City of Meriden, Connecticut

Purchasing Department

Invitation to Bid

For

Replacement of Cedar Street Bridge (Bridge No. 04841) Over Harbor Brook

LOTCIP Project # L079-0003

Meriden, CT

B023-11

Proposals Due: December 29, 2022 @ 11:00 AM

Purchasing Department

142 East Main Street, Room 210

Meriden, CT 06450

(203) 630-4115

LEGAL NOTICE

INVITATION TO BID

The City of Meriden is accepting sealed bids for:
B023-11 – Replacement of Cedar Street Bridge (Bridge No. 04841) Over Harbor Brook
LOTCIP Project # L079-0003

The City of Meriden, Department of Public Works seeks the services of a contractor to furnish labor and materials to replace the Cedar Street Bridge in Meriden, CT.

Bids shall be submitted on forms and in the manner specified. Forms and specifications may be obtained from the Purchasing Department, on the City of Meriden website (www.meridenct.gov/business/bids-rfps/), and on the State of Connecticut Department of Administrative Services website (https://portal.ct.gov/DAS/CTSource). Bids will be accepted at the Purchasing Department, 142 East Main Street, Room 210, Meriden, Connecticut 06450 until **11:00 AM local, Eastern Standard Time on December 29, 2022** at which time they will be publicly opened and read. Any bid received after the time and date specified shall not be considered.

The right is reserved to reject any or all bids, in whole or in part, to award any item, group of items, or total bid, and to waive informality or technical defects, if it is deemed to be in the best interest of the City of Meriden. No bidder may withdraw its bid within sixty (60) days of the date of the bid opening.

There will be a **NON-MANDATORY** pre-bid meeting on Wednesday, December 15, 2022 at 10:00 AM in the Department of Public Works Conference Room, Room #28 at City Hall, 142 East Main Street, Meriden, CT 06450.

Each bid shall be accompanied by a Certified Check or Bid Bond in the amount of Ten (10%) percent of the amount bid.

Labor and Material Payment Bond and a Performance bond for One Hundred Percent (100%) of the contract price, with a corporate surety approved by the City of Meriden, will be required of the lowest responsible bidder.

The attention of bidders is call to the requirement for minimum wage rates to be paid under this contract.

This contract is subject to state set-aside and contract compliance requirements.

The City of Meriden is an Affirmative Action/Equal Opportunity Employer. Disadvantaged, minority, small, and women business enterprises are encouraged to respond.

Adam B. Tulin
Purchasing Officer
City of Meriden, CT 06450-8022
Dated: November 9, 2022

CITY OF MERIDEN, CONNECTICUT

B023-11 – Replacement of Cedar Street Bridge (Bridge No. 04841) Over Harbor Brook
LOTCIP Project # L079-0003

INFORMATION TO BIDDERS

1. BIDDING PROCEDURES

   Sealed Bids shall be submitted on the forms designated by the attached proposal bid forms. Bids will be received by the City of Meriden's Purchasing Department, Room 210, City Hall, 142 East Main Street, Meriden, Connecticut, 06450-8022 until 11:00 AM on December 29, 2022 and thereafter immediately read in public (the "bid opening").

2. BIDS

   Bids are to be submitted on the attached proposal forms. Please submit two copies of the proposal forms and Bidder's Qualification Statement. One shall be an original and one can be a copy. **Please submit one complete copy of your bid on a flash drive.**

   BID WILL BE AUTOMATICALLY REJECTED FOR ANYONE SUBMITTING A SURETY OTHER THAN THOSE SPECIFIED.

   a. Bids must be made out and signed in the corporate, or other, name of Bidder, and must be fully and properly executed by an authorized person.
   b. The sealed envelope must denote the Bidder's name and address in the upper left hand corner and the words "BID DOCUMENT – B023-11 Replacement of Cedar Street Bridge (Bridge No. 04841) Over Harbor Brook to be opened at 11:00 AM" in the lower left hand corner.
   c. Bids received later than the time and date specified will not be considered.
   d. Amendments to or withdrawal of bids received later than the date and time set forth in the bid opening will not be considered.
   e. All prices must be in ink or typewritten. In the event of a bidder's mathematical error in tabulating any bid prices, ***the written unit prices shall govern***.

3. BIDDER QUALIFICATIONS

   Bidders will be required to fill out, and include as part of its bid, any attached Bidder's Qualification Statement.

   In determining the qualifications of a bidder, the City of Meriden will consider the bidder's record of performance in any prior contracts for construction work. The City of Meriden expressly reserves the right to reject a bid if the bidder's historical performance, in the sole opinion of the City of Meriden, has been unsatisfactory in any manner or if the bidder has habitually and without just cause neglected the payment of bills or has otherwise disregarded its obligations to subcontractors, suppliers, or employees.

4. EXAMINATION OF BIDDING DOCUMENTS

Bidders are to examine all documents and visit the site in order to make a thorough examination of the conditions so that the bidder may familiarize itself with all of the existing requirements, conditions, and difficulties that will affect the execution of the work in order to determine the amount of work necessary to carry out the true intent of the specifications and work shown on the drawings.

The City of Meriden and its agents do not have any responsibility for the accuracy, completeness, or sufficiency of any bid document obtained from any other source other than from the City of Meriden. Obtaining documents from any other source(s) may result in obtaining incomplete and inaccurate information. Obtaining documents from any other source may also result in failure to receive any addenda, corrections, or other revisions to the documents that may be issued.

No request shall be honored if such request is made less than seven (7) calendar days prior to the date fixed for the opening of bids. Any and all such interpretations, and any supplementary instructions, will be in the form of a written addenda to the specifications which, if issued, will be made available on the City of Meriden website (www.meridenct.gov) unless it is to change the date fixed for the opening of bids, not later than three (3) days prior to the date fixed for the opening of bids. Bidders are encouraged to check the website regularly for addenda. Failure of any bidder to receive any such addenda shall not relieve any bidder from any obligations under its bid as submitted.

Any questions about the bid document must be submitted in writing via email to meridenpurchasing@meridenct.gov. Any other format of question will not be answered.

5. BIDS TO REMAIN OPEN

No bidder may withdraw its bid within sixty (60) days of the date of the bid opening. Should there be reason why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the City of Meriden and the successful bidder.

6. AWARD OF CONTRACT

The Purchasing Officer reserves the right to make an award on the bid which, by the Purchasing Officer's judgment and recommendation from the Department of Public Works following bid evaluations, best meets the specifications and is deemed to be in the best interest of the City of Meriden.

The contract will not be awarded to any corporation, firm, or individual which/who is in arrears to the City of Meriden by debt or contract, or who is in default as security or otherwise by any obligation to the City of Meriden.

The right is reserved to reject any or all bids, in whole or in part, to award any item, group of items, or total bid, and to waive informality or technical defects, if it is deemed to be in the best interest of the City of Meriden.

7. BID PROTEST PROCEDURE

In the event that any bidder wishes to protest the potential award of a bid, or any procedure of act in the advertising or soliciting of the bids, said bidder must make said protest in writing, which shall state the reason therefore and request a conference with respect thereto. Said protest must be received in the City Purchasing Office within **FIVE (5)** business days after the delivery of bid results or decisions. A conference with respect to said protest shall be scheduled by the Purchasing Officer forthwith and shall be attended by him or his designee and such other persons as the Purchasing Officer and the City Manager shall require to attend. The subject matter of said conference shall be limited to the reasons for the protest specified in the written request for said conference. Said conference shall also include a discussion of all possibilities for a resolution of dispute. The City shall make a decision in writing within three (3) business days after said conference and forward the same to the protesting bidder forthwith. In the event that any protesting bidder wishes to take legal action against the City, they must fully comply with all of these instructions to bidders.

8. CITY OF MERIDEN, LOCAL PREFERENCE – N/A

9. EXTENSION OF AGREEMENT – N/A

10. TIME

Inasmuch as the contract concerns a public improvement, the provisions of the contract relating to the time of performance and completion of the work are of the essence of the contract. Accordingly, the successful bidder/contractor ("Contractor") shall begin work on the day specified in paragraph 2.04 of the General Conditions and shall perform the work diligently so as to permit full use not later than the first day following the construction period established in the Contract. See paragraph 10 entitled "Liquidated Damages" of the Agreement between City of Meriden, as owner, and the Contractor.

11. SCHEDULE OF WORK

The Contractor shall schedule all work in a manner that will not disrupt City of Meriden operations. Once the work has begun, the Contractor shall work full-time until completion of the Contract.

12. TAXES

The City of Meriden is exempt under Connecticut General Statutes from the payment of the excise taxes imposed by the federal government and the Sales and Use Tax of the State of Connecticut; such taxes should not be included in the bid price. Upon request, exemption certificates will be furnished to the successful bidder.

13. FAIR EMPLOYMENT PRACTICES

The Contractor shall agree that neither it or its subcontractors, except in the case of a bona fide occupational qualification or need, to refuse to hire or employ or to bar or to discharge from employment any individual or to discriminate against such individual in compensation or in terms, conditions or privileges of employment because of the individual's race, color, religious creed, age, sex, gender identity or expression, marital status, national origin, ancestry, present or past history of mental disability, intellectual disability, learning disability, physical disability, including, but not limited to, blindness or status as a veteran. The aforementioned terms are obtained from Connecticut General Statutes Section 46a-60, *et seq.,* entitled "Discriminatory employment practices prohibited," as amended.

14. FORM OF AGREEMENT BETWEEN CITY OF MERIDEN AND CONTRACTOR

The Agreement for the work will be written on the Agreement between City of Meriden and Contractor, wherein the basis of payment is a stipulated sum.

15. LOCAL SUBCONTRACTORS, SUPPLIERS, etc.

Local subcontractors, material suppliers, and labor in the City of Meriden should be considered and sought out insofar as it is practical in the performance of this project.

16. CITY OF MERIDEN CODE OF ETHICS

The City of Meriden has adopted a Code of Ethics located in Chapter 21 of the Code of the City of Meriden, sections 21-1 through 21-15, inclusive, which are expressly incorporated herein by reference. The terms of the Code of Ethics shall constitute a part of any contract or agreement entered into by the City of Meriden as a result of this bid as if those terms were fully set forth in such contract or agreement.

Bidders are specifically advised that the Code of Ethics prohibits public officers and employees, as well as their immediate families and businesses, with which they are associated from participating in any transaction which is incompatible with the proper discharge of official duties or responsibilities. Bidders are also advised that the Code of Ethics contain provisions with respect to paid contractors and former employees and officials.

BIDDERS SHOULD NOTE THAT BIDS, CONTRACTS, AND AGREEMENTS ENTERED INTO OR AWARDED IN VIOLATION OF THE CODE OF ETHICS ARE VOIDABLE BY RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MERIDEN.

Copies of the Code of Ethics may be obtained from the office of the City Clerk or may be found online on the City of Meriden's website.

17. NON-COLLUSION BID STATEMENT

Each bidder submitting a bid to the City of Meriden for any portion of the work contemplated by the documents on which bidding is based shall execute and attach thereto the sworn Non-Collusive Bid Statement, to the effect that the bidder has not colluded with any other person, firm, or corporation in the submission of the bid.

18. SOIL CONDITIONS

The City of Meriden does not guarantee the accuracy of any information which it may have obtained as to the kind or condition of the soil that may be encountered in the performance of the proposed work; neither does the City of Meriden represent that the plans and specifications drawn are based upon any soil data so obtained. The City of Meriden does not make any representations as to the soil data so obtained. The City of Meriden does not make any representations as to the soil conditions to be encountered or as to foundation materials.

19. AWARD IN CASE OF A TIE

In the event there are two or more responsive bidders, the decision to award will be based by the following criteria and in the following order:

a. The incumbent will be awarded the bid over that of another bidder.
b. In the case of a multi-item bid, if one bidder has been awarded other items from the same bid and the other bidder has not, the bidder with the multiple awards will be awarded the bid over that of another bidder.
c. The bidder located in the State of Connecticut will be awarded the bid over that of another bidder.
d. The winner of a coin toss will be awarded the bid over that of another bidder.

The above-referenced provisions do not apply to those situations in which more than one City-based business responsible bidder has submitted bids not more than ten (10) percent higher than the lowest bid and has agreed to accept the award of the bid at the amount of the lowest bid. Under such circumstances, the provisions of the Code of the City of Meriden, section 13-4, are controlling, as set forth under Section 8 of this 'Information to Bidders.'

20. ASSIGNMENT OF CONTRACT

No contract may be assigned without the written consent of the Purchasing Officer or designee.

21. PERMITS

The Contractor shall be responsible for obtaining any and all necessary permits required by the City of Meriden prior to the commencement of work. The Contractor may contact the

City of Meriden Building Department for permit information at (203) 630-4091. For all other required permits, contact the City of Meriden Engineering Department at (203) 630-4018.

22. BID PRICE AND PAYMENT

The City of Meriden is exempt from the payment of the excise taxes imposed by the Federal government and the Sales and Use Tax of the State of Connecticut under Connecticut General Statutes; accordingly, such taxes shall not be included in the bid price.

The City of Meriden, unless stated otherwise in the bidding documents or Contract, will make payment to the Contractor not less than thirty (30) days following completion of services.

23. QUALITY

All materials, equipment, supplies, and services shall be subject to rigid inspection. If defective material, equipment, supplies, or services are discovered, the Contractor shall remove or make good such material, equipment, or supplies without extra compensation. It is expressly understood and agreed that any inspection by the City of Meriden will in no way lessen the responsibility of the Contractor or release Contractor from the obligation to perform and deliver to the City sound and satisfactory materials, equipment, supplies, or allow the cost to be deducted from any monies due it from the City of Meriden. All services will be performed in a workmanlike manner.

24. INSURANCE

The successful bidder shall be required to provide a Certificate of Insurance denoting general liability, automobile liability, workers compensation liability, and other coverage required by the City's Risk Manager.

25. CITY HALL CLOSING

If Meriden City Hall is closed due to inclement weather, or any other unforeseen event, bids will be due at the same time on the next business day that City Hall is open.

26. CHRO

The contractor who is selected to perform this State project must comply with CONN. GEN. STAT. §§ 4a-60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5. An Affirmative Action Plan must be filed with and approved by the Commission on Human Rights and Opportunities prior to the commencement of construction. State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services ("DAS") under the provisions of CONN. GEN. STAT. § 4a-60g, as amended. (25% of the work with DAS certified Small and Minority owned businesses and 25% of that work with DAS certified

Minority, Women and/or Disabled owned businesses.) The contractor must demonstrate good faith effort to meet the 25% set-aside goals. For municipal public works contracts and quasi-public agency projects, the contractor must file a written or electronic non-discrimination certification with the Commission on Human Rights and Opportunities. Forms can be found at http://www.ct.gov/opm/cwp/view.asp?a=2982&q=390928&opmNav_GID=1806.

27. PAYMENT REQUISITIONS & CERTIFIED PAYROLL

Progress payment requisitions are due monthly on last day of the month for work completed during the contract period. Requisitions are to be sent to the Architect/Engineer and/or City of Meriden Department responsible for management/administration of the contracted work.

Certified Payroll for construction contracts that require State of Connecticut Prevailing Wage Determinations are required for each week of work by the Contractor and any or all the Contractor's Subcontractors and are due monthly with each requisition. One hard copy and one electronic copy shall be sent to the Architect/Engineer and the City of Meriden Purchasing Department. No progress payments will be issued to the Contractor without accompanying Certified Payroll.

For federally funded construction contracts with Davis Bacon Wage Determinations, Certified Payroll for all employees of the Contractor and any or all of the Contractor's Subcontractors are required to be submitted weekly to the Architect/Engineer and to the City of Meriden Purchasing Department. One hard copy and one electronic copy shall be sent to the Architect/Engineer and the City of Meriden Purchasing Department. Employees on the construction site will be interviewed by City of Meriden Staff and/or City of Meriden subcontracted Project Management/Clerk-of-the-Works/Owner's Representatives for Davis Bacon compliance. No progress payments will be issued to the Contractor without accompanying Certified Payroll.

CITY OF MERIDEN, CONNECTICUT

B023-11 – Replacement of Cedar Street Bridge (Bridge No. 04841) Over Harbor Brook

NON-COLLUSIVE BID STATEMENT/AFFIDAVIT

The undersigned bidder, having been duly sworn, does hereby depose and says:

1. The bid has been arrived at by the bidder independently and has been submitted without collusion and without any agreement, understanding, or planned common course of action with any other vendor of materials, supplies, equipment, or services described in the Invitation to Bid.

2. The contents of the bid have not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid, and will not be communicated to any such person prior to the official opening of the bid.

3. The undersigned bidder is duly authorized to bind the business entity identified below.

The undersigned bidder further certifies, under oath, that this statement is executed for the purposes of inducing the City of Meriden to consider the bid and make an award in accordance therewith.

_____
Signature of Bidder

_____
Print Legal Name of Bidder

_____
Relationship to Business Entity Below

_____
Business Entity Name, Address, Telephone Number, and Email Address

STATE OF CONNECTICUT)
) ss:
COUNTY OF)

Duly sworn and subscribed to before me
this __ day of _____, 2022.

_____
Notary Public
My Commission Expires:
Commissioner of the Superior Court

BIDDER'S QUALIFICATION STATEMENT

This Statement of Bidder's Qualifications is to be submitted by the bidder at the time of the bid opening. All questions must be answered and the data given must be clear and comprehensive. If necessary, questions must be answered on attached sheets. The bidder may submit any additional information they desire. It is understood that when the City has executed an Agreement, to which these General Conditions are a part, it is, in part, done upon the reliance of the answers provided herein by the bidder or the agent of the bidder.

Firm Name _____

Address _____

_____

_____

Telephone _____ Fax_____

Officers: _____ President
_____ Vice President
_____ Secretary
_____ Treasurer

Bank References: _____

_____

_____

_____

Bond surety Company: _____

_____

If a partnership, give names of partners. If a sole proprietorship, give name and title of a least one responsible employee.

_____

_____

_____

Experience: The Bidder shall be qualified by experience to perform work of this nature and shall list five (5) examples of similar projects completed within the past five (5) years, with the names of responsible parties as references.

PROJECT	OWNER	TELEPHONE NUMBER CONTACT NAME	COST

1. Minority owned business? _____ yes _____ no

2. Years organized. _____

3. Is your company a corporation _____yes _____ no
If yes where incorporated? _____

4. How many years have you been engaged in business under your present firm name? _____

5. Former Firm Name (if any)_____

6. List total number of Personnel _____

7. Is any principal of your firm an employee or public official of the City of Meriden, or an immediate family member of an employee or public official of the City of Meriden? (Definition of immediate family includes: an individual's spouse, fiancé or fiancée; the parent, brother or sister of such individual or spouse; and the child of such individual or the spouse of such child.)
_____ yes _____ no

8. List Vehicles and Equipment that you will use to perform this work: (show age of vehicles and equipment, sizes, capacities, etc.

_____
_____
_____
_____
_____
_____

9. List the work to be performed by Subcontractors and summarize the dollar value of each subcontract.

_____
_____
_____
_____
_____

10. List the name and address of the more important contracts recently completed by you, starting the approximate gross cost for each, and the month and year completed:

_____
_____
_____
_____
_____
_____

11. General character of work performed by you_____
_____
_____

12. Have you ever failed to complete any contract awarded to you? If so, where and why?

_____
_____
_____
_____

13. Have you ever defaulted on a contract? If so where and why?

_____

_____

_

14. Have you ever filed bankruptcy: _____Please explain:_____

_____

_____

_____

15. Will you, upon request, furnish any information that may be required by the City of Meriden?_____

16. The undersigned hereby authorizes and request any person, firm or cooperation to furnish any information requested by the City of Meriden, in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated this _____day of _____, 20_____
day month year

_____
Name of Bidder

_____
Title

State of _____
County of _____

_____ being duly sworn deposes and says that they are
Name

_____ of _____
title name of organization

and that the answers to the forgoing question and all statement therein contained are true and correct

Subscribed and sworn to before me
this _____ day of _____ 20_____
day month year

_____
Notary Public signature

My commission expires _____

FORM OF SURETY GUARANTY

(Shall accompany proposal)

KNOW ALL MEN BY THESE PRESENTS, that for and in consideration of the sum of $1.00, lawful money of the United States, the receipt whereof is hereby acknowledged, paid the undersaid corporation, and for other valuable consideration the

_____

(Name of Surety Company) .

a corporation organized and existing under the laws of the State of _____

and licensed to do business in the State of _____ certifies and agrees

that if Contract _____

is awarded to - _____
(Name of Bidder)

Corporation will execute the bond or bonds as required by the Contract Documents and will become surety in the full amount of the Contract price for the faithful performance of the Contract and for payment of all persons supplying labor or furnishing or furnishing materials in connection thencewith.

_____
(Surety)

The language of this form shall generally be given on the official form normally provided by the Surety Company complete with the usual proof of Authority of Officers of the Surety Company to execute said official form.

Should a bid be offered with a check as surety without said official form, such bid shall be rejected.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned
_____,
(Name of Principal)
As Principal, and _____, as Surety are firmly bound
(Name of Surety)
Unto the CITY OF MERIDEN, CONNECTICUT hereinafter called the "OWNER", in the penal sum of

_____DOLLARS, ($_____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents:

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, WHEREAS, the said Principal has submitted the Accompanying bid dated _____, 20 _____

For _____

_____

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the Period specified therein after the opening of the same, or if no period be specified, within thirty (30) days after the said opening and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Owner in accordance with the Bid, as accepted, and give bond with good and sufficient surety or sureties, as may be required for the faithful performance and proper fulfillment of such Contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the Amount for which the Owner may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be voice and of no effect, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, this _____ day of _____, 20 .

