 20 FEET. THE SPACING ON CURVES SHOULD NOT EXCEED 300 FEET. IN ADVANCE OF OR BEYOND A CURVE, AND PROCEEDING AWAY FROM THE END OF THE CURVE, THE SPACING OF THE FIRST DELINEATOR IS 2S, THE SECOND IS 3S, AND THE THIRD 6S BUT NOT TO EXCEED 300 FEET.

S REFERS TO THE DELINEATOR SPACING FOR SPECIFIC RADII COMPUTED FROM THE FORMULA: $S=3\sqrt{R-50}$.

DELINEATORS DE-7, DE-7A, DE-7B, DE-7D FOR INSTALLATION ON TEMPORARY PRECAST CONCRETE BARRIER CURB AND TEMPORARY PRECAST CONCRETE BARRIER CURB (STRUCTURE)



DE-7 ONE WAY WHITE
DE-7A ONE WAY YELLOW
DE-7B TWO WAY YELLOW
DE-7D TWO WAY WHITE
TEMPORARY PRECAST CONCRETE BARRIER DELINEATORS ARE TO BE FABRICATED OF ALUMINUM, STEEL, PLASTIC, OR OF A MATERIAL APPROVED BY THE ENGINEER AND MOUNTED IN THE CENTER OF EACH SECTION OF TEMPORARY BARRIER AS REQUIRED AND PER MANUFACTURER'S INSTRUCTIONS.

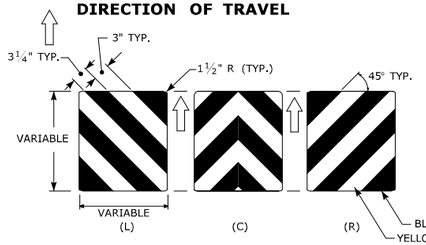
SPACING FOR TEMPORARY BARRIER CURB DELINEATORS:

ON THE LEADING TAPERED SECTION - EVERY 20',
ON THE FIRST 100' OF THE PARALLEL SECTION - EVERY 20',
ON THE REMAINING LENGTH - EVERY 100', MINIMUM OF 2 IF LESS THAN 100',
ALTERNATING ONE WAY TRAFFIC - EVERY 20',
ALL OTHER ROADWAYS SHALL BE DELINEATED IN ACCORDANCE WITH MUTCD.

DELINEATORS DE-7, DE-7A, DE-7B, AND DE-7D TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

ATTENUATOR REFLECTORS SIGN #40-4266

DIRECTION OF TRAVEL

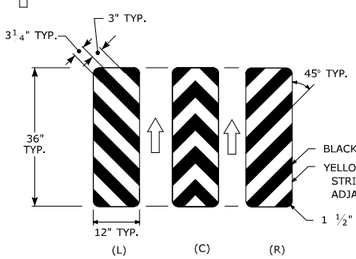


THIS SHEETING WITHOUT A SUBSTRATE TO BE INSTALLED ON THE NOSE OF THE IMPACT ATTENUATOR WITH ADHESIVE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
THE SHEETING SHALL COVER THE NOSE OF THE IMPACT ATTENUATOR.
ON A CURVED NOSE, THE WIDTH OF THE SHEETING SHALL EXTEND 1" BEYOND THE POINT OF CURVATURE ON EACH SIDE OF THE NOSE.
THE HEIGHT AND WIDTH OF THE SHEETING VARIES DEPENDING ON THE SIZE OF THE NOSE OF THE IMPACT ATTENUATOR.

ATTENUATOR REFLECTOR TO BE PAID FOR UNDER SECTION 18.0 IMPACT ATTENUATOR

TYPE 3 OBJECT MARKERS SIGN #41-4267

DIRECTION OF TRAVEL



SIGN #41-4267 MARKER MOUNTED ON 4lb. METAL SIGN POST.
BOTTOM OF SIGN #41-4267 TO BE 4' ABOVE ADJACENT EDGE OF PAVEMENT.
FINAL LOCATIONS OF SIGN #41-4267 MARKERS WILL BE AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

TYPE 3 OBJECT MARKER TO BE PAID FOR UNDER SECTION 12.08 SIGN FACE SHEET ALUMINUM

REV.	DATE	REVISION DESCRIPTION
5	8-2018	INCLUDED DE-7D AND REMOVED DE-7C, DE-9, AND DE-10.
4	4-2017	REVISED ATTENUATOR REFLECTOR AND TYPE 3 OBJECT MARKERS.
3	8-2015	UPDATED PER MUTCD AND FORM 816 JAN 2015 REVISION.
2	2-2011	MINOR REVISIONS.
1	1-2010	INCLUDED DETAILS IN D10-1, D10-2, D10-3 DELINEATORS.

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.

Plotted Date: 8/10/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR-1205_01_1_2018.dgn Model: TR-1205_01

SUBMITTED BY: NAME/DATE/TIME:
Mark F. Makuch, P.E.
2018.08.17
09:04:28-04'00'

APPROVED BY: NAME/DATE/TIME:
Mark F. Carlino, P.E.
2018.08.21 07:47:46-04'00'

CTDOT STANDARD SHEET

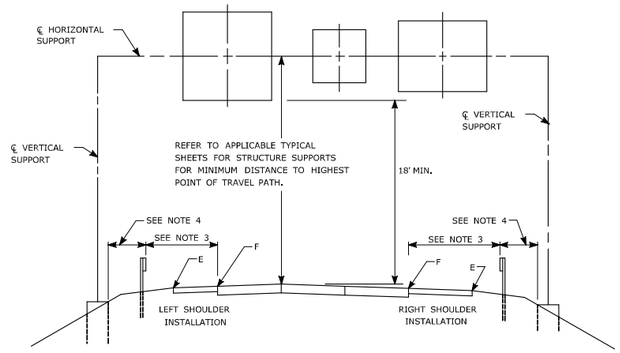
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

DELINEATION, DELINEATORS AND OBJECT MARKER DETAILS

STANDARD SHEET NO.:

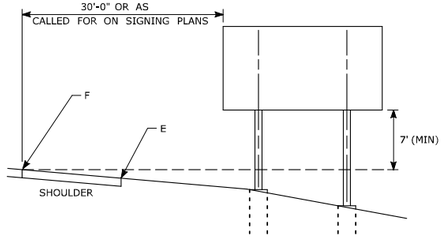
TR-1205_01



TYPICAL PLACEMENT OF OVERHEAD SIGNS ON SIGN SUPPORTS

NOTES:

1) FOR PLACEMENT OF CANTILEVER SIGN SUPPORT USE APPLICABLE PORTION OF ABOVE DETAIL.
2) BARRIER SYSTEMS MAY BE REQUIRED FOR BOTH SIDES OF SUPPORTS IN MEDIANS.
3) IMPACT PROTECTION SHALL BE PROVIDED FOR THE SIGN SUPPORTS LOCATED WITHIN CLEAR ZONE.
4) SIGN SUPPORT FOUNDATIONS SHALL BE LOCATED OUTSIDE OF BARRIER SYSTEMS DEFLECTION AREA.
5) ALL SIGNS ARE TO BE LEVEL, REGARDLESS OF CAMBER IN SUPPORT.



TYPICAL PLACEMENT OF SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS

NOTES:

1) MIN. VERTICAL CLEARANCE ABOVE SIDEWALKS SHALL BE 7'.
2) WHERE GUIDE RAIL IS USED, THE OFFSET TO THE NEAR EDGE OF SIGN FACE SHALL BE AS SHOWN ELSEWHERE IN THE CONTRACT PLANS.
3) ON INTERSECTING ROADS AT RAMP TERMINI, THE OFFSET TO THE NEAR EDGE OF OF SIGN FACE SHALL BE 6' MIN. FROM POINT "E".
4) IF 30'-0" MIN. CANNOT BE MET, PLEASE CONTACT THE ENGINEER.

FOR MAXIMUM EFFECTIVENESS, POSITION SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS AS FOLLOWS:

ON A TANGENT SECTION, POSITION THE SIGN SO THE VERTICAL AXIS IS PLUMB AND THE HORIZONTAL AXIS IS AT AN ANGLE OF 90° WITH THE TRAFFIC LANE WHICH THE SIGN SERVES. SIGNS LOCATED 30 FT OR MORE FROM THE EDGE OF THE ROAD SHALL BE TURNED APPROXIMATELY 3° TOWARD THE ROAD.

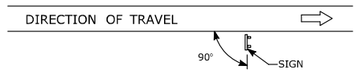


DIAGRAM "A"

ON A HORIZONTAL CURVE SECTION, POSITION THE SIGN SO THE VERTICAL AXIS IS PLUMB AND THE HORIZONTAL AXIS IS AT AN ANGLE OF 90° WITH A STRAIGHT LINE BETWEEN THE SIGN AND THE POINT AT WHICH THE SIGN SHALL BE READ.

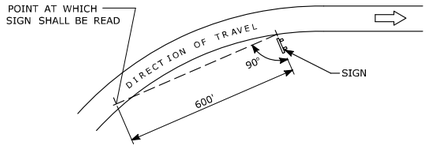
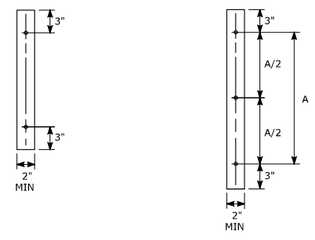


DIAGRAM "B"

SIGN ORIENTATION DETAILS FOR SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS

RETROREFLECTIVE STRIPS 48" LONG OR LESS:

RETROREFLECTIVE STRIPS OVER 48" LONG:

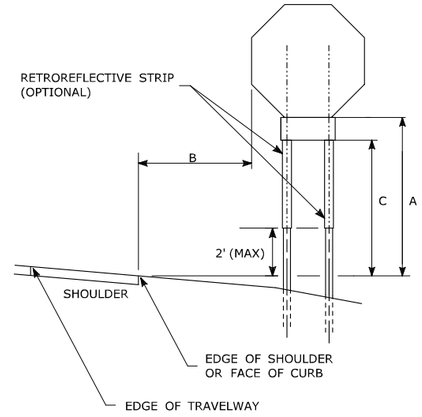


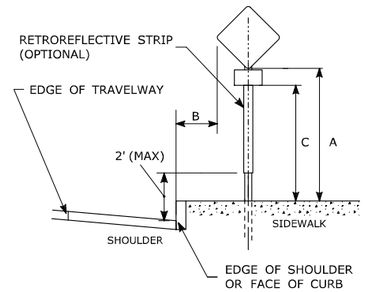
RETROREFLECTIVE STRIP DETAIL

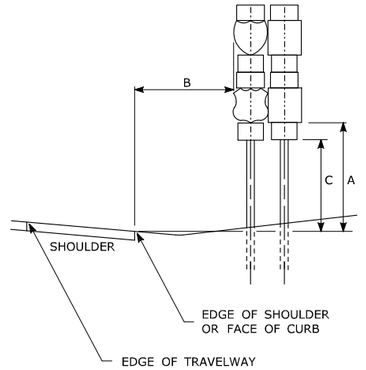
NOTES:

RETROREFLECTIVE STRIPS WHICH ARE 48 IN LONG OR LESS SHALL BE ATTACHED USING 2 BOLTS AND RETROREFLECTIVE STRIPS OVER 48 IN LONG SHALL BE ATTACHED USING 3 BOLTS AS SHOWN ON THE DETAILS ABOVE.
REFER TO STANDARD SHEET No. TR-1208_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS" FOR MOUNTING DETAILS.

RETROREFLECTIVE STRIP COLOR SHALL MATCH THE BACKGROUND COLOR OF THE SIGN, EXCEPT THAT THE COLOR OF THE STRIP FOR "YIELD" AND "DO NOT ENTER" SIGNS SHALL BE RED.







TYPICAL SIGN PLACEMENT DETAIL

NOTES:

ALL SIGNS AND SHIELDS ON DIRECTIONAL ASSEMBLIES SHALL ABUT VERTICALLY.

REFER TO STANDARD SHEET No. TR-1208_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS" FOR SIGN POSTS AND SIGN MOUNTING.

IF A RETFOREFLECTIVE STRIP IS USED ON SIGN SUPPORT, IT SHALL BE PLACED FOR THE FULL LENGTH OF THE SUPPORT FROM THE BOTTOM OF THE SIGN TO WITHIN 2 FT ABOVE THE EDGE OF THE ROADWAY.

PARKING SIGNS TYPICALLY USE 45° MOUNTING BRACKET.

DIM."A" MIN SIGN HEIGHT	DIM."B" MIN LATERAL OFFSET ①	DIM."C" MIN PLAQUE HEIGHT ①	ASSEMBLY LOCATION
7' ②	6' 12' ③	5'	SIGNS ON FREEWAYS AND EXPRESSWAYS EXCEPT CHEVRON ALIGNMENT SIGNS, ONE-DIRECTION LARGE ARROW SIGNS, DO NOT ENTER SIGNS, AND WRONG WAY SIGNS
5'	2'	4'	• SIGNS IN RURAL AREAS • DO NOT ENTER AND WRONG WAY SIGNS ALONG EXIT RAMPS • DO NOT ENTER AND WRONG WAY SIGNS ON LIMITED ACCESS HIGHWAYS
5'	2'	N/A	• CHEVRON ALIGNMENT SIGNS LOCATED ON FREEWAYS, EXPRESSWAYS, RAMPS, AND IN RURAL AREAS • ONE-DIRECTION LARGE ARROW SIGNS LOCATED ON FREEWAYS, EXPRESSWAYS, RAMPS, AND IN RURAL AREAS
4'	6' 12' ③	N/A	INCIDENT MANAGEMENT SIGNS AND MILE POST MARKER ASSEMBLIES LOCATED ON FREEWAYS AND EXPRESSWAYS
4'	2'	4'	CENTRAL ISLANDS OF ROUNDABOUTS
7'	2' ④	6'	BUSINESS & RESIDENTIAL AREAS WHERE PARKING OR OTHER OBSTRUCTIONS LIMIT VISIBILITY
7'	2' ④	7'	SIDEWALKS ⑤

① OR AS DIRECTED BY THE ENGINEER

② 8 FT MINIMUM HEIGHT REQUIRED IF A SUPPLEMENTAL PLAQUE IS SUBMOUNTED BELOW THE MAJOR SIGN.

③ 6 FT FROM EDGE OF SHOULDER, WHEN SHOULDER IS OVER 6 FT WIDE
12 FT FROM EDGE OF TRAVELWAY, WHEN SHOULDER IS LESS THAN 6 FT WIDE.

④ A LATERAL OFFSET OF AT LEAST 1 FT FROM THE FACE OF THE CURB MAY BE USED WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING UTILITY POLES ARE CLOSE TO THE CURB.

⑤ A CLEAR PATH OF NOT LESS THAN 4 FT SHALL BE PROVIDED IN SIDEWALK AREAS.

REV.	DATE	REVISION DESCRIPTION
3	8-2018	INCLUDED INCIDENT MANAGEMENT AND MILE MARKER SIGNS.
2	4-2017	MINOR REVISIONS.
1	2-2011	MINOR REVISIONS.

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.

Plotted Date: 8/10/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR_1208_01_1_2018.dgn Model: TR-1208_01

SUBMITTED BY: NAME/DATE/TIME:
Mark F. Makuch, P.E.
2018.08.17 09:06:06-04'00'

APPROVED BY: NAME/DATE/TIME:
Mark F. Carlino, P.E.
2018.08.21 07:48:06-04'00'

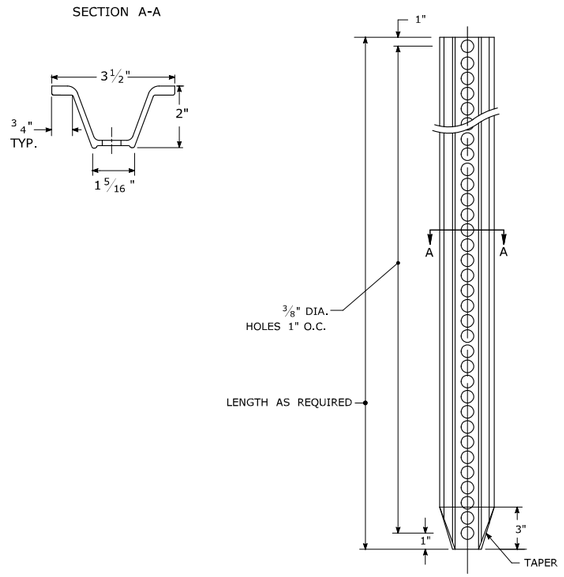
CTDOT STANDARD SHEET

OFFICE OF ENGINEERING

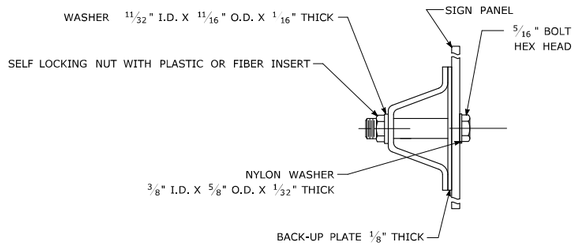
STANDARD SHEET TITLE:
SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS

STANDARD SHEET NO.:
TR-1208_01

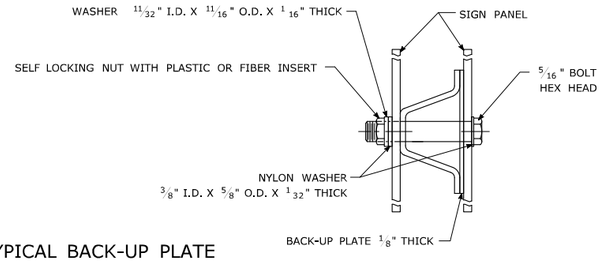
TYPICAL METAL SIGN POSTS



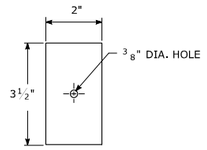
TYPICAL SIGN PANEL ATTACHMENT



TYPICAL BACK TO BACK SIGN PANEL ATTACHMENT



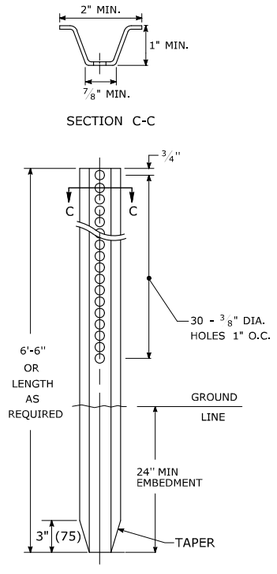
TYPICAL BACK-UP PLATE



BOLTS - STAINLESS STEEL CONFORMING TO ASTM F593, ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
SELF LOCKING NUTS - STAINLESS STEEL CONFORMING TO ASTM F594, ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
WASHERS - STAINLESS STEEL CONFORMING TO ASTM A240, (ALLOY TYPES 304 OR 316).

METAL DELINEATOR POST

WT./FT. = 1.12 LBS./FT. MIN.

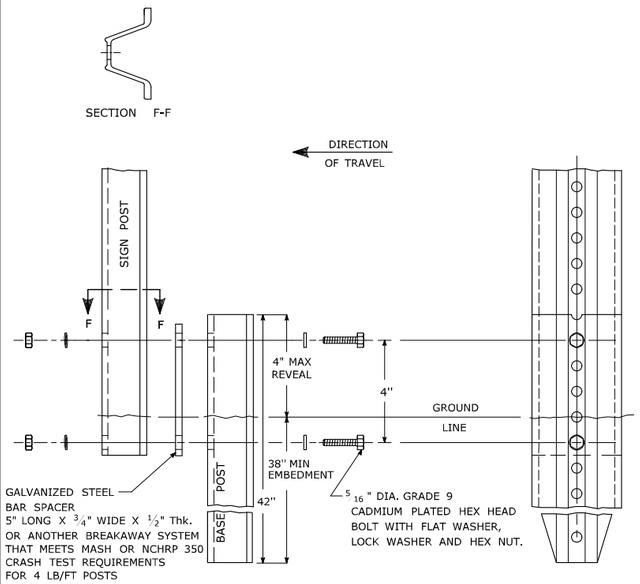


GENERAL NOTES:

1. STEEL FOR DELINEATOR POSTS SHALL BE ASTM A36 STEEL. STEEL FOR ALL OTHER POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499 GRADE 80 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT (MASS) OF 91 LBS. OR GREATER PER LINEAR YARD.
2. AFTER FABRICATION, ALL STEEL POSTS, STRAPS AND PLATES SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A123.
3. WASHERS FOR BREAKAWAY INSTALLATIONS SHALL MEET ASTM F436, TYPE 1.
4. SPACER BAR FOR BREAKAWAY INSTALLATION SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A36.
5. ALL BOLTS, NUTS, AND WASHERS FOR BREAKAWAY INSTALLATIONS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A153.
6. ALL SIGN POSTS SHALL HAVE BREAKAWAY FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS." THE BREAKAWAY FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 mph WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
7. SIGN POSTS SHALL BE 4 LBS./FT.

BREAKAWAY INSTALLATION

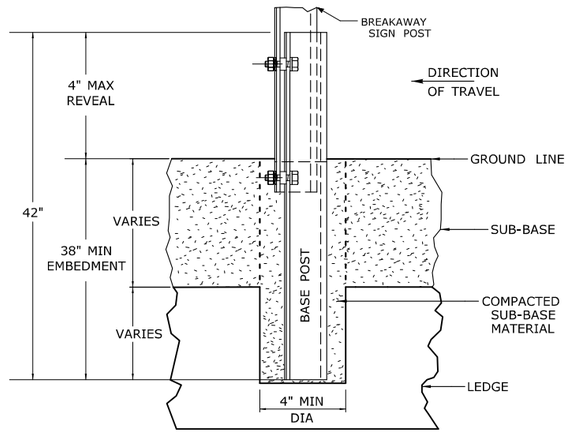
FOR 4 LBS./FT. POSTS



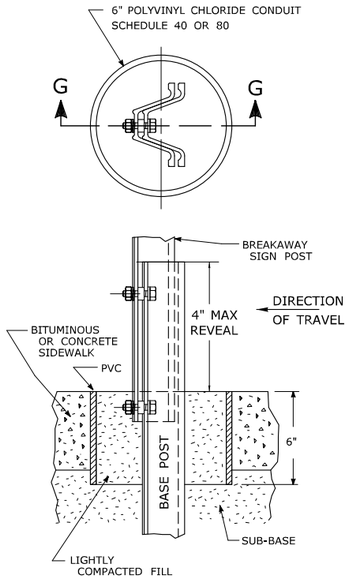
TYPICAL SIGN POST INSTALLATION IN LEDGE

LEDGE SHALL BE REMOVED TO DRIVE THE BASE POST TO A DEPTH OF 38".

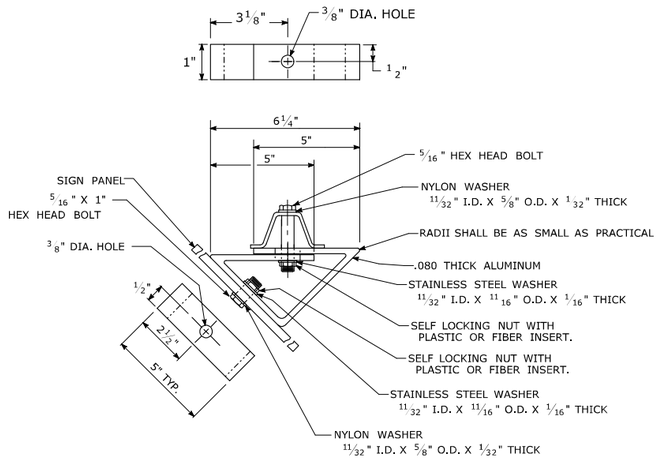
HOLE SHALL BE FILLED WITH SUB-BASE MATERIAL AND COMPACTED WITH A TAMPING BAR, OR TECHNIQUE APPROVED BY THE ENGINEER, PRIOR TO BASE POST INSTALLATION.



TYPICAL SLEEVE FOR PAVED AREAS



45° MOUNTING BRACKET FOR INSTALLATION OF PARKING SIGNS



REV.	DATE	REVISION DESCRIPTION
2	6-2017	SIGN POST REVISIONS.
1	2-2011	MINOR REVISIONS.

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Plotted Date: 6/6/2017

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR-1208_02_May_2017_Revision.dgn Model: TR-1208_02

SUBMITTED BY:	NAME/DATE/TIME:
Mark Makuch	Mark F. Makuch, P.E. 2017.06.07 07:30:30-04'00'
Mary E. Baker	Mary E. Baker, P.E. 2017.06.13 15:28:14-04'00'
APPROVED BY:	NAME/DATE/TIME:
Gregory M. Dorosh	Gregory M. Dorosh, P.E. 2017.06.15 09:27:29-04'00'

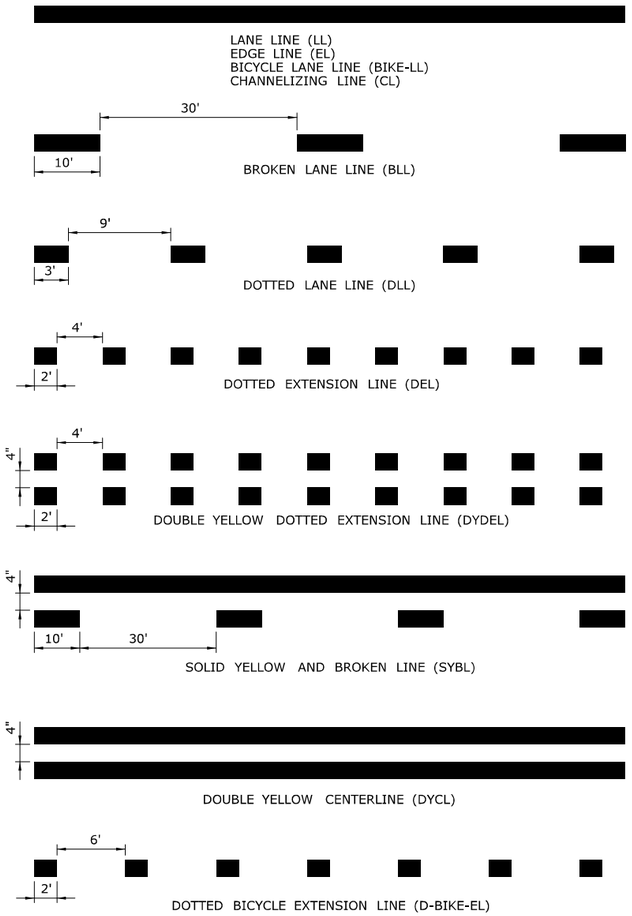
CTDOT STANDARD SHEET

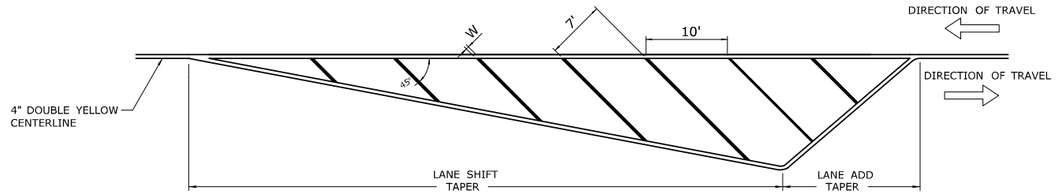
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

METAL SIGN POSTS AND SIGN MOUNTING DETAILS

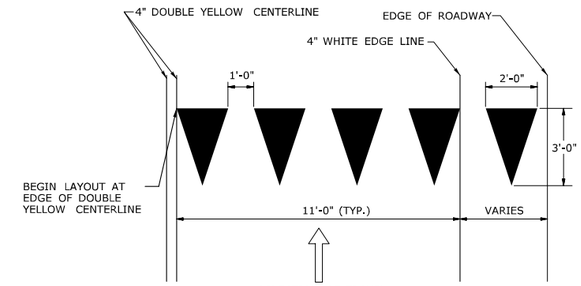
GUIDE SHEET NO.: **TR-1208_02**



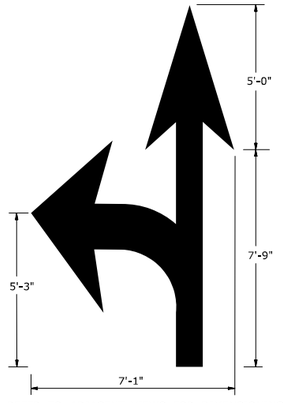


CROSS HATCHED ISLAND DETAIL
(YELLOW)

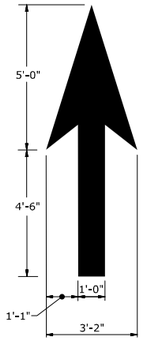
W IS TO BE 6" WHEN POSTED SPEED ≤ 45 MPH
W IS TO BE 12" WHEN POSTED SPEED > 45 MPH
CROSS HATCHED ISLANDS ARE TO BE INSTALLED WHERE CALLED FOR ON THE PLANS



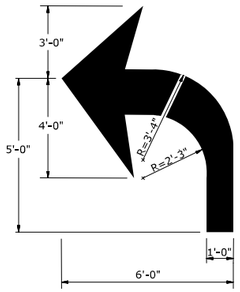
YIELD LINE DETAIL
(WHITE)



REFER TO ADJACENT VIEWS FOR DIMENSIONING
27.0 S.F.



12.5 S.F.



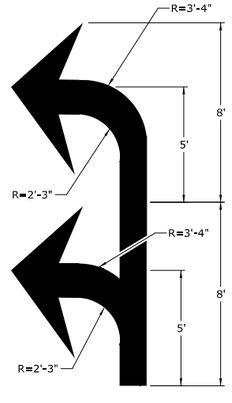
15.5 S.F.



27.0 S.F.
LEFT & RIGHT
ARROW COMBO

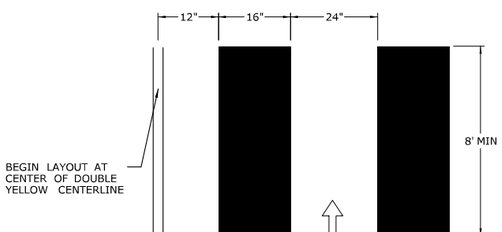


38.5 S.F.
3 WAY ARROW
COMBO



35 S.F.
DOUBLE LEFT
ARROW

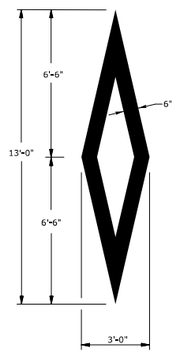
PAVEMENT ARROW DETAILS
(WHITE)
ARROWS SHALL BE CENTERED IN TRAVEL LANE



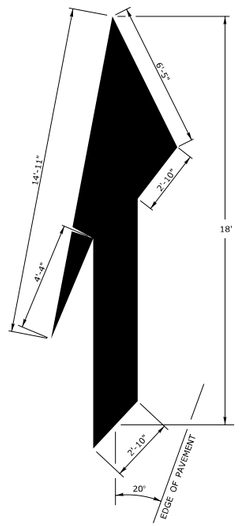
CROSSWALK DETAIL
(WHITE)

NOTES :

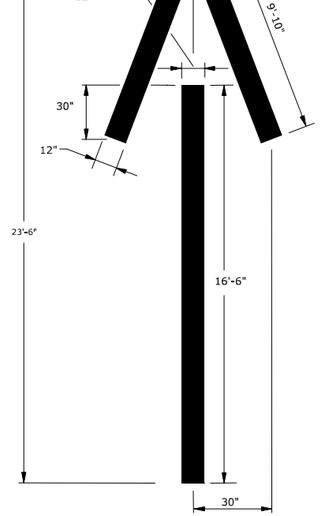
1. AREA OF PAVEMENT MARKINGS AS INDICATED IS APPROXIMATE.
2. RIGHT TURN PAVEMENT MARKING ARROWS ARE MIRROR IMAGE OF LEFT TURN PAVEMENT MARKING ARROWS.



WHITE PREFERENTIAL
LANE SYMBOL
13.0 S.F.



WHITE LANE
REDUCTION ARROW
41.8 S.F.



WHITE WRONG WAY
PAVEMENT ARROW
36.2 S.F.

REV.	DATE	REVISION DESCRIPTION
1	8-2018	REMOVED ROUNDABOUT MARKINGS.

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Plotted Date: 8/10/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR-1210_04.dgn Model: CT_Civil_2D_Sheet

SUBMITTED BY:	NAME/DATE/TIME:
Mark Makuch	Mark F. Makuch, P.E. 2018.08.17 09:07:44-04'00'
APPROVED BY:	NAME/DATE/TIME:
	Mark F. Carlino, P.E. 2018.08.21 07:48:45-04'00'

CTDOT
STANDARD SHEET

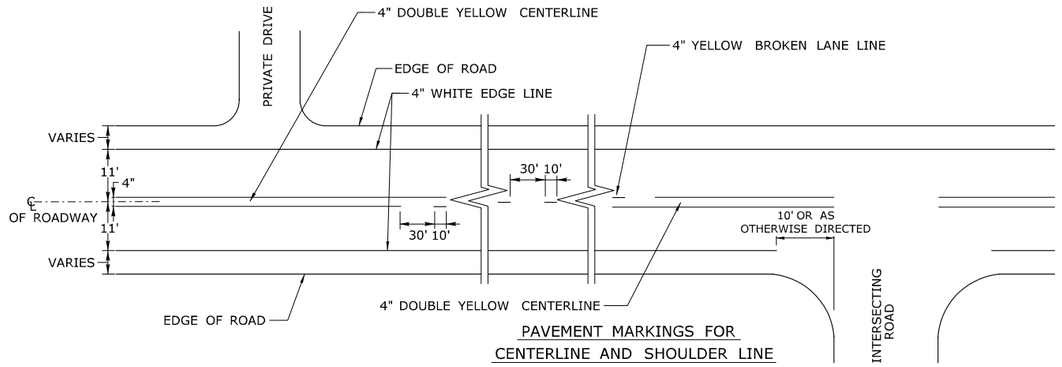
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

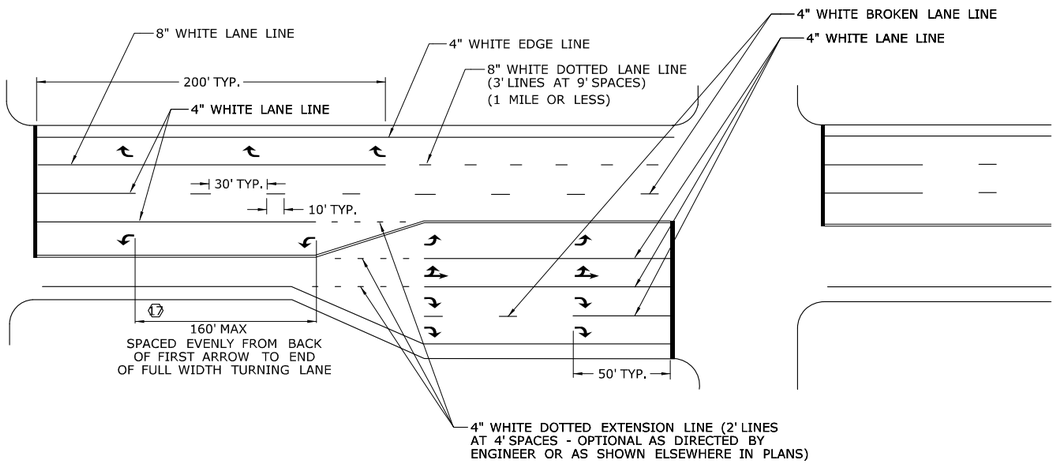
PAVEMENT MARKING LINES AND SYMBOLS

STANDARD SHEET NO.:

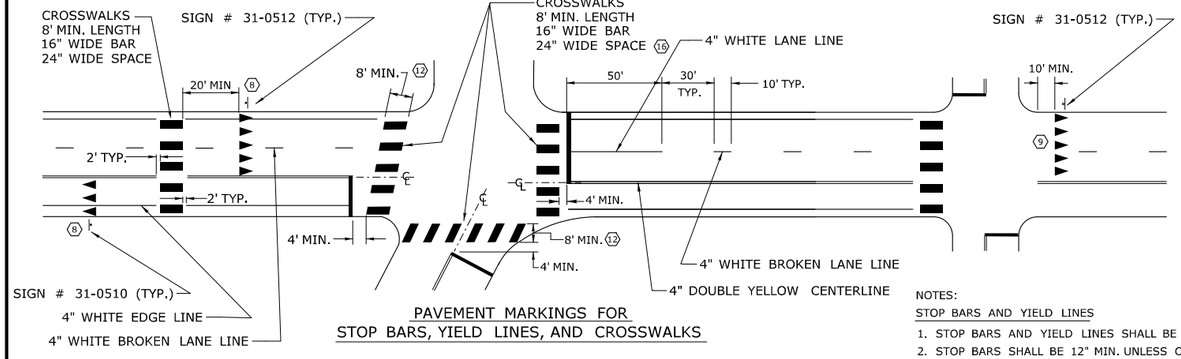
TR-1210_04



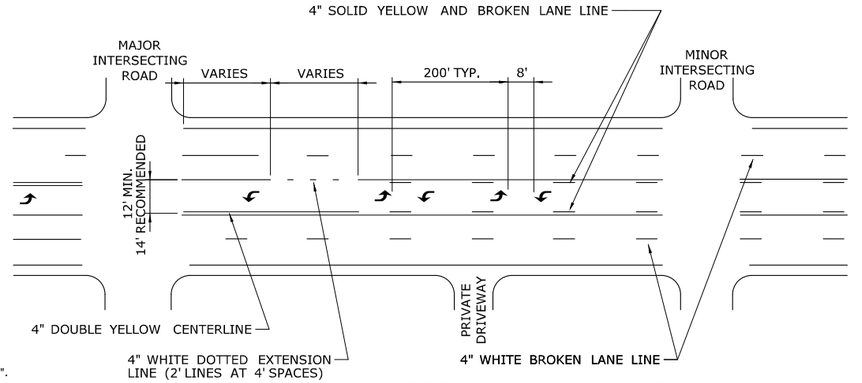
PAVEMENT MARKINGS FOR CENTERLINE AND SHOULDER LINE



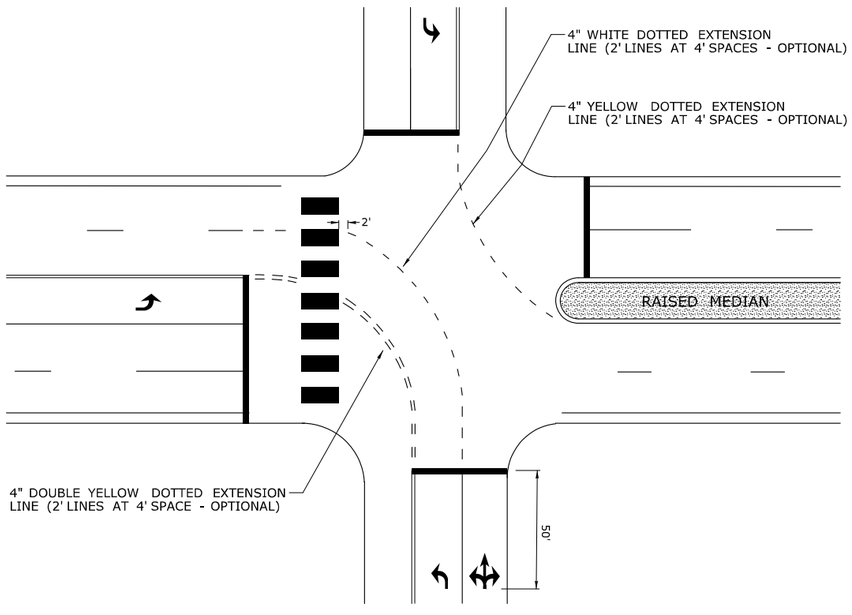
PAVEMENT MARKINGS FOR TURNING LANES AND ROAD LANE-DROP



PAVEMENT MARKINGS FOR STOP BARS, YIELD LINES, AND CROSSWALKS



TWO-WAY LEFT-TURN MARKINGS APPLICATIONS



TURNING EXTENSIONS

NOTES:

STOP BARS AND YIELD LINES

1. STOP BARS AND YIELD LINES SHALL BE WHITE.
2. STOP BARS SHALL BE 12" MIN. UNLESS OTHERWISE NOTED ON PLANS.
3. STOP BARS TO BE PLACED A MINIMUM OF 4' IN ADVANCE OF THE NEAREST EDGE OF CROSSWALK AND SHOULD BE PLACED 90° TO THE CENTERLINE OF THE ROADWAY.
4. IN THE ABSENCE OF A MARKED CROSSWALK THE STOP BAR SHOULD BE PLACED 90° TO THE CENTERLINE OF THE ROADWAY, AT THE DESIRED STOPPING POINT AT LEAST 5' AND NO MORE THAN 30' FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY.
5. THE STOP SIGN SHOULD BE PLACED IN LINE WITH THE STOP BAR. HOWEVER, IF THE STOP SIGN CANNOT BE LOCATED EXACTLY WHERE VEHICLES ARE EXPECTED TO STOP, THE STOP BAR SHOULD BE PLACED AT THE STOPPING POINT.
6. FOR STOP BARS AT RAMPS SEE DETAILS "R", "S", "T", & "U" AND NOTES ON TRAFFIC STANDARD SHEET TR-1210 07 "PAVEMENT MARKINGS FOR DIVIDED HIGHWAYS EXIT RAMPS".
7. FOR YIELD LINE INSTALLATIONS, ONLY FULL TRIANGLES ARE TO BE INSTALLED.

(8) MID-BLOCK CROSSWALKS ARE CROSSWALKS LOCATED MORE THAN 50 FEET FROM A SIGNALIZED OR UNSIGNALIZED INTERSECTION. YIELD LINES ASSOCIATED WITH MIDBLOCK CROSSWALKS SHALL BE INSTALLED AND SHOULD BE LOCATED 20 TO 50 FEET IN ADVANCE OF THE NEAREST CROSSWALK LINE OR AS DIRECTED BY THE ENGINEER.
WHERE A YIELD LINE EXISTS ON AN APPROACH TO A CROSSWALK, THE APPROAPRIATE "YIELD TO PEDESTRIANS" SIGN IS REQUIRED.

(9) FOR CROSSWALKS AT UNSIGNALIZED INTERSECTIONS WITH MINOR STREET STOP CONTROL, YIELD LINES SHALL BE INSTALLED ON MULTI-LANE APPROACHES, BUT NOT SINGLE LANE APPROACHES.

10. THE YIELD SIGN SHOULD BE PLACED IN LINE WITH A YIELD LINE. HOWEVER, IF THE YIELD SIGN CANNOT BE LOCATED EXACTLY WHERE VEHICLES ARE EXPECTED TO YIELD, THE YIELD LINE SHOULD BE PLACED AT THE YIELDING POINT.

CROSSWALKS

11. CROSSWALK MARKINGS SHALL BE WHITE.

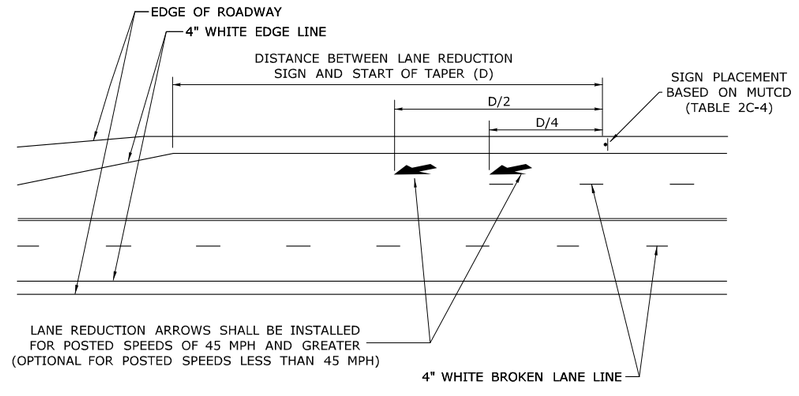
(12) AT LOCATIONS WHERE THE CROSSWALK IS SKEWED, BARS TO BE PARALLEL TO ℄ AND ENDS OF BARS TO BE PARALLEL. THE LENGTH OF THE BARS WILL VARY DEPENDING ON THE ANGLE OF SKEW.

13. BARS SHOULD BE NO CLOSER THAN 1' FROM EDGE OF ROAD.
14. ONLY FULL LENGTH BARS ARE TO BE INSTALLED.
15. DECORATIVE CROSSWALKS SHALL BE BANDED FROM CURB TO CURB WITH A MINIMUM 12" WIDE WHITE TRANSVERSE LINE ALONG EACH EDGE.

(16) 24" WIDE SPACE TO BE CENTERED ON YELLOW CENTERLINE.

PAVEMENT MARKINGS FOR TURNING LANES

(17) INSTALL AT LEAST TWO ARROWS PER LANE WHERE STORAGE LENGTH IS GREATER THAN 150 FEET.



LANE REDUCTION TRANSITIONS

REV.	DATE	REVISION DESCRIPTION
1	8-2018	REVISED YIELD LINE SIGNAGE AND NOTES.