_____
(Principal)

_____
(Address) (Affix seal)

_____ By: _____
Witness Signature

_____
(Surety)

_____
(Address) (Affix seal)

_____ By: _____
Witness Signature

CITY OF MERIDEN, CONNECTICUT
SCHEDULE OF PRICES FOR THE CONSTRUCTION OF CITY PROJECT NO. B023-11
LOTCIP PROJECT NO. L079-0003
REPLACEMENT OF CEDAR STREET BRIDGE (BRIDGE NO. 04841) OVER HARBOR BROOK
CITY OF MERIDEN, CONNECTICUT

DATE OF
BID OPENING **December 29, 2022** 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 NO.		ITEM	UNIT	QUANTITIES	FIGURES	WRITTEN	(FIGURES)
0020763	A	Disposal of Sediments	Ton	50			
0101000	A	Environmental Health and Safety	L.S.	1			
0101117	A	Controlled Materials Handling	C.Y.	1400			
0101128	A	Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area	L.S.	1			
0201001		Clearing and Grubbing	L.S.	1			
0201199	A	Remove and Reset Fence	L.F.	410			
0202000		Earth Excavation	C.Y.	1215			
0202200		Channel Excavation-Earth	C.Y.	890			
0202216	A	Excavation and Reuse of Existing Channel Bottom Material	C.Y.	35			
0202217	A	Supplemental Streambed Channel Material	Est.	1	$ 7,600.00	Seven Thousand Six Hundred Dollars and Zero Cents	$ 7,600.00
0202315	A	Disposal of Controlled Materials	Ton	2100			
0202318	A	Management of Reusable Controlled Material	C.Y.	1300			
0202529		Cut Bituminous Concrete Pavement	L.F.	80			
0203202		Structure Excavation - Earth (Excluding Cofferdam and Dewatering)	C.Y.	2020			
0203304		Structure Excavation - Rock (Excluding Cofferdam & Dewatering)	C.Y.	195			
0204001		Cofferdam and Dewatering	L.F.	500			
0204151	A	Handling Water	L.S.	1			
0204210	A	Handling Contaminated Groundwater	L.S.	1			
0209001		Formation of Subgrade	S.Y.	1635			
0212000		Subbase	C.Y.	455			
0213100		Granular Fill	C.Y.	135			
0216000		Pervious Structure Backfill	C.Y.	900			
0219001		Sedimentation Control System	L.F.	785			
0286001.10		Rock In Drainage Trench Excavation 0'-10' Deep	C.Y.	5			
0406170		HMA S1	Ton	585			
0406171		HMA S0.5	Ton	460			

ITEM NO.	ITEM	UNIT	QUANTITIES	FIGURES	WRITTEN	(FIGURES)
0406173	HMA S0.25	Ton	30			
0406236	Material for Tack Coat	Gal.	495			
0503890 A	Removal of Existing Bridge	L.S.	1			
0514227	Prestressed Deck Units (4'-0" X 2'-0")	L.F.	754			
0520036 A	Asphaltic Plug Expansion Joint System	C.F.	35			
0521021 A	Steel-Laminated Elastomeric Bearings	C.I.	7375			
0586001.10	Type 'C' Catch Basin - 0'-10' Deep	Ea.	2			
0601062	Footing Concrete	C.Y.	275			
0601064	Abutment and Wall Concrete	C.Y.	290			
0601088 A	Concrete Form Liners	S.F.	590			
0601118	Bridge Deck Concrete	C.Y.	85			
0601121	Parapet Concrete	L.F.	130			
0601122	Bridge Sidewalk Concrete	C.Y.	30			
0601123	Approach Slab Concrete	C.Y.	65			
0601504	1" Preformed Expansion Joint Filler for Bridges	S.F.	405			
0601640	1" CLOSED CELL ELASTOMER	C.I.	625			
0602030	Deformed Steel Bars-Galvanized	Lbs.	92000			
0607001 A	Dry Rubble Masonry	C.Y.	15			
0686000.18	18" R.C. Pipe - 0'-10' Deep	L.F.	132			
0686950.10	Remove Existing Pipe - 0' - 10' Deep	L.F.	117			
0703012	Modified Riprap	C.Y.	25			
0707009 A	Membrane Waterproofing (Cold Liquid Elastomeric)	S.Y.	410			
0708001	Dampproofing	S.Y.	360			
0755014	Geotextile (Separation -High Survivability)	S.Y.	70			
0813021	6" Granite Stone Curbing	L.F.	760			
0815001	Bituminous Concrete Lip Curbing	L.F.	55			
0817005 A	6" Granite Stone Curbing for Bridges	L.F.	130			
0819002 A	Penetrating Sealer Protective Compound	S.Y.	160			
0822001	Temporary Precast Concrete Barrier Curb	L.F.	120			
0904487 A	Metal Bridge Rail (Handrail)	L.F.	130			
0910173	R-B 350 Bridge Attachment -Vertical Shaped Parapet	Ea.	4			
0911924	R-B End Anchorage - Type II	Ea.	4			
0913021	6' Chain Link Fence	LF	155			
0921001	Concrete Sidewalk	S.F.	3840			
0922501	Bituminous Concrete Driveway	S.Y.	60			
0924006	Concrete Driveway Ramp	S.F.	250			

ITEM NO.	ITEM	UNIT	QUANTITIES	FIGURES	WRITTEN	(FIGURES)
0944000	Furnishing and Placing Topsoil	S.Y.	950			
0950005	Turf Establishment	S.Y.	950			
0969060 A	Construction Field Office (Small)	Mo.	9			
0970006	Trafficperson (Municipal Police Officer)	Est.	1	$ 10,000.00	Ten Thousand Dollars and Zero Cents	$ 10,000.00
0970007	Trafficperson (Uniformed Flagger)	Hr	120			
0971001 A	Maintenance and Protection of Traffic	L.S.	1			
0974001	Removal of Existing Masonry	C.Y.	155			
0975004	Mobilization and Project Closeout	L.S.	1			
0976002	Barricade Warning Light-High Intensity	Day	1620			
0977001	Traffic Cone	Ea.	25			
0979003	Construction Barricade Type III	Ea.	4			
0980020	Construction Surveying	L.S.	1			
1008320	5" Rigid Metal Conduit in Structure	L.F.	765			
1208931 A	Sign Face - Sheet Aluminum (Type IX Retroreflective Sheeting)	S.F.	5			
1210101	4" White Epoxy Resin Pavement Markings	L.F.	930			
1210102	4" Yellow Epoxy Resin Pavement Markings	L.F.	930			
1220027	Construction Signs	S.F.	325			
1301082 A	8" Ductile Iron Pipe (Water Main)	L.F.	190			
1302004 A	8" Gate Valve	Ea.	1			
1303204 A	Hydrant Assembly (Water Main)	Ea.	1			
1401242 A	8" Ductile Iron Pipe (Sanitary Sewer)	L.F.	13			
1401662 A	Sanitary Manhole (4' Dia.) 0'-10' Deep	Ea.	2			
1403501 A	Reset Manhole (Sanitary Sewer)	Ea.	3			
1504010 A	Temporary Support of Utilities	L.S.	1			
					TOTAL	

NAME OF BIDDER _____

ADDRESS _____

BY: _____

Print or type name_____Title_____

SIGNATURE _____ DATE _____

TELEPHONE _____ FAX: _____ E-Mail _____

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.

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof 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 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.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine
Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007,* where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY 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.

STATUTE 31-55a

- SPECIAL NOTICE -

To: All State and Political Subdivisions,Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the ***contractor's*** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.

- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

NOTICE

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

Inquiries can be directed to 860.263.6790.

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

Contracting Agency Certification Form

I,_____, acting in my official capacity as _____,
Authorized Representative Title

for _____, located at _____,
Contracting Agency Address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
Project name and number Address

shall be $_____, which includes all work, regardless of whether such project contains of one or more contracts.

Contractor Information

Name: _____

Address: _____

Authorized Representative: _____

Approximate Starting Date: _____

Approximate Completion Date: _____

_____ _____
Signature Date

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

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): _____

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:

SUBCONTRACTOR NAME & ADDRESS

WORKER'S COMPENSATION INSURANCE CARRIER

POLICY #

EFFECTIVE DATE:
EXPIRATION DATE:

PAYROLL NUMBER | Week-Ending Date | PROJECT NAME & ADDRESS

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY								$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

12/9/2013
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER _____OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care _____ 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance _____ 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as

Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

_____ _____ _____

(Signature) (Title) Submitted on (Date)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Weekly Payroll Certification For Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

Week-Ending Date:

Contractor or Subcontractor Business Name:

WEEKLY PAYROLL

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S HOURS WORKED EACH DAY	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

*IF REQUIRED

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:
Landon Corporation, 15 Connecticut Avenue, Northford, CT 06472

SUBCONTRACTOR NAME & ADDRESS
XYZ Corporation
2 Main Street
Yantic, CT 06389

WORKER'S COMPENSATION INSURANCE CARRIER
Travelers Insurance Company
POLICY # #BAC8888928
EFFECTIVE DATE: 1/1/09
EXPIRATION DATE: 12/31/09

PAYROLL NUMBER: 1
Week-Ending Date: 9/26/09
PROJECT NAME & ADDRESS: DOT 105-296, Route 82

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION / Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE: S 20	M 21	T 22	W 23	TH 24	F 25	S 26	Total ST Hours / Total O/T Hours	BASE HOURLY RATE / TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS: FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY																
Robert Craft 81 Maple Street Willimantic, CT 06226		M/C	Electrical Lineman E-1 1234567 Owner OSHA 123456		8	8	8	8	8		S-TIME 40 O-TIME	$ 30.75 Base Rate $ 8.82 Cash Fringe	1. $ 5.80 2. $ 3. $ 2.01 4. $ 5. $ 6. $	$1,582.80				P-xxxx	$1,582.80	#123 $ xxx.xx
Ronald Jones 212 Elm Street Norwich, CT 06360	65%	M/B	Electrical Apprentice OSHA 234567		8	8	8	8	8		S-TIME 40 O-TIME	$ 19.99 Base Rate $ 16.63 Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $	$1,464.80	xx.xx	xxx.xx	xx.xx	G-xxx	$1,464.80	#124 $xxx.xx
Franklin T. Smith 234 Washington Rd. New London, CT 06320 SECTION B		M/H	Project Manager			8					S-TIME 8 O-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $	$1,500.00	xx.xx	xx.xx	xx.xx	M-xx.x		#125 xxx.xx
											S-TIME O-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

7/13/2009
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER 1 OF 2

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care Blue Cross 4) Disability _____

2) Pension or retirement _____ 5) Vacation, holiday _____

3) Life Insurance Utopia 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of 9/26/09,

I, Robert Craft of XYZ Corporation, (hereafter known as

Employer) in my capacity as Owner (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such employee of the Employer is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such employee's name first appears.

Robert Craft (Signature) owner (Title) 10/2/09 Submitted on (Date)

Section B: Applies to CONNDOT Projects ONLY
That pursuant to CONNDOT contract requirements for reporting purposes only, all employees listed under Section B who performed work on this project are not covered under the prevailing wage requirements defined in Connecticut General Statutes Section 31-53.

Robert Craft (Signature) owner (Title) 10/2/09 Submitted on (Date)

Note: CTDOL will assume all hours worked were performed under Section A unless clearly delineated as Section B WWS-CP1 as such. Should an employee perform work under both Section A and Section B, the hours worked and wages paid must be segregated for reporting purposes.

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine *"job classification"* on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

- ***ASBESTOS WORKERS***

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- ***ASBESTOS INSULATOR***

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- ***BOILERMAKERS***

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- ***BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS***

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- ***CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS***

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

• The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

• If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

• An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- ***ELECTRICIANS***

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ****License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.***

- ***ELEVATOR CONSTRUCTORS***

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ****License required by Connecticut General Statutes: R-1,2,5,6.***

- ***FORK LIFT OPERATOR***

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- ***GLAZIERS***

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- ***IRONWORKERS***

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- ***INSULATOR***

• Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- ***LABORERS***

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- ***PAINTERS***

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- ***LEAD PAINT REMOVAL***

• Painter's Rate

1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

• Laborer's Rate

1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- ***PLUMBERS AND PIPEFITTERS***

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- ***POWER EQUIPMENT OPERATORS***

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- ***ROOFERS***

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- ***SHEETMETAL WORKERS***

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- ***SPRINKLER FITTERS***

Installation, alteration, maintenance and repair of fire protection sprinkler systems. ****License required per Connecticut General Statutes: F-1,2,3,4.***

- ***TILE MARBLE AND TERRAZZO FINISHERS***

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ****License required, drivers only, per Connecticut General Statutes.***

For example:

• Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
• Hauling material off site is not covered provided they are not dumping it at a location outlined above.
• Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➢ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6790.

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.

Important Information:

Welders: Rate for craft to which welding is incidental.

*Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.

**Note: Hazardous waste premium $3.00 per hour over classified rate

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

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.

Minimum Rates and Classifications for
Heavy/Highway Construction

ID#: 22-41056

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: B023-11; LOTCIP: Project Town: Meriden
State#: FAP#:
Project: Replacement of Cedar Street Bridge (Bridge No. 04841) Over Harbor Brook

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	44.46	28.51
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	38.27	34.47
2) Carpenters, Piledrivermen	36.07	26.15
2a) Diver Tenders	36.07	26.15
3) Divers	44.53	26.15
03a) Millwrights	36.32	26.81
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	55.0	23.75
4a) Painters: Brush and Roller	37.22	23.40
4b) Painters: Spray Only	40.22	23.40

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4c) Painters: Steel Only	39.22	23.40
4d) Painters: Blast and Spray	40.22	23.40
4e) Painters: Tanks, Tower and Swing	39.22	23.40
4f) Elevated Tanks (60 feet and above)	46.22	23.40
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	40.6	32.21+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	39.7	38.77 + 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)	47.03	34.05
----LABORERS---- -		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	32.0	24.40
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	32.25	24.40
10) Group 3: Pipelayers	32.5	24.40
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	32.5	24.40
12) Group 5: Toxic waste removal (non-mechanical systems)	34.0	24.40

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13) Group 6: Blasters	33.75	24.40
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	33.0	24.40
Group 8: Traffic control signalmen	18.0	24.40
Group 9: Hydraulic Drills	32.75	24.40
----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	34.23	24.40 + a
13b) Brakemen, Trackmen, Miners' Helpers and all other men	33.26	24.40 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		
14) Concrete Workers, Form Movers, and Strippers	33.26	24.40 + a
15) Form Erectors	33.59	24.40 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers, Miners Helpers	33.26	24.40 + a
17) Laborers Topside, Cage Tenders, Bellman	33.15	24.40 + a
18) Miners	34.23	24.40 + a

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----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----

18a) Blaster	40.72	24.40 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	40.52	24.40 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	38.54	24.40 + a
21) Mucking Machine Operator, Grout Boss, Track Boss	41.31	24.40 + a

----TRUCK DRIVERS----(*see note below)

Two Axle Trucks, Helpers	31.16	28.78 + a
Three Axle Trucks; Two Axle Ready Mix	31.27	28.78 + a
Three Axle Ready Mix	31.33	28.78 + a
Four Axle Trucks	31.39	28.78 + a
Four Axle Ready-Mix	31.44	28.78 + a
Heavy Duty Trailer (40 tons and over)	33.66	28.78 + a
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	31.44	28.78 + a
Heavy Duty Trailer (up to 40 tons)	32.39	28.78 + a

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Snorkle Truck	31.54	28.78 + a
----POWER EQUIPMENT OPERATORS----		
Group 1: Crane Handling or Erecting Structural Steel or Stone, Hoisting Engineer (2 drums or over). (Trade License Required)	50.27	26.80 + a
Group 1a: Front End Loader (7 cubic yards or over); Work Boat 26 ft. and over.	46.07	26.80 + a
Group 2: Cranes (100 ton rate capacity and over); Bauer Drill/Caisson. (Trade License Required)	49.91	26.80 + a
Group 2a: Cranes (under 100 ton rated capacity).	49.06	26.80 + a
Group 2b: Excavator over 2 cubic yards; Pile Driver ($3.00 premium when operator controls hammer).	45.71	26.80 + 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)	44.86	26.80 + a
Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper).	44.42	26.80 + 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)	43.73	26.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	43.73	26.80 + a

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Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	43.38	26.80 + 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)	42.99	26.80 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	42.54	26.80 + 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).	42.04	26.80 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	39.7	26.80 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	39.7	26.80 + a
Group 12: Wellpoint Operator.	39.63	26.80 + a
Group 13: Compressor Battery Operator.	38.97	26.80 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	37.66	26.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	37.2	26.80 + a
Group 16: Maintenance Engineer.	36.46	26.80 + a
Group 17: Portable Asphalt Plant Operator; Portable Crusher Plant Operator; Portable Concrete Plant Operator., Portable Grout Plant Operator, Portable Water Filtration Plant Operator.	41.39	26.80 + a

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Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	38.61	26.80 + a

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----

20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
21) Heavy Equipment Operator	42.26	6.5% + 19.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
23) Driver Groundmen	26.5	6.5% + 9.00
23a) Truck Driver	40.96	6.5% + 17.76

----LINE CONSTRUCTION----

24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.1	6.5% + 10.70
27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.*

***Note: Hazardous waste premium $3.00 per hour over classified rate*

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time 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: October 28, 2022

STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR
ON THE BASIS OF A STIPULATED PRICE
B023-11 – REPLACEMENT OF CEDAR STREET BRIDGE (BRIDGE NO. 04841) OVER HARBOR BROOK
LOTCIP PROJECT # L079-0003

THIS AGREEMENT is dated as of the _____ day of _____ 2022 by and between the City of Meriden, 142 East Main Street Meriden, CT 06450 hereinafter called OWNER and _____hereinafter called CONTRACTOR.

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK.

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: to furnish labor and materials to replace the Cedar Street Bridge in Meriden, CT.

The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows: to furnish labor and materials to replace the Cedar Street Bridge in Meriden, CT.

Article 2. ENGINEER.

The Project has been designed by WMC Consulting Engineers who is hereinafter called ENGINEER and who is to act as Owner's representative, assume all duties and responsibilities and has the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the contract documents.

Article 3. CONTRACT TIMES.

3.1 The Work will be substantially completed by October 1, 2023, after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07B of the General Conditions by October 15, 2023 after the date when the Contract Times commence to run.

3.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER One Thousand Six-Hundred Dollars **($1,600.00)** for each day that expires after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the time specified in paragraph 3.1 for completion and readiness for final payment or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER One Thousand Six-Hundred Dollars **($1,600.00)** for each day that expires after the time specified in paragraph 3.1 for completion and readiness for final payment.

Article 4. CONTRACT PRICE.

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraphs 4.1 and 4.2 below:

4.1. For all Work, other than Unit Price Work, a Lump Sum of:

Figures:

Written:

All specific cash allowances are included in the above price and have been computed in accordance with 11.02 of the General Conditions;

Plus

4.2. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in this paragraph 4.2:

UNIT PRICE WORK

NO.	ITEM	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL ESTIMATED

TOTAL OF ALL UNIT PRICES:

_____ $_____

Written Figures

As provided in paragraph 11.03 of the General Conditions estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by ENGINEER as provided in paragraph 9.07 of the General Conditions. Unit prices have been computed as provided in paragraph 11.03C of the General Conditions.

(The Bid may be attached. Any attachments and/or exhibits attached should be listed in Article 8).

If adjustment prices for variations from stipulated Base Bid quantities have been agreed to, insert appropriate provisions.

Article 5. PROGRESS PAYMENTS.

5.1 Based upon applications for Payment submitted to the Engineer by the Contractor and Certificates for Payment issued by the Engineer, the Owner shall make progress payments on account to the Contractor as provided below and elsewhere in the Contract Documents.

5.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

5.3 Each Application for Payment shall be based upon the Schedule of Values submitted by the Contractor in accordance with the Contract Documents. The Schedule of Values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the Engineer may require. This Schedule, unless objected to by the Engineer, shall be used as a basis for reviewing the Contractor's Applications for Payment.

5.4 Applications for Payment shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

5.5 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

5.6.1 Take that portion of the Contract sum properly allocable to completed work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocated to that portion of the work in the Schedule of Values, less retainage of five percent (5 percent). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in appropriate sections of the General Conditions even though the Contract Sum has not yet been adjusted by Change Order.

5.6.2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing) less retainage of five percent (5 percent).

5.6.3 Subtract the aggregate of previous payments made by the Owner; and

5.6.4 Subtract amounts, if any, for which the Engineer has withheld or nullified a Certificate for Payment as provided in Paragraph 14.02.B.5 of the General Conditions.

5.7 The progress payment amount determined in accordance with Paragraph 5.6 shall be further modified under the following circumstances;

(Not applicable)

5.7.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to ninety-five percent (95) of the Contract Sum, less such amounts as the Engineer shall determine for incomplete Work and unsettled claims; and

5.7.2 Add, if final completion of the Work is thereafter materially delayed, through no fault of the Contractor, additional amounts payable in accordance with Paragraph 14.08 of the General Conditions.

5.8 Reduction or limitation of retainage, if any shall be as follows:

(Not applicable)

5.9 Progress payment requisitions are due monthly on last day of the month for work completed during the contract period. Requisitions are to be sent to the Architect/Engineer and/or City of Meriden Department responsible for management/administration of the contracted work.

Certified Payroll for construction contracts that require State of Connecticut Prevailing Wage Determinations are required for each week of work by the Contractor and any or all the Contractor's Subcontractors and are due monthly with each requisition. One hard copy and one electronic copy shall be sent to the Architect/Engineer and the City of Meriden Purchasing Department. No progress payments will be issued to the Contractor without accompanying Certified Payroll.

For federally funded construction contracts with Davis Bacon Wage Determinations, Certified Payroll for all employees of the Contractor and any or all of the Contractor's Subcontractors are required to be submitted weekly to the Architect/Engineer and to the City of Meriden Purchasing Department. One hard copy and one electronic copy shall be sent to the Architect/Engineer and the City of Meriden Purchasing Department. Employees on the construction site will be interviewed by City of Meriden Staff and/or City of Meriden subcontracted Project Management/Clerk-of-the-Works/Owner's Representatives for Davis Bacon compliance. No progress payments will be issued to the Contractor without accompanying Certified Payroll.

Article 6. INTEREST.
No interest shall be due or paid on any monies not paid when due.

Article 7. CONTRACTOR'S REPRESENTATIONS.
In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

7.1. CONTRACTOR has examined and carefully studied the Contract Documents including the Addenda listed in paragraph 8 and the other related data identified in the Bidding Documents including "technical data."

7.2. CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.

7.3. CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

7.4. CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions. CONTRACTOR accepts the determination of the extent of the "technical data" contained in such reports and drawings upon which CONTRACTOR is entitled to rely. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for Contractor's purposes. CONTRACTOR acknowledges that

OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site. CONTRACTOR has obtained and carefully studied assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the contract Documents.

7.5. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.

7.6. CONTRACTOR has correlated the information known to CONTRACTOR, information and observation obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.

7.7. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Article 8. CONTRACT DOCUMENTS.
The Contract Documents, which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work, consist of the following:

8.1. This Agreement.

8.2. General Conditions and Supplemental General Conditions.

8.3. Notice of Award – **Attachment A**

8.4. Performance, Payment, and other Bonds – **Attachment B**.

8.5. Insurance certificate – **Attachment C**

8.6. Contractor's Bid Proposal, Non-Collusive Bid Statement, Bidder's Qualification Statement, St of CT Forms that are applicable - **Attachment D**

8.7. Connecticut Department of Labor – Wage and Workplace Standards Division.

8.8. **"By Reference":** The complete Specifications as included in the bidding documents bearing the title.

8.9. **"By Reference":** List of Drawings: Sheet No's. __ through ___ included in the bidding documents.

The above documents are on file in the City of Meriden's Purchasing Department.

8.10. Addenda numbers _____.
(Those addenda which pertain exclusively to the bidding process need not be listed.)

8.11. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All-Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to paragraphs 3.04 and 3.05 of the General Conditions.

There are no Contract Documents other than those listed above. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.04 and 3.05 of the General Conditions.

Article 9. MISCELLANEOUS.

9.1. Terms used in this Agreement which are defined in Article I of the General Conditions will have the meanings indicated in the General Conditions.

9.2. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
9.3. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

9.4. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

9.5 OTHER PROVISIONS.

Non-Discrimination and Affirmative Action Provisions

(A)(1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, sexual orientation, 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. The Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved; (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 such Contractor has a collective bargaining agreement or other contract or understanding and each

vendor with which such Contractor has a contract or understanding, a notice to be provided by the commission 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 sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, 46a-68e,46a-68f and 46a-86; (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this section and section 46a-56.

(B) Any Contractor who is a party to a municipal public works contract or quasi-public agency project, where any such contract is valued at less than $50,000 for each year of the contract, shall provide the Commission on Human Rights and Opportunities with a written or electronic representation that complies with the nondiscrimination agreement and warranty under subsection (A)(1) above, provided if there is any change in such representation, the Contractor shall provide the updated representation to the Commission not later than 30 days after such change. Any Contractor who is a party to a municipal public works contract or a quasi-public agency project, where any such contract is valued at $50,000 or more for any year of the contract, shall provide the Commission with any one of the following: (1) Documentation in the form of a company or corporate police adopted by resolution of the board of directors, shareholder, managers, members or other g9overning body of such Contractor that complies with the nondiscrimination agreement and warranty under subsection (A)(1) of this section; (2) Documentation in the form of a company or corporate policy adopted by a prior resolution of the board of directors, shareholders, managers, members or other governing body of such contractor if (a) the prior resolution is certified by a duly authorized corporate officer of such contractor to be in effect on the date the documentation is submitted, and the executive director of the Commission on Human Rights and Opportunities or designee certifies that the prior resolution complies with the nondiscrimination agreement and warranty under subdivision (A)(1) of this section; or (3) Documentation in the form of an affidavit signed under penalty of false statement by a chief executive officer, president, chairperson or other corporate officer duly authorized to adopt company or corporate policy that certifies that the company or corporate policy of the contractor complies with the nondiscrimination agreement and warranty under subdivision (A)(1) of this section and is in effect on the date the affidavit is signed..

(C) If the Contract is a municipal public works contract or a quasi-public agency project, the Contractor agrees and warrants that s/he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works project. The Contractor shall include the provisions of subdivision (A)(1) of this section in every subcontract or purchase order entered into to fulfill any obligation of a municipal public works contract or contract for a quasi-public agency project, and such provisions shall be binding on a subcontractor, vendor or manufacturer, unless exempted by regulations or orders of the Commission on Human Rights and Opportunities. 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 section 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 regarding a state contract, 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.

(D) "Minority business enterprise" means any small contractor or supplier of materials fifty-one per cent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) Who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise and (3) who are members of a minority, as such term is defined in subsection (a) of section 32-9n; and "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations. "Good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements. Determination of the Contractor's good faith efforts shall include, but shall not be eliminated to, the following factors: The contractor's employment and subcontracting policies, patterns and practices; affirmative advertising recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission on Human Rights and Opportunities may prescribe that are designed to ensure the participation of minority business enterprises in municipal public works contracts or quasi-public agency projects. "Municipal public works project" means that portion of an agreement entered into on or after October 1, 2015, between any individual, form or corporation and a municipality for the construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, which is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees but excluding any project of an alliance district, as defined in section 10-262u, finance by the state funding in an amount equal to fifty thousand dollars or less. "Quasi-public agency project" means the construction, rehabilitation, conversion, extension, demolition or repair of a building or other changes or improvements in real property pursuant to a contract entered into on or after October 1, 2015, which is financed in whole or in part by a quasi-public agency using state funds, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

WITNESS WHEREOF, the parties hereto have affixed their names and seals.

THE CITY OF MERIDEN

_____

Timothy P. Coon, City Manager
Duly Authorized

Date: _____

CONTRACTOR:

_____

Duly Authorized

Date: _____

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*—The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

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12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*—See Paragraph 11.01 for definition.

17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*—The individual or entity named as such in the Agreement.

20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*—Sections of Division 1 of the Specifications.

22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

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27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*—Polychlorinated biphenyls.

31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

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40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.

46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.

47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

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addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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E. *Furnish, Install, Perform, Provide:*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

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2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on

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Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

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3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

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1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or

2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

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4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

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contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data;

b. locating all Underground Facilities shown or indicated in the Contract Documents;

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

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consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

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C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

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H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

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meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

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a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

a. Such insurance shall remain in effect for two years after final payment.

b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

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5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

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members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

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1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

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interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

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B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

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2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

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c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services; and

4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

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required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

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Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

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6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought

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by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and

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shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is

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required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

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2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

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6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

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B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

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E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

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B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

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8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or

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continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

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9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not

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exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

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10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data

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shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim; or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

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1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

    c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of

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said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not

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limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to

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the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

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C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

   a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

   b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

   c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

   d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

   e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

   f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

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neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

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13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

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C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

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1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

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13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an

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Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or

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involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

   a. to supervise, direct, or control the Work, or

   b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

   c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

   d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

   e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

   a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

   b. the Contract Price has been reduced by Change Orders;

   c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

   d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

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D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

   a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

   b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

   c. there are other items entitling Owner to a set-off against the amount recommended; or

   d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before

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final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

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4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

   b. consent of the surety, if any, to final payment;

   c. a list of all Claims against Owner that Contractor believes are unsettled; and

   d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying

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documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

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ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when

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so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days

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to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or

3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

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1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SUPPLEMENTAL GENERAL CONDITIONS

GENERAL CONDITIONS

The General Conditions of the Contract for Construction, EJCDC Document C-700, 2007 Edition, as bound herewith, shall be the General conditions of the Contract, except as amended by these Supplemental General Conditions

CHANGES AND ADDITIONS TO VARIOUS ARTICLES OF THE GENERAL CONDITIONS

Article 1 Definitions

Article 1 is hereby modified as follows:

Delete the definition "Notice to Proceed"

Article 2 Preliminary Matters

Article 2.02 is modified as follows:

DELETE Article 2.02 in its entirety

Article 2.03 is modified as follows:

30th day is changed to 10th day, and delete "A Notice to Proceed…earlier"

Article 3 Reporting and Resolving Discrepancies

Article 3.03A.# - change "unless" to "that" and add knowledge thereof, or should have had knowledge of….

Article 4 Availability of lands

Article 4.01B – delete "as necessary for giving notice of or filing a mechanics or construction lien against such lands in accordance with applicable Laws & Regulations."

Article 4.06G – Hazardous Environmental Conditions at Site - Delete in its entirety

Article 5 Bonds and Insurance

Delete Article 5 in its entirety and substitute the following:

PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

The Contractor shall, within ten (10) days from the date of the Notice of Award, furnish the City of Meriden with a PERFORMANCE BOND and a LABOR AND MATERIAL PAYMENT BOND, both in the amount of 100% of the amount bid, conditioned upon the performance of the Contractor on all undertaking, covenants, terms, and conditions and agreements of the contract. The bond shall be in the form of the specimen bonds annexed hereto, such bonds shall be executed by the contractor and a corporate bonding company licensed, authorized, and admitted to transact such business in the State of Connecticut and named on the current list of "Surety Companies acceptable on Federal Bonds", as published in the "Treasury Department" listed for an amount equal to the amount of the reinsurance. Written evidence of how any excess suretyship has been placed by the surety signing the bonds shall accompany the bonds. The expense of the bonds shall be borne by the Contractor. If at anytime a surety on any such bond is declared bankrupt or loses its right to do business in the State of Connecticut, or is removed from the list of Surety Companies acceptable on Federal Bonds, or for any other justifiable cause, the Contractor shall, within ten (10) days after notice from the City of Meriden to do so. substitute an acceptable bond(s) in such form and sum and signed by such other surety or sureties as may be

paid by the Contractor. No payments shall be deemed due nor shall be made until the new surety or sureties have furnished an acceptable bond to the City.

If the Contractor is a partnership, the bonds shall be signed by each of the individuals who are partners; if a corporation, the bonds shall be signed in the correct corporation name by a duly authorized office, agent, or attorney-in-fact. There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the contract. Each executed bond shall be accompanied by 1) appropriate acknowledgements of the respective parties; 2) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer, or other representative of Contractor or surety; 3) a duly certified extract from by-laws or resolutions or surety under which Power of Attorney or other certificates of authority of its agent, officer, or representative was issued.

The Contractor hereby agrees and understands that a Notice of Award is expressly conditional upon the receipt of these bonds and a Certificate of Insurance naming the City of Meriden (and others as appropriate) as ADDITIONAL INSURED. If said documents are not received by the City of Meriden within ten (10) days from the date of Notice of Award, the City of Meriden reserves the right to withdraw its conditional acceptance of the bid and cancel the Notice of Award.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that
(here insert full name and address or legal title of Contractor)

as Principal herinafter called contractor and
(here insert full name and address or legal title of Surety

As Surety, hereinafter called Surety, are held and firmly bound unto
(here insert full name and address or legal title of Owner)

As Obligee, hereinafter called Owner, in the amount of

Dollars $_____

for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated 20 , entered into a contract with Owner for
(here insert full name, address and description of project)

In accordance with Drawings and Specifications prepared by (here insert full name and address or legal title of Engineer/Architect)

Which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

PERFORMANCE BOND

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor, shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives, notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the surety may promptly remedy the default, or shall promptly

1) Complete the Contract in accordance with its terms and conditions, or

2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the Owner elects, upon determination by the Owner and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and Owner, and make available as Work progresses (even though there should be a default of a succession of defaults, under the contract or contracts of completion arranged under this paragraph sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price," as used in this paragraph, shall mean the total amount payable by Owner to Contractor under the Contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators or successors of the Owner.

Signed and sealed this day of 20

_____
(Principal)

_____
(Witness)

_____
(Title)

_____
(Surety)

_____
(Witness)

_____
(Title)

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that
(here insert full name and address or legal title of Contractor)

as Principal, herinafter called Principal, and
(here insert full name and address or legal title of Surety

As Surety, hereinafter called Surety, are held and firmly bound unto
(here insert full name and address or legal title of Owner)

As Obligee, hereinafter called Owner, for the use and benefit of claimants as hereinbelow defined, in the amount of Dollars $_____

For the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated 20 , entered into a contract with Owner for
(here insert full name, address and description of project)

In accordance with Drawings and Specifications prepared by

(here insert full name and address or legal title of Engineer/Architect)

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

LABOR AND MATERIAL PAYMENT BOND

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

a) Unless claimant, other than one having a direct contact with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelop addressed to the Principal Owner or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

b) After the expiration of one (1) year following the date on which Principal ceased Work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the Project or any part thereof, is situated, or in the United States District Court for the district in which the Project, or any part thereof is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.

Signed and sealed this day of 20

_____
(Principal)

_____
(Witness)

_____
(Title)

_____
(Surety)

_____
(Witness)

_____
(Title)

INSURANCE REQUIREMENTS *

All insurance coverage shall be provided by the Contractor and by or for any of their Subcontractors at no additional expense to the City. The scope and limits of insurance coverages specified are the minimum requirements and shall in no way limit or exclude the City from requesting additional limits and coverage provided under the Contractor's policies and/or their Subcontractors' policies. The Contractor shall either require each of their Subcontractors to produce identical insurance coverage requirements as detailed hereinafter or the Contractor shall secure the coverage for all Subcontractors under the Contractor's own policies.

The Contractor and/or Subcontractors shall be responsible for maintaining the stated insurance coverage in force for the life of the Contract with insurance carriers licensed and authorized to underwrite such insurance in the State of Connecticut. (Insurance carriers shall be rated A or higher by AM Best Co.)

The type and limits of insurance coverage shall not be less than the type and limits designated herein, and the Contractor and/or Subcontractors agree that the coverage or the acceptance by the City of Certificates of Insurance indicating the type and limits of insurance shall in no way limit the liability of the Contractor and/or subcontractor to any such type and limits of insurance coverage.

The insurance coverage hereinafter afforded by the Contractor and/or subcontractor shall be primary insurance, except when stated to apply in excess of or contingent upon the absence of other insurance. The amount and type of insurance shall not be reduced by the existence of other insurance's held by the City.

The Contractor and/or Subcontractor shall provide coverage's that are not impaired or the aggregate is not to impaired by any other risk, past or present, and the limits required, shall be fully available to the City of Meriden of restored if depleted below the required levels during the course of the contract and/or any extensions thereto.

The Contractor and/or Subcontractor shall not commence work under the terms of this contract until they have obtained the liability insurance coverage required by this article and has filed Certificates of Insurance on same with the City, and the City has approved the Certificates of Insurance and the represented coverage.

Each Certificate of Insurance shall include the following pertinent information:

- Name of Insurance Carrier writing policy
- Name Insured
- Address of Named Insured
- Description of coverage (Workers' Compensation certificates should evidence the state(s)of operation including Connecticut)
- Policy Periods (effective and expiration dates)
- Limits of liability and terms
- Brief description of operations performed and property covered
- Name and address of certificate holder
- Authorized agent's name and address
- Date and signature of the issuing agent (original only)
- All additional named insured endorsement
- All cross liability endorsements
- All indemnification and hold harmless agreements (must be supported by Contractual Liability Insurance)

Each insurance policy (with the exception of OCP shall contain an endorsement naming the City as an Additional Insured, evidence of a Cross Liability endorsement so that each insureds interests are considered and treated separately in the case of claims between the insureds. The Contractor shall provide 60 Day advance Notification** to the City in the event of any material change, modification, cancellation, or non-renewal of insurance coverage.** **Amended 01/13/14

The Contractor and/or Subcontractors shall include a waiver of subrogation rights, on all insurance policies, so that the City of Meriden cannot be sued by the Contractor's insurer to recover any payments made on behalf of the Contractor and/or Subcontractor.

All insurance policies provided by the Contractor and/or Subcontractors shall include an endorsement indicating that any breach of warranty, by the named insured, will not be imputed to another insured.

During the course of execution of the work, whenever there is a lapse in the insurance requirements as stated herein, through cancellation, expiration, failure to renew , or any other cause, the City shall order the cessation of all activities** until such time as the insurance requirements are complied with. The Contractor shall have no claim or claims whatever against the City, or other parties to the contract. **Amended 01/13/14

The Contractor and their Subcontractors shall indemnify and save harmless the City of Meriden, and all additional named insured and all appointed or elected officers, officials, directors, committee members, employees, volunteer workers, commissioners, and any affiliated, associated, or allied entities and/or bodies of, or as may be participated in by the City of Meriden, or as may now or hereinafter be constituted or established from and against all claims, damages, and losses and expenses including attorney's fees arising out of or resulting from the performance of the work under this contract, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to, or destruction of tangible property, including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the Contractor, and their Subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

The Contractor and their Subcontractors shall, during the execution of the work, take necessary precautions and place proper guards for the prevention of accidents; shall set up all night suitable and sufficient lights and barricades; shall fully comply with the latest revisions of the Occupational Safety and Health Act of 1970 and all other Federal, State and Local Regulations, including any all amendments, revisions, and additions thereto, and shall indemnify and save harmless the City of Meriden and their additional named insured and their employees, officers, agents from any and all claims, suits, actions, fines, fees, damages, and costs to which they may incur by reason of death or injury to all persons and/or for all property damage of another resulting from non-compliance, unskillfulness, willfulness. negligence, or carelessness in the execution of the work, or in guarding or protecting the same, or from any improper methods, materials, implements or appliances used in execution of the work, or by or on account of any direct or indirect act or omission of the Contractor of their Subcontractors or their employees or agents.

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the execution of the contract.

The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to; 1) all employees on the work and all other persons who may be affected thereby; 2) all the work and all the materials and equipment to be incorporated therein, whether in storage in or on the site, under the care, custody, or control of the Contractor or any of their Subcontractors; and 3) other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designed for removal, relocation, or replacement in the course of construction.

The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards promulgating safety regulations and notifying owners and users of adjacent utilities.

The Contractor and/or subcontractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations, and lawful orders for any public authority bearing on the safety of persons or property or their protection from damage, injury, or loss.

When The use or storage of explosives or other hazardous materials or equipment is necessary for the execution of work, the Contractor and/or their Subcontractors shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

The contractor shall designate a responsible member of their organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the City.

In any emergency affecting the safety of persons or property, the Contractor shall act to prevent threatened damage, injury, or loss.

The Contractor, Subcontractor, and their insurer(s) shall waive governmental immunity as a defense and shall not use the defense of governmental immunity in the adjustment of claims or in the defense of any suit, action or claim brought against the City. Nothing shall limit the City of Meriden from utilizing the defense of governmental immunity.

Contractor shall agree to maintain in force at all times during the contract the following minimum coverages and shall name the City Meriden as an Additional Insured on a primary and non-contributory basis to all policies except Workers Compensation. All policies should also include a Waiver of Subrogation. Umbrella/Excess shall state that it follows form over General Liability, Auto Liability and Workers Compensation. Insurance shall be written with Carriers approved in the State of Connecticut and with a minimum AM Best's Rating of "A-" VIII. In addition, all Carriers are subject to approval by the City of Meriden.

1. Workers' Compensation Insurance: With respect to all operations the Contractor performs and all those performed for it by subcontractors, the Contractor shall carry, and require each subcontractor to carry, Workers' Compensation insurance as required by the laws of the State of Connecticut.

Employer's Liability insurance shall be provided in amounts not less than $100,000 per accident for bodily injury by accident; $100,000 policy limit by disease and $100,000 per employee for bodily injury by disease. Each Workers' Compensation policy shall contain the U.S. Longshoreman's and Harbor Workers' Act endorsement when work is to be performed over or adjacent to navigable water.

2. Commercial General Liability Insurance: With respect to the operations the Contractor performs and also those performed for it by subcontractors, the Contractor shall carry, and require each subcontractor to carry,

Commercial General Liability insurance, including Contractual Liability, Products and Completed Operations, Broad Form Property Damage and Independent Contractors.

Products and completed operations insurance for ongoing and completed operations shall be maintained for a period of 1 year after the acceptance of the Project by the Department in accordance with 1.08.14. See chart below for applicable minimum coverage amounts.

Contract Amount ($)	Minimum Single Occurrence Amount ($)	Minimum Annual Aggregate Amount ($)
0-2,000,000	1,000,000	2,000,000
>2,000,001-10,000,000	2,000,000	4,000,000
>10,000,000	4,000,000	8,000,000

If underground work is to be undertaken, each policy shall have coverage for and exclusions removed for "Explosion, Collapse and Underground" ("XCU").

3. Automobile Liability Insurance: The Contractor shall obtain automobile liability insurance covering the operation of all motor vehicles, including those hired or borrowed, that are used in connection with the Project for all damages arising out of:

(1) bodily injury to or death of all persons and/or

(2) injury to or destruction of property; in any one accident or occurrence.

This policy shall not be subject to an annual aggregate limitation. See chart above for applicable minimum coverage amounts.

4. Owner's and Contractor's Protective Liability Insurance for and in the Name of the State: With respect to the Contractor's Project operations and also those of its subcontractors, the Contractor shall carry, for and on behalf of the State for each accident or occurrence resulting in damages from

(1) bodily injury to or death of persons and/or

(2) injury to or destruction of property.

See chart below for applicable minimum coverage amounts.

Contract Amount ($)	Minimum Single Occurrence Amount ($)	Minimum Annual Aggregate Amount ($)	
0-20 Million	1,000,000	1,000,000	
20 Million – 50 Million	2,000,000	2,000,000	
>50 Million	4,000,000	4,000,000	

5. Railroad Protective Liability Insurance: When the Contract involves work within 50 feet of the railroad right-of-way or State-owned rail property, with respect to Project operations and also those of its subcontractors, the Contractor shall carry Railroad Protective Liability Insurance providing coverage of at least $2,000,000 for each accident or occurrence resulting in damages from

(a) bodily injury to or death of all persons and

(b) injury to or destruction of property, and subject to that limit per accident or occurrence, an aggregate coverage of at least $6,000,000 for all damages during the policy period, and with all entities falling within any of the following listed categories named as insured parties:

1. the owner of the railroad right-of-way,
2. the owner of any railcar licensed or permitted to travel within that affected portion of railroad right-of-way, and
3. the operator of any railcar licensed or permitted to travel within that affected portion of the railroad right-of-way, and with the State, if not falling within

any of the above-listed categories, also named as an insured party.

6. Blasting: When explosives are to be used in the Project, the Commercial General Liability insurance 1.03.07 policy shall include XCU coverage, in the same limits as the per occurrence policy limits.

7. Protection and Indemnity Insurance for Marine Construction Operations in Navigable Waters: If a vessel of any kind will be involved in Project work, the Contractor shall obtain the following additional insurance coverage:

A. Protection and Indemnity Coverage of at least $300,000 per vessel or equal to at least the value of hull and machinery, whichever is greater.

B. If there is any limitation or exclusion with regard to crew and employees under the protection and indemnity form, the Contractor must obtain and keep in effect throughout the Project a workers' compensation policy, including coverage for operations under admiralty jurisdiction, with a limit of liability of at least $300,000 per accident or a limit equal to at least the value of the hull and machinery, whichever is greater, or for any amount otherwise required by statute.

8. Builder's Risk Insurance: For Facilities construction projects, the Contractor shall maintain comprehensive replacement cost builder's risk (completed value) insurance providing coverage for the entire work at the Project site, including all fixtures, machinery and equipment, any heating, cooling and constituting a permanent part of the building and shall cover portions of work located away from the site, but intended for use at the site. If it is determined that all or a portion of the project is located within an area designated as a Special Flood Hazard Area, the Contractor shall maintain flood insurance (no less than $10,000,000 sublimit). The State of Connecticut shall be named as Loss Payee. Equipment breakdown coverage may be sub limited to 50% of the project cost.

9. Architects and Engineer's Professional Liability Insurance for Structural Engineer: If required, limits will be specified in 1.03.07 of the Special Provisions of the Contract or 1.05.02.

10. Umbrella Liability Insurance: The Contractor may satisfy the minimum limits required for Commercial General Liability and Automobile Liability Insurance using Umbrella Liability Insurance. In the event that the Contractor obtains Umbrella Liability Insurance to meet the minimum coverage requirements for Commercial General Liability or Automobile Liability Insurance coverage, the Umbrella Liability Insurance policy shall have an annual aggregate at a limit not less than twice the single occurrence and must specifically endorse the State of Connecticut as an additional insured. Specifically for Bridge Projects with a low bid equal to or higher than $80,000,000, the Umbrella Liability Insurance policy must have a minimum limit of at least $25,000,000.

11. Certificate of Insurance: Before the Contract is executed, the Contractor must provide to the Department a certificate of insurance acceptable to the Commissioner and executed by an insurance company or companies satisfactory to the State of Connecticut for the insurance coverage(s) required by this Article and the Special Provisions of the Contract. The Contractor shall maintain the required insurance coverage during the entire term of the Contract. The certificate of insurance must clearly include the name of the insured and identify the project for which it is being issued.

12. Copies of Policies: The Contractor shall provide, within 5 business days, a copy or copies of all applicable insurance policies when requested by the State. In providing said policies, the Contractor may redact provisions of the policy that are proprietary. This provision shall survive the expiration or termination of the Contract.

13. Sovereign Immunity: The Contractor may not assert the defense of sovereign immunity in the adjustment of claims or in the defense of any claim or suit brought against the Contractor or the State, unless the State, in writing, requests that the Contractor do so or consents to its doing.

14. Contractor Assumes Costs: The Contractor shall assume and pay all costs and billings for premiums, deductibles, self-insured retentions and audit charges earned and payable under the required insurance.

15. State Named as Additional Insured: The State must be named as an additional insured party for the Commercial General Liability and Automobile Liability insurance policies required by this Article and the Special Provisions to the Contract, and any Umbrella Liability Insurance, as applicable, obtained in accordance with this Article. Each policy shall waive right of recovery (waiver of subrogation) against the State of Connecticut.