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Plotted Date: 8/10/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR-1210_08.DGN Model: TR-1210_05

SUBMITTED BY: NAME/DATE/TIME:
Mark F. Makuch, P.E.
2018.08.17 09:10:18-04'00'

APPROVED BY: NAME/DATE/TIME:
Mark F. Carlino, P.E.
2018.08.21 07:49:18-04'00'

CTDOT STANDARD SHEET

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

PAVEMENT MARKINGS FOR NON FREEWAYS

STANDARD SHEET NO.:

TR-1210_08

E5 - SERIES

E5-1

EXIT

COPY & BORDER - WHITE
BACKGROUND - GREEN

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	16.0	48	51-6147	2

16 - SERIES

CONSTRUCTION AHEAD
ROAD USE RESTRICTED
STATE LIABILITY LIMITED
GENERAL STATUTES SEC 13a-115, 13a-145
COMMISSIONER OF TRANSPORTATION

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
16-M	5.0	30X24	80-1613	1
16-H	17.5	60X42	80-1608	2
16-E	35.0	84X60	80-1605	2

CONSTRUCTION AHEAD
SIDEWALK USE RESTRICTED
STATE LIABILITY LIMITED
GENERAL STATUTES SEC 13a-115, 13a-145
COMMISSIONER OF TRANSPORTATION

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
16-S	10.0	48X30	80-1619	2

G20 - SERIES

G20-2a

END
ROAD WORK

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	8.0	48X24	80-9612	2

ROAD WORK
NEXT 0 MILE(S)
BE PREPARED
TO STOP

VARIABLE MILEAGE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	90.0	120X108	80-9728	

WORK AREA
BE PREPARED
TO STOP

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9711	1
	16.0	48	80-9712	2

NEXT 0 MILES

VARIABLE MILEAGE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	7.0	72X14	80-9720	

BUSINESS ACCESS

VARIABLE ARROW
COPY & BORDER - WHITE
BACKGROUND - BLUE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	50-5934	2

M4 - SERIES

M4-8

DETOUR

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	2.0	24X12	80-9707	1

M4-8a

END
DETOUR

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	3.0	24X18	80-9708	1

M4-10

(R) DETOUR
(L) DETOUR

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	6.0	48X18	80-9701R	2
	6.0	48X18	80-9702L	2

DETOUR

VARIABLE ARROW

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	5.0	30X24	80-9710	1

M4-9b

DETOUR

VARIABLE ARROW

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	5.0	30X24	80-9703	1

M4-9b

DETOUR

VARIABLE ARROW

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	6.25	30X30	80-9706	1

R4 - SERIES

R4-7

COPY & BORDER - BLACK
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	5.0	24X30	31-1526	1

R4-9

STAY IN LANE

COPY & BORDER - BLACK
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	5.0	24X30	31-1517	1
	12.0	36X48	31-1518	1
	20.0	48X60	31-1519	2

R1 - SERIES

R1-1

STOP

COPY & BORDER - WHITE
BACKGROUND - RED

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	5.19	30	31-0552	1
	13.30	48	31-0557	2

R1-2

YIELD

COPY & BORDER - RED
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	3.90	36	31-0523	1
	10.83	60	31-0528	2

R9 & R11 - SERIES

R9-9

SIDEWALK CLOSED

COPY & BORDER - BLACK
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	3.75	30X18	80-9076	1

R11-3a

ROAD CLOSED
00 MILES AHEAD
LOCAL TRAFFIC ONLY

VARIABLE MILEAGE
COPY & BORDER - BLACK
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	12.5	60X30	80-9077	2

R9-11

SIDEWALK CLOSED AHEAD
CROSS HERE

VARIABLE ARROW
COPY & BORDER - BLACK
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	3.0	24X18	80-9074	1

R11-3b

BRIDGE CLOSED
00 MILES AHEAD
LOCAL TRAFFIC ONLY

VARIABLE MILEAGE
COPY & BORDER - BLACK
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	12.5	60X30	80-9078	2

R9-11a

SIDEWALK CLOSED
CROSS HERE

VARIABLE ARROW
COPY & BORDER - BLACK
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	2.0	24X12	80-9075	1

R11-3b

ROAD CLOSED TO THRU TRAFFIC

COPY & BORDER - BLACK
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	12.5	60X30	80-9081	2

R11-2

ROAD CLOSED

COPY & BORDER - BLACK
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	10.0	48X30	80-9080	2

ROAD WORK AHEAD
FINES DOUBLED

COPY & BORDER - BLACK
BACKGROUND - WHITE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	14.0	48X42	31-1906	2
	22.5	60X54	31-1907	2

W1 - SERIES

W1-4

(L) (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9432L	1
	9.0	36	80-9431R	1
	16.0	48	80-9452L	2
	16.0	48	80-9451R	2

W1-6

(L or R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	8.0	48X24	80-9424	2
	12.5	60X30	80-9423	2

W1-8

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	3.0	18X24	80-9401	1
	5.0	24X30	80-9403	1
	7.5	30X36	80-9404	1

BOTH LANES SHIFT LEFT AHEAD (L) | BOTH LANES SHIFT RIGHT AHEAD (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	16.0	48	80-9433L	2
	16.0	48	80-9435R	2

AHEAD (L) | AHEAD (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	25.0	60	80-9483L	2
	25.0	60	80-9485R	2

BOTH LANES SHIFT LEFT (L) | BOTH LANES SHIFT RIGHT (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	16.0	48	80-9434L	2
	16.0	48	80-9436R	2

AHEAD (L) | AHEAD (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	25.0	60	80-9443L	2
	25.0	60	80-9445R	2

W1-4b

(L) (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	25.0	60	80-9444L	2
	25.0	60	80-9446R	2

W1-4c

(L) (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	25.0	60	80-9484L	2
	25.0	60	80-9486R	2

W3 - SERIES

W3-1

OCTAGON - RED W/ WHITE BORDER
ARROW & BORDER - BLACK
BACKGROUND - FLUORESCENT ORANGE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9050	1
	16.0	48	80-9051	2

W3-2

TRIANGLE - RED W/ WHITE BORDER
ARROW & BORDER - BLACK
BACKGROUND - FLUORESCENT ORANGE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9054	1
	16.0	48	80-9055	2

W3-3

TOP CIRCLE - RED
MIDDLE CIRCLE - YELLOW
BOTTOM CIRCLE - GREEN
COPY & BORDER - BLACK
BACKGROUND - FLUORESCENT ORANGE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9052	1
	16.0	48	80-9053	2

W4-W6 - SERIES

W4-2

(L) (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	16.0	48	80-9918L	2
	16.0	48	80-9917R	2

W6-3

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	16.0	48	80-9945	2

W8-W9 - SERIES

W8-1

BUMP

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9901	1
	16.0	48	80-9902	2

BUMP AHEAD

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9801	1
	16.0	48	80-9802	2

W9-2

LANE ENDS MERGE LEFT (L) | LANE ENDS MERGE RIGHT (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	16.0	48	80-9910L	2
	16.0	48	80-9911R	2

W13 - SERIES

W13-1

00 M.P.H.

SUBPLATE
VARIABLE SPEED

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	4.0	24	80-9569	1
	6.25	30	80-9567	1

REDUCE SPEED TO 00 MPH

VARIABLE SPEED

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9506	1
	16.0	48	80-9508	2

W3-5

SPEED LIMIT 00

VARIABLE SPEED

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9520	1
	16.0	48	80-9521	2

W16 - SERIES

W16-15P

NEW

COPY & BORDER - BLACK
BACKGROUND - ORANGE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	2.0	24X12	80-9049	

W20 - SERIES

W20-1

ROAD WORK AHEAD

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	6.25	30	80-9602	1
	9.0	36	80-9603	1
	16.0	48	80-9604	2

ROAD WORK 0000 FT

VARIABLE DISTANCE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9614	1
	16.0	48	80-9615	2

W20-2

DETOUR 1000 FT

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9805	1
	16.0	48	80-9806	2

ONE LANE ROAD AHEAD

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9834	1
	16.0	48	80-9835	2

LEFT LANES CLOSED (L) | RIGHT LANES CLOSED (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
(L)	16.0	48	80-9836	2
(R)	16.0	48	80-9839	2

LEFT TWO LANES CLOSED AHEAD (L) | RIGHT TWO LANES CLOSED AHEAD (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
(L)	16.0	48	80-9837	2
(R)	16.0	48	80-9838	2

LEFT LANE CLOSED AHEAD (L) | RIGHT LANE CLOSED AHEAD (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
(L)	16.0	48	80-9847	2
(R)	16.0	48	80-9848	2

LEFT LANE CLOSED (L) | RIGHT LANE CLOSED (R)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
(L)	16.0	48	80-9846	2
(R)	16.0	48	80-9849	2

W20-7a

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9803	1
	16.0	48	80-9804	2

SLOW MOVING TRUCKS AHEAD

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	32.0	96X48	80-9815	2

W16-9P

AHEAD

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	2.0	24X12	80-9870	
	3.75	30X18	80-9871	

W16-3aP

1 MILE

VARIABLE MILEAGE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	2.5	30X12	80-9872	
	4.5	36X18	80-9873	

W21 - SERIES

W21-6

SURVEY CREW

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9607	1

W22 - SERIES

W22-1

BLASTING ZONE 1000 FT

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9620	1
	16.0	48	80-9625	2

W22-2

TURN OFF 2-WAY RADIO AND CELL PHONE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	10.5	42X36	80-9623	2

W22-3

END BLASTING ZONE

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	10.5	42X36	80-9621	2

(VARIABLE LEGEND)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	4.17	60X10	80-9913	2
	12.0	96X18	80-9914	2
	3.33	48X10	80-9916	2

BLANK OR VARIABLE LEGEND

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	9.0	36	80-9933	1
	16.0	48	80-9934	2

USE SHOULDER

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	16.0	48	80-9956	2

(VARIABLE LEGEND)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	12.5	60X30	80-9928	2
	24.0	72X48	80-9929	2

SHOULDER CLOSED AHEAD (1) | SHOULDER CLOSED (2)

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
(1)	16.0	48	80-9957	2
(2)	9.0	36	80-9958	1
(2)	16.0	48	80-9959	2

STOP-SLOW PADDLE

SIDE A: STOP | SIDE B: SLOW

SIDE A
BACKGROUND - RED
COPY & BORDER - WHITE
SIDE B
BACKGROUND - ORANGE
COPY & BORDER - BLACK PLAIN

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
	2.25	18	80-9950	PADDLE

NOTES:
1. R1-SERIES SIGN THE LEGEND "O.S.T.A." SHALL APPEAR.
2. POSTS - SEE STANDARD SHEET TR-1208_02 - "METAL SIGN POSTS AND SIGN MOUNTING DETAILS".
3. POSTS SHALL BE 4 LBS./FT.
4. ALL POSTS NOTED ARE FOR LONG TERM INSTALLATION. SEE STANDARD SHEET TR-1208_02.
5. FOR TEMPORARY SUPPORTS SEE STANDARD SHEET TR-1220_02 - "CONSTRUCTION SIGN SUPPORTS AND CHANNELIZING DEVICES".
6. FOR SPECIFIC SIGN DESIGN, CONTACT CONN. D.O.T., DIVISION OF TRAFFIC ENGINEERING. FOR BOLT HOLE PATTERN REFER TO FHWA PUBLICATION "STANDARD HIGHWAY SIGNS". SIGNS OF DIFFERENT DIMENSIONS TO BE ERECTED ON THE SAME POSTS, OR SPAN/MAST ARM MOUNTED, MAY REQUIRE SPECIAL BOLT HOLE PATTERNS.
7. ALL CONSTRUCTION SIGNS TO BE PAID FOR UNDER THE CONSTRUCTION SIGNS ITEM IN THE CONTRACT.
8. MATERIALS & COLORS SHALL CONFORM TO STATE SPECIFICATIONS.

MATERIALS:
SIGNS AND THEIR PORTABLE SUPPORTS SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 2 DEVICES. ALUMINUM THICKNESS FOR POST MOUNTED SIGNS SHALL BE .100" EXCEPT SIGN #s. 80-1605, 80-9914, 80-9815, 80-9728, 80-9519, & 51-6147 (L OR R) WHICH SHALL BE .125", PLYWOOD THICKNESS FOR POST MOUNTED SIGNS SHALL BE 1/2" EXTERIOR GRADE A-C OR BETTER. SIGN BLANKS SHALL HAVE ONE COAT OF PRIMER PAINT PRIOR TO APPLICATION OF RETROREFLECTIVE SHEETING & COPY.

COLORS:
BACKGROUND - FLUORESCENT ORANGE - EXCEPT AS NOTED.
LEGEND - BLACK - EXCEPT AS NOTED.
ALL SIGNS WITH FLUORESCENT ORANGE BACKGROUND TO USE TYPE VIII RETROREFLECTIVE SHEETING.
ALL OTHER SIGNS TO USE TYPE IX RETROREFLECTIVE SHEETING.

REV.	DATE	REVISION DESCRIPTION
6	8-2018	REVISED POST REQUIREMENTS AND SHEETING TYPE.
5	8-2015	UPDATED PER MUTCD AND FORM 816 JAN 2015 REVISION.
4	6-2012	REVISED NOTE #1 TO REFERENCE "O.S.T.A."
3	4-2012	REVISED NEW SIGNAL SIGN(S) TO CONFORM TO 2009 MUTCD.
2	2-2011	MINOR REVISIONS.
1	3-2010	REMOVED OBSOLETE SIGNS (50-5925, 50-5935).

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.

Plotted Date: 8/10/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR-1220_01_1_2018.dgn Model: TR-1220_01

SUBMITTED BY: NAME/DATE/TIME:
Mark F. Makuch, P.E.
2018.08.17 09:11:08-04'00'

APPROVED BY: NAME/DATE/TIME:
Mark F. Carlino, P.E.
2018.08.21 07:49:34-04'00'

CTDOT STANDARD SHEET

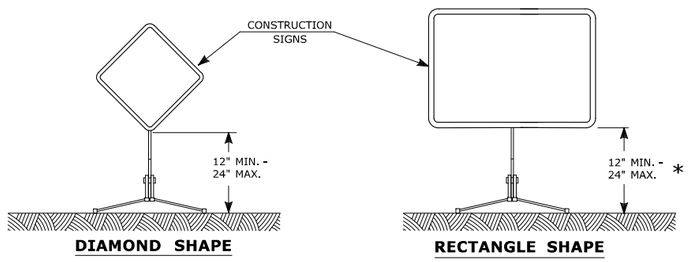
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS

STANDARD SHEET NO.:

TR-1220_01

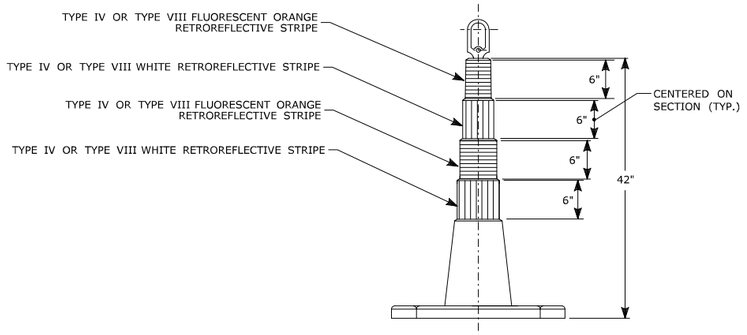


PORTABLE CONSTRUCTION SIGNS

NOTES FOR PORTABLE SIGN SUPPORTS:

1. SIGNS AND THEIR PORTABLE SUPPORTS SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 2 DEVICES AND THE LATEST EDITION OF THE MUTCD.
2. MOUNTING HEIGHT OF SIGNS SHALL BE A MINIMUM OF 12" AND A MAXIMUM OF 24". SIGNS SHALL BE MOUNTED HIGHER AS NEEDED TO MEET FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.
3. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY SUPPORT DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
4. PORTABLE SIGN SUPPORTS SHALL BE STABILIZED IN A MANNER THAT WILL NOT AFFECT THEIR COMPLIANCE WITH NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 2 DEVICES.
5. PORTABLE CONSTRUCTION SIGN SUPPORTS SHOULD NOT BE USED FOR DURATION OF MORE THAN 3 DAYS EXCEPT FOR R9-8 THROUGH R9-11a SERIES, R11 SERIES, W1-6 THROUGH W1-8 SERIES, M4-10, AND E5-1. SEE STANDARD SHEET TR-1220_01 - "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" FOR SIGN DETAILS.

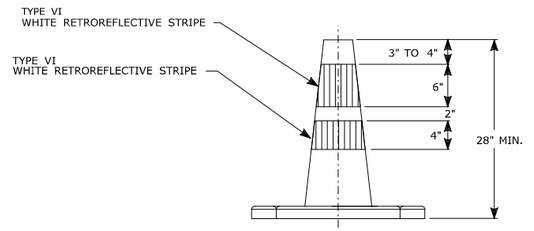
* FOR E5-1 (EXIT SIGNS) USE MIN 48".



42" TRAFFIC CONE

NOTES:

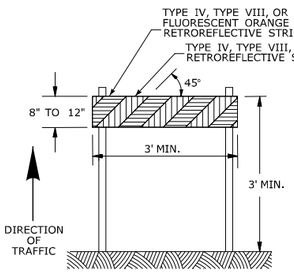
1. TRAFFIC CONES SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 1 DEVICES AND THE LATEST EDITION OF THE MUTCD.
2. IF RUBBER CONES ARE USED, THEY SHALL HAVE INTERIOR RIBS FOR RIGIDITY.
3. IF PLASTIC CONES ARE USED, THEY SHALL BE COLOR IMPREGNATED.
4. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY CONE DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
5. THE ENTIRE AREA OF FLUORESCENT ORANGE AND WHITE STRIPES SHALL BE RETROREFLECTIVE SHEETING AS REQUIRED IN THE SPECIFICATIONS.
6. THE SECTIONS OF CONES NOT COVERED WITH RETROREFLECTIVE STRIPES SHALL BE ORANGE.



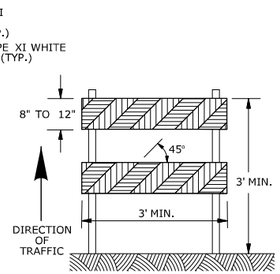
TRAFFIC CONE

NOTES:

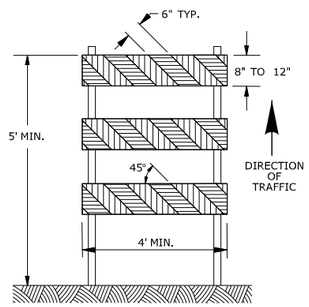
1. TRAFFIC CONES SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 1 DEVICES AND THE LATEST EDITION OF THE MUTCD.
2. IF RUBBER CONES ARE USED, THEY SHALL HAVE INTERIOR RIBS FOR RIGIDITY.
3. IF PLASTIC CONES ARE USED, THEY SHALL BE COLOR IMPREGNATED.
4. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY CONE DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
5. THE ENTIRE AREA OF WHITE STRIPES SHALL BE RETROREFLECTIVE SHEETING AS REQUIRED IN THE SPECIFICATIONS.
6. TRAFFIC CONES NOT USED AT NIGHT MAY UTILIZE TYPE III SHEETING.
7. THE SECTIONS OF CONES NOT COVERED WITH RETROREFLECTIVE STRIPES SHALL BE ORANGE.



TYPE I BARRICADE



TYPE II BARRICADE

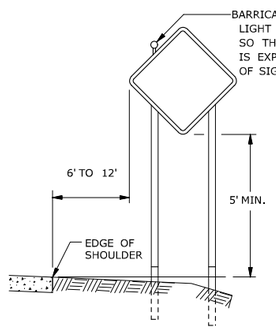


TYPE III BARRICADE

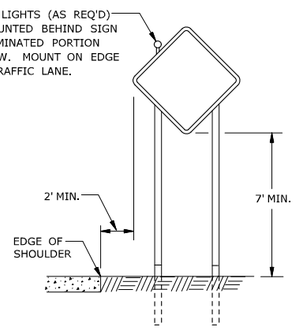
CONSTRUCTION BARRICADES

NOTES:

1. CONSTRUCTION BARRICADES SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH AND THE LATEST EDITION OF THE MUTCD.
2. MARKINGS FOR BARRICADE RAILS SHALL BE ALTERNATE FLUORESCENT ORANGE AND WHITE STRIPES SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS. 6" WIDE STRIPES SHALL BE USED.
3. THE ENTIRE AREA OF FLUORESCENT ORANGE AND WHITE STRIPES SHALL BE RETROREFLECTIVE SHEETING AS REQUIRED IN THE SPECIFICATIONS. THE SIDES OF BARRICADES FACING TRAFFIC SHALL HAVE RETROREFLECTIVE RAIL FACES.
4. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY BARRICADE DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
5. CORNERS OF BARRICADE RAILS SHALL BE ROUNDED.
6. SIGNS MAY ONLY BE INSTALLED ON TYPE III BARRICADES AND SHALL BE PLACED SO AS TO COVER NO MORE THAN ONE BARRICADE RAIL.



RURAL AREA



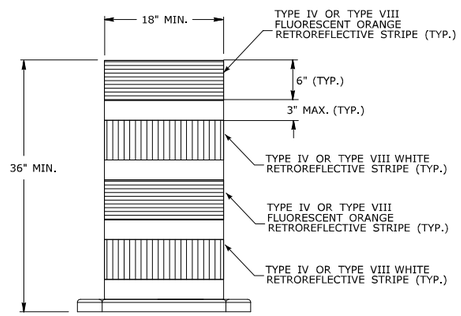
URBAN AREA

PLACEMENT OF CONSTRUCTION SIGNS TYPICAL LONG TERM INSTALLATION

NOTES:

SUPPORTS SHALL BE METAL SIGN POSTS AND HAVE BREAK-AWAY FEATURES.

REFER TO STANDARD SHEETS:
TR-1208_01 - "SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS."
TR-1208_02 - "METAL SIGN POSTS AND SIGN MOUNTING DETAILS."



TRAFFIC DRUM FRONT VIEW

NOTES:

1. TRAFFIC DRUM SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 1 DEVICES AND THE LATEST EDITION OF THE MUTCD.
2. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY DRUM DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
3. THE ENTIRE AREA OF FLUORESCENT ORANGE AND WHITE STRIPES SHALL BE RETROREFLECTIVE SHEETING AS REQUIRED IN THE SPECIFICATIONS.
4. THE SECTIONS OF DRUMS NOT COVERED WITH RETROREFLECTIVE STRIPES SHALL BE ORANGE.

REV.	DATE	REVISION DESCRIPTION
3	8-2018	UPDATED SHEETING TYPE AND COLOR.
2	8-2015	UPDATED PER MUTCD AND FORM 816 JAN 2015 REVISION.
1	2-2011	MINOR REVISIONS.

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.

Plotted Date: 8/10/2018

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: TR-1220_02_3_2018.dgn Model: TR-1220_02

SUBMITTED BY: NAME/DATE/TIME:
Mark F. Makuch, P.E.
2018.08.17 09:12:43-04'00'

APPROVED BY: NAME/DATE/TIME:
Mark F. Carlino, P.E.
2018.08.21 07:49:51-04'00'

CTDOT STANDARD SHEET

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
CONSTRUCTION SIGN SUPPORTS AND CHANNELIZING DEVICES

STANDARD SHEET NO.:
TR-1220_02

FREEMAN COMPANIES

LAND DEVELOPMENT | ENGINEERING DESIGN | CONSTRUCTION SERVICES

DRAFT Geotechnical Engineering Report
Replacement of Bridge No. 04695
Old Colchester Road over Raymond Brook
State Project No. 0066-0110
Hebron, Connecticut

August 14, 2025

Freeman Project No.: 2024-0607

Prepared for:

McFarland-Johnson, Inc.
49 Court Street, Suite 240
Binghamton, New York 13901

Prepared by:

Freeman Companies, LLC
36 John Street
Hartford, CT 06106

Christopher J. Tonzi, P.E.
Geotechnical Department Manager

FREEMAN COMPANIES

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2. Subsurface Exploration Location Plan
3. Subsurface Profile
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A. Test Boring Logs By Others
B. Results of Laboratory Testing
C. LPile Analysis Output
D. Sample Special Provision for Monitoring

1.0 INTRODUCTION

1.1 Summary

Bridge 04695 carries Old Colchester Road over Raymond Brook in Hebron, Connecticut. The existing bridge will be replaced with a new prestressed concrete beam bridge with integral abutments.

Subsurface conditions consist of Miscellaneous Fill, Silty Sand, and Glacial Till overlying Bedrock. We recommend that the proposed bridge abutments and wingwalls be founded on micropiles socketed into bedrock. Retaining walls, to be located behind the wingwalls can be founded on shallow spread footings. Our detailed recommendations are below.

1.2 Scope of Work

Freeman Companies, LLC performed the following tasks:

- Reviewed test boring logs of exploration performed and logged by others;
- Retrieved stored soil and bedrock samples for observation and analyses;
- Arranged for a testing laboratory to conduct laboratory soil and bedrock tests;
- Evaluated subsurface conditions;
- Prepared this report containing geotechnical design recommendations and construction considerations.

1.3 Authorization

The work was completed in accordance with our agreement dated May 14, 2024.

1.4 Project Vertical Datum

Elevations in this report were taken from the topographic plan provided to Freeman Cos. and are referenced to NAVD-88.

2.0 SITE AND PROJECT DESCRIPTION

2.1 Site Description

Bridge 04695, constructed in 1956, carries Old Colchester Road over Raymond Brook as shown on Figure 1 Site Location Map. The existing bridge consists of twin metal plate pipe arches 11’ 7” (span) x 7’ 5” (rise) with concrete headwalls and endwalls. The pipes are overlain with about 2 feet of ballast. Old Colchester Road is a two-lane road carrying one lane of traffic in each direction at the bridge.

According to the Surficial Materials Map of Connecticut (1992 by Janet Stone et al) the site is mapped on a geologic boundary. As such, subsurface materials were expected to be either Sand, Glacial Till, or Swamp Deposits. The soils encountered were consistent with Silty Sand over Glacial Till.

According to the Bedrock Geological Map of Connecticut (1985 by John Rodgers) the site is mapped as Hebron Gneiss interlayered with Schist (S_{oh}). The bedrock encountered in the explorations is consistent with the mapping.

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2.2 Project Description

The existing bridge will be completely replaced with a new single 42-foot clear span bridge with a superstructure consisting of precast concrete beams and integral abutments founded on micropiles socketed into bedrock. We understand that the new bridge will be constructed within the same general area as the existing bridge as shown on Figure 2, the Subsurface Exploration Location Plan.

3.0 EXPLORATIONS

3.1 Subsurface Explorations

Close, Jensen and Miller (CJM) managed and logged the subsurface exploration program in May, 2022.

New England Boring Contractors, Inc., drilled four test borings (B-1 through B-4) between April 29 and May 12, 2022 near the existing bridge using a truck-mounted rig. Borings were drilled using casing. Split-spoon samples were obtained by Standard Penetration Tests (SPTs) taken continuously through the fill and at approximate 5-foot intervals thereafter.

Explorations were terminated following completion of a 5- to 10-foot-long bedrock core. A representative from CJM observed and logged the test borings, described the soil samples and prepared test boring logs. Boring Locations are shown on Figure 2 and the logs and Rock Core Data Sheets are presented in Appendix A. Note that Freeman added the State Project Number and inferred surface elevations on each log in blue text. Otherwise, the boring logs are presented unedited. We interpreted the RQD values for bedrock cores differently than CJM did (as presented in the picture of the top of the core boxes). Our interpreted RQDs are presented in the rock log spreadsheets at the end of Appendix B.

3.2 Laboratory Testing

Eight grain size distribution analyses (ASTM D6913) were performed on representative soil samples to confirm visual classification and to aid in determining engineering properties. Two Compressive Strength of Rock tests were completed on bedrock core samples to determine the strength of bedrock. Tests were conducted by Geotesting Express, Inc., of Acton, Massachusetts. Results of laboratory testing are presented in Appendix B.

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4.0 SUBSURFACE CONDITIONS

Subsurface conditions encountered in the explorations consist of Miscellaneous Fill, Silty Sand, and Glacial Till overlying Bedrock. A subsurface profile of the bridge is provided in Figure 3. Subsurface data from the test borings are summarized in Table 1 at the end of the report text.

Table 2
Subsurface Materials

THICKNESS (FT)	GENERALIZED DESCRIPTION
0.5	PAVEMENT STRUCTURE – Asphalt
9.5	MISCELLANEOUS FILL – Loose to very dense, brown, coarse to fine SAND, and to little coarse to fine GRAVEL, little to trace silt, trace deleterious materials
20 to 25	SILTY SAND – Medium dense to very dense, brown and gray, coarse to fine SAND, some to little silt, trace fine gravel. Boulders were noted at the bottom of this stratum in B-4.
25 to 30	GLACIAL TILL – Gray brown, very dense, coarse to fine SAND and to some SILT, trace coarse to fine gravel. Trace clay lenses noted only in B-1. Frequent refusals of the SPT indicating the likely presence of cobbles and boulders.
--	BEDROCK – GNEISS interlayered with SCHIST, gray, fine grained, medium bedded, moderately to slightly fractured, moderately weathered, strong. Rock Quality Designation 0 to 70 percent (very poor to fair). *Note that the RQDs determined by Freeman based on a review of the rock core samples provided did not match the RQDs recorded by CJM.*

Groundwater

Groundwater was encountered approximately 9.0 feet below ground surface at the time of drilling, which was about equal to the level of water in the brook. Water levels noted in the borings were collected at the time of drilling and may not be indicative of stabilized levels. Water levels are expected to fluctuate in response to water level variations in Raymond Brook, season, temperature, weather conditions, construction activity in the area and other factors.

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5.0 GEOTECHNICAL ENGINEERING RECOMMENDATIONS

We recommend that the bridge abutments and wingwalls be supported on micropiles socketed into bedrock. We believe that the presence of cobbles and boulders coupled with the very dense nature of the (30-foot-thick) Glacial Till stratum will make a driven deep foundation type difficult and costly to construct. We recommend that the Retaining Walls be founded on shallow spread footings bearing on the naturally-deposited Silty Sand stratum. Recommendations for design follow.

The proposed bottom of pile cap elevation is planned to be at Elevation 361.0 feet. Design scour depth was calculated by others to be Elevation 358.9 feet.

5.1 General

- Seismic Design: Soils are not susceptible to liquefaction. Soil conditions at the site meet the definition of AASHTO Site Class C.
- Backfill Material: Place Pervious Structure Backfill (CTDOT Form 819 M.02.05) behind the abutments, abutment wingwalls and retaining walls above a line defined by a 1V:1.5H slope extending up from the heel of the footing to grade.
- Weep Holes: 4-inch-dia. weep holes at max 10 foot spacing, installed according to CTDOT specifications.
- Lateral Earth Pressures: Refer to Figure 4 At-Rest Lateral Earth Pressures for abutments, wingwalls and retaining walls.

5.2 Micropile Design

- Micropile Design: Design micropiles as Type A with the following elements:
  - Assume a pinned connection between the micropiles and the pile cap.
  - Minimum cap embedment should be determined by the Structural Engineer. We recommend a minimum 12-inch embedment.
  - 9.625-inch O.D., 0.472-inch thick wall permanent steel (80 ksi) casing that extends to the top of bedrock and is seated into the bedrock a minimum of 12 inches. Casing should not be relied upon for uplift resistance.
  - A minimum 8.5-inch diameter bonded zone socketed into bedrock. The minimum seating for the casing is 12 inches into bedrock. The required length of the bedrock socket should be designed by the Contractor per CTDOT Form 819 Section 7.06.
  - One No. 18 central steel rebar (75 ksi) core that extends the full length of the micropile from the pile head to the bottom of the rock socket.
  - A grout strength of 5,000 pounds per square inch (psi).
- Factored Axial Micropile Resistance:
  - Service Limit State: Nominal Bearing Resistance = 100 kips; apply Resistance Factor of 1.0 (AASHTO 10.5.5.1); Factored Bearing Resistance = 100 kips
  - Strength Limit State: Nominal Bearing Resistance = 200 kips; apply Resistance Factor of 0.7; Factored Bearing Resistance = 140 kips (AASHTO Table 10.5.5.2.5-1) on an ultimate capacity of 200 kips.
- Spacing: Minimum 30 inches or 3 times the pile diameter, whichever is greater (AASHTO 10.9.1.2)
- Settlement: Maximum total settlement of micropiles is estimated at less than ½ inch. This settlement will occur as loads are applied.
- Scour Condition: According to a scour analysis by others and provided to Freeman, we understand that a total scour down to El. 358.9 feet was calculated for a 200-year storm.

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- Load Tests: We recommend that load tests include a minimum of one verification test on a sacrificial pile to the ultimate capacity. Proof tests should be performed on one pile per substructure or five percent of the production piles, whichever is greater (AASHTO 10.9.3.5.4). Load tests should be in accordance with Form 819 section 7.06.
- Lateral Resistance: A lateral loading analysis has been completed using the program L-Pile, version 2019.11.04. For our L-Pile analysis, we assumed a maximum scour depth to El. 358.9 feet, an integral abutment, a Service Limit State maximum lateral load of 14 kips and a design Rotation of 0.00272 radians. For the fully scoured condition and micropiles constructed with the minimum engineering properties recommended above, the lateral deflection is estimated at less than 0.2-inch. A copy of the program output is presented in Appendix C.
- Drilling: Use casing while drilling, and anticipate difficult drilling conditions including cobbles, boulders, weathered rock, and bedrock. Anticipate that specialized drilling equipment may be necessary to enable the permanent casing to be installed to the required depth into bedrock.
- Material Properties: Table 3, below, presents the recommended engineering properties for the subsurface materials.

5.3 Shallow Spread Footing Foundation Design for Retaining Walls

- Bearing Surface: Structures should bear on Granular Fill placed above the naturally-deposited Silty Sand stratum.
- Service Limit Bearing: Nominal bearing resistance is 5,000 pounds per square foot (psf). Resistance factor equals 1.0. Factored Bearing Resistance is 5,000 psf
- Strength Limit Bearing: Nominal Bearing Resistance 12,500 psf; apply a Resistance Factor equal to 0.55 (AASHTO Table 11.5.7-1). Factored Bearing Resistance of 6,900 psf.
- Settlement at Recommended Bearing Pressure: Estimated total settlement less than
- 0.75-inch; differential less than 0.4-inch.

Material Properties: Table 3 below presents geotechnical engineering design parameters for the materials encountered:

Table 3
Material Properties

Soil Type	Density (pcf)	Phi (Degrees)	Cohesion (psf)	Unconfined Compressive Strength (psi)*
Miscellaneous Fill	120	30	0	
Silty Sand	115	32	0	
Glacial Till	135	36	0	
Gneiss Bedrock	174	50	0	8,616 to 14,239 psi

* - Range of Unconfined Compressive Strength of Rock (psi).

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6.0 CONSTRUCTION CONSIDERATIONS

6.1 Pile Cap and Retaining Wall Bearing Surface Preparation

Pile cap and retaining wall subgrades will consist of Silty Sand or Glacial Till. We assume that these soils will be stable. However, if the surfaces become unstable due to the presence of water, Granular Fill (Form 819 M.02.01) may be placed directly over the subgrade. The contractor has the option of substituting Crushed Stone (Form 819 M.01.01 No. 6) over geotextile separation fabric if water is an issue, or Underwater Concrete.

6.2 Cofferdam and Dewatering

We estimate that excavations for pile caps and retaining wall footings will extend below groundwater. Construction should be performed in-the-dry, and cofferdam and dewatering will be required. Steel sheeting may be considered, however dense conditions as well as the presence of possible cobbles and boulders are likely to make installation difficult. Soldier piles and lagging may be feasible, but additional means will likely be necessary to make the system water-tight. A drilled cofferdam system such as tangent or secant piles may be capable of penetrating the dense conditions and could provide a groundwater cutoff. Other means of installing a cofferdam may also be feasible.

Temporary earth retaining systems and cofferdams will likely be coincident for construction. Therefore, a special provision will be required to require that the cofferdam be designed to also include temporary excavation support.

Dewatering from sumps located in the bottom of excavations appears feasible provided that the cofferdam can be made sufficiently water-tight. Surface water should be diverted away from excavations.

6.3 Excavation and Temporary Earth Retention System (TERS)

Conventional excavation equipment appears practical. Excavation geometries should conform to OSHA excavation regulations contained in 29 CFR 1926, latest edition. A temporary earth retention system (TERS) will be required to limit the extent of excavation. Steel sheets may be considered, however dense conditions as well as the presence of possible cobbles and boulders and shallow bedrock may make installation difficult. Soldier piles and lagging with predrilled soldier piles may be feasible; one or more levels of internal bracing may be required. TERS should be designed by a licensed professional engineer in Connecticut and installed in accordance with OSHA regulations.

6.4 Micropile Installation

Micropiles should be drilled with casing and utilize techniques that limit loss of ground. Drilling equipment must be capable of drilling through the overburden, including cobbles and boulders and be capable of penetrating bedrock. Drilling is expected to be difficult and time consuming. Special procedures may be required to enable the casing to penetrate bedrock to the required depth.

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6.5 Preconstruction Survey and Monitoring

Vibrations from pile installation, cofferdam installation and excavation are not expected to affect the structural integrity of nearby structures, however, vibration and noise will likely be noticeable inside nearby buildings. A preconstruction survey of structures within 250 feet should be conducted in advance of construction, and vibration monitoring should be conducted. A post construction survey should also be provided. There appears to be one residential structure within this distance:

1. #330 Old Colchester Rd., Hebron CT

A sample Special Provision for monitoring is presented as Appendix D. That Special Provision provides limits for vibration.

6.6 Reuse of Existing Soils

The existing soils to be excavated will consist primarily of existing Misc. Fill and Silty Sand. These soils are not expected to be suitable for reuse as Pervious Structure Backfill or Granular Fill. Excavated soils may be suitable for reuse as embankment fill. However, the siltier soils may be difficult to properly compact when wet and may need to be dried to achieve compaction. Drying the soils can be difficult and at times impractical, particularly during periods of cold and wet weather.

7.0 FUTURE SERVICES AND LIMITATIONS

We recommend that Freeman Companies be engaged during construction to

- Verify that soil conditions exposed in excavations are in general conformance with design assumptions, and that the geotechnical aspects of construction are consistent with the project specifications.

This report was prepared for the exclusive use of McFarland-Johnson, Inc. and the project design team. The recommendations provided herein are based on the project information provided at the time of this report and may require modification if there are any changes in the nature, design, or location of the project.

The recommendations in this report are based in part on the data obtained from the subsurface explorations. The nature and extent of variations between explorations may not become evident until construction. If variations from the anticipated conditions are encountered, it may be necessary to revise the recommendations in this report.

Our professional services for this project have been performed in accordance with generally accepted engineering practices; no warranty, express or implied, is made.

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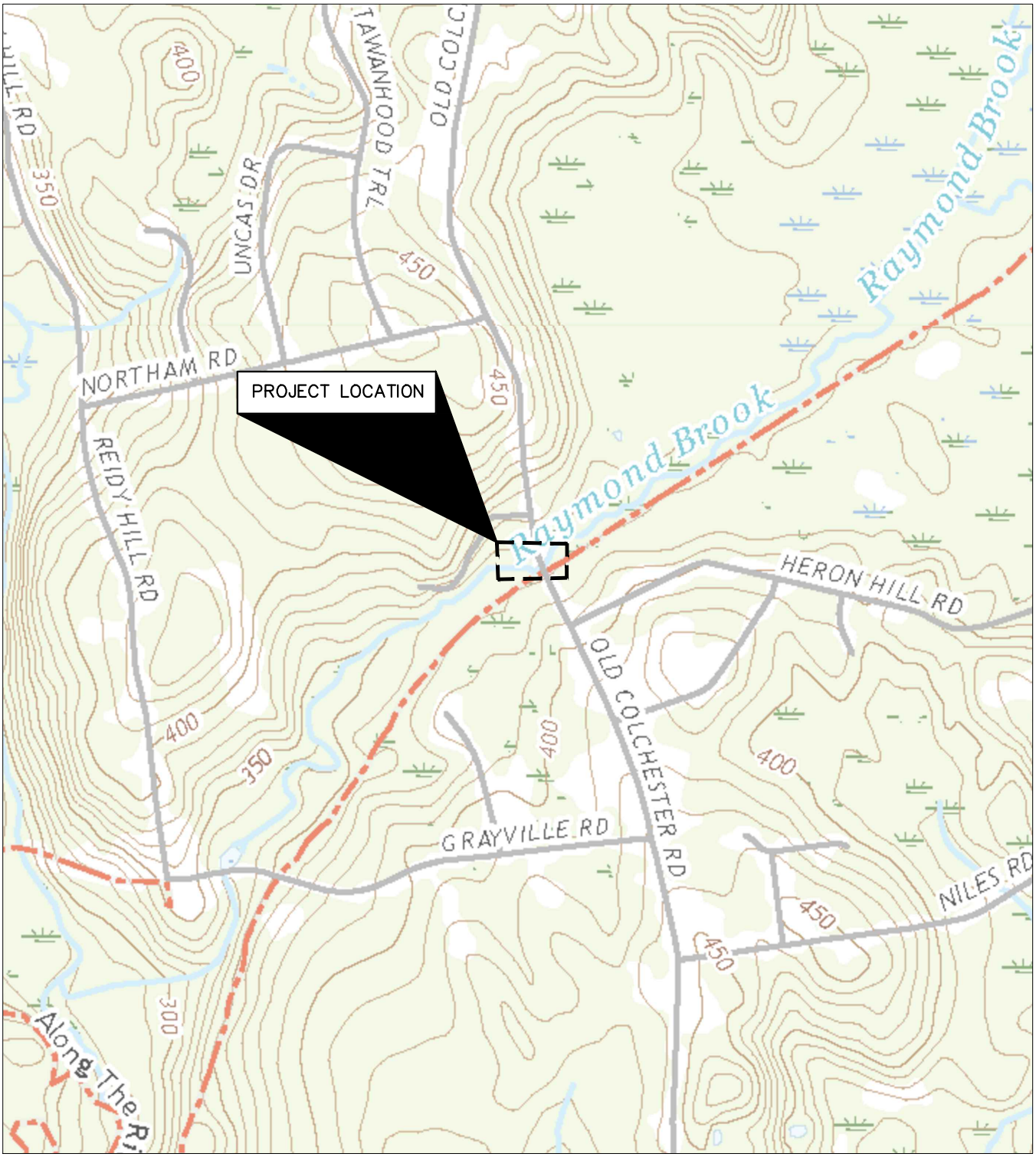
SPN: 0066-0110
Bridge 04695 - Old Colchester Road Over Raymond Brook
Hebron, Connecticut

Table 1
Summary of Subsurface Data

Boring No.	Ground Surface El. [1]	Depth (ft.)	Thickness (ft.)				Groundwater [2]		Top of Bedrock	
			Asphalt	Misc. Fill	Silty Sand	Glacial Till	Depth (ft.)	Elevation	Depth (ft.)	Elevation
B-1	371.5	70	0.5	9.5	25.0	25.0	9.5	362.0	60.0	311.5
B-2	371.5	70	0.5	9.5	20.0	30.0	9.5	362.0	60.0	311.5
B-3/3A	371	70	0.5	9.5	20.0	30.0	9.0	362.0	60.0	311.0
B-4	371	65	0.5	9.5	20.0	30.0	9.0	362.0	60.0	311.0

Notes:
1. Ground surface elevations are approximate and based on available topographic mapping on the site.
2. Groundwater levels were measured during drilling acitivities and may not represent stabilized conditions.

FIGURES



USGS QUADRANGLE MAP
COLUMBIA AND COLCHESTER - CT
DATE 2021

FREEMAN COMPANIES
LAND DEVELOPMENT | ENGINEERING DESIGN | CONSTRUCTION SERVICES
36 JOHN STREET
HARTFORD, CT 06106
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TEL:(860)251-9550
FAX:(860)986-7161
ELEVATE YOUR EXPECTATIONS

SITE LOCATION MAP

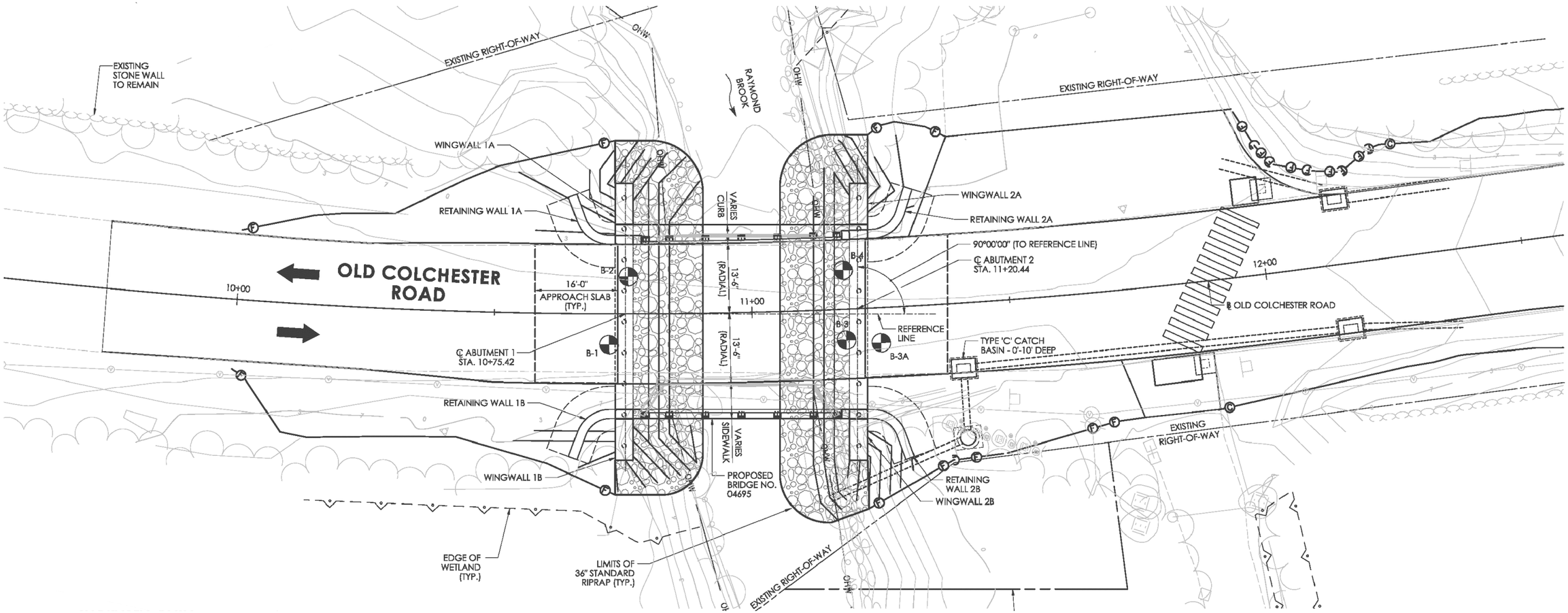
REPLACEMENT OF BRIDGE 04695
OLD COLCHESTER ROAD OVER RAYMOND BROOK
STATE PROJECT No. 0066-0110
HEBRON, CONNECTICUT

DRAFTED:	T.T.
CHECKED:	A.M.
APPROVED:	C.T.
SCALED:	1"=1000'
PROJECT NO.:	2024-0607
DATE:	07/18/24

SHEET NO.

FIGURE 1

Freeman Companies, LLC . R:\2024\2024-0607 - spn 0066-0110 Hebron Br 04695 McF Johnson\DWG\Figure 1 - 2024-0607 - 0066-0110 Hebron Bridge 04695.dwg Jul 17, 2024-10:23am Plotted By: tta



LEGEND:

B-1 TEST BORINGS BY CJM (05/2024)

NOTES:

1. BASE PLAN PROVIDED BY McFARLAND JOHNSON, INC.
2. BORING LOCATIONS WERE DETERMINED BY OTHERS
3. REFER TO THE TEXT AND APPENDICES FOR ADDITIONAL INFORMATION

GRAPHIC SCALE
20 10 0 20
SCALE IN FEET

SUBSURFACE EXPLORATION LOCATION PLAN

REPLACEMENT OF BRIDGE 04695
OLD COLCHESTER ROAD OVER RAYMOND BROOK
STATE PROJECT No. 0066-0110
HEBRON, CONNECTICUT

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LAND DEVELOPMENT | ENGINEERING DESIGN | CONSTRUCTION SERVICES
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No.	Date	Description

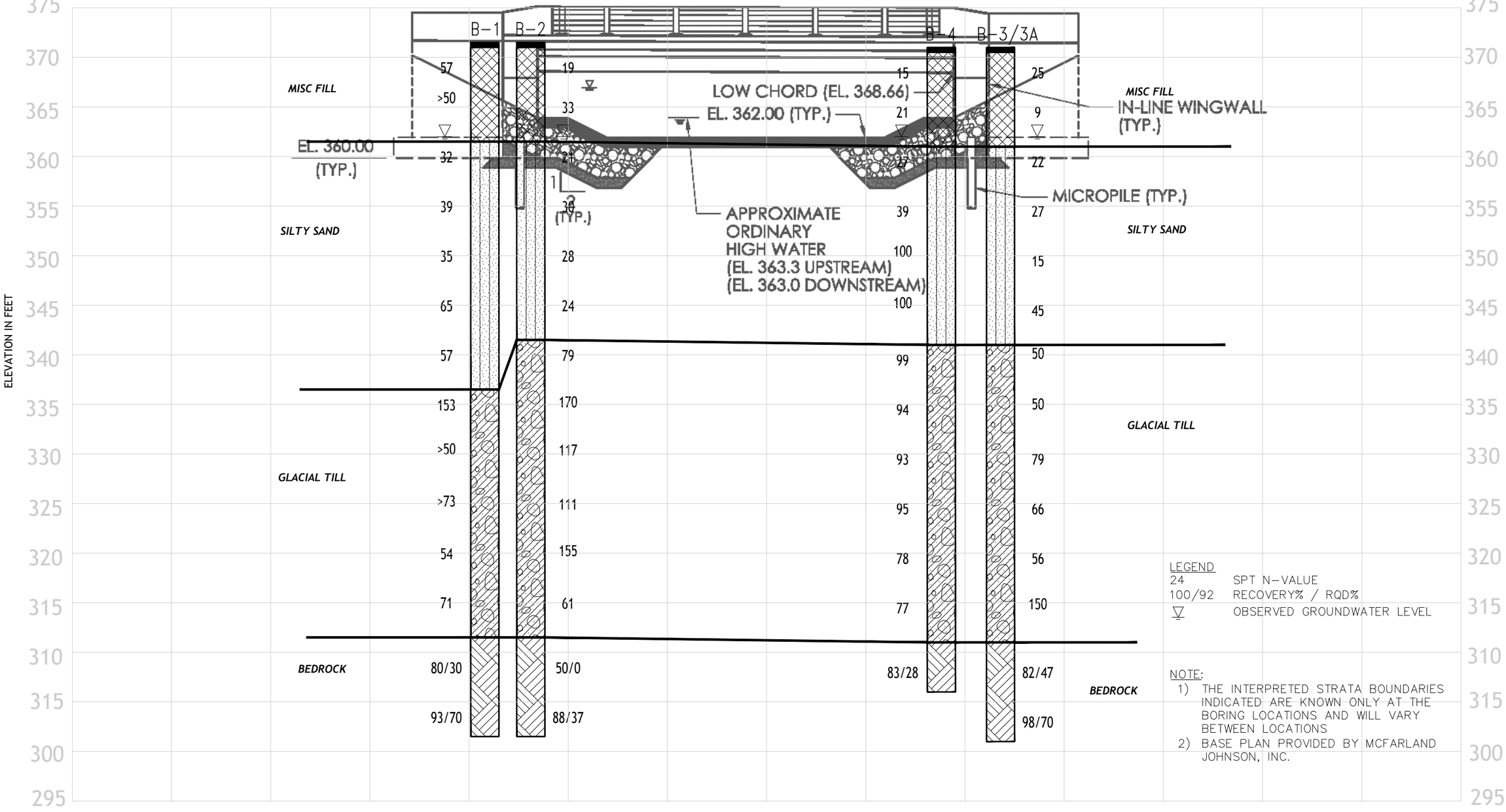
REVISIONS

DRAWN:	T.T.
CHECKED:	A.M.
APPROVED:	C.T.
SCALE:	1"=20'
PROJECT NO.:	2024-0607
DATE:	08/04/2025

SHEET NO.