16. Termination or Change of Insurance:

a) The Contractor shall notify the Department of any cancelation of insurance carrier or change to the required insurance coverage by submitting a new insurance certificate to the Department immediately following said cancelation or change in required coverage.

b) It is the responsibility of the Contractor to maintain evidence of a current insurance coverage with the Department for the duration of contract. It is the responsibility of the Contractor to file with the 1.03.07 Department all renewals and new certificates of insurance issued due to changes in policy terms or changes in insurance carriers prior to the expiration dates on the forms already on file with the Department.

17. Duration of Coverage. The Contractor shall keep all the required insurance in continuous effect until the date that the Department designates for the termination of the Contractor's responsibility, as defined by 1.08.14.

18. Compensation: There shall be no direct compensation allowed the Contractor on account of any premium or other charge necessary to obtain and keep in effect any insurance or bonds in connection with the Project, but the cost thereof shall be considered included in the general cost of the Project work.

Original, completed Certificates of Insurance must be presented to the City of Meriden prior to contract issuance. Contractor agrees to provide replacement/renewal certificates at least 60 days prior to the expiration date of the policies. **The State of Connecticut is to be named as an additional insured as well as the City of Meriden.**

Article 6 Substitutes and "or equals"

Article 6.05.2.A – After Contractor add "or Owner"

Article 6.05.2.2E – Substitute Items - Add the words "If, in the owner's opinion, the number of substitutions is excessive" after "reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitutes".

Add the following paragraph 6.09D:

The requirements of subparagraph 6.09 do not waive the Contractor's responsibility of complying with the requirement of the Contract Documents when such regulations and requirements exceed those of any laws, ordinances, rules, regulations and orders of any public authority bearing the work.

Delete Article 6.10 in its entirety and substitute the following:

Under the terms of Regulation 16, referring to Contractors and Subcontractors issued by the State Tax Commission in administration of the State Sales and Use Tax, the Contractor may purchase materials or supplies to be consumed in the performance of this Contract without payment of Tax and shall not include in his Bid nor charge any Sales or Use Tax on any materials or labor provided.

Amend Article 6.12 to read:

"Contractor shall maintain in a safe place at the Site two (2) record copies…"

Add the following to article 6.13:

6.13.A.4 Protection in general shall consist of the following:

6.13.A.5 The Contractor shall furnish approved hard hats, other personal, protective equipment as required, approved first aid supplies, name of first aid attendant, and a posted list of emergency facilities.

6.13.A.6 The Contractor shall take prompt action to correct any hazardous conditions reported.

6.13.A.7 The Contractor shall be responsible for the adequate strength and safety of all scaffolding, staging and hoisting equipment, and for temporary shoring, bracing and tying.

The Contractor shall comply with the requirements of the Occupational Safety and Health Act of 1970 and the Construction Safety Act of 1969, including all Standards and Regulations which have been promulgated by the Governmental Authorities which administer such acts; and said Requirements, Standards and Regulations are incorporated herein by reference.

The Contractor shall be directly responsible for compliance therewith on the part of its agents employees, material men and Subcontractors, and shall directly receive and be responsible for all citations, assessments, fines or penalties which may be incurred by reason of its agents, employees, material men or Subcontractors, to so comply.

The Contractor shall indemnify the Owner and the Engineer and save them harmless from any and all losses, costs and expenses, including fines and reasonable attorney's fees incurred by the Owner and the Engineer by reason of the real or alleged violation of such laws, ordinances, regulations and directives, Federal, State and local, which are currently in effect or which become effective in the future, by the Contractor, his Subcontractors or material men.

6.16 Emergencies

Add 6.16.B – The Contractor shall provide the Owner with at least two (2) phone numbers in case of emergency.

Article 8 – Replacement of Engineer

Delete 8.02 in its entirety

8.06 – Insurance

8.06A – Delete Article 5, Add Supplemental General Conditions

Article 9 - Engineer's Status During Construction

Revise 9.03.B to read:

In addition to the Engineer, The Owner may employ a Clerk-of- the Works shall be authorized to observe all material, workmanship and equipment for compliance with the Contract Documents' requirements of tests and safety provisions, and report any variance to the Engineer. He shall have no authority to interpret, vary or suspend the requirements of the Contract.

The Clerk-of-the-Works will keep records of material deliveries, weather conditions and manpower; he will monitor compliance with the approved Construction Schedule and the Equal Employment Provisions.

The Contractor shall cooperate with the Clerk-of-the-Works in the performance of his duties, and shall provide access to all portions of the work and information required for his records. Any requests for modification of the Contract provisions or working procedures shall be reviewed with the project representative prior to making submittal(s) to the Engineer.

Cost of Work, Allowances; Unit Price Work

Article 11 is hereby modified as follows:

Add the following Articles:

11.03D Delete the entire paragraph and substitute the following:

It is understood and agreed that the prices bid for the various units of construction shall control in any Contract awarded hereafter. The City of Meriden reserves the right to revise the estimated quantities with no fixed limits set nor extra compensation allowed other than the above stated unit prices.

Article 12 – Change of Contract Price and Change of Contract Time

Add the following:

12.01.B.4 - The Contractor, when performing work under article 11.3.3 shall, upon request, promptly furnish in a form satisfactory to the Owner, itemized statements of the cost of the work so ordered, including, but not limited to, certified payrolls, and copies of accounts, bills and vouchers to substantiate the above estimates.

Add 12.04.1 -The Contractor guarantees that he can and will complete the work within the time specified or within the time as extended as provided elsewhere in the Contract Documents. Inasmuch as the damage and loss to the City of Meriden which will result from the failure of the Contractor to complete the work within the stipulated time will be most difficult or impossible of accurate assessment, the damages to the City for such delay and failure on the part of the Contractor shall be liquidated in the sum of **$1,600.00** each calendar day (Sundays and Holidays included) by which the Contractor shall fail to complete the work or any part thereof in accordance with the provisions hereof and such liquidated damages shall not be considered as a penalty. The City will deduct and retain out of any money due to become due hereunder, the amount of liquidated damages, and in case those amounts are less than the amount of liquidated damages, the Contractor shall be liable to pay the difference upon demand by the City.

Article 13 - Warranty and Guarantee; Tests and Inspections; Correction, Removal or Acceptance of Defective Work

Article 13.02 is modified to include the following:

The Contractor shall make every effort to minimize damage to all access routes, and he shall acquire all necessary permits for working in, on or from public streets or rights or way and for securing access rights of their own.

All costs of the removal and restoration to original condition of walls, fences and structures, utility lines, poles, guy wires or anchors, and other improvements required for passage of the Contractor's equipment shall be borne by the Contractor. The Contractor shall notify the proper authorities of the City and all utilities of any intended modifications or disruption to their property prior to the start of construction, and shall cooperate with them in the scheduling and performance of this operation.

Article 14 Payments to Contractor and Completion

Modify 14.02.D.4 to read:

Payments may be withheld to Contractors who are in default through debt or contract to the City.

14.07C – Change “thirty days” to “forty five (45) days”

Delete 14.09A in its entirety.

Article 15 Suspension of work and termination

Delete 15.03.3 in its entirety.

15.04B – Change 30 to 45 and change “30 days to pay” to 60.

Construction Contracts - Required Contract Provisions
(State Funded Only Contracts)

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1. Contractor Work Force Utilization / Specific Equal Employment Opportunity

2. Contract Wage Rates

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4. Connecticut Statutory Labor Requirements

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19. Consulting Agreements Representation

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Index of Exhibits

EXHIBIT A – Contractor Work Force Utilization / Equal Employment Opportunity (page 14)
EXHIBIT B – Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 17)
EXHIBIT C - State Wage Rates and Other Related Information (page 25)

1. Contractor Work Force Utilization / Equal Employment Opportunity

(a) The Contractor shall comply with the Contractor Work Force Utilization / Equal Employment Opportunity requirements attached at Exhibit A and hereby made part of this Contract, whenever a contractor or subcontractor at any tier performs construction work in excess of $10,000. These goals shall be included in each contract and subcontract. Goal achievement is calculated for each trade using the hours worked under each trade.

(b) Companies with contracts, agreements or purchase orders valued at $10,000 or more will develop and implement an Affirmative Action Plan utilizing the ConnDOT Affirmative Action Plan Guideline. This Plan shall be designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex or national origin, and to promote the full realization of equal employment opportunity through a positive continuation program. Plans shall be updated as required by ConnDOT.

2. Contract Wage Rates

The Contractor shall comply with:

The State wage rate requirements indicated in Exhibit C hereof are hereby made part of this Contract.

Prevailing Wages for Work on State Highways; Annual Adjustments. With respect to contracts for work on state highways and bridges on state highways, the Contractor shall comply with the provisions of Section 31-54 and 31-55a of the Connecticut General Statutes, as revised.

As required by section 1.05.12 (Payrolls) of the State of Connecticut, Department of Transportation's Standard Specification for Roads, Bridges and Incidental Construction (FORM 817), as may be revised, every Contractor or subcontractor performing project work on a federal aid project is required to post the relevant prevailing wage rates as determined by the United States Secretary of Labor. The wage rate determinations shall be posted in prominent and easily accessible places at the work site.

3. 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.

4. 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

5. 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).

6. 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. At the Contractor's request, the Client Agency shall provide a copy of these Enactments to the Contractor. 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; **(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;** and (3) Executive Order Nos. 13F and 13G of Governor Ned Lamont, promulgated September 3, 2021 and September 10, 2021, respectively, concerning protection of public health and safety during COVID-19 pandemic, as extended by Executive Order No. 14A of Governor Ned Lamont, promulgated September 30, 2021. 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.

7. Non Discrimination Requirement and Certification (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised): References to "minority business enterprises" in this Section are not applicable to Federal-aid projects/contracts. Federal-aid projects/contracts are instead subject to the Federal Disadvantaged Business Enterprise Program.

(a) For purposes of this Section, the following terms are defined as follows:

(1) "Commission" means the Commission on Human Rights and Opportunities;
(2) "Contract" and "contract" include any extension or modification of the Contract or contract;
(3) "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;

(4) "Gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose.

(5) “good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;

(6) "good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements;

(7) "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced;

(8) "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders;

(9) "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Connecticut General Statutes § 32-9n; and

(10) "public works contract" means any agreement between any individual, firm or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

For purposes of this Section, the terms "Contract" and “contract” do not include a contract where each contractor is (1) a political subdivision of the State of Connecticut, including, but not limited to municipalities, unless the contract is a municipal public works contract or quasi-public agency project contract, (2) any other state of the United States, including but not limited to, the District of Columbia, Puerto Rico, U.S. territories and possessions, and federally recognized Indian tribal governments, as defined in Connecticut General Statutes § 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in subdivision (1), (2), (3), or (4) of this subsection.

(b) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut; and the Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown

by the Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which the Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor agrees to comply with each provision of this Section and Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e and 46a-68f; and (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this Section and Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.

(c) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

(d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.

(e) The Contractor shall include the provisions of subsection (b) of this Section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes §46a-56; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

(f) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.

(g) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes § 46a-56; and

(4) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this Section and Connecticut General Statutes § 46a-56.

(h) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes § 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

(i) **Nondiscrimination Certification**

Pursuant to subsection (c) of section 4a-60 and subsection (b) of section 4a-60a 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 sections. The Contractor and its authorized signatory of this Contract demonstrate their understanding of this obligation by either (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, or (B) initialing this nondiscrimination affirmation in the following box: ☐

8. 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.

9. 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.

10. 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.

11. 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.

12. 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 B, and hereby made part of this Contract.

13. Forum and Choice of Law

Forum and Choice of Law. The parties deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Contractor waives any objection which it may now have or will have to the laying of venue of any Claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

14. 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 State Ethics Commission 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.

15. 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.

16. Campaign Contribution Restriction

For all State contracts, defined in section 9-612 of the Connecticut General Statutes as having a value in a calendar year of $50,000 or more, or a combination or series of such agreements or contracts having a value of $100,000 or more, the authorized signatory to this Contract 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.

17. 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.

18. 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.

19. Consulting Agreements Representation

Pursuant to section 4a-81 of the Connecticut General Statutes, the Contractor represents that it has not entered into any consulting agreements in connection with this Contract, except for the agreements listed below. "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

20. 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.

21. 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.

22. 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 most qualified or highest ranked 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.

23. Iran Energy Investment 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 shall not be subject to the penalties of false statement pursuant to section 4-252a of the Connecticut General Statutes. 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.

24. 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.

EXHIBIT A

CONTRACTOR WORKFORCE UTILIZATION / EQUAL EMPLOYMENT OPPORTUNITY

1. **Project Workforce Utilization Goals:**
   These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted or funded) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where the work is actually performed.

   Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications which contain the applicable goals for minority and female participation.

   The goals for minority and female utilization are expressed in percentage terms for the contractor's aggregate work-force in each trade on all construction work in the covered area, are referenced in the Appendix A below.

STATE FUNDED PROJECTS (only)
APPENDIX A
(Labor Market Goals)

LABOR MARKET AREA GOAL ***Minority***
Female

Bridgeport			**22.7%**
1.4%			
Ansonia	Beacon Falls	Bridgeport	Derby
Easton	Fairfield	Milford	Monroe
Oxford	Seymour	Shelton	Stratford
Trumbull			

Danbury			**10.7%**
3.8%			
Bethel	Bridgewater	Brookfield	Danbury
Kent	New Fairfield	New Milford	Newtown
Redding	Ridgefield	Roxbury	Sherman
Washington			

Danielson			**4.3%**
1.8%			
Brooklyn	Eastford	Hampton	Killingly
Pomfret	Putnam	Scotland	Sterling
Thompson	Voluntown	Union	Woodstock

Hartford			**13.7%**
2.1%			
Andover	Ashford	Avon	Barkhamsted
Belin	Bloomfield	Bolton	Bristol
Burlington	Canton	Chaplin	Colchester
Columbia	Coventry	Cromwell	Durham
East Granby	East Haddam	East Hampton	East Hartford
East Windsor	Ellington	Enfield	Farmington
Glastonbury	Granby	Haddam	Hartford
Harwinton	Hebron	Lebanon	Manchester
Mansfield	Marlborough	Middlefield	Middletown
Newington	Plainville	Plymouth	Portland
Rocky Hill	Simsbury	Somers	South Windsor
Southington	Stafford	Suffield	Tolland
Vernon	West Hartford	Wethersfield	Willington
Winchester	Windham	Windsor	Windsor Locks

Lower River			**4.3%**
1.8%			
Chester	Deep River	Essex	Old Lyme
Westbrook			

LABOR MARKET AREA GOAL ***Minority***
Female

New Haven			**17.9%**
3.1%			
Bethany	Branford	Cheshire	Clinton
East Haven	Guilford	Hamden	Killingworth

Madison	Meriden	New Haven	North Branford
North Haven	Orange	Wallingford	West Haven
Woodbridge			

New London 3.1%				**7.4%**
Bozrah	Canterbury	East Lyme	Franklin	
Griswold	Groton	Ledyard	Lisbon	
Montville	New London	North Stonington	Norwich	
Old Lyme	Old Saybrook	Plainfield	Preston	
Salem	Sprague	Stonington	Waterford	
Hopkinton	RI – Westerly Rhode Island			

Stamford 2.1%				**33.2%**
Darien	Greenwich	New Canaan	Norwalk	
Stamford	Weston	Westport	Wilton	

Torrington 1.8%				**4.3%**
Canaan	Colebrook	Cornwall	Goshen	
Hartland	Kent	Litchfield	Morris	
Norfolk	North Canaan	Salisbury	Sharon	
Torrington	Warren			

Waterbury 1.6%				**12.4%**
Bethlehem	Middlebury	Naugatuck	Prospect	
Southbury	Thomaston	Waterbury	Watertown	
Wolcott	Woodbury			

Rev. 4/24/2019

EXHIBIT B

Health Insurance Portability and Accountability Act of 1996 ("HIPAA").

(a) If the Contactor is a Business Associate under the requirements of the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), the Contractor must comply with all terms and conditions of this Section of the Contract. If the Contractor is not a Business Associate under HIPAA, this Section of the Contract does not apply to the Contractor for this Contract.

(b) The Contractor is required to safeguard the use, publication and disclosure of information on all applicants for, and all clients who receive, services under the Contract in accordance with all applicable federal and state law regarding confidentiality, which includes but is not limited to HIPAA, more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E; and

(c) The State of Connecticut Agency named on page 1 of this Contract (hereinafter the "Department") is a "covered entity" as that term is defined in 45 C.F.R. § 160.103; and

(d) The Contractor, on behalf of the Department, performs functions that involve the use or disclosure of "individually identifiable health information," as that term is defined in 45 C.F.R. § 160.103; and

(e) The Contractor is a "business associate" of the Department, as that term is defined in 45 C.F.R. § 160.103; and

(f) The Contractor and the Department agree to the following in order to secure compliance with the HIPAA, the requirements of Subtitle D of the Health Information Technology for Economic and Clinical Health Act (hereinafter the HITECH Act), (Pub. L. 111-5, sections 13400 to 13423), and more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E.

(g) Definitions

(1) "Breach shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(1))

(2) "Business Associate" shall mean the Contractor.

(3) "Covered Entity" shall mean the Department of the State of Connecticut named on page 1 of this Contract.

(4) "Designated Record Set" shall have the same meaning as the term "designated record set" in 45 C.F.R. § 164.501.

(5) "Electronic Health Record" shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(5))

(6) "Individual" shall have the same meaning as the term "individual"' in 45 C.F.R. § 160.103 and shall include a person who qualifies as a personal representative as defined in 45 C.F.R. § 164.502(g).

(7) "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 C.F.R. part 160 and parts 164, subparts A and E.

(8) "Protected Health Information" or "PHI" shall have the same meaning as the term "protected health information" in 45 C.F.R. § 160.103, limited to information created or received by the Business Associate from or on behalf of the Covered Entity.

(9) "Required by Law"' shall have the same meaning as the term "required by law" in 45 C.F.R. § 164.103.

(10) "Secretary" shall mean the Secretary of the Department of Health and Human Services or his designee.

(11) "More stringent" shall have the same meaning as the term "more stringent" in 45 C.F.R. § 160.202.

(12) "This Section of the Contract" refers to the HIPAA Provisions stated herein, in their entirety.

(13) "Security Incident" shall have the same meaning as the term "security incident" in 45 C.F.R.§ 164.304.

(14) "Security Rule" shall mean the Security Standards for the Protection of Electronic Protected Health Information at 45 C.F.R. part 160 and parts 164, subpart A and C.

(15) "Unsecured protected health information" shall have the same meaning as the term as defined in section 13402(h)(1)(A) of HITECH. Act. (42 U.S.C. §17932(h)(1)(A)).

(h) Obligations and Activities of Business Associates.

(1) Business Associate agrees not to use or disclose PHI other than as permitted or required by this Section of the Contract or as Required by Law.

(2) Business Associate agrees to use appropriate safeguards to prevent use or disclosure of PHI other than as provided for in this Section of the Contract.

(3) Business Associate agrees to use administrative, physical and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic protected health information that it creates, receives, maintains, or transmits on behalf of the Covered Entity.

(4) Business Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of PHI by Business Associate in violation of this Section of the Contract.

(5) Business Associate agrees to report to Covered Entity any use or disclosure of PHI not provided for by this Section of the Contract or any security incident of which it becomes aware.

(6) Business Associate agrees to insure that any agent, including a subcontractor, to whom it provides PHI received from, or created or received by Business Associate, on behalf of the Covered Entity, agrees to the same restrictions and conditions that apply through this Section of the Contract to Business Associate with respect to such information.

(7) Business Associate agrees to provide access, at the request of the Covered Entity, and in the time and manner agreed to by the parties, to PHI in a Designated Record Set, to Covered Entity or, as directed by Covered Entity, to an Individual in order to meet the requirements under 45 C.F.R. § 164.524.

(8) Business Associate agrees to make any amendments to PHI in a Designated Record Set that the Covered Entity directs or agrees to pursuant to 45 C.F.R. § 164.526 at the request of the Covered Entity, and in the time and manner agreed to by the parties.

(9) Business Associate agrees to make internal practices, books, and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by, Business Associate on behalf of Covered Entity, available to Covered Entity or to the Secretary in a time and manner agreed to by the parties or designated by the Secretary, for purposes of the Secretary determining Covered Entity's compliance with the Privacy Rule.

(10) Business Associate agrees to document such disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.

(11) Business Associate agrees to provide to Covered Entity, in a time and manner agreed to by the parties, information collected in accordance with clause h. (10) of this Section of the Contract, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder. Business Associate agrees at the Covered Entity's direction to provide an accounting of disclosures of PHI directly to an individual in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.

(12) Business Associate agrees to comply with any state or federal law that is more stringent than the Privacy Rule.

(13) Business Associate agrees to comply with the requirements of the HITECH Act relating to privacy and security that are applicable to the Covered Entity and with the requirements of 45 C.F.R. sections 164.504(e), 164.308, 164.310, 164.312, and 164.316.

(14) In the event that an individual requests that the Business Associate (a) restrict disclosures of PHI; (b) provide an accounting of disclosures of the individual's PHI; or (c) provide a copy of the individual's PHI in an electronic health record, the Business Associate agrees to notify the covered entity, in writing, within two business days of the request.

(15) Business Associate agrees that it shall not, directly or indirectly, receive any remuneration in exchange for PHI of an individual without (1) the written approval of the covered entity, unless receipt of remuneration in exchange for PHI is expressly authorized by this Contract and (2) the valid authorization of the individual, except for the purposes provided under section 13405(d)(2) of the HITECH Act,(42 U.S.C. § 17935(d)(2)) and in any accompanying regulations

(16) Obligations in the Event of a Breach

A. The Business Associate agrees that, following the discovery of a breach of unsecured protected health information, it shall notify the Covered Entity of such breach in accordance with the requirements of section 13402 of HITECH (42 U.S.C. 17932(b) and the provisions of this Section of the Contract.
B. Such notification shall be provided by the Business Associate to the Covered Entity without unreasonable delay, and in no case later than 30 days after the breach is discovered by the Business Associate, except as otherwise instructed in writing by a law enforcement official pursuant to section 13402 (g) of HITECH (42 U.S.C. 17932(g)) . A breach is considered discovered as of the first day on which it is, or reasonably should have been, known to the Business Associate. The notification shall include the identification and last known address, phone number and email address of each individual (or the next of kin of the individual if the individual is deceased) whose unsecured protected health information has been, or is reasonably believed by the Business Associate to have been, accessed, acquired, or disclosed during such breach.
C. The Business Associate agrees to include in the notification to the Covered Entity at least the following information:
    1. A brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known.

    2. A description of the types of unsecured protected health information that were involved in the breach (such as full name, Social Security number, date of birth, home address, account number, or disability code).

    3. The steps the Business Associate recommends that individuals take to protect themselves from potential harm resulting from the breach.

    4. A detailed description of what the Business Associate is doing to investigate the breach, to mitigate losses, and to protect against any further breaches.

    5. Whether a law enforcement official has advised either verbally or in writing the Business Associate that he or she has determined that notification or notice to

individuals or the posting required under section 13402 of the HITECH Act would impede a criminal investigation or cause damage to national security and; if so, include contact information for said official.