FIGURE 2

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SUBSURFACE PROFILE

REPLACEMENT OF BRIDGE 04695
OLD COLCHESTER ROAD OVER RAYMOND BROOK
STATE PROJECT No. 0066-0110
HEBRON, CONNECTICUT

FREEMAN COMPANIES
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TOLL FREE:(800)604-5141
FAX:(860)986-7161
ELEVATE YOUR EXPECTATIONS

No.	Date	Description

REVISIONS

DRAWN:	T.T.
CHECKED:	A.M.
APPROVED:	C.T.
SCALE:	1"=10'
PROJECT NO.:	2024-0607
DATE:	08/04/2025

SHEET NO.

FIGURE 3

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APPENDIX A

TEST BORING LOGS BY OTHERS

Driller: Rick Posa	**Connecticut DOT Boring Report**		Hole No.: B-1
Inspector: Robert	Town: Hebron, CT		Stat./Offset:
Engineer:	Project No.: C15271 **SPN 0066-0110**		Northing:
Start Date: 5-9-22	Route No.:		Easting:
Finish Date: 5-11-22	Bridge No.: 4695		Surface Elevation: **371.5**
Project Description: Old Colchester Rd Over Raymon Brook			
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8		Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @9.5			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						ASPHALT		
	S-1	9 38 19 18	24	14			Brown, coarse to fine SAND, some Gravel, trace Brick.	
5	S-2	50/0"	0	0			Bouncing on BOULDER	
10	S-3	13 13 19 13	24	12			Grey / brown, silty, fine to medium SAND, trace Gravel.	
15	S-4	15 22 17 16	24	15			Grey / brown, silty, fine to medium SAND, trace Gravel.	
20	S-5	13 14 21 17	24	10			Brown, silty, fine to medium SAND, little Gravel.	
25	S-6	39 32 33 33	24	16			Brown, silty, fine to medium SAND, little Gravel.	
30	S-7	17 26 31 45	24	10			Brown, coarse to fine SAND, little Silt, trace Gravel.	
35	S-8	49 78 75 74	24	20			Grey, silty, fine SAND, trace Gravel.	
40	S-9	48 50/4"	10	7			Grey / brown, silty, fine SAND, trace Gravel.	
45	S-10	27 23 50/5"	17	12			Grey, fine SAND, some Silt, trace Clay Lenses	
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**		Hole No.: B-1
Inspector: Robert	Town: Hebron, CT		Stat./Offset:
Engineer:	Project No.: C15271 **SPN 0066-0110**		Northing:
Start Date: 5-9-22	Route No.:		Easting:
Finish Date: 5-11-22	Bridge No.: 4695		Surface Elevation: **371.5**
Project Description: Old Colchester Rd Over Raymon Brook			
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8		Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @9.5			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
50	S-11	15 26 28 34	24	12			Grey, fine SAND, some Silt, trace Clay Lenses	
55	S-12	28 35 36 50/5"	23	16		Schist & Quartz	Grey, fine SAND, some Silt, trace Clay Lenses	
60	C-1		60	48	54.2		SCHISTS and QUARTZ	
65	C-2		60	56	93		SCHISTS and QUARTZ	
70							END OF BORING 70ft	
75								
80								
85								
90								
95								
100								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES:	Sheet 2 of 2 SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-2
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271 SPN 0066-0110	Northing:
Start Date: 5-4-22	Route No.:	Easting:
Finish Date: 5-9-22	Bridge No.: 4695	Surface Elevation: 371.5
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9.5		

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						ASPHALT		
	S-1	10 9 10 10	24	7			Brown, fine to coarse SAND and GRAVEL, trace Silt.	
5	S-2	13 18 15 14	24	17			Brown, fine to coarse SAND and GRAVEL, trace Silt, trace brick	
10	S-3	27 11 10 9	24	6			Brown, silty, fine SAND, trace Gravel.	
15	S-4	10 13 17 21	24	23			Brown, silty, fine SAND, trace Gravel.	
20	S-5	9 10 18 18	24	12			Brown, silty, fine SAND, trace Gravel.	
25	S-6	8 11 13 22	24	8			Brown, silty, fine SAND, trace Gravel.	
30	S-7	31 34 45 42	24	16			Brown, silty, fine SAND, trace Gravel.	
35	S-8	28 70 100/5"	17	13			Brown, silty, fine SAND, trace Gravel.	
40	S-9	44 67 50/1"	13	11			Grey / orange, silty, fine SAND, trace fine Gravel.	
45	S-10	33 50 61 59	24	18			Grey, silty, fine SAND, trace fine Gravel.	
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**		Hole No.: B-2
Inspector: Robert	Town: Hebron, CT		Stat./Offset:
Engineer:	Project No.: C15271 SPN 0066-0110		Northing:
Start Date: 5-4-22	Route No.:		Easting:
Finish Date: 5-9-22	Bridge No.: 4695		Surface Elevation: 371.5
Project Description: Old Colchester Rd Over Raymon Brook			
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8		Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @9.5			

Depth (ft)	SAMPLES: Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
50	S-11	41 55 100/5"	17	10			Grey, silty, fine SAND, trace fine Gravel.	
55	S-12	27 26 35 38	24	13			Grey, silty, fine SAND, trace fine Gravel.	
60	C-1		60	30	30		Grey MICA SCHISTS	
65	C-2		60	53	63.2		Grey MICA SCHISTS	
70							END OF BORING 70ft	
75								
80								
85								
90								
95								
100								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES:	Sheet 2 of 2 SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-3
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271 **SPN 0066-0110**	Northing:
Start Date: 4-29-22	Route No.:	Easting:
Finish Date: 5-3-22	Bridge No.: 4695	Surface Elevation: **371.0**
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type:
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9		

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						ASPHALT		
	1	11 14 11 18	24	18			Orange / brown, fine to coarse SAND, little Gravel, trace Silt.	
5	2	3 1 8 12	24	12			brown fine to coarse SAND, little Gravel, little Silt, trace wood.	
10	3	13 16 6 11	24	2			broken cobble pieces	
15	4	11 13 14 20	24	13			brown, fine to medium SAND, little Silt, trace Gravel.	
20	5	8 7 8 11	24	12			brown fine SAND, some Silt, trace fine Gravel.	
25	6	15 25 20 36	24	13			Grey / brown, fine SAND, some Silt, little fine to medium Gravel.	
30	7	52 50/1"	7	7			Grey / brown, fine SAND, some Silt, little fine to medium Gravel.	
35	8	50 50/4"	10	7			Grey, silty, fine SAND, trace fine Gravel.	
40	9	33 40 39 45	24	21			grey, silty, fine SAND, trace Gravel.	
45	10	19 35 31 40	24	17			grey, silty, fine SAND, trace Gravel.	
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES: casing broke, could not get barrel down in hole.	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**		Hole No.: B-3
Inspector: Robert	Town: Hebron, CT		Stat./Offset:
Engineer:	Project No.: C15271 **SPN 0066-0110**		Northing:
Start Date: 4-29-22	Route No.:		Easting:
Finish Date: 5-3-22	Bridge No.: 4695		Surface Elevation: **371.0**
Project Description: Old Colchester Rd Over Raymon Brook			
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8		Core Barrel Type:
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @9			

Depth (ft)	SAMPLES: Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	SAMPLES: Pen. (in.)	SAMPLES: Rec. (in.)	SAMPLES: RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
50	11	14 26 30 43	24	13			grey, silty, fine SAND, trace Gravel.	
55	12	30 100 50/1"	13	12			grey, silty, fine SAND, trace Gravel.	
60	13	41 50/1"	7	6			grey, silty, fine SAND, trace Gravel.	
							END OF BORING 60.583ft	
65								
70								
75								
80								
85								
90								
95								
100								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES: casing broke, could not get barrel down in hole.	Sheet 2 of 2 SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-3A
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271 SPN 0066-0110	Northing:
Start Date: 5-12-22	Route No.:	Easting:
Finish Date: 5-12-22	Bridge No.: 4695	Surface Elevation: 371.0
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9		

Depth (ft)	SAMPLES: Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	SAMPLES: Pen. (in.)	SAMPLES: Rec. (in.)	SAMPLES: RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0								
5								
10								
15								
20								
25								
30								
35								
40								
45								
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES: Casing broke on B-3, redrilled to 60.0 and cored Rock 60.0 - 70.0	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-3A
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271 **SPN 0066-0110**	Northing:
Start Date: 5-12-22	Route No.:	Easting:
Finish Date: 5-12-22	Bridge No.: 4695	Surface Elevation: **371.0**
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9		

Depth (ft)	SAMPLES: Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	SAMPLES: Pen. (in.)	SAMPLES: Rec. (in.)	SAMPLES: RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
50								
55								
60	C-1		60	49	89		Grey SCHESTS with QUARTZ	
65								
70	C-2		60	58	94		Grey SCHESTS with QUARTZ	
75							END OF BORING 70ft	
80								
85								
90								
95								
100								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES: Casing broke on B-3, redrilled to 60.0 and cored Rock 60.0 - 70.0	Sheet 2 of 2 SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-4
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271 **SPN 0066-0110**	Northing:
Start Date: 5-3-22	Route No.:	Easting:
Finish Date: 5-4-22	Bridge No.: 4695	Surface Elevation: **371.0**
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9		

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0	S-1	4 7 8 11	24	7		ASPHALT	orange / brown, fine to medium SAND, little Gravel and Silt, trace Brick.	
5	S-2	8 9 12 12	24	7			orange / brown, fine to medium SAND, little Gravel and Silt, trace Brick, broken cobble pieces.	
10	S-3	17 15 12 13	24	12			grey / brown, fine to medium SAND, some Silt and Gravel.	
15	S-4	19 25 14 14	24	12			brown fine to coarse SAND and GRAVEL, little Silt.	
20	S-5	50/0"	0	0		BOULDER	Bouncing on BOULDER	
25	S-6	100/5"	5	0			NO RECOVERY bouncing on Boulder	
30	S-7	26 53 46 41	24	13			Grey, silty, fine SAND, trace fine Gravel.	
35	S-8	28 43 51 54	24	7			Grey, silty, fine SAND, trace fine Gravel.	
40	S-9	19 42 51 55	24	16			Grey, fine, silty SAND, trace fine Gravel.	
45	S-10	57 44 51 56	24	20			Grey, fine SAND, some Silt, trace fine Gravel.	
50								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock: No. of Soil Samples: --- No. of Core Runs: ---	NOTES:	Sheet 1 of 2 SM-001-M REV. 1/02

Driller: Rick Posa	**Connecticut DOT Boring Report**	Hole No.: B-4
Inspector: Robert	Town: Hebron, CT	Stat./Offset:
Engineer:	Project No.: C15271 **SPN 0066-0110**	Northing:
Start Date: 5-3-22	Route No.:	Easting:
Finish Date: 5-4-22	Bridge No.: 4695	Surface Elevation: **371.0**
Project Description: Old Colchester Rd Over Raymon Brook		
Casing Size/Type: FJ 4"	Sampler Type/Size: SS 1 3/8	Core Barrel Type: NQ 1 7/8
Hammer Wt.: 300lb Fall: 30in.	Hammer Wt.: 140lb Fall: 30in.	
Groundwater Observations: @9		

Depth (ft)	SAMPLES: Sample Type/No.	SAMPLES: Blows on Sampler per 6 inches	SAMPLES: Pen. (in.)	SAMPLES: Rec. (in.)	SAMPLES: RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
50	S-11	28 39 39 48	24	21			Grey, fine SAND, some Silt, trace fine Gravel, with lenses of fine Sand.	
55	S-12	29 36 41 49	24	20			Grey, fine SAND, some Silt, trace fine Gravel, with lenses of fine Sand.	
60	C-1		60	50	72		Grey SCHISTS.	
65							END OF BORING 65ft	
70								
75								
80								
85								
90								
95								
100								

Sample Type: S = Split Spoon C = Core UP = Undisturbed Piston V = Vane Shear Test

Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: Rock:	NOTES:	Sheet 2 of 2
No. of Soil Samples: --- No. of Core Runs: ---		SM-001-M REV. 1/02

Rock Core Data Sheet

Project No.		Project Description	Town	Route No.	Bridge No.	Driller	Inspector	Engineer	Start Date	End Date
SPN: 0066-0110	FPN: 2024-0607	Replacement of Bridge 04695 - Old Colchester Road over Raymond brook	Hebron	Old Colchester Road	04695	R. Posa	Robert	CJM	4/29/2022	5/11/2022



Boring No.	Sample No.	Sample Depth (ft.)	Rock Type	Color	Grain Size	Bedding	Fracturing	Weathering	Strength	Drill Rates (min/ft)					Pen. (in)	Rec. (in)	Rec. (%)	RQD (%)
B-1	C-1	60 - 65	Gneiss w/ Schist Layers	Gray	Fine Grained	Medium Bedded	Moderately fractured	Moderately Weathered	Strong	--	--	--	--	--	60	48	80%	30%
B-1	C-2	65 - 70	Gneiss w/ Schist Layers	Gray	Fine Grained	Medium Bedded	Moderately fractured	Moderately Weathered	Strong	--	--	--	--	--	60	56	93%	70%
B-3A	C-1	60 - 65	Gneiss w/ Schist Layers	Gray	Fine Grained	Medium Bedded	Slightly fractured	Moderately Weathered	Strong	--	--	--	--	--	60	49	82%	47%
B-3A	C-2	65 - 70	Gneiss w/ Schist Layers	Gray	Fine Grained	Medium Bedded	Slightly fractured	Moderately Weathered	Strong	--	--	--	--	7	60	58.5	98%	70%

FREEMAN COMPANIES
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NOTES:

Casing Type/Size:	4in Driven Casing
Hammer Weight:	300 lbs
Hammer Fall:	30 in
Core Barrel Type:	NX

Rock Core Data Sheet

Project No.		Project Description	Town	Route No.	Bridge No.	Driller	Inspector	Engineer	Start Date	End Date
SPN: 0066-0110	FPN: 2024-0607	Replacement of Bridge 04695 - Old Colchester Road over Raymond brook	Hebron	Old Colchester Road	04695	R. Posa	Robert	CJM	5/3/2022	5/9/2022



Boring No.	Sample No.	Sample Depth (ft.)	Rock Type	Color	Grain Size	Bedding	Fracturing	Weathering	Strength	Drill Rates (min/ft)					Pen. (in)	Rec. (in)	Rec. (%)	RQD (%)
B-4	C-1	60 - 65	Gneiss with Schist layers	Gray	Fine Grained	Medium Bedded	Moderately fractured	Moderately Weathered	Strong	--	--	--	--	--	60	50	83%	28%
B-2	C-1	65 - 70	Gneiss with Schist layers	Gray	Fine Grained	Medium Bedded	Moderately fractured	Moderately Weathered	Strong	--	--	--	--	--	60	30	50%	0%
B-2	C-2	60 - 65	Gneiss with Schist layers	Gray	Fine Grained	Medium Bedded	Slightly fractured	Moderately Weathered	Strong	--	--	--	--	--	60	53	88%	37%

FREEMAN COMPANIES
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NOTES:

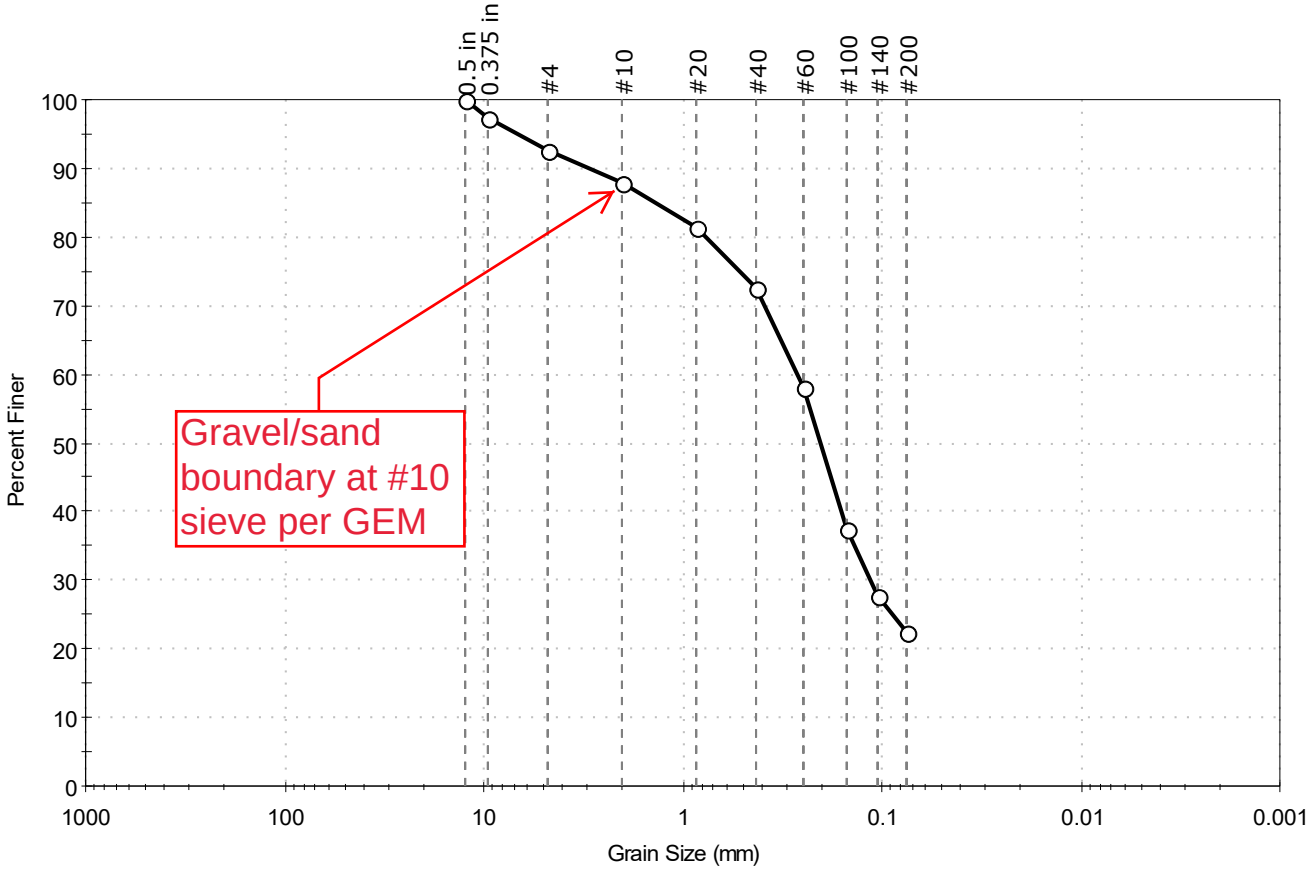
Casing Type/Size:	4in Driven Casing
Hammer Weight:	300 lbs
Hammer Fall:	30 in
Core Barrel Type:	NX

APPENDIX B

RESULTS OF LABORATORY TESTING

Client:	Freeman Companies, LLC				
Project:	Old Colchester Rd Over Raymon Brook				
Location:	---			Project No:	GTX-319465
Boring ID:	B-1	Sample Type:	Bag	Tested By:	ajl
Sample ID:	S-3	Test Date:	07/24/24	Checked By:	ank
Depth :	10-12	Test Id:	778340		
Test Comment:	---				
Visual Description:	moist, yellowish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	7.4 12	70.3 66	22.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	97		
#4	4.75	93		
#10	2.00	88		
#20	0.85	81		
#40	0.42	72		
#60	0.25	58		
#100	0.15	38		
#140	0.11	28		
#200	0.075	22		

Coefficients

D_{85} = 1.3552 mm	D_{30} = 0.1144 mm
D_{60} = 0.2674 mm	D_{15} = N/A
D_{50} = 0.2041 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

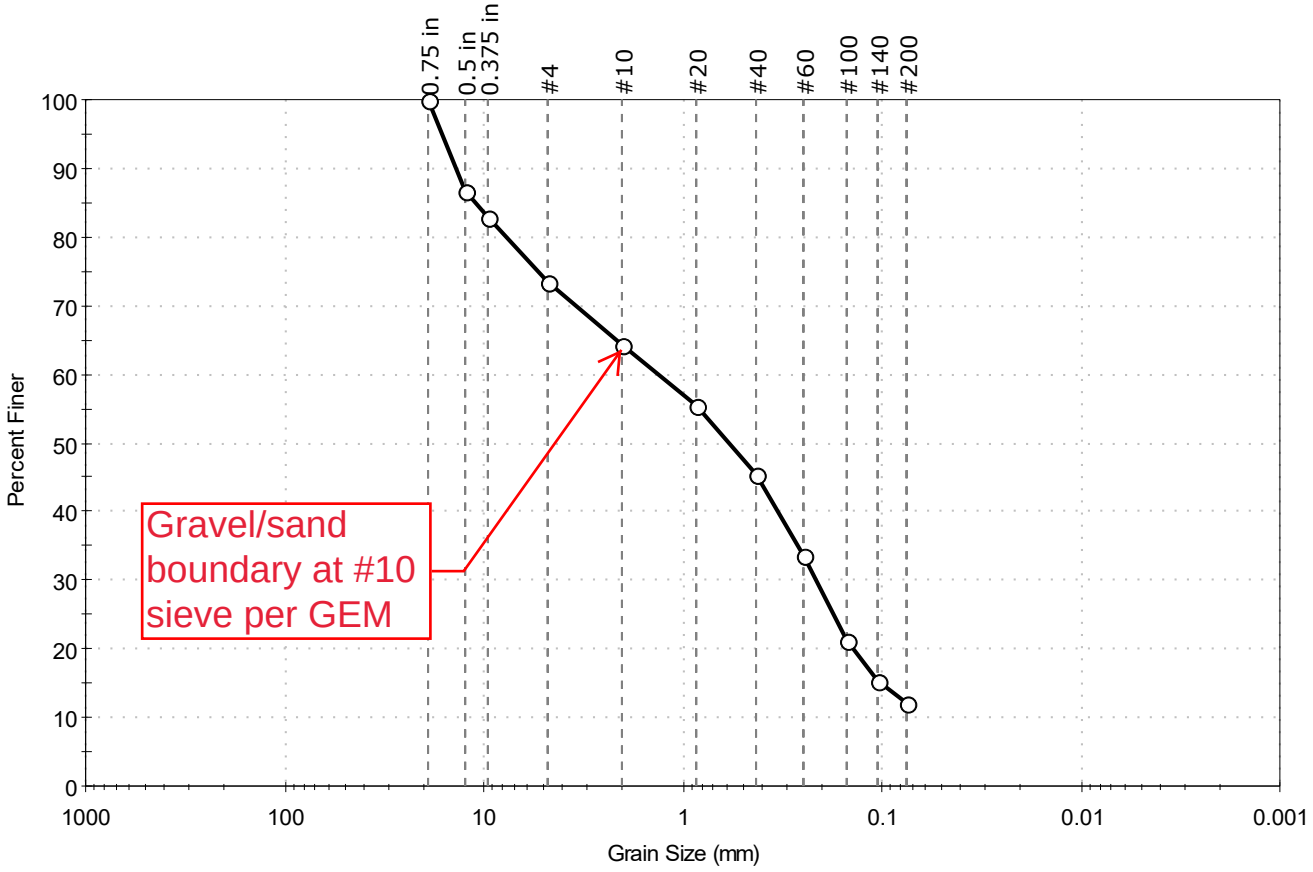
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Freeman Companies, LLC				
Project:	Old Colchester Rd Over Raymon Brook				
Location:	---			Project No:	GTX-319465
Boring ID:	B-1	Sample Type:	Bag	Tested By:	ajl
Sample ID:	S-6	Test Date:	07/24/24	Checked By:	ank
Depth :	25-27	Test Id:	778341		
Test Comment:	---				
Visual Description:	Moist, dark yellowish brown silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel		% Sand		% Silt & Clay Size
–	26.5	36	61.4	52	12.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	87		
0.375 in	9.50	83		
#4	4.75	73		
#10	2.00	64		
#20	0.85	55		
#40	0.42	46		
#60	0.25	34		
#100	0.15	21		
#140	0.11	15		
#200	0.075	12		