D. Business Associate agrees to provide appropriate staffing and have established procedures to ensure that individuals informed by the Covered Entity of a breach by the Business Associate have the opportunity to ask questions and contact the Business Associate for additional information regarding the breach. Such procedures shall include a toll-free telephone number, an e-mail address, a posting on its Web site and a postal address. Business Associate agrees to include in the notification of a breach by the Business Associate to the Covered Entity, a written description of the procedures that have been established to meet these requirements. Costs of such contact procedures will be borne by the Contractor.

E. Business Associate agrees that, in the event of a breach, it has the burden to demonstrate that it has complied with all notifications requirements set forth above, including evidence demonstrating the necessity of a delay in notification to the Covered Entity.

(i) Permitted Uses and Disclosure by Business Associate.

(1) General Use and Disclosure Provisions Except as otherwise limited in this Section of the Contract, Business Associate may use or disclose PHI to perform functions, activities, or services for, or on behalf of, Covered Entity as specified in this Contract, provided that such use or disclosure would not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity.

(2) Specific Use and Disclosure Provisions

(A) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate.

(B) Except as otherwise limited in this Section of the Contract, Business Associate may disclose PHI for the proper management and administration of Business Associate, provided that disclosures are Required by Law, or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as Required by Law or for the purpose for which it was disclosed to the person, and the person notifies Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.

(C) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI to provide Data Aggregation services to Covered Entity as permitted by 45 C.F.R. § 164.504(e)(2)(i)(B).

(j) Obligations of Covered Entity.

(1) Covered Entity shall notify Business Associate of any limitations in its notice of privacy practices of Covered Entity, in accordance with 45 C.F.R. § 164.520, or to the extent that such limitation may affect Business Associate's use or disclosure of PHI.

(2) Covered Entity shall notify Business Associate of any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.

(3) Covered Entity shall notify Business Associate of any restriction to the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 C.F.R. § 164.522, to the extent that such restriction may affect Business Associate's use or disclosure of PHI.

(k) Permissible Requests by Covered Entity. Covered Entity shall not request Business Associate to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if done by the Covered Entity, except that Business Associate may use and disclose PHI for data aggregation, and management and administrative activities of Business Associate, as permitted under this Section of the Contract.

(l) Term and Termination.

(1) Term. The Term of this Section of the Contract shall be effective as of the date the Contract is effective and shall terminate when the information collected in accordance with clause h. (10) of this Section of the Contract is provided to the Covered Entity and all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such information, in accordance with the termination provisions in this Section.

(2) Termination for Cause Upon Covered Entity's knowledge of a material breach by Business Associate, Covered Entity shall either:

(A) Provide an opportunity for Business Associate to cure the breach or end the violation and terminate the Contract if Business Associate does not cure the breach or end the violation within the time specified by the Covered Entity; or

(B) Immediately terminate the Contract if Business Associate has breached a material term of this Section of the Contract and cure is not possible; or

(C) If neither termination nor cure is feasible, Covered Entity shall report the violation to the Secretary.

(3) Effect of Termination

(A) Except as provided in (l)(2) of this Section of the Contract, upon termination of this Contract, for any reason, Business Associate shall return or destroy all PHI received from Covered Entity, or created or received by Business Associate on behalf of Covered Entity. Business Associate shall also provide the information collected in accordance with clause h. (10) of this Section of the Contract to the Covered Entity

within ten business days of the notice of termination. This provision shall apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of the PHI.

(B) In the event that Business Associate determines that returning or destroying the PHI is infeasible, Business Associate shall provide to Covered Entity notification of the conditions that make return or destruction infeasible. Upon documentation by Business Associate that return or destruction of PHI is infeasible, Business Associate shall extend the protections of this Section of the Contract to such PHI and limit further uses and disclosures of PHI to those purposes that make return or destruction infeasible, for as long as Business Associate maintains such PHI. Infeasibility of the return or destruction of PHI includes, but is not limited to, requirements under state or federal law that the Business Associate maintains or preserves the PHI or copies thereof.

(m) Miscellaneous Provisions.

(1) Regulatory References. A reference in this Section of the Contract to a section in the Privacy Rule means the section as in effect or as amended.

(2) Amendment. The Parties agree to take such action as 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 C

State Wages and Other Related Information

Please refer to the Department of Labor website for the latest updates, annual adjusted wage rate increases, certified payroll forms and applicable statutes.
http://www.ctdol.state.ct.us/wgwkstnd/prevailwage.htm

Prevailing Wage Law Poster Language

THIS IS A PUBLIC WORKS PROJECT Covered by the PREVAILING WAGE LAW CT General Statutes Section 31-53

If you have QUESTIONS regarding your wages CALL (860) 263-6790

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE (applicable to public building contracts entered into on or after July 1, 2007, where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a bona fide student course completion card issued by the federal OSHA Training Institute; or (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/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.**

□ FORK LIFT OPERATOR

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

□ GLAZIERS

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

IRONWORKERS

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

INSULATOR

• Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

LABORERS

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

PAINTERS

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

LEAD PAINT REMOVAL

• Painter’s Rate 1. Removal of lead paint from bridges. 2. Removal of lead paint as preparation of any surface to be repainted. 3. Where removal is on a Demolition project prior to reconstruction. • Laborer’s Rate 1. Removal of lead paint from any surface NOT to be repainted. 2. Where removal is on a TOTAL Demolition project only.

PLUMBERS AND PIPEFITTERS

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ***License required per Connecticut General Statutes: P-1,2,6,7,8,9 J1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.**

POWER EQUIPMENT OPERATORS

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ***License required, crane operators only, per Connecticut General Statutes.**

ROOFERS

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

SHEETMETAL WORKERS

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

SPRINKLER FITTERS

Installation, alteration, maintenance and repair of fire protection sprinkler systems. ***License required per Connecticut General Statutes: F-1, 2, 3, 4.**

TILE MARBLE AND TERRAZZO FINISHERS

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

TRUCK DRIVERS

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance

of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ***License required, drivers only, per Connecticut General Statutes**.

For example:

• Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
• Hauling material off site is not covered provided they are not dumping it at a location outlined above.
• Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

 Any questions regarding the proper classification should be directed to:

Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543.

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

 Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and (Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he

fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Rev. 7/1/19

SEE BELOW FOR STATE WAGE RATES

INSERT STATE WAGES HERE

COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES
CONTRACT COMPLIANCE REGULATIONS
NOTIFICATION TO BIDDERS
(Revised 09/3/15)

The contract to be awarded is subject to contract compliance requirements mandated by Sections 4a-60 and 4a-60a of the Connecticut General Statutes; and, when the awarding agency is the State, Sections 46a-71(d) and 46a-81i(d) of the Connecticut General Statutes. There are Contract Compliance Regulations codified at Section 46a-68j-21 through 43 of the Regulations of Connecticut State Agencies, which establish a procedure for awarding all contracts covered by Sections 4a-60 and 46a-71(d) of the Connecticut General Statutes.

According to Section 46a-68j-30(9) of the Contract Compliance Regulations, every agency awarding a contract subject to the contract compliance requirements has an obligation to "aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials." "Minority business enterprise" is defined in Section 4a-60 of the Connecticut General Statutes as a business wherein fifty-one percent or more of the capital stock, or assets belong to a person or persons: "(1) Who are active in daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are members of a minority, as such term is defined in subsection (a) of Section 32-9n." "Minority" groups are defined in Section 32-9n of the Connecticut General Statutes as "(1) Black Americans . . . (2) Hispanic Americans . . . (3) persons who have origins in the Iberian Peninsula . . . (4)Women . . . (5) Asian Pacific Americans and Pacific Islanders; (6) American Indians . . ." An individual with a disability is also a minority business enterprise as provided by Section 4a-60g of the Connecticut General Statutes. The above definitions apply to the contract compliance requirements by virtue of Section 46a-68j-21(11) of the Contract Compliance Regulations.

The awarding agency will consider the following factors when reviewing the bidder's qualifications under the contract compliance requirements:

(a) the bidder's success in implementing an affirmative action plan;
(b) the bidder's success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the Administrative Regulations of Connecticut State Agencies, inclusive;
(c) the bidder's promise to develop and implement a successful affirmative action plan;
(d) the bidder's submission of employment statistics contained in the "Employment Information Form", indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and
(e) the bidder's promise to set aside a portion of the contract for legitimate minority business enterprises. See Section 46a-68j-30(10)(E) of the Contract Compliance Regulations.

INSTRUCTIONS AND OTHER INFORMATION

The following BIDDER CONTRACT COMPLIANCE MONITORING REPORT must be completed in full, signed, and submitted with the bid for this contract. The contract awarding agency and the Commission on Human Rights and Opportunities will use the information contained thereon to determine the bidders compliance to Sections 4a-60 and 4a-60a CONN. GEN. STAT., and Sections 46a-68j-23 of the Regulations of Connecticut State Agencies regarding equal employment opportunity, and the bidder's good faith efforts to include minority business enterprises as subcontractors and suppliers for the work of the contract.

1) Definition of Small Contractor

Section 4a-60g CONN. GEN. STAT. defines a small contractor as a company that has been doing business under the same management and control and has maintained its principal place of business in Connecticut for a one year period immediately prior to its application for certification under this section, had gross revenues not exceeding fifteen million dollars in the most recently completed fiscal year, and at least fifty-one percent of the ownership of which is held by a person or persons who are active in the daily affairs of the company, and have the power to direct the management and policies of the company, except that a nonprofit corporation shall be construed to be a small contractor if such nonprofit corporation meets the requirements of subparagraphs (A) and (B) of subdivision 4a-60g CONN. GEN. STAT.

MANAGEMENT: Managers plan, organize, direct, and control the major functions of an organization through subordinates who are at the managerial or supervisory level. They make policy decisions and set objectives for the company or departments. They are not usually directly involved in production or providing services. Examples include top executives, public relations managers, managers of operations specialties (such as financial, human resources, or purchasing managers), and construction and engineering managers.

BUSINESS AND FINANCIAL OPERATIONS: These occupations include managers and professionals who work with the financial aspects of the business. These occupations include accountants and auditors, purchasing agents, management analysts, labor relations specialists, and budget, credit, and financial analysts.

MARKETING AND SALES: Occupations related to the act or process of buying and selling products and/or services such as sales engineer, retail sales workers and sales representatives including wholesale.

LEGAL OCCUPATIONS: In-House Counsel who is charged with providing legal advice and services in regards to legal issues that may arise during the course of standard business practices. This category also includes assistive legal occupations such as paralegals, legal assistants.

COMPUTER SPECIALISTS: Professionals responsible for the computer operations within a company are grouped in this category. Examples of job titles in this category include computer programmers, software engineers, database administrators, computer scientists, systems analysts, and computer support specialists

ARCHITECTURE AND ENGINEERING: Occupations related to architecture, surveying, engineering, and drafting are included in this category. Some of the job titles in this category include electrical and electronic engineers, surveyors, architects, drafters, mechanical engineers, materials engineers, mapping technicians, and civil engineers.

OFFICE AND ADMINISTRATIVE SUPPORT: All clerical-type work is included in this category. These jobs involve the preparing, transcribing, and preserving o f written communications and records; collecting accounts; gathering and distributing information; operating office machines and electronic data processing equipment; and distributing mail. Job titles listed in this category include telephone operators, bill and account collectors, customer service representatives, dispatchers, secretaries and administrative assistants, computer operators and clerks (such as payroll, shipping, stock, mail and file).

BUILDING AND GROUNDS CLEANING AND MAINTENANCE: This category includes occupations involving landscaping, housekeeping, and janitorial services. Job titles found in this category include supervisors of landscaping or housekeeping, janitors, maids, grounds maintenance workers, and pest control workers.

CONSTRUCTION AND EXTRACTION: This category includes construction trades and related occupations. Job titles found in this category include boilermakers, masons (all types), carpenters, construction laborers, electricians, plumbers (and related trades), roofers, sheet metal workers, elevator installers, hazardous materials removal workers, paperhangers, and painters. Paving, surfacing, and tamping equipment operators; drywall and ceiling tile installers; and carpet, floor and tile installers and finishers are also included in this category. First line supervisors, foremen, and helpers in these trades are also grouped in this category.

INSTALLATION, MAINTENANCE AND REPAIR: Occupations involving the installation, maintenance, and repair of equipment are included in this group. Examples of job titles found here are heating, ac, and refrigeration mechanics and installers; telecommunication line installers and repairers; heavy vehicle and mobile equipment service technicians and mechanics; small engine mechanics; security and fire alarm systems installers; electric/electronic repair, industrial, utility and transportation equipment; millwrights; riggers; and manufactured building and mobile home installers. First line supervisors, foremen, and helpers for these jobs are also included in the category.

MATERIAL MOVING WORKERS: The job titles included in this group are Crane and tower operators; dredge, excavating, and lading machine operators; hoist and winch operators; industrial truck and tractor operators; cleaners of vehicles and equipment; laborers and freight, stock, and material movers, hand; machine feeders and offbearers; packers and packagers, hand; pumping station operators; refuse and recyclable material collectors; and miscellaneous material moving workers.

PRODUCTION WORKERS: The job titles included in this category are chemical production machine setters, operators and tenders; crushing/grinding workers; cutting workers; inspectors, testers sorters, samplers, weighers; precious stone/metal workers; painting workers; cementing/gluing machine operators and tenders; etchers/engravers; molders, shapers and casters except for metal and plastic; and production workers.

White (not of Hispanic Origin)-All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East. Black (not of Hispanic Origin)-All persons having origins in any of the Black racial groups of Africa. Hispanic- All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.	Asian or Pacific Islander- All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippine Islands, and Samoa. American Indian or Alaskan Native- All persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.

BIDDER CONTRACT COMPLIANCE MONITORING REPORT

PART 1 – Bidder Information

Company Name: Street Address: City & State: Chief Executive:	Bidder Federal Employer Identification Number: Or Social Security Number:
Major Business Activity: (brief description)	Bidder Identification (response optional/definitions on page 1) -Bidder is a small contractor? Yes ☐ No ☐ -Bidder is a minority business enterprise? Yes ☐ No ☐ (If yes, check ownership category) Black ☐ Hispanic ☐ Asian American ☐ American Indian/Alaskan Native ☐ Iberian Peninsula ☐ Individual(s) with a Physical Disability ☐ Female ☐ -Bidder is certified as above by State of CT? Yes ☐ No ☐
Bidder Parent Company: (If any)	
Other Locations in CT: (If any)	

PART II - Bidder Nondiscrimination Policies and Procedures

1. Does your company have a written Affirmative Action/Equal Employment Opportunity statement posted on company bulletin boards? Yes ☐ No ☐	7. Do all of your company contracts and purchase orders contain non-discrimination statements as required by Sections 4a-60 & 4a-60a Conn. Gen. Stat.? Yes ☐ No ☐
2. Does your company have the state-mandated sexual harassment prevention in the workplace policy posted on company bulletin boards? Yes ☐ No ☐	8. Do you, upon request, provide reasonable accommodation to employees, or applicants for employment, who have physical or mental disability? Yes ☐ No ☐
3. Do you notify all recruitment sources in writing of your company's Affirmative Action/Equal Employment Opportunity employment policy? Yes ☐ No ☐	9. Does your company have a mandatory retirement age for all employees? Yes ☐ No ☐
4. Do your company advertisements contain a written statement that you are an Affirmative Action/Equal Opportunity Employer? Yes ☐ No ☐	10. If your company has 50 or more employees, have you provided at least two (2) hours of sexual harassment training to all of your supervisors? Yes ☐ No ☐ N/A ☐
5. Do you notify the Ct. State Employment Service of all employment openings with your company? Yes ☐ No ☐	11. If your company has apprenticeship programs, do they meet the Affirmative Action/Equal Employment Opportunity requirements of the apprenticeship standards of the Ct. Dept. of Labor? Yes ☐ No ☐ N/A ☐
6. Does your company have a collective bargaining agreement with workers? Yes ☐ No ☐ 6a. If yes, do the collective bargaining agreements contain non-discrimination clauses covering all workers? Yes ☐ No ☐ 6b. Have you notified each union in writing of your commitments under the nondiscrimination requirements of contracts with the state of CT? Yes ☐ No ☐	12. Does your company have a written affirmative action Plan? Yes ☐ No ☐ If no, please explain. 13. Is there a person in your company who is responsible for equal employment opportunity? Yes ☐ No ☐ If yes, give name and phone number:

1. Will the work of this contract include subcontractors or suppliers? Yes ☐ No ☐

1a. If yes, please list all subcontractors and suppliers and report if they are a small contractor and/or a minority business enterprise. (defined on page 1 / use additional sheet if necessary)

1b. Will the work of this contract require additional subcontractors or suppliers other than those identified in 1a. above? Yes ☐ No ☐

PART IV - Bidder Employment Information Date:

JOB CATEGORY *	OVERALL TOTALS	WHITE (not of Hispanic origin)		BLACK (not of Hispanic origin)		HISPANIC		ASIAN or PACIFIC ISLANDER		AMERICAN INDIAN or ALASKAN NATIVE	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Management											
Business & Financial Ops											
Marketing & Sales											
Legal Occupations											
Computer Specialists											
Architecture/Engineering											
Office & Admin Support											
Bldg/ Grounds Cleaning/Maintenance											
Construction & Extraction											
Installation , Maintenance & Repair											
Material Moving Workers											
Production Occupations											
TOTALS ABOVE											
Total One Year Ago											
FORMAL ON THE JOB TRAINEES (ENTER FIGURES FOR THE SAME CATEGORIES AS ARE SHOWN ABOVE)											
Apprentices											
Trainees											

*NOTE: JOB CATEGORIES CAN BE CHANGED OR ADDED TO (EX. SALES CAN BE ADDED OR REPLACE A CATEGORY NOT USED IN YOUR COMPANY)

1. Which of the following recruitment sources are used by you? (Check yes or no, and report percent used)				2. Check (X) any of the below listed requirements that you use as a hiring qualification (X)		3. Describe below any other practices or actions that you take which show that you hire, train, and promote employees without discrimination
SOURCE	YES	NO	% of applicants provided by source			
State Employment Service	☐	☐			Work Experience	
Private Employment Agencies	☐	☐			Ability to Speak or Write English	
Schools and Colleges	☐	☐			Written Tests	
Newspaper Advertisement	☐	☐			High School Diploma	
Walk Ins	☐	☐			College Degree	
Present Employees	☐	☐			Union Membership	
Labor Organizations	☐	☐			Personal Recommendation	
Minority/Community Organizations	☐	☐			Height or Weight	
Others (please identify)	☐	☐			Car Ownership	
	☐	☐			Arrest Record	
	☐	☐			Wage Garnishments	

Certification (Read this form and check your statements on it CAREFULLY before signing). I certify that the statements made by me on this BIDDER CONTRACT COMPLIANCE MONITORING REPORT are complete and true to the best of my knowledge and belief, and are made in good faith. I understand that if I knowingly make any misstatements of facts, I am subject to be declared in non-compliance with Section 4a-60, 4a-60a, and related sections of the CONN. GEN. STAT.

(Signature)	(Title)	(Date Signed)	(Telephone)

LOTCIP #L079-0003
Replacement of Cedar Street Bridge (Bridge No. 04841) over Harbor Brook – Meriden, CT

Notice to Contractor – General Conditions of Bidding

Notice to Contractor – Procurement of Materials

Notice to Contractor – Utility Generated Schedule

Notice to Contractor – Environmental Investigations

Notice to Contractor – CHRO Bid Requirements

Section 1.07 - Legal Relations and Responsibilities

Section 1.08 – Prosecution and Progress

Section 1.10 – Environmental Compliance

0020763 A Disposal of Sediments

0101000 A Environmental Health and Safety

0101117 A Controlled Materials Handling

0101128 A Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area

0201199 A Remove and Reset Fence

0202216 A Excavation and Reuse of Existing Channel Bottom Material

0202217 A Supplemental Streambed Channel Material

0202315 A Disposal of Controlled Materials

0202318 A Management of Reusable Controlled Material

0204151 A Handling Water

0204210 A Handling Contaminated Groundwater

0503890 A Removal of Existing Bridge

0520036 A Asphaltic Plug Expansion Joint System

0521021 A Steel-Laminated Elastomeric Bearings

0601088 A Concrete Form Liners

0607001 A Dry Rubble Masonry

0707009 A Membrane Waterproofing (Cold Liquid Elastomeric)

0817005 A 6" Granite Stone Curbing for Bridges

LOTCIP #L079-0003
Replacement of Cedar Street Bridge (Bridge No. 04841) over Harbor Brook – Meriden, CT

0819002 A Penetrating Sealer Protective Compound

0904487 A Metal Bridge Rail (Handrail)

0969060 A Construction Field Office (Small)

0971001 A Maintenance and Protection of Traffic

1208931 A Sign Face - Sheet Aluminum (Type IX Retroreflective Sheeting)

Utility Specifications

1301082 A 8" Ductile Iron Pipe (Water Main)

1302004 A 8" Gate Valve

1303204 A Hydrant Assembly (Water Main)

1401242 A 8" Ductile Iron Pipe (Sanitary Sewer)

1401662 A Sanitary Manhole (4' Dia.) 0'-10' Deep

1403501 A Reset Manhole (Sanitary Sewer)

1504010 A Temporary Support of Utilities

NOTICE TO CONTRACTOR
GENERAL CONDITIONS OF BIDDING
EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS & SITE OF WORK

The bidder is required to examine carefully the site of work and the Contract documents including proposal form, plans, special provisions, specifications, supplemental specifications, Contract forms and other Contract documents for the work contemplated, and shall request in writing prior to the bid any clarifications that it deems necessary to prepare its bid. It will be assumed that the bidder has judged for and satisfied itself as to the conditions to be encountered at the site, as to the completeness and requirements of the contract plans and specifications, as to the character, quality and quantities of the work to be performed and materials to be furnished for said work, and as to the requirements of the above contract documents, and in particular, but not limited to, what is required under each Contract item, or under the general cost of the work, or under another or more general Contract item in the absence of particular items. Therefore, while clarifications regarding the Contract documents should be expected from time to time during prosecution of the work and unless these clarifications substantially change the scope of the work, in submitting its bid the bidder shall relinquish any claim to additional compensation or time based upon these clarifications of the Contract documents or a misunderstanding or lack of knowledge of the site conditions, the work required or the method of work required.

The subsurface information furnished is based on interpretation of investigations made only at the specific locations indicated, and no assurance is given that these conditions are necessarily typical of other locations or that they have remained unchanged since the field data were obtained. No assurance is given that the presence or absence of water in subsurface explorations at the time of these explorations will be representative of actual conditions at the time of construction. Such subsurface information as was obtained for use in the design of the Project is available on logs provided in the contract documents or will be made available for inspection upon written request of the bidder. The contractor shall be solely responsible for all assumptions, deductions, or conclusions it may make or derive from its examination of any subsurface information or document provided. The furnishing or making available such information does not provide or make any warranty or representation as to the actual conditions that may be encountered or actual quantities or distribution of quantities of work which will be required.

ESTIMATED QUANTITIES

The quantities shown on the proposal form or in the contract documents are approximate only and are given as a basis of evaluation for award of the contract. Provision of these quantities provides no implied guarantee that these quantities shall remain unchanged in the actual construction, and the contractor shall not plead misunderstanding or deception because of any variation (large or small) between estimated and final quantities. The Municipality reserves the right to increase or decrease any or all of the quantities, or completely delete contract items, as shown on the proposal form or in the contract documents as it deems necessary to complete the contract project.