Coefficients

D_{85} = 11.0424 mm
D_{30} = 0.2156 mm
D_{60} = 1.3197 mm
D_{15} = 0.1014 mm
D_{50} = 0.5807 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

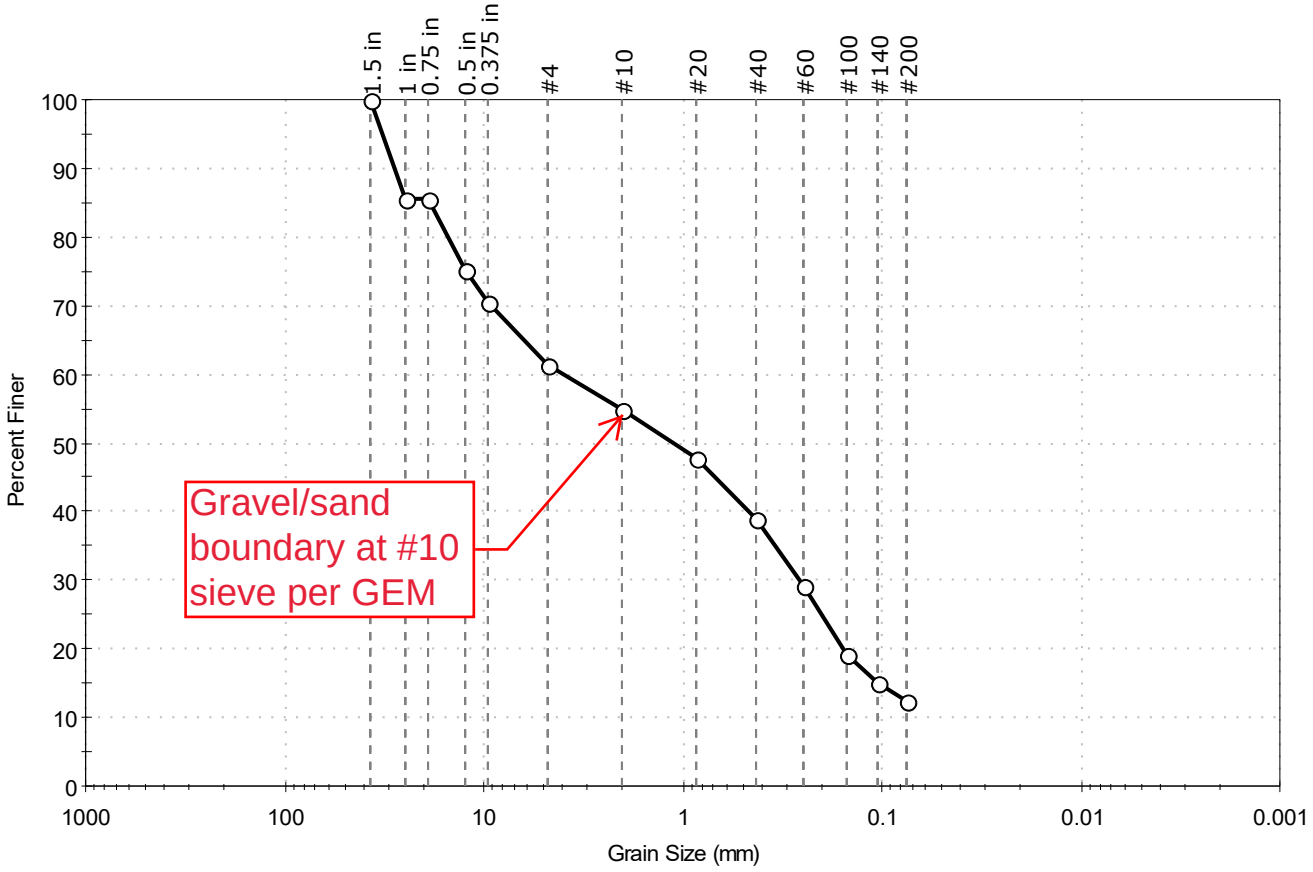
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Freeman Companies, LLC				
Project:	Old Colchester Rd Over Raymon Brook				
Location:	---			Project No:	GTX-319465
Boring ID:	B-2	Sample Type:	Bag	Tested By:	ajl
Sample ID:	S-2	Test Date:	07/25/24	Checked By:	ank
Depth :	5-7	Test Id:	778342		
Test Comment:	---				
Visual Description:	Moist, dark brown silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	38.6 45	49.1 43	12.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	86		
0.75 in	19.00	86		
0.5 in	12.50	75		
0.375 in	9.50	71		
#4	4.75	61		
#10	2.00	55		
#20	0.85	48		
#40	0.42	39		
#60	0.25	29		
#100	0.15	19		
#140	0.11	15		
#200	0.075	12		

Coefficients

D_{85} = 18.4833 mm
D_{30} = 0.2615 mm
D_{60} = 3.9619 mm
D_{15} = 0.1064 mm
D_{50} = 1.1076 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

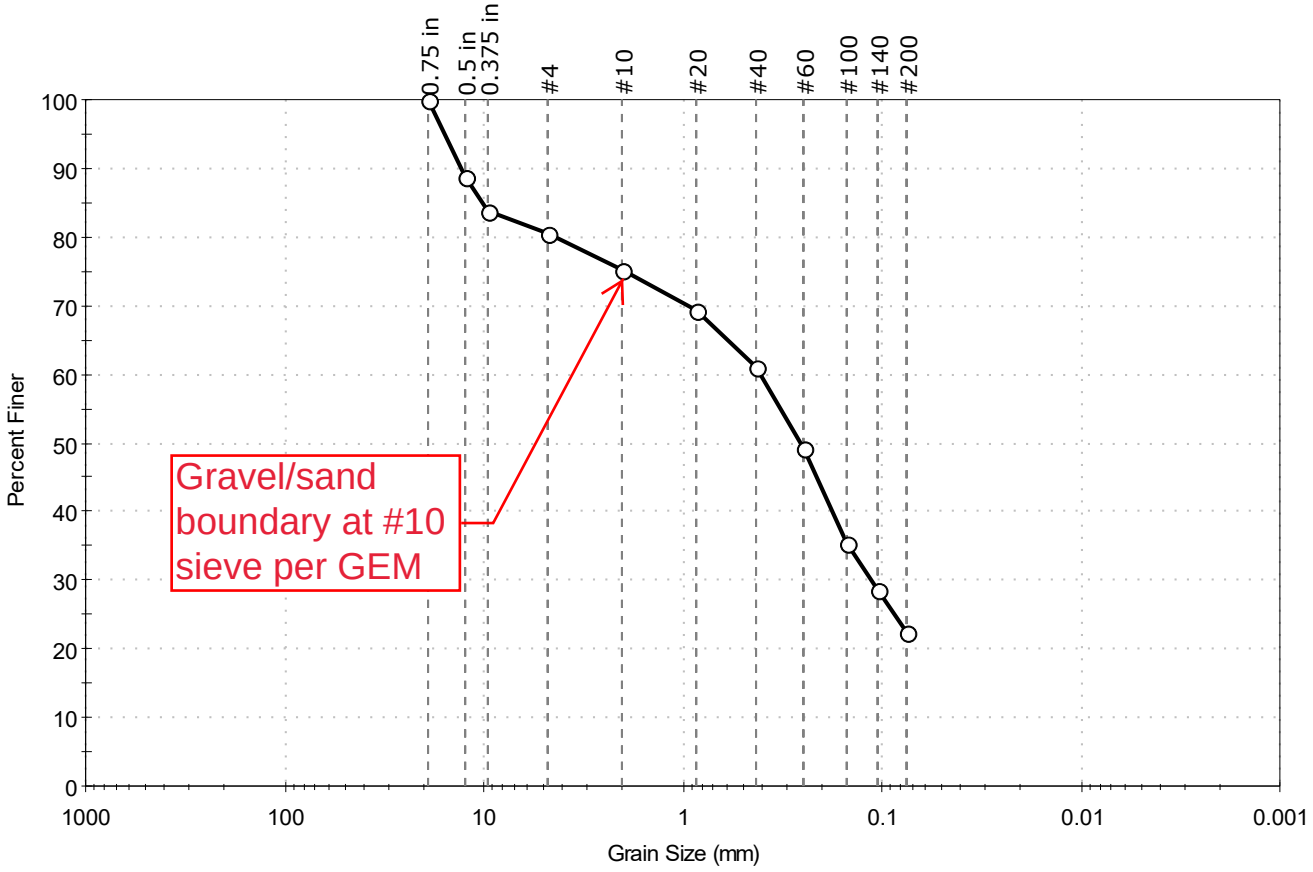
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Freeman Companies, LLC				
Project:	Old Colchester Rd Over Raymon Brook				
Location:	---			Project No:	GTX-319465
Boring ID:	B-2	Sample Type:	Bag	Tested By:	ajl
Sample ID:	S-4	Test Date:	07/24/24	Checked By:	ank
Depth :	15-17	Test Id:	778343		
Test Comment:	---				
Visual Description:	Moist, dark yellowish brown silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	19.4 25	58.2 53	22.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	89		
0.375 in	9.50	84		
#4	4.75	81		
#10	2.00	75		
#20	0.85	69		
#40	0.42	61		
#60	0.25	49		
#100	0.15	35		
#140	0.11	29		
#200	0.075	22		

Coefficients

D_{85} = 10.1732 mm D_{30} = 0.1136 mm

D_{60} = 0.4030 mm D_{15} = N/A

D_{50} = 0.2574 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

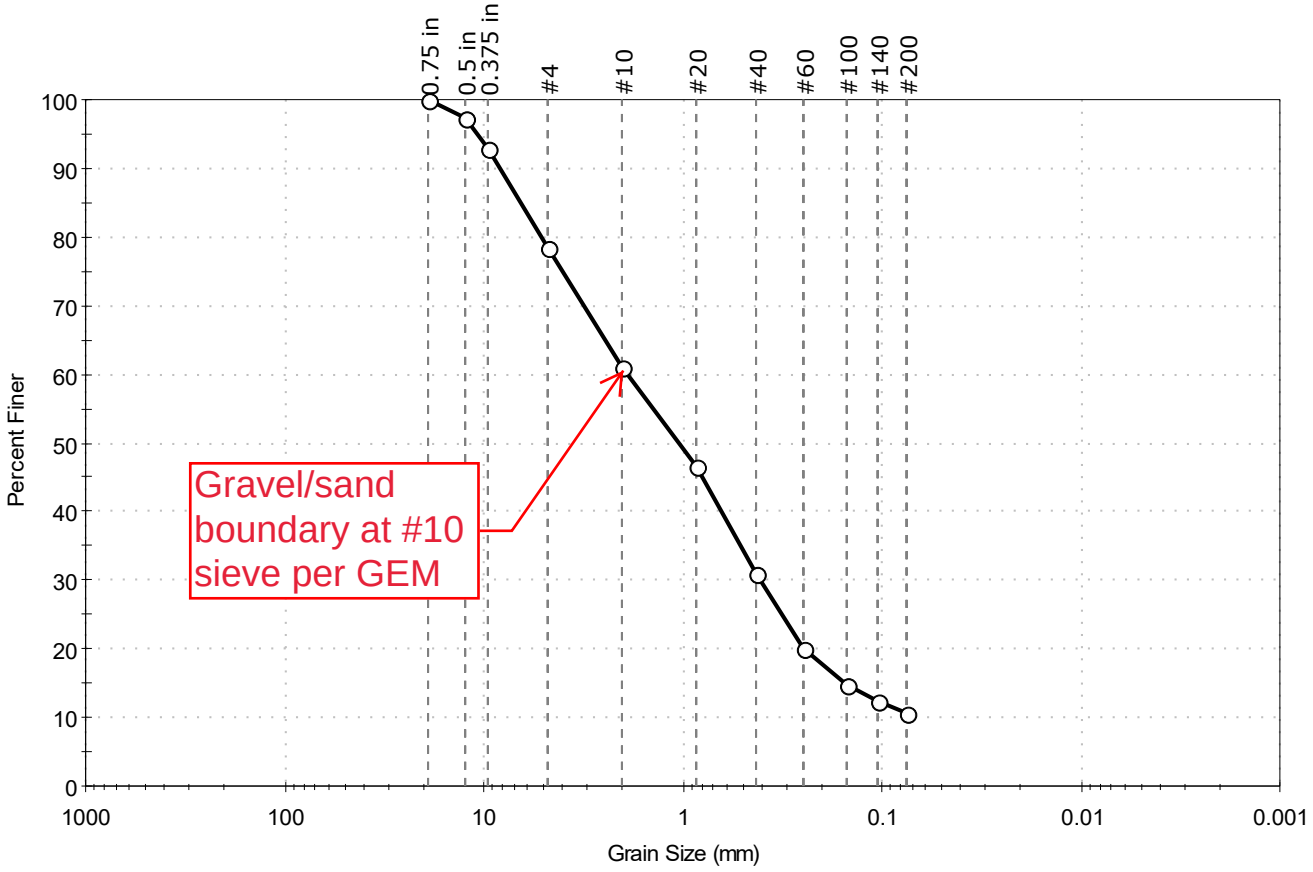
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Freeman Companies, LLC				
Project:	Old Colchester Rd Over Raymon Brook				
Location:	---			Project No:	GTX-319465
Boring ID:	B-3	Sample Type:	Bag	Tested By:	ajl
Sample ID:	S-1	Test Date:	07/24/24	Checked By:	ank
Depth :	0-2	Test Id:	778344		
Test Comment:	---				
Visual Description:	Moist, reddish brown sand with silt and gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel		% Sand		% Silt & Clay Size
–	21.5	39	68.0	51	10.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	97		
0.375 in	9.50	93		
#4	4.75	78		
#10	2.00	61		
#20	0.85	47		
#40	0.42	31		
#60	0.25	20		
#100	0.15	15		
#140	0.11	12		
#200	0.075	11		

Coefficients

D_{85} = 6.4859 mm
D_{30} = 0.4061 mm
D_{60} = 1.8734 mm
D_{15} = 0.1555 mm
D_{50} = 1.0351 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

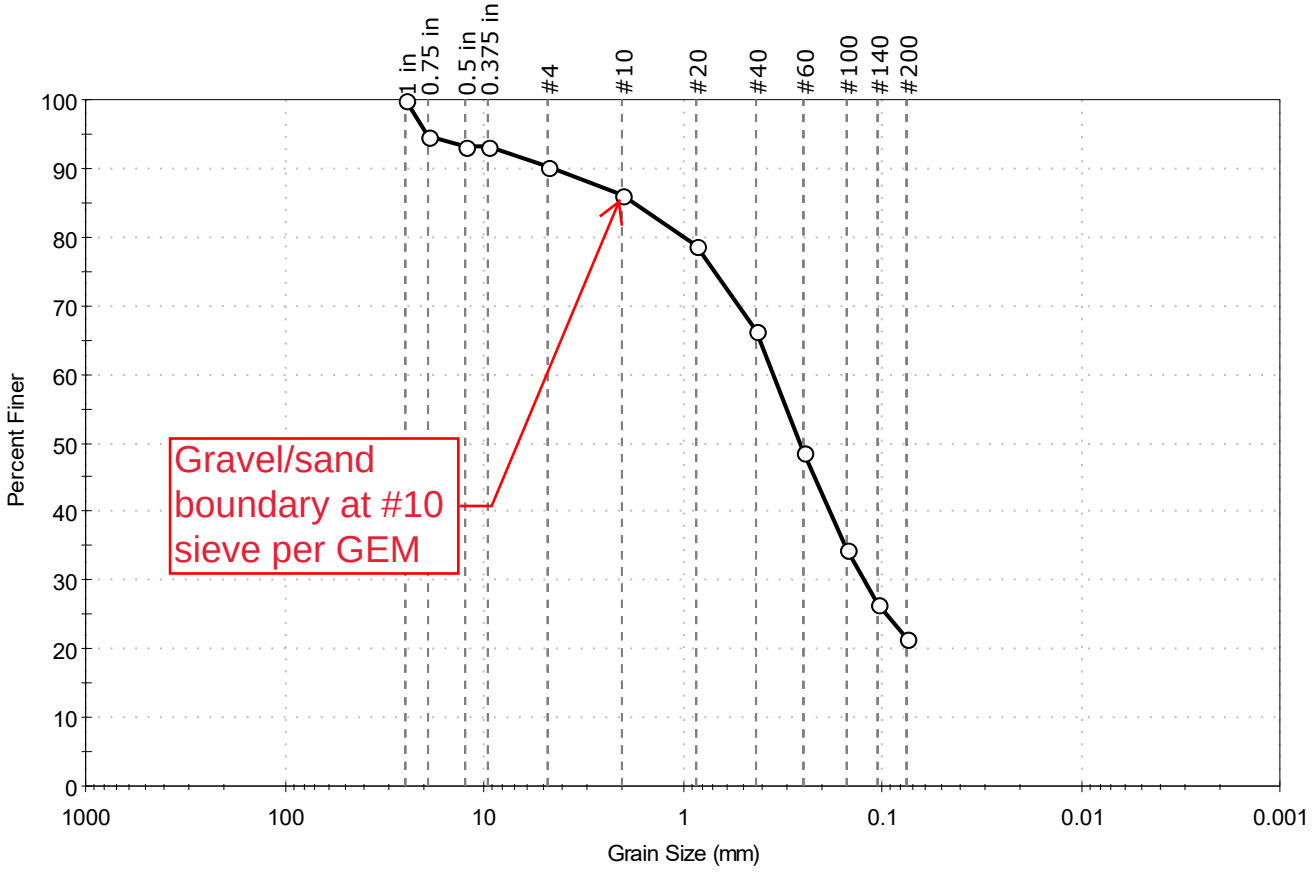
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Freeman Companies, LLC				
Project:	Old Colchester Rd Over Raymon Brook				
Location:	---			Project No:	GTX-319465
Boring ID:	B-3	Sample Type:	Bag	Tested By:	ajl
Sample ID:	S-5	Test Date:	07/25/24	Checked By:	ank
Depth :	20-22	Test Id:	778345		
Test Comment:	---				
Visual Description:	Moist, yellowish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	9.8 14	68.7 65	21.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	95		
0.5 in	12.50	93		
0.375 in	9.50	93		
#4	4.75	90		
#10	2.00	86		
#20	0.85	79		
#40	0.42	66		
#60	0.25	49		
#100	0.15	34		
#140	0.11	26		
#200	0.075	21		

Coefficients

D_{85} = 1.7746 mm
D_{30} = 0.1238 mm
D_{60} = 0.3519 mm
D_{15} = N/A
D_{50} = 0.2603 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

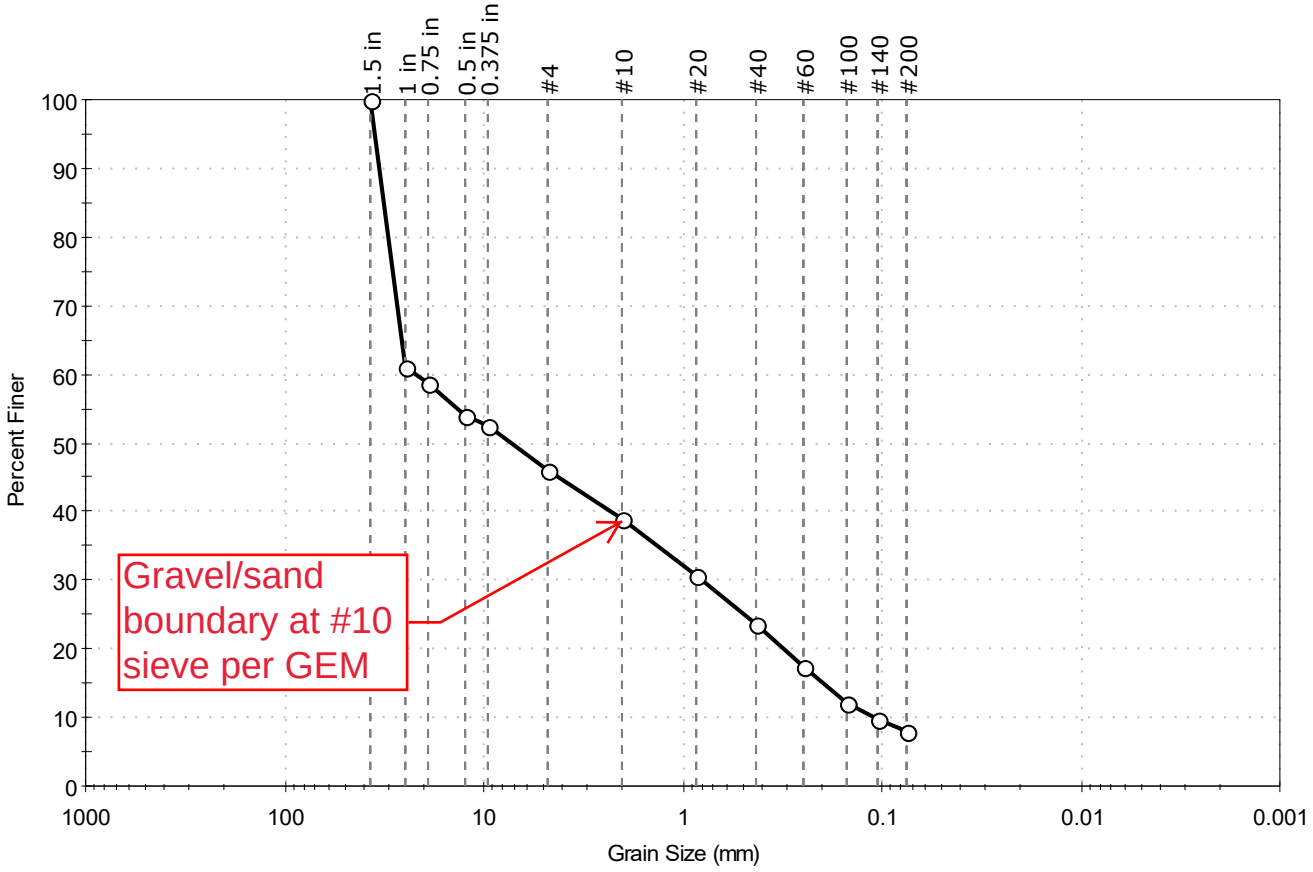
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Freeman Companies, LLC				
Project:	Old Colchester Rd Over Raymon Brook				
Location:	---			Project No:	GTX-319465
Boring ID:	B-4	Sample Type:	Bag	Tested By:	ajl
Sample ID:	S-3	Test Date:	07/25/24	Checked By:	ank
Depth :	10-12	Test Id:	778346		
Test Comment:	---				
Visual Description:	Moist, dark yellowish gravel with silt and sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	54.1 61	37.9 31	8.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	61		
0.75 in	19.00	59		
0.5 in	12.50	54		
0.375 in	9.50	53		
#4	4.75	46		
#10	2.00	39		
#20	0.85	31		
#40	0.42	23		
#60	0.25	17		
#100	0.15	12		
#140	0.11	10		
#200	0.075	8.0		