BIDDER'S OBLIGATIONS REGARDING DISCOVERY OF AN ERROR IN THE CONTRACT DOCUMENTS

Any bidder that discovers an error in the bid proposal or contract documents, including but not limited to the plans, must report that error in writing prior to the bid and within two (2) business days of discovering the error. A failure to do so may result in finding the contractor to be non-responsible as the low bidder.

NOTICE TO CONTRACTOR - PROCUREMENT OF MATERIALS

Upon award, the Contractor shall proceed with shop drawings, working drawings, procurement of materials, and all other submittals required to complete the work in accordance with the contract documents. The "Notice to Proceed" and road closure will be coordinated with the approval and delivery schedule of the structure elements.

NOTICE TO CONTRACTOR – UTILITY GENERATED SCHEDULE

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

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

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

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

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

UTILITY WORK SCHEDULE Rev 08 02 2016

CTDOT Project Number: LOTCIP No. TBD	Town: Meriden
Project Description: Replacement of Cedar Street Bridge over Harbor Brook (#04841)	
CTDOT Utilities Engineer: John Wengell	
Phone: 860-667-9624	Email: jawengell@wmcengineers.com

Utility Company: Eversource Gas	
Prepared By: Sarah Bailey	Date Prepared: 6/23/2021
Phone: 413-302-2884	Email: sarah.bailey@eversource.com

Scope of Work

The following is a description of all utility work planned to be completed in conjunction with the CTDOT project. The narrative describes all work to be carried out by the utility or its contractor, including temporary and permanent work required by the project as well as any additional utility infrastructure work the utility intends on performing within the project limits during the construction of the project.

CONNECT TWO 6-INCH GAS MAINS ON PARK ST TO CREATE TWO WAY FEED TO CEDAR STREET. CUT OFF 6-INCH GAS MAIN ON CEDAR STREET AT STATIONS 2+00 AND 3+50. ONCE EXISTING CULVERT HAS BEEN REMOVED, INSTALL NEW 6-INCH PLASTIC MAIN FROM STATIONS 2+00 TO 3+50 RECONNECTING THE MAIN.

Special Considerations and Constraints

The following describes the limiting factors that must be planned for in the scheduling and performance of the utility work. For example, restrictions on cut-overs, outages, limitations on customer service interruptions (e.g. nights, weekends, holidays), seasonal and environmental shutdown periods, long lead material procurements, etc..

UTILITY WORK SCHEDULE Rev 3/2015

CTDOT Project Number: LOTCIP No. TBD

Utility Company: Eversource Gas

Prepared By: Sarah Bailey Total Working Days: 10

Schedule

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

Location (Station to Station)	Description of Utility Work Activity	Predecessor Activity	Duration (working days)
7+00	INSTALL 5 FT OF MAIN CONNECTING TWO 6 IN PLASTIC MAINS ON PARK ST	N/A	2
2+00 TO 3+50	CUT AND CAP 6 IN PLASTIC MAIN ON CEDAR STREET	PREVIOUS STEP	3
2+00 TO 3+50	INSTALL 150 FT OF 6 IN PLASTIC ON CEDAR STREET UNDER NEW CULVERT	EXISTING CULVERT NEEDS TO BE REMOVED	5

NOTICE TO CONTRACTOR - ENVIRONMENTAL INVESTIGATIONS

Environmental site investigations have been conducted that involved the sampling and laboratory analysis of soil collected from various locations and depths within the project limits. The results of these investigations indicated the presence of detectable concentrations of polynuclear aromatic hydrocarbons (PAH) and RCRA 8 metals in the soils within proposed construction areas. The Connecticut Department of Energy and Environmental Protection (CTDEEP) groundwater classification beneath the site is GB.

Based on these findings, one (1) AOEC for soil exists within the proposed project limits. In addition, three (3) "Low-Level" AOECs (LL-AOECs) for soil and groundwater exist within the proposed project limits, where the compounds detected at concentrations below the numeric criteria. The presence of the compounds at these concentrations will not require material-handling measures beyond those required for normal construction operations. The presence of these compounds at these concentrations will require the disposition of soils excavated from these areas to be restricted as described herein. Material excavated from within the "Low-Level" AOEC's that cannot be reused within the Project limits will require disposal at an approved treatment/disposal facility in accordance with Item No. 0202315A - Disposal of Controlled Materials and/or in Item No. 0020763A – Disposal of Sediments.

The Contractor is hereby notified that controlled materials requiring special management or disposal procedures will be encountered during various construction activities conducted within the project limits. Therefore, the Contractor will be required to implement appropriate health and safety measures for all construction activities to be performed within the AOECs. These measures shall include, but are not limited to, air monitoring, engineering controls, personal protective equipment and decontamination, equipment decontamination and personnel training. WORKER HEALTH AND SAFETY PROTOCOLS WHICH ADDRESS POTENTIAL AND/OR ACTUAL RISK OF EXPOSURE TO SITE SPECIFIC HAZARDS IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

The City of Meriden, as Generator, will provide an authorized representative to sign all manifests and waste profile documentation required by disposal facilities for disposal of contaminated sediments, timbers, concrete water, and controlled and hazardous materials.

All suitable material excavated within the "Low-Level" AOEC(s) shall be utilized as fill/backfill within the project limits, in accordance with the following conditions: (1) such soil is deemed to be structurally suitable for use as fill by the Engineer; (2) such soil is not placed below the water table; 3) the CTDEEP groundwater classification of the area where the soil is to be reused as fill does not preclude said reuse; and (4) such soil is not placed in an area subject to erosion. Soils within the "Low-Level" AOEC(s) are to be reused on-site prior to the use of other soils and/or fill such that no excess soils requiring off-site disposal are generated from the "Low-Level" AOEC(s).

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. 0101117A - Controlled Materials Handling
- Item No. 0202315A - Disposal of Controlled Materials

- Item No. 0020763A - Disposal of Sediments
- Item No. 0202318A - Management of Reusable Materials
- Item No. 0204210A – Handling of Contaminated Groundwater
- Item No. 0101128A – Securing, Construction and Dismantling of a Waste Stockpile and Treatment Area (WSA)

The Contractor is alerted to the fact that the City representative or Engineer will be on site for excavation activities within the AOEC(s), to collect soil and groundwater samples (if necessary), and to observe site conditions. **Excavated material from the AOEC(s) and excess material from the LLAOEC will be stored within the WSA, as shown on the plans, for determination of disposal classification prior to off-site disposal at an approved facility.**

Information pertaining to the results of the environmental investigations discussed can be found in the documents listed below. The results contained in the environmental investigation reports listed below show levels of various contaminants that the Contractor may encounter during construction. Actual levels found during construction may vary and such variations will not be considered a change in condition provided the material can still be disposed as non-hazardous at one or more of the disposal facilities listed in Item No. 0202315A - Disposal of Controlled Materials and/or in Item No. 0020763A – Disposal of Sediments.

Task 210 – Subsurface Site Investigation. <u>Replacement of Cedar Street Bridge over Harbor Brook.</u> Meriden, Connecticut. MMI, August 2018.

NOTICE TO CONTRACTOR
CHRO BID REQUIREMENTS

The contractor who is selected to perform this State project must comply with CONN. GEN. STAT. §§ 4a- 60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5.

State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services ("DAS") under the provisions of CONN. GEN. STAT. § 4a-60g. (25% of the work with DAS certified Small and Minority owned businesses and 25% of that work with DAS certified Minority, Women and/or Disabled owned businesses.) The contractor must demonstrate good faith effort to meet the 25% set-aside goals.

For municipal public works contracts and quasi-public agency projects, the contractor must file a written or electronic non-discrimination certification with the Commission on Human Rights and Opportunities. Forms can be found at:

http://www.ct.gov/opm/cwp/view.asp?a=2982&q=390928&opmNav_GID=1806

SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES

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:

The Connecticut Light and Power Company dba Eversource Energy - Electric Distribution
Mrs. Robin Lyons,
Lead Engineer - Distribution Projects and Programs
107 Selden Street
Berlin, CT 06037
PHONE: 860-665-4733
E-MAIL: Robin.Lyons@eversource.com

Yankee Gas Services Company dba Eversource Energy - Gas
Mr. David Hatfield,
Lead Engineer, Gas Project Engineering
107 Selden Street, Mail Stop NUE2
Berlin, CT 06037
PHONE: 203-592-3494
E-MAIL: David.Hatfield@Eversource.com

The 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
E-MAIL: Lynne.m.delucia@ftr.com

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.04 - Limitation of Operations - Add the following:

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

Cedar Street

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

The Contractor will be allowed to close Cedar Street and detour traffic for construction.
The Contractor's daily hours of operations are as follows:

Monday through Friday between 7:00 a.m. and 6:00 p.m.
Saturday, Sunday or Holidays: By request

The Contractor shall notify the City of Meriden and the Engineer at least 14 days in advance of the start of the Cedar Street closure.

All Other Roadways

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

Additional Lane Closure Restrictions

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

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

SECTION 1.10 – ENVIRONMENTAL COMPLIANCE

In Article 1.10.03 – Water Pollution Control:

BEST MANAGEMENT PRACTICES

Add the following after Required Best Management Practices Number 13:

14. The Contractor is hereby notified that there are known extant records of State-listed species Glyptemys insculpta (wood turtle) documented nearby the work area. Guidance to avoid impact is provided below:

Protection for State Special Concern Wood turtle

Individuals of this species are riverine and riparian obligates, overwintering and mating in clear, cold, primarily sand-gravel and rock bottomed streams and foraging in riparian zones, fields and upland forests during the late spring and summer. They hibernate in the banks of the river in submerged tree roots between November 1 and March 31.

Land disturbance activities that will crush active turtles or unearth/or crush hibernating turtles or nests need to consider local habitat features and apply fencing and/or time of year restrictions as appropriate.

- Do not begin instream activity and bank disturbance within a river or stream's 10 meter buffer during turtle's dormant period (November 1- March 31).

Between April 1- October 31:

- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.
- Exclusionary fencing 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.
- Prior to construction, all turtles 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.
- The Contractor must search the work area each morning prior to any work being done.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species.
- 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.
- 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.

ITEM #0020763A - DISPOSAL OF SEDIMENTS

Description:

Work under this item shall consist of the loading, transportation and final off-site disposal of sediments. These sediments are contaminated at non-hazardous levels as documented in the reports listed in the "Notice to Contractor – Environmental Investigations." The controlled sediments are designated for off-site disposal at an upland facility and, after characterization by the Engineer, if levels are above regulated standards they shall be taken from the WSA, loaded, transported, and disposed of at a CTDEEP and CTDOT-approved upland disposal facility listed herein.

The Contractor must use one or more of the following Department-approved treatment/recycle/ disposal facilities for the disposal of non-hazardous sediments:

ACV Enviro (AKA Cycle Chem) Attn: Brian Kern, Manager 217 South First Street Elizabeth, NJ 07206 Phone: (908) 354-0210	Advanced Disposal Attn: Todd Casslemann 7095 Glades Pike Summerset, PA 15501 Phone: (814) 444-0127
Soil Safe, Inc. Attn: Jim Grant, Billy Booth 378 Route 130, Logan Township Bridgeport, NJ 08085 Phone: (410) 872-3990 ext. 1121 Fax: (410) 872-9082	Hazleton Creek Properties, LLC Attn: Allen Swantek 280 South Church Street Hazelton, PA 18201 Phone: (570) 501-5050 Fax: (570) 457-3395
Ted Ondrick Company, LLC Attn: David S. Costanzo 58 Industrial Road Chicopee, MA 01020 Phone: (413) 592-2566 Fax: (413) 592-7451	Manchester Landfill Attn: Brooks Parker 311 Olcott Street Manchester, CT 06040 Phone: (860) 647-3238
Phoenix Soil, LLC 58 North Washington Street Plainville, CT 06062 Phone: (860)747-888	Tradebe Treatment & Recycling 136 Gracey Avenue Meriden, CT 06451 Phone: (203) 238-6745

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

After the sediment has adequately dewatered and any necessary solidification material has been added, 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 he intends to use 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 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, including 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 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.**

All manifests or bills of lading utilized to accompany the transportation of the material shall be prepared by the Contractor a minimum of 24 hours in advance and signed by an authorized Department 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 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 sediments 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

the material being transported has agreed to accept the type and quantity of waste.

· Discharge openings on trucks used for the transportation of sediments must be securely closed during transportation. Trucks deemed unacceptable for use by the Engineer will not be used for the transportation of sediments.

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 site 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 the controlled sediments. 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 AOEC's.

The Contractor shall use dry decontamination procedures. Residuals from dry decontamination activities shall be collected and managed as controlled sediments. 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 SEDIMENTS" 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.

The disposal of excavated materials, originally anticipated to be controlled materials, but determined by characterization sampling not to contain concentrations of regulated chemicals (non-polluted or "clean" materials) will not be measured for payment under this item but will be considered as surplus excavated materials and will be paid in accordance with Article 1.04.05.

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.

Basis of Payment:

This work will be paid for at the Contract unit price, which shall include the loading and transportation of sediments from the WSA to the treatment/recycling/disposal facility; the treatment/recycling/disposal; the preparation of manifests and fees paid; and all equipment, materials, tools, and labor incidental to loading, transporting, and treating/recycling/disposal of materials. **This unit price will be applicable to all the Contractor-selected disposal facilities 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 liquids generated during equipment decontamination activities.

Solidification of sediments will be paid under other Contract items.

Pay Item	Pay Unit
Disposal of Sediments	Ton

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 HASP that addresses the relative risk of exposure to potential hazards present within the Project limits, including those related to soil excavation and handling/removal of contaminated railroad ties. This also includes possible entry into confined spaces or excavations with the potential for vapors to accumulate. In addition to the former stated risks, the HASP must also address the associated risks with the excavation and handling of contaminated soil. 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 potential concerns directly related to site conditions.

Note: The Engineer will prepare a site-specific HASP, which is compatible with the Contractor's HASP.

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

   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 in the environmental site investigation to develop the HASP. The documents containing this data are referenced in "Notice to Contractor – Environmental Investigations." Note that as indicated in the Notice to Contractor for this project, the chemical data obtained at this site indicates impacts to soil or groundwater within the Project limits and may also represent soil impacts surrounding the USTs subject for removal.

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 limits of the Project, 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 on the Project 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 limits of the Project or in other areas 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 on the Project, 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, 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 on the Project, as shown on the Plans, 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

   1. 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.

2. Elements

   a. 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.

   b. 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 PPE 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.

   c. 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 onsite 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, including current 8-hour refresher 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:

i. Directing and implementing the HASP.

ii. 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.

iii. Authorizing Stop Work Orders, which shall be executed upon the determination of an imminent health and safety concern.

iv. 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.

v. Authorizing work to resume, upon approval from the Contractor's HSM.

vi. Directing activities, as defined in the Contractor's written HASP, during emergency situations; and

vii. Providing personal monitoring where applicable, and as identified in the HASP.

d. 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.

e. 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 PPE to ensure 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.

f. 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.

g. 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.

h. 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).

i. Communications

Written procedures for routine and emergency communications procedures shall be included in the Contractor's HASP.

j. Personal Hygiene, Personal Decontamination and Equipment Decontamination

Decontamination facilities and procedures for PPE, sampling equipment, and heavy equipment shall be discussed in detail in the HASP.

k. 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 onsite at all times during site operations.

l. 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.

m. 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.

n. Confined Space Entry Procedures

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

o. 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.

p. 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 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 onsite 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 being 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 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, CPC, 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	Lump Sum

ITEM NO. 0101117A - CONTROLLED MATERIALS HANDLING

Description:

Work under this Item is intended to provide specific procedural requirements to be followed by the Contractor during the excavation of Controlled Materials from any Area of Environmental Concern (AOEC) or Low-Level AOEC (LL-AOEC), as shown on the Project Plans. This supplements Specification Sections 2.02, 2.03, 2.06, and 2.86, and Contract Special Provisions for excavation wherever contaminated materials are encountered. Work under this Item shall include excavation and stockpiling materials at the Waste Stockpile Area (WSA); and covering, securing, and maintaining the stockpiled materials throughout the duration of the Project. All materials, excluding the existing pavement structure (asphalt and subbase), rock, ledge, and concrete, excavated within the AOECs area to be considered Controlled Materials. Excess material from the area of the LL-AOEC will be considered Controlled Materials.

Controlled Materials consisting of non-hazardous levels of regulated substances have been documented to exist within the Project. Such contamination is documented in the reports listed in the "Notice to Contractor – Environmental Investigations." Where contaminated soil is excavated, special handling, disposal, and documentation procedures will be required. Controlled material excavated from within the AOEC 1 may not be reused as fill/backfill within the Project Limits. All suitable Controlled Materials excavated from the LL-AOEC may be reused as fill/backfill within the Project Limits with any excess material transported to the WSA as Controlled Material. Excess or unsuitable Controlled Materials that cannot be reused within the Project Limits, as determined by the Engineer, must be transported to and stockpiled in the WSA, sampled by the Engineer, and transported off-site for disposal, if necessary.

Materials:

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

Plastic Sheet: Polyethylene plastic for underlayment shall be at least 30 mil thick. Polyethylene plastic sheeting for covering excavated material shall be a thickness of at least ten (10) mil. Both shall be at least ten (10) feet wide.

Covers for roll-off/storage containers shall be made of polyethylene plastic, or similar water-tight material, that is of sufficient size to completely cover top opening and can be securely fastened to the container.

Sandbags: Sandbags used to secure polyethylene covers shall be at least thirty (30) pounds.

Sorbent Boom: Shall be 8 inches in diameter and 10 feet long and possess petrophilic and hydrophobic properties. Sorbent booms shall also have devices (i.e. clips, clasps, etc.) for connection to additional

Construction Methods:

A. General

When Controlled Materials are encountered during the work, health and safety provisions shall conform to the appropriate sections of the Contract. Provisions may include implementation of engineering controls, air and personal monitoring, the use of chemical protective clothing (CPC), personal protective

equipment (PPE), implementation of engineering controls, air and personal monitoring, and decontamination procedures.

All suitable Controlled Materials excavated from the LL-AOEC may only be reused within the Project Limits, as determined by the Engineer. Controlled Materials that are to be immediately reused within the Project limits shall be temporarily stockpiled adjacent to the excavation for reuse.

Excess Controlled Materials from the LL-AOEC and soil excavated from within the AOEC must be transported directly to the WSA and placed within a designated storage bin for disposal characterization sampling by the Engineer.

The stockpiles of excavated Controlled Materials shall be maintained as shown on the Project plans. The Contractor shall plan excavation activities within the AOECs in consideration of the capacity of the WSA and the material testing and disposal requirements of the applicable Contract item. **No claims for delay shall be considered based on the Contractor's failure to coordinate excavation activities as specified herein.**

The Engineer will sample the stockpiled Controlled Materials at a frequency and for the constituents to meet the acceptance criteria of the treatment/recycling/disposal facilities submitted by the Contractor. The Contractor is herby notified that the 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 stockpile is 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 or coordination with the Engineer as identified above.**

B. Transportation and Stockpiling

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

- Transported Controlled Materials are to be covered prior to leaving the point of generation and are to remain covered until the arrival at the WSA;
- All vehicles departing the Site are properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume and content of materials carried;
- All vehicles shall have secure, containers free of defects for material transportation;
- No material shall leave the site until there is adequate lay down area prepared in the WSA; and,
- Documentation must be maintained indicating that all applicable laws have been satisfied and that the materials have been successfully transported and received at the disposal facility.

Construction of the WSA shall be completed prior to the initiation of construction activities generating Controlled Materials. Plastic polyethylene sheeting shall underlay all excavated Controlled Materials. Measures shall be implemented to divert rainfall away from the WSA.

Excavated materials shall be staged as shown on the Project Plans or as directed by the Engineer.

C. WSA Maintenance

The Contractor shall provide all necessary materials, equipment, tools, and labor for anticipated activities within the WSA. Such activities include, but are not limited to, handling and management of stockpiles and drummed CPC/PPE; uncovering and recovering stockpiles; maintenance of WSA; replacement of damaged components (i.e. sand bags, plastic polyethylene sheeting, etc.); and waste inventory record management. The Contractor shall manage all materials int eh WSA in such a way as to minimize tracking of potential contaminated materials across the site and off-site and minimize dust generation.

Each stockpile shall be securely covered when not in active use with a cover of sufficient size to prevent generation of dust and infiltration of precipitation.

The staged stockpiles shall be inspected at least daily by the Contractor to ensure that the cover and containment have not been damaged and that there is no apparent leakage from the piles. If the cover has been damaged, or there is evidence of leakage from the piles, the Contractor shall immediately replace the cover or containment as needed to prevent the release of materials to the environment from the piles.

An inventory of stockpiled materials and drummed CPC/PPE shall be conducted on a daily basis. Inventory records shall indicate the approximate volume of material stockpiled per day; the approximate volume of material stockpiled to date; material loaded and transported off-site for disposal; any materials loaded and transported for on-site reuse; and identification of stockpiles relative to their points of generation.

Following the removal of all stockpiled Controlled Materials, residuals shall be removed from surfaces of the WSA 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.

D. Dewatering

Dewatering activities shall conform to Items in pertinent articles of the Contract.

E. Decontamination

All equipment shall be provided to the work Site free of 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 approved by the Engineer and may be required prior to equipment and supplies leaving the Project and between stages of the work.

Dry decontamination procedures are recommended. Residuals from dry decontamination activities shall be collected and managed as Controlled Materials. If dry methods are unsatisfactory as determined by the Engineer, the Contractor shall modify decontamination procedures as required subject to the Engineer’s approval.

F. Dust Control

The Contractor shall implement a fugitive dust suppression program in accordance with the Contract to prevent the off-Site migration of particulate matter and/or dust resulting from excavation, loading, and operations associated with Controlled Materials. It shall be the Contractor's responsibility to supervise fugitive dust control measures and to monitor airborne particulate matter. The Contractor shall:

1. Employ reasonable fugitive dust suppression techniques.
2. Visually observe the amounts of particulate and/or fugitive dust generated during the handling of Controlled Materials and continuously monitor the amount of airborne dust during handling of Controlled Materials using a digital dust meter. If the amount of fugitive dust and/or particulate matter is not acceptable to the Engineer, the Engineer may direct the Contractor to implement corrective measures at his discretion, including, but not limited to, the following:

    (a) apply water to working surfaces
    (b) apply water to equipment and excavation faces; and
    (c) apply water during excavation, loading, and dumping.

G. Permit Compliance

The Contractor shall comply with the terms and conditions of the DEP "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. Maintain a communications system capable of summoning fire, police, and/or other emergency service personnel.
2. Prevent unauthorized entry onto the stockpiles using fences, gates, or other natural or artificial barriers.
3. Separate incidental excavation waste to the satisfaction of the receiving facility or to an extent that renders the contaminated soil and/or sediment suitable for its intended reuse.
4. Isolate and temporarily store incidental waste in a safe manner prior to off-Site transport to a facility lawfully authorized to accept such waste.
5. Not store more that 100 cubic yards of incidental waste at any one time.
6. Sort, separate, and isolate all hazardous waste from contaminated soil and/or sediment.
7. Prevent or minimize the transfer or infiltration of contaminants from the stockpiles to the ground as detailed herein.
8. Securely cover each stockpile of soil as detailed herein.
9. Minimize wind erosion and dust transport as detailed herein.
10. Use anti-tracking measures to ensure the vehicles do not track soil from the Site onto a public roadway at any time.
11. Instruct the transporters of contaminated soil and/or sediment of best management practices for the transportation of such soil (properly covered loads, removing loose material from dump body, etc.).
12. Control all traffic related to the operation of the facility in such a way as to mitigate the queuing of vehicles off-Site and excessive or unsafe traffic impact in the area where the facility is located.
13. Ensure that except as allowed in section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies, trucks are not left idling for more than three (3) consecutive minutes.