Coefficients

D_{85} = 32.0847 mm	D_{30} = 0.8042 mm
D_{60} = 22.0311 mm	D_{15} = 0.1989 mm
D_{50} = 7.2204 mm	D_{10} = 0.1104 mm
C_u = 199.557	C_c = 0.266

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-a (1))

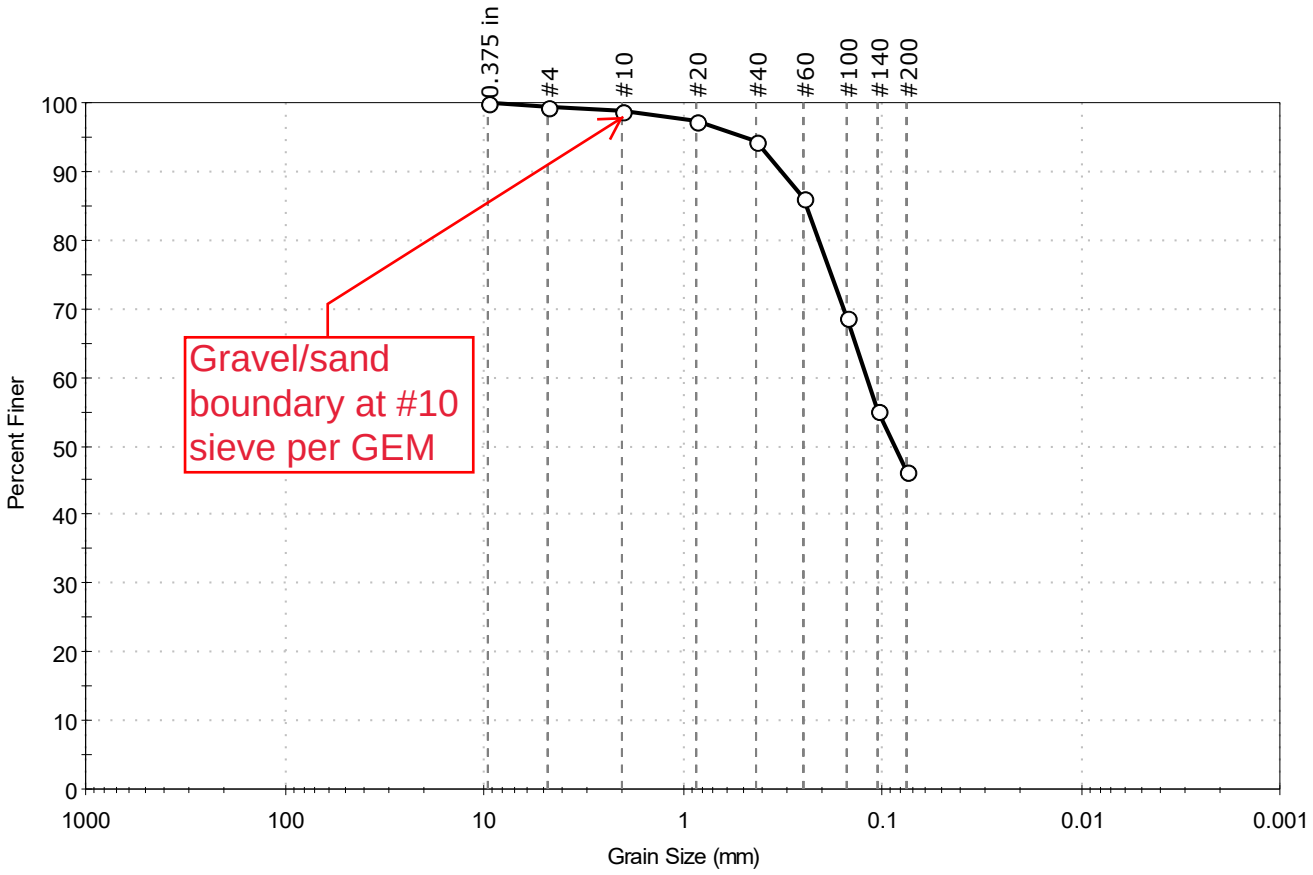
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Freeman Companies, LLC				
Project:	Old Colchester Rd Over Raymon Brook				
Location:	---			Project No:	GTX-319465
Boring ID:	B-4	Sample Type:	Bag	Tested By:	ajl
Sample ID:	S-9	Test Date:	07/24/24	Checked By:	ank
Depth :	40-42	Test Id:	778347		
Test Comment:	---				
Visual Description:	Moist, light grayish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	0.5 2	53.1 52	46.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	99		
#20	0.85	97		
#40	0.42	94		
#60	0.25	86		
#100	0.15	69		
#140	0.11	55		
#200	0.075	46		

Coefficients

D_{85} = 0.2413 mm D_{30} = N/A
D_{60} = 0.1200 mm D_{15} = N/A
D_{50} = 0.0865 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Freeman Companies, LLC				
Project:	Old Colchester Rd Over Raymon Brook				
Location:	---			Project No:	GTX-319465
Boring ID:	---	Sample Type:	---	Tested By:	gp
Sample ID:	---	Test Date:	08/06/24	Checked By:	smd
Depth :	---	Test Id:	778349		

Bulk Density and Compressive Strength of Rock Core Specimens by ASTM D7012 Method C

Boring ID	Sample Number	Depth	Bulk Density, pcf	Compressive strength, psi	Failure Type	Meets ASTM D4543	Note(s)
B-2	C-2	67-68 ft	174	8616	1	No	1 , 2,*
B-4	C-1	63-64 ft	175	14239	1	No	1,*

Notes: Density determined on core samples by measuring dimensions and weight and then calculating.

All specimens tested at the approximate as-received moisture content and at standard laboratory temperature.

The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.

Failure Type: 1 = Intact Material Failure; 2 = Discontinuity Failure; 3 = Intact Material and Discontinuity Failure (See attached photographs)

1: Best effort end preparation. See Tolerance report for details.
2: The as-received core did not meet the ASTM side straightness tolerance due to irregularities in the sample as cored.
3: Specimen L/D < 2.
4: The as-received core did not meet the ASTM minimum diameter tolerance of 1.875 inches.
5: Specimen diameter is less than 10 times maximum particle size.
6: Specimen diameter is less than 6 times maximum particle size.

*Because the indicated tested specimens did not meet the ASTM D4543 standard tolerances, the results reported here may differ from those for a test specimen within tolerances.

Client:	Freeman Companies, LLC	Test Date:	8/6/2024
Project Name:	Old Colchester Rd Over Raymon Brook	Tested By:	gp
Project Location:	---	Checked By:	smd
GTX #:	319465		
Boring ID:	B-2		
Sample ID:	C-2		
Depth (ft):	67-68		
Visual Description:	See photographs		

UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY

	1	2	Average
Specimen Length, in:	4.22	4.22	4.22
Specimen Diameter, in:	1.96	1.96	1.96
Specimen Mass, g:	583.92		
Bulk Density, lb/ft^3	174	**Minimum Diameter Tolerence Met?**	YES
Length to Diameter Ratio:	2.2	**Length to Diameter Ratio Tolerance Met?**	YES

DEVIATION FROM STRAIGHTNESS (Procedure S1)

Maximum gap between side of core and reference surface plate:

Is the maximum gap ≤ 0.02 in.? NO

Maximum difference must be < 0.020 in.

Straightness Tolerance Met? NO

END FLATNESS AND PARALLELISM (Procedure FP1)

END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00020	0.00020	0.00020	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00020	0.00000	-0.00020
Diameter 2, in (rotated 90°)	-0.00150	-0.00130	-0.00100	-0.00080	-0.00050	-0.00020	-0.00010	0.00000	0.00010	0.00040	0.00060	0.00080	0.00100	0.00110	0.00130

Difference between max and min readings, in:

0° = 0.00040 90° = 0.00280

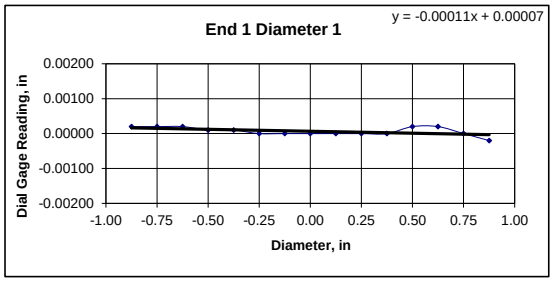
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00030	0.00030	0.00020	0.00010	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	-0.00010	-0.00020	-0.00020	-0.00040	-0.00060
Diameter 2, in (rotated 90°)	0.00120	0.00100	0.00080	0.00070	0.00050	0.00040	0.00010	0.00000	0.00000	-0.00020	-0.00030	-0.00060	-0.00080	-0.00090	-0.00140

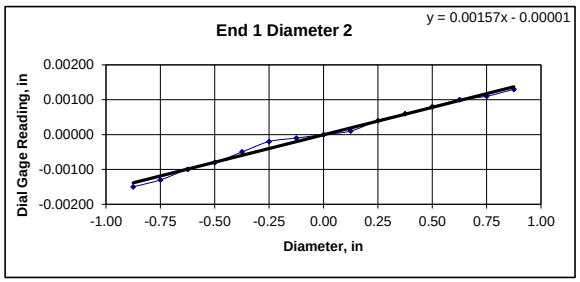
Difference between max and min readings, in:

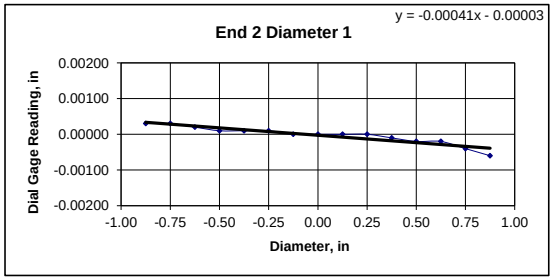
0° = 0.0009 90° = 0.0026

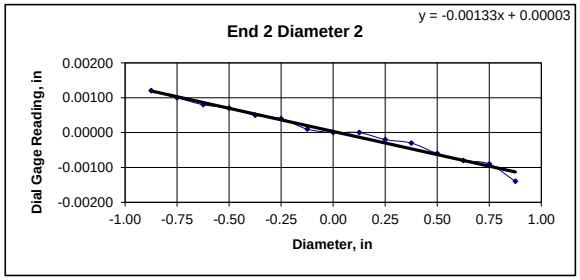
Maximum difference must be < 0.0020 in. Difference = ± 0.00140

Flatness Tolerance Met? NO









DIAMETER 1

End 1:
Slope of Best Fit Line 0.00011
Angle of Best Fit Line: 0.00638

End 2:
Slope of Best Fit Line 0.00041
Angle of Best Fit Line: 0.02374

Maximum Angular Difference: 0.01735

Parallelism Tolerance Met? NO
Spherically Seated

DIAMETER 2

End 1:
Slope of Best Fit Line 0.00157
Angle of Best Fit Line: 0.09020

End 2:
Slope of Best Fit Line 0.00133
Angle of Best Fit Line: 0.07612

Maximum Angular Difference: 0.01408

Parallelism Tolerance Met? NO
Spherically Seated

PERPENDICULARITY (Procedure P1) (Calculated from End Flatness and Parallelism measurements above)

END 1	Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?
Diameter 1, in	0.00040	1.960	0.00020	0.012	YES
Diameter 2, in (rotated 90°)	0.00280	1.960	0.00143	0.082	YES
END 2					
Diameter 1, in	0.00090	1.960	0.00046	0.026	YES
Diameter 2, in (rotated 90°)	0.00260	1.960	0.00133	0.076	YES

Maximum angle of departure must be ≤ 0.25°

Perpendicularity Tolerance Met? YES

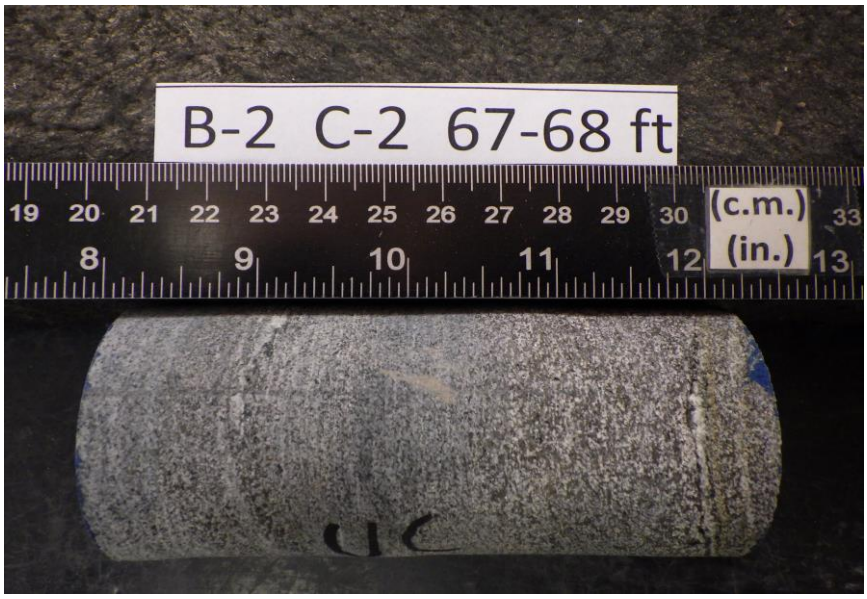
Client:	Freeman Companies, LLC	Test Date:	8/6/2024
Project Name:	Old Colchester Rd Over Raymon Brook	Tested By:	gp
Project Location:	---	Checked By:	smd
GTX #:	319465		
Boring ID:	B-2	Reliable dial gauge measurements could not be performed on this rock type. Tolerance measurements were performed using a machinist straightedge and feeler gauges to ASTM specifications.	
Sample ID:	C-2		
Depth (ft):	67-68		
Visual Description:	See photographs		

BEST EFFORT END FLATNESS TOLERANCES OF ROCK CORE SPECIMENS TO ASTM D4543

END FLATNESS		
END 1		
Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES
END 2		
Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES

End Flatness Tolerance Met? YES

Client:	Freeman Companies, LLC
Project Name:	Old Colchester Rd Over Raymon Brook
Project Location:	---
GTX #:	319465
Test Date:	8/6/2024
Tested By:	gp
Checked By:	jsc
Boring ID:	B-2
Sample ID:	C-2
Depth, ft:	67-68



After cutting and grinding



After break

Client:	Freeman Companies, LLC	Test Date:	8/6/2024
Project Name:	Old Colchester Rd Over Raymon Brook	Tested By:	gp
Project Location:	---	Checked By:	smd
GTX #:	319465		
Boring ID:	B-4		
Sample ID:	C-1		
Depth (ft):	63-64		
Visual Description:	See photographs		

UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY

	1	2	Average
Specimen Length, in:	4.04	4.04	4.04
Specimen Diameter, in:	1.95	1.95	1.95
Specimen Mass, g:	554.35		
Bulk Density, lb/ft^3	175	**Minimum Diameter Tolerence Met?**	YES
Length to Diameter Ratio:	2.1	**Length to Diameter Ratio Tolerance Met?**	YES

DEVIATION FROM STRAIGHTNESS (Procedure S1)

Maximum gap between side of core and reference surface plate:
Is the maximum gap ≤ 0.02 in.? YES

Maximum difference must be < 0.020 in.
Straightness Tolerance Met? YES

END FLATNESS AND PARALLELISM (Procedure FP1)

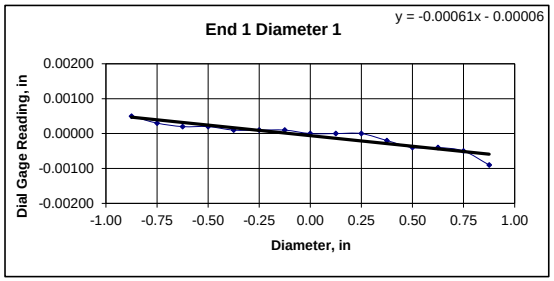
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00050	0.00030	0.00020	0.00020	0.00010	0.00010	0.00010	0.00000	0.00000	0.00000	-0.00020	-0.00040	-0.00040	-0.00050	-0.00090
Diameter 2, in (rotated 90°)	-0.00130	-0.00100	-0.00090	-0.00070	-0.00040	-0.00030	-0.00020	0.00000	0.00010	0.00030	0.00040	0.00060	0.00070	0.00090	0.00090

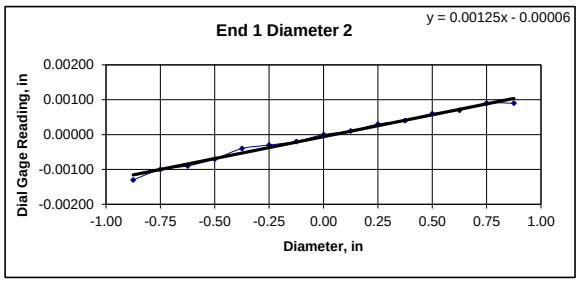
Difference between max and min readings, in:
0° = 0.00140 90° = 0.00220

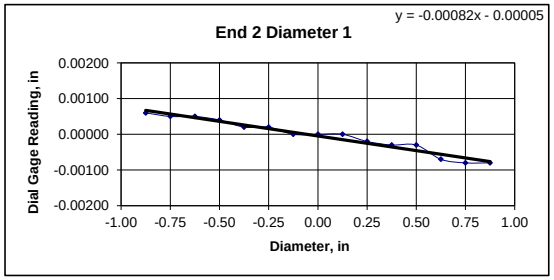
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00060	0.00050	0.00050	0.00040	0.00020	0.00020	0.00000	0.00000	0.00000	-0.00020	-0.00030	-0.00030	-0.00070	-0.00080	-0.00080
Diameter 2, in (rotated 90°)	0.00110	0.00080	0.00070	0.00050	0.00040	0.00030	0.00020	0.00000	-0.00010	-0.00020	-0.00040	-0.00060	-0.00080	-0.00090	-0.00100

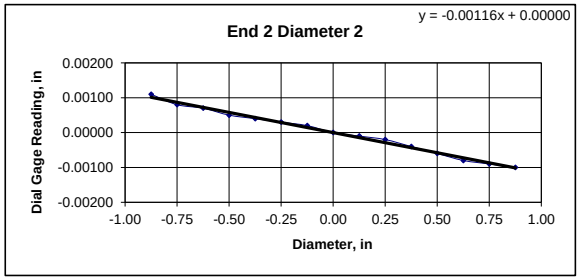
Difference between max and min readings, in:
0° = 0.0014 90° = 0.0021

Maximum difference must be < 0.0020 in. Difference = ± 0.00110
Flatness Tolerance Met? NO









DIAMETER 1

End 1:
Slope of Best Fit Line 0.00061
Angle of Best Fit Line: 0.03470

End 2:
Slope of Best Fit Line 0.00082
Angle of Best Fit Line: 0.04698

Maximum Angular Difference: 0.01228

Parallelism Tolerance Met? NO
Spherically Seated

DIAMETER 2

End 1:
Slope of Best Fit Line 0.00125
Angle of Best Fit Line: 0.07187

End 2:
Slope of Best Fit Line 0.00116
Angle of Best Fit Line: 0.06630

Maximum Angular Difference: 0.00557

Parallelism Tolerance Met? NO
Spherically Seated

PERPENDICULARITY (Procedure P1) (Calculated from End Flatness and Parallelism measurements above)

END 1	Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?
Diameter 1, in	0.00140	1.950	0.00072	0.041	YES
Diameter 2, in (rotated 90°)	0.00220	1.950	0.00113	0.065	YES
END 2					
Diameter 1, in	0.00140	1.950	0.00072	0.041	YES
Diameter 2, in (rotated 90°)	0.00210	1.950	0.00108	0.062	YES

Maximum angle of departure must be ≤ 0.25°
Perpendicularity Tolerance Met? YES

Client:	Freeman Companies, LLC	Test Date:	8/6/2024
Project Name:	Old Colchester Rd Over Raymon Brook	Tested By:	gp
Project Location:	---	Checked By:	smd
GTX #:	319465		
Boring ID:	B-4	Reliable dial gauge measurements could not be performed on this rock type. Tolerance measurements were performed using a machinist straightedge and feeler gauges to ASTM specifications.	
Sample ID:	C-1		
Depth (ft):	63-64		
Visual Description:	See photographs		

BEST EFFORT END FLATNESS TOLERANCES OF ROCK CORE SPECIMENS TO ASTM D4543

END FLATNESS		
END 1		
Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES
END 2		
Diameter 1	Is the maximum gap $\leq \pm 0.001$ in.?	YES
Diameter 2 (rotated 90°)	Is the maximum gap $\leq \pm 0.001$ in.?	YES

End Flatness Tolerance Met? YES

Client:	Freeman Companies, LLC
Project Name:	Old Colchester Rd Over Raymon Brook
Project Location:	---
GTX #:	319465
Test Date:	8/6/2024
Tested By:	gp
Checked By:	smd
Boring ID:	B-4
Sample ID:	C-1
Depth, ft:	63-64



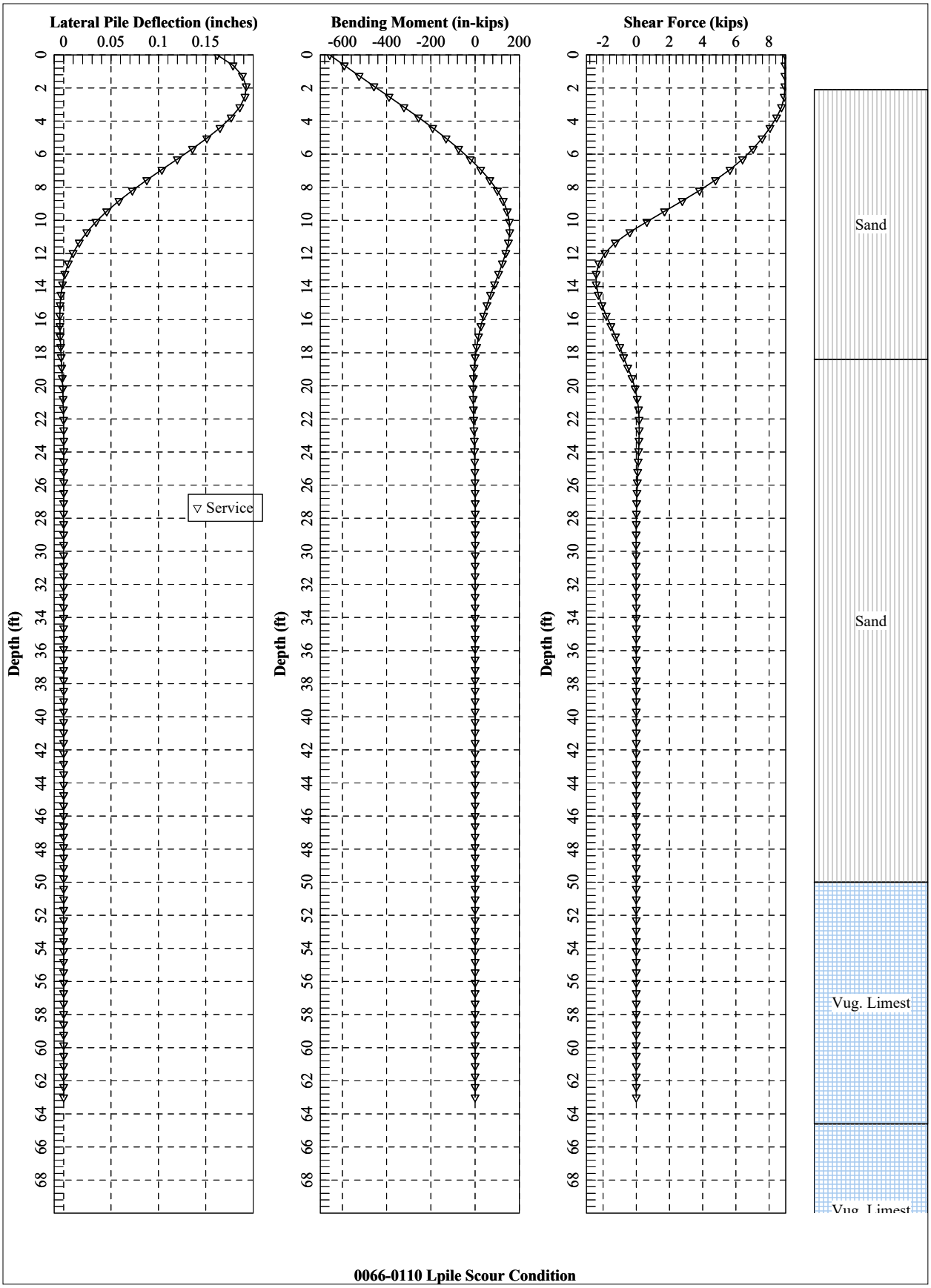
After cutting and grinding



After break

APPENDIX C

LPILE ANALYSIS OUTPUT



0066-0110 Lpile Scour Condition

APPENDIX D

SAMPLE SPECIAL PROVISION FOR MONITORING

ITEM #0202xxxA – PROTECTION OF BUILDINGS AND PROPERTY
ITEM #0202xxxA – CONDITION SURVEY

Description:

Under these items, the Contractor shall prepare and implement a vibration and movement monitoring control plan during construction for protection of buildings and property and provide pre- and post-condition surveys of identified sites.