Method of Measurement:

The work for Controlled Material Handling will be measured for payment by the number of cubic yards of Controlled Material excavated from the Site and taken to the WSA. This measurement shall be in accordance with and in addition to the quantity measured for payment of the applicable excavation item in Specification Sections or the Contract Special Provisions, as applicable. Excess excavations made by the Contractor beyond the payment limits specified in the Contract will not be measured for payment and the Contractor assumes 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.

Basis of Payment:

This work shall be paid for at the Contract unit price, which shall include all transportation from the excavation site to the final WSA, including any intermediate handling steps; stockpiling Controlled Materials at the WSA; covering, securing, and maintaining the stockpiles within the WSA throughout the duration of the Project; and all tools, equipment, material and labor incidental to this work.

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 liquids generated during equipment decontamination activities.

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 “Controlled Materials Handling.”

Securing, construction and dismantling of the WSA shall be paid for under Item 0101128A.

Payment for dust control activities shall be made under the appropriate Contract items.

Pay Item	Pay Unit
Controlled Materials Handling	CY

ITEM NO. 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 the temporary Waste Stockpile Area (WSA) at the location designated on the Project Plans and in accordance with the Contract. All Controlled Materials excavated during construction activities shall be stockpiled in the WSA. The WSA shown on the Plans is to be used exclusively for temporary stockpiling of excavated materials from within the Areas of Environmental Concern (AOECs) and excess material from the Low-Level Areas of Environmental Concern (LL-AOECs) for determination of disposal classification.

Materials:

The required materials are detailed on the Project Plans. All materials shall conform to the State of Connecticut DOT Standard Specifications for Roads, Bridges, and Incidental Construction Form 817, as supplemented, and to the requirements of the Contract.

Construction blocks shall be solid precast rectangular concrete six (6) feet in length, two (2) feet in height, and three (3) feet in depth.

Polyethylene plastic sheeting for underlayment shall be a thickness of thirty (30) mil and minimum width of ten (10) feet.

Sand bags used to secure polyethylene sheeting soil covers shall have a minimum weight of thirty (30) pounds.

Bedding sand shall conform to Section 6.51.02 of the Specifications.

Processed Aggregate Base shall conform to Section 3.04.02 of the Specifications.

Hay bales shall conform to the requirements of Section 2.18.02 of the Specifications.

Crushed stone for the anti-tracking pad shall conform to the gradation for No. 3 stone as shown in Section M.01.01 of the specifications.

Geotextile fabric material shall conform to the requirements of Section M.08.01 of the specifications.

Chain Link Fence: Materials for chain link fence shall conform to the requirements of Section 9.13 and Section M.10.05.

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.

Construction Methods:

The WSA shall be constructed in accordance with the Contract at the location shown on the Project Plans. The Contractor may request permission from the Engineer to modify the layout of the WSA at its own expense in such a way as to better accommodate its stockpile of reusable material and the stockpiles for disposal. Should the Contractor request such modification and the Engineer approve the change, this will no way relieve the Contractor of its responsibility for complying with the Connecticut Department of Energy and Environmental Protections (CTDEEP) "General Permit for Contaminated Soil and/or Sediment Management (Staging and Transfer)", its responsibility to plan excavation activities within the AOECs and LL-AOEC is consideration of the capacity of WSA, the material testing and disposal requirements of the applicable Contract item, and any other requirements related to WSA capacity.

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 (State of CT, Department of Transportation), the DOT 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 State, 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 010117A "Controlled Material Handling."

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:

This work will be paid for at the Contract Lump Sum, 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 #0201199A – REMOVE AND RESET FENCE

Description: Work under these items shall consist of removal of existing fencing in locations as indicated on the plans or as directed by the Engineer, storage and care of existing fencing (as necessary) and resetting the existing fence in locations as shown on the plans or as ordered by the Engineer and in conformity with these specifications.

Materials: No material is required for this work. If existing fence is damaged or cannot be removed without damage such that it cannot be reset, these pieces shall be replaced in-kind to match the existing fence. If damaged by the contractor, there shall be no additional payment for this material replacement, otherwise this material replacement shall be negotiated and paid as an extra work item.

Construction Methods: All work shall proceed as directed by and to the satisfaction of the Engineer and in accordance with the details shown on the plans.

Removal of Existing Fence: The existing fence shall be removed and properly stored and protected for future re-installation. Any holes left after the removal of the existing posts shall be backfilled & compacted so as to give a neat appearing job, and the hole areas seeded as appropriate.

Resetting Fence: The posts shall be set in holes excavated to the depths and dimensions as required to match existing fence sections and materials. The posts shall be set plumb, spaced as required to match existing fence sections and materials. Post shall be set to a minimum depth of 36 inches, or as required to match existing post lengths and topography at the proposed fence location. The holes shall then be backfilled and thoroughly compacted using mechanical tampers such that the posts are set firmly in place with no settlement or rotation.

Method of Measurement: This work shall be measured for payment by the number of feet of fence reset, complete and accepted, as measured from outside to outside of end posts.

Basis of Payment: This work shall be paid for at the contract unit price per linear foot for "Remove and "Reset Fence", complete in place which price shall include all materials, equipment, tools, labor and work incidental thereto, including removal of existing fence (whether reset or not), storage and protection of existing fence until such time as it is reset, excavation, backfilling, compaction, and disposal of existing material and surplus material.

If existing rails, posts, fabric or hardware that need to be replaced are the result of damage or carelessness by the contractor, there shall be no additional payment for this material replacement, otherwise this material replacement shall be negotiated and paid as an extra work item
No additional compensation will be made for augering as necessary to place posts.

Pay Item	Pay Unit
Remove and Reset Fence	LF

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

Description: This work shall consist of excavating existing channel bottom material in areas where the channel bottom is to be disturbed and regraded to create a work area for a bridge, culvert, articulated concrete block placement or cofferdam installation. This item shall also include the stockpiling and protecting of the excavated material on the Site, subsequent placement of the stockpiled material in the channel, and the removal and proper disposal of all unused and unacceptable material.

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

Any material excavated from ledge (bedrock) formations or broken from larger boulders will not be accepted. Broken concrete will not be accepted.

Construction Methods: The Contractor shall submit for the Engineer's approval a proposed location for stockpiling material. The proposed location shall be upland where disruption to the stream channel or impact to wetland areas caused by moving the excavated channel bottom material to and from the stockpile are minimized during the placement of material. The Contractor shall prepare the area approved by the Engineer, suitable in size and location for stockpiling the existing channel bottom material.

The stockpile shall be located where it can remain undisturbed for the duration of the stream channel construction and shall be protected using sedimentation control measures. The stockpile area shall be cleared and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of a separation barrier such as: structural fabric, polyethylene sheeting, or similar. The stockpile area shall be adequately covered to protect the excavated channel bottom material from erosion by rain or other forces.

After clearing and grubbing, the Engineer will identify the limits of the exposed channel bottom material to be excavated under this item. The Engineer will identify the bottom limit of excavation, an amount up to but not exceeding 24 inches in depth, based upon visual inspection of the channel bottom material, unless otherwise specified in the Contract. After the limits of excavation have been determined, the Contractor shall excavate the channel bottom material, separate from any other roadway, structure, channel or unsuitable material excavation in the area. After the channel bottom material, and approved supplemental streambed channel material if needed, has been placed in the stockpile area, no other excavated or off-Site material shall be placed in the stockpile.

The stockpiled channel bottom material shall be placed at the designated location(s) to the required thickness as shown on the plans, denoted on the permit application, or as directed by the Engineer. Equipment and placement techniques shall prevent integration with the surrounding material and shall keep the channel bottom material relatively homogenous. Channel material

shall be placed in a manner that replicates the original condition of the channel prior to excavation.

The Contractor shall perform all containment, diversion, or other separation of the channel flow when placing the channel bottom material to minimize sediment transport downstream.

The disposal of any surplus or unsuitable material shall be in accordance with Section 2.02. Restore the stockpile area as directed by the Engineer.

If it is agreed by the Engineer that there is an insufficient quantity of excavated channel bottom material within the Project limits, the Contractor shall obtain Supplemental Streambed Channel Material as specified under that item.

Method of Measurement: This work will be measured for payment by the number of cubic yards of channel bottom material excavated, stockpiled, maintained, and accepted, including disposal of unacceptable and surplus materials.

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

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

Basis of Payment: Payment for this work will be made at the Contract unit price per cubic yard for "Excavation and Reuse of Existing Channel Bottom Material." The price shall include all materials, equipment, tools and labor incidental to the preparation of the stockpile area, excavation of channel bottom, hauling of the material to the stockpile, and separation of any rock ledge or concrete debris, storing, and protecting (including but not limited to sedimentation controls and covering of excavated material).

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

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

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

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

Excavation of material not identified by the Engineer for stockpiling and reuse in accordance with this specification will be paid in accordance with Section 2.02.

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

ITEM #0202217A – SUPPLEMENTAL STREAMBED CHANNEL MATERIAL

Description: This work shall consist of procuring, transporting and placing supplemental streambed channel material meeting the visual inspection requirements herein, along stream bank/channel improvement locations as shown on the plans or denoted on the Project's permit applications. This work shall also include any necessary temporary protection and stockpiling of the supplemental streambed channel material on the Site and removal and proper disposal of all unused material.

Materials: When a sufficient quantity of material is not available from the existing streambed channel within the permitted footprint of the Site, the Contractor shall furnish visually inspected and accepted supplemental streambed channel material from an off-Site source.

The supplemental streambed channel material for this item shall be consistent with the existing naturally-formed cobbles and rocks, gravel, and clean natural sediments found within the existing channel. Rock excavated from ledge (bedrock) formations, broken from larger boulders, broken concrete or angular material will not be accepted. Rock larger than 12 inches in diameter will not be accepted. Silts and clays will not be accepted.

The visual inspection of the supplemental streambed channel material shall be performed by the Engineer at the off-Site source prior to delivery of material to the Site. The Contractor shall notify the Engineer at least 10 days in advance of the need for inspection of proposed off-Site material.

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

The stockpile area shall be cleared and cleaned adequately to prevent mixing with underlying soil or other materials, including the use of structural fabric if required. The stockpile area shall be adequately covered to protect the supplemental streambed channel material from erosion by rain or other forces. After the supplemental streambed channel material and the excavated channel bottom material to be reused have been placed in the stockpile areas, no other excavated or off-Site material shall be placed in the stockpiles.

The reused and supplemental streambed channel material shall be placed at the designated location(s) to the required thickness as shown on the plans or denoted on the permit application, or as directed by the Engineer. Equipment and placement techniques shall prevent integration with the surrounding material and shall keep the channel bottom material relatively homogenous. Reused and supplemental streambed channel material shall be placed in a manner that replicates the original condition of the channel prior to excavation.

The Contractor shall perform all containment, diversion, or other separation of the channel flow when placing the reused and supplemental streambed channel material to minimize sediment transport downstream.

The disposal of any surplus or unsuitable material shall be in accordance with Section 2.02. Restore the stockpile area as directed by the Engineer.

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

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

Basis of Payment: This work will be paid for under Article 1.09.04 – Extra and Cost Plus Work.

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

Payment for excavation and reuse of existing channel bottom material will be included in the item "Excavation and Reuse of Existing Channel Bottom Material."

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

Pay Item	Pay Unit
Supplemental Streambed Channel Material	est.

Date 7/20/21

ITEM NO. 0202315A - DISPOSAL OF CONTROLLED MATERIALS

Description:

Work under this item shall consist of the loading, transportation and final off-site disposal/ recycling/treatment of controlled materials (excluding dewatering fluids) that have been generated from various excavations within the AOEC or excess materials from the LL-AOECs, brought to the roll-off container within the temporary waste storage/stockpile area (WSA) and determined to be contaminated with regulated substances at non-hazardous levels. This contamination is documented in the reports listed in the "Notice to Contractor – Environmental Investigations." The controlled materials, after proper characterization by the Engineer, shall be taken from the WSA, loaded, and transported to be treated/recycled/disposed of at a permitted treatment/recycle/disposal facility listed herein.

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

Environmental Soil Management Inc. (ESMI) of New Hampshire Attn: Steve Bennitt 67 International Drive Loudon, NH 03307 Phone: (603) 783-0228 Fax: (603) 783-0104	ESMI, LLC of New York Attn: Peter Hansen 304 Towpath Road Ford Edward, New York 12828 Phone: (518) 747-5500 Fax: (518) 747-1181
Soil Safe, Inc. Attn: Jim Grant, Billy Booth 378 Route 130, Logan Township Bridgeport, NJ 08085 Phone: (410) 872-3990 ext. 1121 Fax: (410) 872-9082	Hazleton Creek Properties, LLC Attn: Allen Swantek 280 South Church Street Hazelton, PA 18201 Phone: (570) 501-5050 Fax: (570) 457-3395
Ted Ondrick Company, LLC Attn: David S. Costanzo 58 Industrial Road Chicopee, MA 01020 Phone: (413) 592-2566 Fax: (413) 592-7451	Southbridge Recycling and Disposal Park Attn: Tracey Markham, Scott Sampson 165 Barefoot Road Southbridge, MA 01550 Phone: (603) 235-3597 (Scott) Fax: (508) 765-6812

Clinton Landfill Attn: Chris McGown 242 Church Street Clinton, MA 01510 Phone: (978) 365-4106	Phoenix Soil, LLC Attn: Scott Miller 58 North Washington Street Plainville, CT 06062 Phone: (860) 747-888
Red Technologies Soil 232 Airline Avenue Portland, CT 06062 Phone: (860) 342-1022	Waste Management: RCI Fitchburg Landfill 101 Fitchburg Road/Princeton Road, Route 31 Westminster, MA 01473 Phone: (978) 355-6317

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. Submittals

The apparent low bidder shall submit in writing, within fourteen days after Bid opening, (1) a letter listing the names of the treatment/recycle/disposal facilities (from the list above) which the bidder, if it is awarded the Contract, will use to receive controlled material from this Project, (2) a copy of the attached "Disposal Facility Material Acceptance Certification" form from each facility, which shall be signed by an authorized representative of each treatment/recycle/disposal facility, and (3) a copy of the facility acceptance criteria and facility sampling frequency requirements from each facility.

Any other Contractor which the Department may subsequently designate as the apparent low bidder shall make the aforementioned submissions within fourteen (14) days from the date on which the Department notifies the Contractor that it has become the apparent low bidder. If, however, the Department deems it is necessary for such a subsequent-designated Contractor to make said submissions within a shorter period of time, the Contractor shall make those submissions within the time designated by the Department.

Failure to comply with all of the above requirements may result in the rejection of the bid.

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

Date 7/20/21

Disposal Facility Materials Acceptance Certification

Project Number _____

Project Location_____

Facility Name_____ Telephone_____

Facility Address_____ Fax_____

_____

_____

The Contractor has supplied the analytical data contained in the report concerning the site investigation performed by the Designer. I have personally reviewed this data and intend to accept the following:

Controlled materials as described in Item # 0202315A Disposal of Controlled Materials for the subject Project at a cost of $_____ per ton for treatment/disposal and an additional $_____ per ton for transportation from the Project to the facility (if applicable).

This intent to accept the material will be subject to and dependent upon the facility's subsequent evaluation of waste characterization determination documentation to be provided to the Contractor by the Engineer.

Authorized Facility
Representative_____/_____
Printed/Typed Name Title

_____/_____
Signature Date

Note: The facility shall attach the acceptance criteria and facility sampling frequency requirements to this document.

DO NOT ALTER FORM IN ANY WAY. FORM MUST BE COMPLETED IN ENTIRETY.

B. Material Disposal

The Engineer will sample materials stored at the temporary waste storage area ("WSA" herein) at a frequency established by the selected treatment/recycling/disposal facilities. The Contractor shall designate to the Engineer which facility it intends to use 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 coordinate 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.**

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 Department 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.

C. 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.

D. 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 AOEC's.

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.

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, 2.05, 2.06, 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.

The disposal of excavated materials, originally anticipated to be controlled materials, but determined by characterization sampling not to contain concentrations of regulated chemicals (non-polluted or "clean" materials) will not be measured for payment under this item but will be considered as surplus excavated materials and will be paid in accordance with Article 1.04.05.

Any materials, which are determined through characterization sampling to be contaminated but reusable in accordance with the Remediation Standard Regulations, and which are reused within Project limits, will not be measured for payment under this item. This material will be paid for under Item 0202318A – Management of Reusable Controlled Material or in accordance with Article 1.04.05 in the item's absence.

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.

Basis of Payment:

This work will be paid for at the Contract unit price, which shall include the loading and transportation of controlled materials from the WSA to the treatment/recycling/disposal facility; the fees paid to the facility for treatment/recycling/disposal; the 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 Contractor-selected 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 liquids generated during equipment decontamination activities.

Pay Item	Pay Unit
Disposal of Controlled Materials	Ton

Date 7/20/21

ITEM NO. 0202318A MANAGEMENT OF REUSABLE CONTROLLED MATERIAL

Description:

Work under this item shall include all materials, equipment, tools and labor required to load, transport from the WSA, place, and compact reusable-controlled materials in fill areas located within the Project limits. "Reusable controlled material" is soil that contains contaminant concentrations above analytical detection limits, but below the applicable regulatory criteria.

Construction Methods:

Controlled material stored within the WSA which is determined to be reusable following analytical testing shall be loaded, transported, placed and compacted at fill areas located within the Project limits in accordance with the following conditions: (1) such soil is deemed to be structurally suitable for use as fill by the Engineer; (2) such soil is not placed below the water table; 3) the CTDEEP groundwater classification of the area where the soil is to be reused as fill does not preclude said reuse; and (4) such soil is not placed in an area subject to erosion.

Method of Measurement:

"Management of Reusable Controlled Material" will be measured for payment by the number of cubic yards of material loaded and transported from the WSA and placed at fill areas located within the Project limits in accordance with the Contract.

Basis of Payment:

"Management of Reusable Controlled Material" will be paid for at the Contract unit price, which shall include all materials, equipment, tools and labor necessary to load and transport reusable-controlled materials from the WSA to fill areas located within the Project limits and to place and compact the reusable material. This price shall include any decontamination of soil handling equipment, and the treatment/recycling/disposal of wastes generated in conjunction with such decontamination.

No separate payment will be made for consolidating previously tested individual stockpiles that have been deemed reusable but shall be considered incidental to the work.

The disposal of any reusable controlled material that fails to meet material testing requirements for the intended use in accordance with the Contract requirements, as well as any excess reusable material, will be paid under Item 0202315A, "Disposal of Controlled Material."

Pay Item	Pay Unit
Management of Reusable Controlled Materials	C.Y.

ITEM #0204151A - HANDLING WATER

Description: Work under this item shall consist of designing, furnishing, installing, maintaining, removing and disposing of a temporary water handling system. This may include water-handling-cofferdams (temporary barriers), bypass pipes, bypass pumps/hoses, temporary energy dissipation, sumps, drainage channels, and equipment and work necessary for dewatering.

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

Materials: The materials required for this work shall be as shown on the plans, on the accepted working drawings, or as ordered by the Engineer.

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

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

The Contractor shall be responsible for maintenance of the water handling system. If the system becomes damaged or displaced during construction, the system shall be corrected as required.

Unless otherwise provided or directed, all temporary water handling system components shall be removed and disposed of in an acceptable manner when no longer required.

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

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

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

Pay Item	Pay Unit
Handling Water	l.s.

ITEM NO. 0204210A - HANDLING CONTAMINATED GROUNDWATER

Description:

Under this Item, the Contractor shall manage, treat and/or dispose of contaminated groundwater that may be generated during dewatering operations associated with Project work. As indicated in the *Notice to Contractor – Environmental Investigations*, all groundwater within the Project limit has been designated as a Groundwater Area of Environmental Concern (GW-AOEC).

The Contractor shall implement a system that provides for the temporary containment of contaminated groundwater generated during construction operations (i.e., free draining liquid from excavated Controlled Materials and water from dewatering activities during construction). After temporary containment, the Contractor shall: (1) transport the contaminated groundwater off-site to a permitted disposal facility, or (2) treat the contaminated groundwater prior to discharge in accordance with applicable Connecticut Department of Energy and Environmental Protection (CTDEEP) Discharge Permit requirements. The Contractor shall be responsible for designing, procuring, installing, operating, cleaning, decontaminating, and dismantling the temporary groundwater management and/or treatment system, and for securing all necessary permits and authorizations from the CTDEEP, and if applicable, the local publicly-owned treatment works (POTW).

This item does not apply to the diversion of existing stormwater flow around the construction site during Project activities. Diversion of existing stormwater or surface flows shall be completed in accordance with the Contract and all applicable permits. Dewatering wastewater generated outside of the designated GWAOEC, unless otherwise designated as contaminated groundwater by the Engineer, shall not be managed under this Item but may be subject to other Project specifications and permit requirements (i.e., the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEEP-WPED-GP-015).

Construction Methods:

A. Submittals

1. Off-site Treatment/Disposal (Option 1)

The Contractor shall submit for the Engineer's review and approval, the proposed system of handling contaminated groundwater. Such system shall not release contaminated groundwater into the environment. This submittal shall include schematics of proposed pump deployment in excavations, sedimentation controls, proposed location(s) of temporary containment tanks, schematics of proposed methods to transfer liquids from temporary containment tanks to transport vehicles, and a schematic of the proposed method to off-load liquids at the offsite disposal facility, as applicable. The selected transporter shall provide documentation that the vehicles used to convey wastewater have a current "Waste Transportation Permit" per Connecticut General Statutes (CGS) 22a-454.

The Contractor shall provide leak-free containment tanks (e.g. Baker Tanks, Highland Tanks, or Manufacturing brand tanks) for temporary containment of dewatering fluids. The Contractor shall also provide and operate pumps, hoses, transport vehicles (e.g. vac trucks) and safety equipment to remove water from the excavations and to transfer the wastewater from the on-site

temporary containment tanks to the off-site permitted disposal facility, as applicable.

No claim for delay or request for additional time will be considered based upon the Contractor's failure to design a system to meet this performance specification.

2. On-Site Treatment/Disposal (Option 2)

The Contractor shall be responsible for designing, procuring, installing, operating, cleaning, decontaminating, and dismantling a temporary wastewater treatment system, and for securing all necessary permits and authorizations from the CTDEEP, and the local municipality and/or utility company to operate said system.

The Contractor shall propose an economical and physically practical method of collecting, routing, treating, and discharging dewatering fluids associated with construction activities. As required for the appropriate level of operation, the Contractor shall prepare and submit to the Engineer for review a schematic of the equipment proposed for the treatment system. At a minimum, the diagram shall show all equipment, pumps, method of conveyance, flow rates, pipe sizes, valve locations, sampling port locations, discharge locations, etc. The Contractor shall submit for review manufacturer's data sheets, assembly details and performance data on the treatment equipment, which may include, but not be limited to, settling tanks, frac tanks, particulate filters, and activated carbon units. If dewatering equipment is to remain on-site between October 15 and April 15, the Contractor shall submit his method for preventing the system from freezing.