Vibration producing activities such as demolition, pile installation, vibratory compaction, pavement breaking and operation of heavy construction equipment are expected to be required for construction of this project.

Work under these items include:

1. Vibration and Movement Monitoring Plan.
    a. Preparing a vibration and movement monitoring plan.
        i. Install vibration monitoring sensors.
        ii. Install crack monitoring gages.
    b. Conduct monitoring and take readings before, during and after anticipated vibration or movement producing activities including but not limited to:
        i. Site excavation activities and demolition including pavement breaking;
        ii. Cutting and demolition associated with removal of existing substructure;
        iii. Installation of driven or vibratory piles;
        iv. Vibratory compaction; and
        v. Until sufficient information has been collected to prove that detected movement has stopped.

2. Additional protective measures as required to prevent damage to existing buildings, appurtenances, structures or features within the influence of any construction related activities, including construction-induced vibrations and movement.

3. Structure/Building Condition Surveys and Reports. Performing surveys and preparing associated reports:
    a) prior to commencement of work;
    b) after completion of work;
    c) and at other locations and times during construction as directed by the Engineer.

    Condition surveys shall document the existing conditions of the buildings including but not limited to cracks, settlements, holes or other deterioration. Condition surveys shall also document the condition of retaining walls, pavement and sidewalks.

Minimum locations requiring condition surveys and vibration and movement monitoring include:

1. Site No. 1: 330 Old Colchester Road, Hebron CT

Quality Assurance – Qualifications:

Vibration Monitoring Consultant and Seismologist: Submit proof and details, as references, of ten projects in the past five years where the vibration monitoring consultant satisfactorily installed and monitored construction operations by recording maximum peak particle velocities (PPVs). Include contact information for each reference.

Structure/Building Condition Survey Consultant - Professional Engineer: Licensed as a professional engineer in the State of Connecticut, and experienced in performing condition surveys of structures/buildings comparable in construction and age to the existing structures/buildings. The licensed professional engineer shall be required to oversee and have responsible charge of all condition survey site inspections.

Submittals:

Prior to Construction: Provide the following:

1. Qualifications of a vibration monitoring consultant and seismologist, structure/building condition survey consultant, and movement/settlement consultant.

2. Vibration Monitoring Plan. At a minimum include the following:
   a. Contract Designations
      i. Name of vibration monitoring specialist.
      ii. Scheduled start date and length of construction operations which require vibration monitoring.
      iii. Location of underground utilities in proximity to the construction operation.
   b. Plan with locations of the vibration monitoring sensors and equipment.
      i. Note maximum peak particle velocity limits for each specified structure and surveyed features, to be determined in conjunction with work by the Structure/Building Condition Survey Consultant.
      ii. Identify anticipated vibration levels at the structure and surveyed feature locations.
   c. List construction operations and equipment that require vibration monitoring.
   d. List vibration monitoring equipment to be utilized for site monitoring.

3. Condition Survey(s). At a minimum include the following:
   a. Sealed and signed by the consultant.
   b. Site inspection shall evaluate the interior and exterior condition of the existing structures/buildings including interior sub-grade and above-grade accessible walls, ceilings, floors, roof, and visible exterior as viewed from grade level.

i. Document extents and locations of existing signs of structure/building distress such as cracks, spalling, signs of settlement, previous flooding, leaking, and other existing damage or defects.
ii. Detail any existing structural, cosmetic, plumbing or electrical damage.

c. Written report shall include color photographs, engineering sketches, and drawings and other pertinent information including the following:
i. Summarize the pre-construction condition of the structures.
ii. Fully describe the existing condition of each feature potentially affected by construction-induced vibrations.
iii. Identify areas of concern, including potential personnel hazards (falling debris) and structural elements that may require support or repair.
iv. Identify locations requiring crack monitoring gages.
v. Establish with the vibration monitoring consultant, the value of maximum allowable peak particle velocity for each existing structure and surveyed feature that might be impacted by construction-induced vibration. Document methodology used for establishing vibration acceptance criteria.

During Construction: Provide the following:

1. Vibration Records and Associated Construction Activity Data. Submit daily and weekly summary reports in a format approved by the Engineer
   a. Provide results of daily vibration monitoring, no later than one workday after the readings are taken.

After Construction: Provide the following:

1. Post-construction condition surveys, sealed and signed by the Structure/Building consultant.
   a. Identify any changes to building conditions.
2. Crack gage readings taken at existing structures

Construction Methods:

General

Make reasonable and customary efforts to avoid damage to the existing structures/buildings, underground utilities, appurtenances, structures or features within the influence of any construction activities including the use of site access routes.

The Contractor is responsible for all construction related damages caused by, but not limited to, movement/settlement, vibration, or air blast from his construction operations. Any damage caused by the Contractor's operations shall be repaired by the Contractor, at his own expense, to the satisfaction of the Engineer.

Vibration monitoring is required for any vibration producing activity associated with this project

and shall be performed by the approved vibration monitoring Consultant.

Public Relations

1. At least 30 days before starting any construction activities which will induce vibrations, the Contractor or Vibration Monitoring Specialist shall notify, in writing by USPS certified mail, all residents or owners of structures located within the anticipated affected range as determined by the Vibration Monitoring Specialist. At a minimum, the properties listed herein shall be notified.
2. Maintain a complaint log and make this available to the Engineer on request.

Vibration Monitoring

Provide necessary equipment to monitor and document potential vibrations that occur during construction.

1. Vibration monitoring equipment shall be capable of continuously recording the peak particle velocity, providing a permanent record of the entire vibration event, and documenting when threshold values are exceeded.
2. Provide additional equipment when directed by the Engineer at no additional cost to the Owner

Obtain baseline (24-hour period minimum) or ambient readings a minimum of two weeks prior to the start of the listed activities. Initial readings for each type of construction operation shall be immediately verified by the Contractor with the vibration monitoring consultant's personnel.

Install seismographs at structure locations that are nearest to the vibration-inducing source. Recalibrate or replace seismographs if the seismograph monitors/equipment show any indication of damage or vandalism.

Perform continuous vibration monitoring during construction operations included in the approved "Vibration Monitoring Plan" and when construction activities make monitoring prudent. The Contractor shall review vibration data on a daily basis for as long as vibration-producing activities are being conducted.

Vibration readings shall not exceed the following:

1. The maximum peak particle velocity for each specified structure is identified in the approved "Preconstruction Condition Survey"; or

   The maximum vibration indicated by the red line on the graph at the end of this Special Provision, reproduced from USBM RI 8570; whichever is less.

2. In no case, shall the resultant peak particle velocity (PPV) readings at the structures being monitored exceed 0.5 inches per second.

Monitoring equipment shall document when readings of measured particle velocities exceed 60 percent of the allowable peak velocity and be capable of notifying the appropriate parties so that action can be taken.

1. Identify and submit equipment or procedural modifications required to avoid exceeding the allowable vibration intensity.

If measured velocities exceed the maximum allowable PPV, stop operations immediately and revise equipment and procedures to reduce vibrations to allowable levels. The Structure/Building Condition Survey Consultant shall assess the nearest structures for any damage. If damage to structures is identified, follow the procedures specified under the Article "Movement/Settlement Monitoring", subparagraph "Structure/Building Damage."

Movement/Settlement Monitoring:

Crack Monitoring Gages. Install crack displacement monitoring gages as appropriate across existing masonry cracks greater than 1/16-inch wide to help verify any additional building distress that may develop. The appropriate location, number, and type of gages will be recommended by the Structure/Building Survey Consultant and approved by the Engineer.

Data Monitoring. The Movement/Settlement Consultant shall take readings on a weekly basis starting from commencement of demolition and excavation operations, for the duration of construction, at the discretion of the Engineer.

Structure/Building Damage

Upon the discovery of damage, cease related construction operations and immediately inform the Engineer.

1. The Structure/Building Condition Survey Consultant shall document and assess damage to structures and submit such documentation to the Engineer. Documentation shall include plans, drawings, sketches, photographs and videos. Include proposed methods and procedures for repairing damaged areas.
2. The Structure/Building Condition Survey Consultant shall identify suspected cause(s) of such damage and the Contractor shall modify construction operations appropriately to prevent further damage.
3. The Contactor shall repair damages to the satisfaction of the Engineer.
4. Construction shall resume upon completion of repairs and/or written authorization of the Engineer.

Condition Surveys

Pre-Construction Condition Survey: Complete condition survey prior to start of on-site construction activity.

1. Pre-condition survey and site visit shall be performed by the Structure/Building Survey Consultant

    a. Inform Engineer 48 hours (minimum) prior to Consultant's site visit.
    b. Engineer shall be afforded the opportunity to accompany Consultant during all or portions of the structure/building condition site visits.
    c. Engineer may require Contractor to also accompany Engineer and Consultant during all or portions of the structure/building condition site visits.

2. Document condition of any existing structure/building features that may be affected by construction-induced vibration, and at a minimum the following:
    a. Areas of concern, including potential personnel hazards (falling debris) and structural elements that may require support or repair.
    b. Locations requiring crack monitoring gages.
    c. Points on structures to be monitored in relation to the horizontal and vertical controls.
    d. Provide digitally-recorded observations including video and still photography, and sketches as needed.

Post-Construction Condition Survey

Following completion of vibration producing activities, the Structure/Building Survey Consultant shall perform a post-construction condition survey for each location that received a pre-construction condition survey.

Compare current condition of buildings with the detailed pre-construction survey information to determine if any damage occurred during construction activities, and whether any of the changes noted were a direct result of construction activities.

Document changes in the condition of features with text, video, still photographs, sketches and a detailed narration and include as part of the submittal.

Repairs:

Site Restoration: Any areas or items disturbed by the Contractor's operations shall be restored to pre-existing conditions or replaced by the Contractor at no additional cost. The costs for any site restoration or replacement of items damaged as a result of the Contractor's work shall be included in the specific bid item for which the work is required.

Method of Measurement:

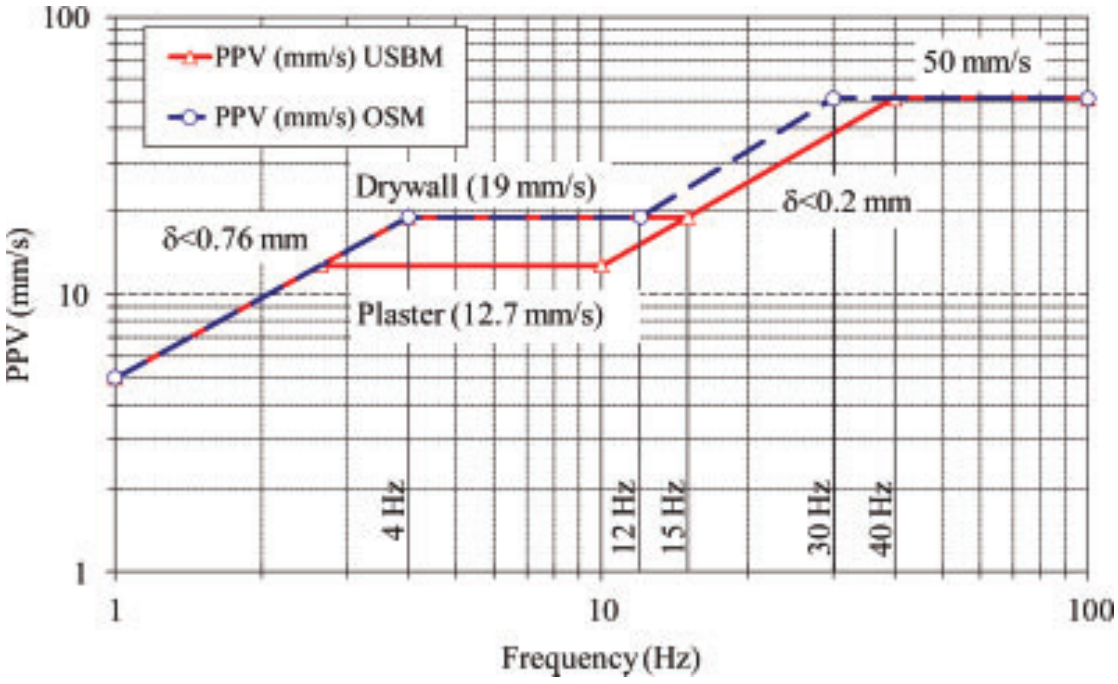
This work, being paid on a lump sum basis, will not be measured for payment.

Basis of Payment:

The Work will be paid for at the Contract lump sum prices for the items listed below, complete in place and accepted, which prices shall include all materials, equipment, tools, labor, accessories, transportation, field inspections, documentation, photographs, video, sketches and final report for each structure identified, and inclusive of all items of work required to successfully complete the work.

Payment Item	Payment Unit
Protection of Buildings and Property	LS
Condition Surveys (Site No. 1)	LS

From USBM RI 8570



TOWN OF HEBRON
SCHEDULE OF PRICES
FOR THE CONSTRUCTION OF

STATE PROJECT NO. 0066-0110, FAP #6066(004)
REPLACEMENT OF BRIDGE NO. 04695
OLD COLCHESTER ROAD OVER RAYMOND BROOK

DATE OF BID OPENING **January 6, 2026** TIME: **11:00 A.M.** **NO BIDS WILL BE ACCEPTED AFTER 11:00 A.M. "NO EXCEPTIONS"**

Note: --- The bidder shall fill in, under the column "Unit Prices Bid," the unit prices, written in words and in numbers, for which he proposes to perform the various items of work called for, and under the column headed "Amount," the amount of each of the items at the unit price bid. After the proposal is opened and read, the quantities will be extended and totaled in accordance with the written bid prices and the bid will be verified or corrected.

Item Number	Items	Unit	Approximate Quantities	Unit Prices Bid		Amount (Figures)
				Figures	Writing	
0101000A	Environmental Health and Safety	L.S.	1			
0101128A	Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area	L.S.	1			
0201001	Clearing and Grubbing	L.S.	1			
0202000	Earth Excavation	c.y.	500			
0202216A	Excavation and Reuse of Existing Channel Bottom Material	c.y.	50			
0202217A	Supplemental Streambed Channel Material	est.	8,000	$1.00	One Dollar and No Cents	$8,000.00
0202218A	Washing-in Supplemental Streambed Material	est.	10,000	$1.00	One Dollar and No Cents	$10,000.00
0202315A	Disposal of Controlled Materials	ton	1,325			
0202529	Cut Bituminous Concrete Pavement	l.f.	60			
0203000	Structure Excavation - Earth (Complete)	c.y.	630			
0204151A	Handling Water	L.S.	1			
0207000	Borrow	c.y.	50			
0209001	Formation of Subgrade	s.y.	725			
0210821A	Water Pollution Control	est.	25,000	$1.00	One Dollar and No Cents	$25,000.00
0212000	Subbase	c.y.	250			
0213100	Granular Fill	c.y.	110			
0216000	Pervious Structure Backfill	c.y.	410			
0219001	Sedimentation Control System	l.f.	400			
0219011A	Sediment Control System at Catch Basin	ea.	3			
0286001.10	Rock in Drainage Trench Excavation 0'-10' Deep	c.y.	50			
0305000	Processed Aggregate	ton	55			
0406170	HMA S1	ton	180			
0406171	HMA S0.5	ton	208			
0406173	HMA S0.25	ton	14			
0406238	Non-tracking Asphalt Tack Coat	gal.	60			
0406303A	Sawing and Sealing Joints	l.f.	168			
0406312A	Gutter Line Sealing for Bridges	l.f.	99			
0406999A	Asphalt Adjustment Cost (Estimated Cost)	est.	4,400	$1.00	One Dollar and No Cents	$4,400.00
0503866A	Removal of Existing Culvert (Site No. 1)	L.S.	1			
0514203	Prestressed Deck Units (3'-0" X 1'-6")	l.f.	140			
0514223	Prestressed Deck Units (4'-0" X 1'-6")	l.f.	326			
0521001	Elastomeric Bearing Pads	c.i.	7,150			
0586001.10	Type 'C' Catch Basin - 0' - 10' Deep	ea.	3			
0586500.10	Manhole - 0' - 10' Deep	ea.	1			
0601062	Footing Concrete	c.y.	39			
0601064	Abutment and Wall Concrete	c.y.	155			
0601088A	Concrete Form Liners	s.f.	185			

Kindly insert here the total amount of your Bid $ _ _ _ _ _ _ _ _ _ _ _ _
It is understood that the unit prices shall govern in case of discrepancy between the unit-prices and this amount.
This bid includes addenda no.: _N_O_N_E_

TOWN OF HEBRON
SCHEDULE OF PRICES
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Item Number	Items	Unit	Approximate Quantities	Unit Prices Bid		Amount (Figures)
				Figures	Writing	
0601118	Bridge Deck Concrete	c.y.	45			
0601121	Parapet Concrete	l.f.	69			
0601122	Bridge Sidewalk Concrete	c.y.	18			
0601123	Approach Slab Concrete	c.y.	42			
0601502	1/2" Preformed Expansion Joint Filler for Bridges	s.f.	160			
0601504	1" Preformed Expansion Joint Filler for Bridges	s.f.	22			
0602030	Deformed Steel Bars - Galvanized	lb.	57,000			
0603474A	Metallizing Structural Steel (Site No. 1)	L.S.	1			
0686000.15	15" R.C. Pipe - 0' - 10' Deep	l.f.	110			
0686015.15	Relaid 15" R.C. Pipe - 0' - 10' Deep	l.f.	24			
0686230.24	24" High Density Polyethylene Pipe - 0' - 10' Deep	l.f.	40			
0686700.15	15" Reinforced Concrete Drainage Pipe End	ea.	1			
0686950.10	Remove Existing Pipe - 0' - 10' Deep	l.f.	110			
0703010	Standard Riprap	c.y.	250			
0706001	Micropiles	ea.	18			
0706002	Verification Test for Micropiles	ea.	2			
0706003	Proof test for Micropiles	ea.	2			
0706004	Micropile Length Adjustment	l.f.	180			
0707009A	Membrane Waterproofing (Cold Liquid Elastomeric)	s.y.	240			
0708001	Dampproofing	s.y.	165			
0815001	Bituminous Concrete Lip Curbing	l.f.	230			
0819002A	Penetrating Sealer Protective Compound	s.y.	136			
0822100.01	Temporary Traffic Barrier	l.f.	80			
0904051A	3 Tube Curb Mounted Bridge Rail	l.f.	78			
0912503A	Remove Metal Beam Rail	l.f.	180			
0921005	Concrete Sidewalk Ramp	s.f.	80			
0921022A	Stonedust Pathway	s.f.	200			
0921048	Detectable Warning Surface	s.f.	24			
0922503A	Gravel Driveway	s.y.	140			
0939001	Sweeping for Dust Control	hr.	140			
0943001	Water for Dust Control	m.ga.	1			
0944000	Furnishing and Placing Topsoil	s.y.	480			
0950005	Turf Establishment	s.y.	480			
0952051A	Control and Removal of Invasive Vegetation	s.y.	1,100			
0969062A	Construction Field Office, Medium	mo.	10			
0970006	Trafficperson (Municipal Police Officer) (Estimated Cost)	est.	8,000	$1.00	One Dollar and No Cents	$8,000.00
0970007	Trafficperson (Uniformed Flagger)	hr.	250			

Kindly insert here the total amount of your Bid $ _ _ _ _ _ _ _ _ _ _ _ _ _
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Item Number	Items	Unit	Approximate Quantities	Unit Prices Bid		Amount (Figures)
				Figures	Writing	
0971001A	Maintenance and Protection of Traffic	L.S.	1			
0971200A	Maintenance Pedestrian Access	L.S.	1			
0975004	Mobilization and Project Closeout	L.S.	1			
0976002	Barricade Warning Lights - High Intensity	day	1,200			
0978002	Traffic Drum	ea.	25			
0979003	Construction Barricade Type III	ea.	8			
0980020	Construction Surveying	L.S.	1			
0981100	42" Traffic Cone	ea.	25			
1118012A	Removal and/or Relocation of Traffic Signal Equipment	L.S.	1			
1206013	Removal of Existing Signing	L.S.	1			
1208931A	Sign Face - Sheet Aluminum (Type IX Retroreflective Sheeting)	s.f.	8			
1208937A	Sign Face - Sheet Aluminum (Type XI Retroreflective Sheeting)	l.f.	3			
1210102	4in Yellow Epoxy Resin Pavement Markings	l.f.	700			
1210105	Epoxy Resin Pavement Markings, Symbols and Legends	s.f.	118			
1220027A	Construction Signs	s.f.	390			

Kindly insert here the total amount of your Bid $ _ _ _ _ _ _ _ _ _ _ _ _
It is understood that the unit prices shall govern in case of discrepancy between the unit-prices and this amount.
This bid includes addenda no.: _N_O_N_E_

TOWN OF HEBRON
SCHEDULE OF PRICES
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CONTRACT TIME AND LIQUIDATED DAMAGES

Two Hundred and Forty-Four (244) calendar days will be allowed for completion of all work as described in the contract documents for Federal Project No. 6066(004), State Project No. 0066-0110 and the liquidated damages charge to apply will be Nine Hundred Dollars ($900.00) per calendar day.

Note: PRIME CONTRACTOR'S REQUIREMENTS:

A. Proposal Guaranty (Bid Bond): Except when otherwise specified, no proposal will be considered unless accompanied by a proposal guaranty in the form of a bond furnished by a surety company, satisfactory to the Engineer, in an amount equal to at least 30% of the amount of the bid, or unless the bidder has on file in the Town, an annual bid bond in the proper amount.

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

B. The low bidder is required to submit to the Town, both a Certificate of Insurance and a Workers' Compensation Certificate on or before the signing of the Contract.

C. Prospective bidders must have a current sworn Statement (CON-16) on file with the Connecticut Department of Transportation and be prequalified to perform Group No. 8 - Minor Bridges work. The Bidder's Prequalification approval letter signed by the CTDOT Contracts Manager shall be included as part of the bid package submitted to the Municipality.

D. Contracts will not be awarded until the above requirements have been submitted and approved.

E. Please be aware that the Town, prior to the awarding of the Contract, may require further financial and other information from any applicant who becomes the low bidder for that Contract.

F. Statement of Bidder's Qualifications: Each bidder is required to submit to the Town a recent sworn statement of the bidder's qualifications the form furnished by the Town for this purpose.

Kindly insert here the total amount of your Bid $ _ _ _ _ _ _ _ _ _ _ _ _ _
It is understood that the unit prices shall govern in case of discrepancy
between the unit-prices and this amount
This bid includes addenda no.: _N_O_N_E_