This proposal shall be submitted to the Engineer for review and approval a minimum of fourteen (14) calendar days prior to the permit/authorization application being submitted to CTDEEP. **No claim for delay or request for additional time will be considered based upon the Contractor's failure to accommodate the review process.**

It is intended that the treatment system be operated from a single, fixed location throughout the duration of the Project. Power for the treatment system shall be obtained from the local power utility company; the use of an emergency generator unit as a power supply shall not be allowed, without prior approval by the Engineer. The Contractor shall make all arrangements with the local power utility company for providing electrical service to the system.

The proposed contaminated groundwater treatment system (including all temporary containment tanks) shall be grounded in accordance with the latest edition of the National Electric Code and Metro-North Railroad requirements.

The treatment system shall be designed to prevent sediments and solids, as well as contaminants in excess of the permit allowable effluent concentrations, from entering the sanitary sewer system. The following list of groundwater treatment equipment should not be construed as a definitive list of items, but only an example of possible technologies and the level of detail expected for this submittal:

a. The Contractor shall install a meter to monitor the flow into the sanitary sewer system so that the total daily flow can be recorded for each day of the discharge. The meter shall be capable of measuring, indicating and recording instantaneous and cumulative flow. The meter shall be used continuously during discharge. The cumulative flow meter shall be non-resettable.

b. The Contractor shall install a meter to monitor the influent in order to measure the quantity of water being delivered to the treatment system. The meter shall be capable of measuring, indicating and recording instantaneous and cumulative flow. The meter shall be used continuously and shall be calibrated at the beginning of the dewatering activities, and then periodically as directed by the Engineer.

c. Activated carbon units shall be properly sized for the flows under given operating conditions. Each container shall contain **virgin** activated carbon at start-up. The units shall be supplied with a removable, gasketed cover with a bolt-type closing ring. The vessels shall have inlet and outlet couplings adequately sized for the flow and pressure rating. A drain connection shall also be provided at the bottom of the vessel. Pressure gauges shall be provided with the units so that the backpressure of each vessel may be monitored for potential failure.

d. Settling tanks or frac tanks shall be sized to contain the total discharge from the groundwater collection and removal sump for a period of not less than four hours, and shall be fitted with an opening capable of accepting pumped flows from dewatering operations. The settling tank shall be able to prevent silt and other solids from entering the sanitary sewer system.

e. Particulate filters shall be bag type and be sized appropriately for the removal of particulates (silt and other solids) as required by the CTDEEP, local municipality and/or utility company.

The Contractor shall make modifications to the sanitary sewer tie-in, if necessary, to accommodate the treatment unit. The Contractor shall obtain approval from the State, and the municipality or utility company for said modifications prior to beginning the work.

The Contractor shall design the system to accommodate the anticipated dewatering rates based on Project activities, municipality/utility limitations, and permit requirements. The Contractor is alerted that field activities may be limited based on permit requirements or municipality/utility limitations.

3. Permits

Discharge of all collected contaminated groundwater generated by construction activities to the existing on-site sanitary sewer system shall be in accordance with a CTDEEP General Permit or Temporary Authorization (as applicable), and local regulations and ordinances. The Contractor shall be responsible for obtaining the General Permit, any other necessary state or local permits, and all associated fees. A copy of the CTDEEP *General Permit Registration Form for the Discharge of Groundwater Remediation Wastewater* (DEEP-WPED-INST-027) is available from the CTDEEP web site at https://portal.ct.gov/DEEP/Permits-and-Licenses/Water-Discharge-Permits-and-General-Permits#PermitApp. However, the Contractor is solely responsible for submitting the most current permit application form to CTDEEP. The Contractor is hereby notified that a minimum lead-time of six weeks can be expected to process and approve the permit application, in addition to coordination time with the local municipality. **No claim for delay or request for additional time will be considered based upon the Contractor's failure to accommodate the permitting process.**

The Contractor shall ensure that all personnel involved in the groundwater treatment operations understand the terms of the General Permit or authorization received from CTDEEP. In the event of a conflict between the requirements of this Item and the permit, the terms of the permit shall govern.

B. System Operation

1. Off-site Treatment/Disposal (Option 1)

The Contractor is responsible for operating and maintaining the groundwater handling system while it is in operation. Contaminated groundwater generated as a result of dewatering operations within the Project Limits shall be temporarily containerized and sampled for disposal characterization by the Engineer at a frequency established by the selected disposal facility. The Contractor shall designate to the Engineer which facility it intends to use prior to samples being collected. 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 the temporary container is two-thirds full and ready for sampling, and ending with the Contractor's receipt of the laboratory analytical results. Any change of intended 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 determination. **No delay claim will be considered based upon the Contractor's failure to accommodate the laboratory turnaround time as identified above.**

The containerized, contaminated groundwater shall then be transported off-site and disposed at the approved disposal facility. All manifests or bills of lading utilized to accompany the transportation of the contaminated groundwater shall be prepared by the Contractor and signed by an authorized Department representative, as Generator, for each truckload of contaminated groundwater 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 contaminated groundwater leaves the Project Site.

A load-specific certificate of 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.

The Contractor must use one of the following Department- and CTDEEP-approved treatment facilities for disposal of Contaminated Wastewater:

Clean Harbors of Connecticut, Inc. 51 Broderick Road Bristol, CT 06010 Phone: (860) 583-8917: Glen Carlson Fax: (860) 585-1740	Tradebe Environmental Services, LLC 136 Gracey Avenue Meriden, CT 06451 Phone: (888) 276-0887: Eric Congdon Fax: (203) 238-6772
Tradebe Environmental Services, LLC (a.k.a. Bridgeport United Recycling, Inc.) 50 Cross Street Bridgeport, CT 06610 Phone: (888) 276-0887: Eric Congdon Fax: (203) 630-4415	

All transport vehicles shall provide documentation that they hold a current "Waste Transportation Permit" per Connecticut General Statutes (CGS) 22a-454.

If the sediment level in any tank or other containment vessel used to contain dewatering fluids exceeds 20 inches, the tank or containment vessel shall be cleaned. The Contractor shall bring such sediments to the existing temporary waste stockpile area (WSA) for characterization by the Engineer.

2. On-Site Treatment/Disposal (Option 2)

The Contractor is responsible for operating and maintaining the treatment system while it is in operation. This includes providing appropriate supervision during evenings, weekends, and holidays. If the system is allowed to operate unattended, a remote alarm system meeting with the approval of the Engineer shall be installed to monitor critical system operating parameters and the Contractor shall be responsible for providing rapid emergency response during non-working hours in the event a system malfunction occurs.

The Contractor shall not commence Project activities requiring dewatering within the designated GW-AOEC until such time as:

a. The temporary groundwater treatment system design is reviewed and approved by the Engineer;
b. The system is installed in accordance with the accepted design and is completely operational;
c. Any necessary permit or authorization is approved by the CTDEEP, local municipality and/or utility company.

The Engineer will sample the groundwater treatment system discharge as required by the permit or authorization. The Engineer shall furnish the Contractor with copies of the analytical results for submittal to the appropriate agency(ies). The Engineer will notify the Contractor any time that the discharge exceeds the pollutant levels established in the permit. In the event of an exceedance, the Contractor shall:

1. Cease the discharge immediately;
2. Notify the Department, the CTDEEP, and any other parties named in the permit; and
3. Modify the system to meet performance requirements.

No claim for delay, request for additional time, or request for additional design costs for the system will be considered based upon the Contractor's failure to design a system to meet this performance specification.

If required, the Contractor shall restart the discharge in accordance with all necessary approvals from the CTDEEP and it shall be in full compliance with the General Permit and any amendments imposed thereto.

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 site 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 contaminated groundwater. Decontamination shall be conducted at an area designated by the Engineer and shall be required prior to equipment and supplies leaving the Project.

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

Method of Measurement

Measurement for work and materials involved with Contaminated Groundwater Handling will include: all equipment, materials, tools and labor incidental to collection, temporary storage, and (1) Option 1 - transfer, transport and off-site disposal of contaminated groundwater at an approved disposal facility or (2) Option 2 – system design, construction, operation, treatment, and discharge to the sanitary sewer. This shall include any necessary permit/authorization application and sewer discharge fees, and the initial design of the system, but not any additional design that may become necessary due to the Contractor's failure to meet discharge requirements. This shall also include the final decontamination of equipment for this work.

The Engineer will sample any silt or sediments generated as a part of this Item for waste characterization determination. Disposal of the material shall be in accordance with "Item No. 0202315A - Disposal of Controlled Materials" or "Item No. 0020763A – Disposal of Sediments."

Sedimentation control associated with work under this Item will be paid under the appropriate items of the Contract.

Basis of Payment:

This work shall be paid for at the Contract lump sum price for "HANDLING CONTAMINATED GROUNDWATER," which shall include all materials, tools, equipment and labor incidental to the completion of this Item for the duration of the Project which shall include: (1) all equipment, materials, tools and labor incidental to transfer, transport and off-site disposal of contaminated groundwater at an approved disposal facility (Option 1), or (2) construction, operation, treatment, and discharge to the sanitary sewer (Option 2), as well as the initial equipment design, permit/authorization application, treatment, conveyance to the sanitary sewer, sewer discharge fees, transport and disposal of contaminated groundwater (as necessary), and final equipment decontamination and removal.

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Pay Item	Pay Unit
Handling Contaminated Groundwater	LS

ITEM #0503890A - REMOVAL OF EXISTING BRIDGE

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

5.03.01 - Description: Add the following:

Work under this item shall consist of the removal and satisfactory disposal of the existing bridge structure and portions of the downstream box culvert as more specifically designated within these special provisions.

Those items to be removed and disposed of shall include, but not be limited to, existing arch culvert, headwalls, sidewalk, existing fill over the arch, pavement surface within limits of existing bridge structure, portions of the downstream box culvert and any other items that maybe attached thereto or as shown on the plans, or as directed by the Engineer.

5.03.03 - Construction Methods: Add the following:

All work shall proceed as directed by and to the satisfaction of the Engineer in accordance with the details shown on the plans and the requirements of the Special Provisions "Maintenance and Protection of Traffic" and "Prosecution and Progress", contained elsewhere in these Specifications.

Material that is not specified for salvage shall become the property of the Contractor and shall be removed and disposed of by the Contractor.

Material designated for salvage shall be removed by methods that shall not cause damage to the salvaged material and delivered to a location as determined by the City or the Engineer.

The Contractor's attention is drawn to the environmental sensitivity of the watercourse and surrounding wetlands. This area is designated as a no-drop zone. All debris shall be promptly cleaned up and removed from the site.

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

Prior to initiating work, the Contractor shall submit for review, plans, working drawings, computations, and written documentation describing proposed methods of removal and for false work and shielding required for the protection of environmentally sensitive areas, and adjoining property all in accordance with Subarticle 1.05.02-2. Acceptance of the Contractor's plans shall not be considered as relieving the Contractor of any responsibility.

5.03.04 – Method of Measurement: Delete the entire article and replace with the following:

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

5.03.05 - Basis of Payment: Delete the second and third paragraph and replace with the following:

This work will be paid for at the contract lump sum price for “Removal of Existing Bridge”, which price shall include all materials, equipment, tools, labor, and work incidental to the removal of the existing bridge structure and portions of the downstream box culvert as specified above, including furnishing, erecting and removing temporary falsework, temporary supports of any kind, and temporary protective measures and shielding. It shall also include the removal of existing fill above the arch, sidewalk, headwalls, pavement surface within limits of existing bridge structure, and satisfactory removal and disposal of all waste materials.

This item shall include the preparation and approval of computations, plans and written documentation for this work.

Pay Item	Pay Unit
Removal of Existing Bridge	L.S.

ITEM #0520036A - ASPHALTIC PLUG EXPANSION JOINT SYSTEM

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

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

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

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

Aggregate: The aggregate shall meet the following requirements:

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

Table A

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

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

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

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

Bridging Plate: The bridging plates shall be steel conforming to the requirements of ASTM A36 and be a minimum ¼" thick and 8" wide. For joint openings in excess of 3" the minimum plate dimensions shall be ⅜" thick by 12" wide. Individual sections of plate shall

not exceed 4' in length. Steel locating pins for securing the plates shall be size 16d minimum, hot-dip galvanized, and spaced no more than 12" apart.

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

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

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

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

Table B

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

1. Specimens cured at 77 ± 3^0F and 50 ± 5% relative humidity for 7 days
2. Specimens size: ½"wide by ½"thick by 2" long
3. Tensile Adhesion test only

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

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

Table C

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

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

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

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

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

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

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

The APJ shall not be installed when bituminous concrete overlay or joint cutout is wet. The APJ shall only be installed when the bridge superstructure surface temperature is within the limits specified in Table D and when the ambient air temperature is within the range of 45^0F to 95^0F.

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

Table D

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

<u>Sidewalk, parapet, and/or curb joint openings</u>

Before placement of any sealing materials in parapets, curbs, or sidewalks, the joints shall be thoroughly cleaned of all scale, loose concrete, dirt, dust, or other foreign matter by abrasive blast cleaning. Residual dust and moisture shall then be removed by blasting with oil free

compressed air using a hot air lance. Projections of concrete into the joint space shall also be removed. The backer rod shall be installed in the joint as shown on the plans. The joint shall be clean and dry before the joint sealant is applied. Under no circumstances is the binder material to be used as a substitute for the joint sealant.

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

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

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

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

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

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

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

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

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

ITEM # 0521021A - STEEL-LAMINATED ELASTOMERIC BEARINGS

Description: Work under this item shall consist of furnishing and installing steel-laminated elastomeric bearings as shown on the plans, as directed by the Engineer and in accordance with these specifications.

Materials:

1. Elastomer: The elastomeric compound, used in the construction of the bearings, shall contain only virgin polychloroprene (Neoprene) as the raw polymer. The elastomer compound shall be low temperature grade 3 (as defined by the testing requirements), have a Shore "A" Durometer hardness as shown on the plans.

The elastomeric shims shall be neoprene, with a Shore "A" Durometer hardness of 60 and a low temperature grade 3, 1/16 inch and 1/8 inch thick.

Properties of the elastomer shall meet the requirements in Article 18.2.3.1 of the AASHTO LRFD Bridge Construction Specifications

2. Steel Laminates: The internal steel laminates, used for reinforcement, shall be a mild rolled steel conforming to ASTM A36 Grade 36, or an approved equal.

3. Fabrication and Fabrication Tolerances: The fabrication and fabrication tolerances of elastomeric bearings shall conform to the requirements in Articles 18.1.4 and 18.2.4 of the AASHTO LRFD Bridge Construction Specifications.
If guide pins or other devices are used to control the side cover over the steel laminates, any exposed portions of the steel laminates shall be sealed by vulcanized patching.

4. Testing: The materials for the elastomeric bearing and the finished bearings themselves shall be subjected to testing. The testing shall conform to the requirements in Article 18.2.5 of the AASHTO LRFD Bridge Construction Specifications.

Test bearings, in addition to the bearings shown on the plans, shall be furnished for each type (size and thickness) of bearing for destructive testing.

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

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

Construction Methods: Before fabricating any materials, the Contractor shall submit shop drawings to the Engineer, for review and approval, in accordance with Article 1.05.02. These drawings shall include the following information: manufacturers name, complete details of the bearings, material designations, nominal hardness of the elastomer, the quantity of bearings required, including test bearings, and the location of the bearing identification.

Bearing areas, upon which the elastomeric bearings will be set, shall be cleaned of all debris. Bearing areas, shall be carefully finished, by grinding, if necessary, to a smooth, even, level surface of the required elevation, and shall show no variations from a true plane greater than 1/16 inch over the entire area upon which the elastomeric bearings are to rest.

The elastomeric bearings shall be installed as shown on the plans. The elastomeric bearings shall be installed when the temperature of the ambient air and the bearings is between 40 deg. F to 85 deg. F and has been within this range for at least 2 hours.

Adhesive bonding of the elastomeric bearings to concrete surfaces is not permitted.

The elastomeric bearings shall bear uniformly on all surfaces under full dead load.

Method of Measurement: This work will be measured by the number of cubic inches of elastomeric bearings installed and accepted. No allowance shall be made for test bearings.

Basis of Payment: This work will be paid for at the contract unit price per cubic inch of "Steel-Laminated Elastomeric Bearings", complete in place, which price shall include all test bearings and adhesive, materials, testing, equipment, tools and labor incidental thereto.

Pay Item	Pay Unit
Steel-Laminated Elastomeric Bearings	C.I.

ITEM # 0601088A - CONCRETE FORM LINERS

Description: Work under this item shall include construction of textured, colored formed concrete surfaces using simulated stone form liners, a color stain system designed to closely duplicate the appearance of natural stone. This item shall include the following:

1) Furnishing, installing, and removing a concrete form liner that will be used to produce a simulated stone facing on exposed surfaces and to the limits shown on the contract documents or requested by the engineer.
2) Grouting, patching and hand or 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 surface shown on the plans, or other surface where form liners are to be used.

Materials: Acceptable concrete form liner manufacturers and form liner patterns are:

- Custom Rock Formliners, as manufactured by Custom Rock International, Inc., St. Paul, MN 55116, (800) 637-2447. Pattern: No. 2209 – New England Drystack

- Fitzgerald Formliners, as manufactured by Fitzgerald Formliners, 1500 East Chestnut Street, Santa Ana CA 92701, (800) 547-7760. Pattern: No. 17033 – Sierra Drystack

- Spec Formliners as manufactured by Spec Formliners, Inc., 1038 E 4th Street, Santa Ana, CA 92701, (888) 429-9550. Pattern: No. 1587 – California Dry Stack

- An equal form liner approved by the Engineer, which conforms to the parameters and is of similar appearance to the patterns of the above.

Form Liners - The form liners shall be reusable, made of high strength urethane and not compress more than ¼" 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 one 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 Engineer/Town shall select a color pattern from photos of completed projects. 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 water borne, low V.O.C. material less than 11.25 lb/cf and shall meet requirements for; weathering resistance - 2000 hours accelerated exposure in accordance with the 3-bulb test of ASTM G152, scrub test - 100 revolutions, abrasion resistance (Tabor CF-10) - 500 cycles, adhesion – 0.04" cross cuts on glass pass 3 or higher on a scale of 1 to 5 in accordance with ASTM D3359, 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 manufacturer's authorized representatives, the contractor, the subcontractor (installer), the Engineer and the Town.

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

Photographs - Color photographs of at least three (3) similar projects recently performed by the contractor (or his 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, drainage and other protrusions, 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 5 square yards, or larger if needed to adequately illustrate the pattern selected.
2. The test panel shall contain an area demonstrating simulated stone masonry butt joint, the continuation of the pattern through an expansion joint and an outside corner.
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 test panel requirement may be waived, if in the opinion of the engineer, all parties involved adequately understand the requirements and the intended look of the final finished surfaces.

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/Town. 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 ¼" 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 brushes with stiff bristles may be used on stubborn areas. Mild acid washes may also be used. **Solvents shall not be used.** If necessary, patching of holes shall be performed with 100% clear silicone caulk. Form liners shall be stored inside or under a protective, non-transparent cover, in a vertical 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 then 3/8" in greatest principal dimension shall be filled with concrete patching material from the approved product list, as approved by the 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 their 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 latent, dirt, oil and other objectionable materials. After the wall has dried, the color staining process shall be applied using colors approved by the Engineer/Town. Color staining shall be applied in such a way that the stones shall have individual colorations from 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 F and falling.

All staining work shall be scheduled after backfilling is completed to avoid contaminating or damaging of the surfaces. After staining is complete and approved, topsoil and rip rap shall be placed in a way that does not damage the finished surfaces.

Method of Measurement:

The work covered under this special provision and associated with construction of textured and colored formed concrete surfaces using simulated stone form liners and a color stain system, will be measured for payment by the actual number of square feet of concrete patterned on cast-in-place concrete surfaces, within the pay limits shown on the drawings or as approved by the Engineer.

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	**Pay Unit**
Concrete Form Liners	S.F.

ITEM #0607001A- DRY RUBBLE MASONRY

Work under this item shall conform to the requirements of Section 6.07 of the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction Form 818 amended as follows:

6.07.01 - Description: Delete in its entirety and replace with the following:

Work under this item shall consist of removing, stockpiling and rebuilding the existing dry rubble masonry wall at the location shown on the plans or as directed by and approved by the Engineer.

6.07.02 - Material: Add the following:

The rubble masonry used to rebuild the dry rubble masonry wall shall be obtained from the existing dry rubble masonry wall, stockpiled during the removal of the masonry wall and reused.

6.07.03 - Construction Methods: Add the following:

When the dry rubble wall is removed, the contractor shall record the existing conditions of the existing wall sufficient detail for its replacement, including dimensions. When the dry rubble wall is rebuilt, the earth at the location of the rubble masonry wall shall be excavated to existing elevation and leveled off so that the first or base course of stones may be bedded and stable. The rubble masonry shall be placed in a pattern that is similar to the appearance and dimension of the original dry rubble masonry wall, and meets the satisfaction of the Engineer. The rebuilt dry rubble masonry wall shall abut the new structure as shown on the plans. The dry rubble masonry shall be placed in a pattern that matches the appearance and dimension of the original dry rubble masonry wall, blending the adjoining existing dry rubble masonry wall pattern, and meets the satisfaction of the Engineer.

6.07.04 - Methods of Measurement: Delete in its entirety and replace with the following:

The quantity of dry rubble masonry will be the actual number of cubic yards, completed and accepted, within the neat lines of the structure as shown on the plans or as ordered by the Engineer.

6.07.05 - Basis of Payment: Delete in its entirety and replace with the following:

This work shall be paid for at the contract unit price per cubic yard for "Dry Rubble Masonry," complete in place, which price shall include removal, stockpiling, all necessary materials, equipment, tools, labor and work incidental thereto; also all work associated with the any necessary excavation and backfilling.

Pay Item	Pay Unit
Dry Rubble Masonry	c.y.

ITEM #0707009A - MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC)

Description: Work under this item consists of furnishing and installing a seamless elastomeric waterproofing membrane system applied to a concrete or steel surface as shown on the plans, in accordance with this specification and as directed by the Engineer. Work shall also include conditioning of the surface to be coated and all quality-control testing noted herein.

The completed membrane system shall be comprised of a primer coat, two layers of the 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, reinforcing material at deck panel joints and two applications of asphalt emulsion (tack coat) at a rate of 0.05-0.07 gal/s.y. each, allowing the first application to break prior to applying the second.

Materials: The Contractor shall select a waterproofing membrane system from the Department's current Qualified Product List (QPL) for Spray-Applied Membrane Waterproofing System. All materials incorporated in the works shall meet the Manufacturer's specification for the chosen system. The Engineer will reject any system that is not on the QPL.

Reinforcing material shall be as recommended by the manufacturer.

Materials Certificate: The Contractor shall submit to the Engineer a Materials Certificate for the primer, membrane and aggregate in accordance with the requirements of Article 1.06.07.

Construction Methods: At least 30 days prior to installation of the membrane system, the Contractor shall submit to the Engineer a Site-specific Installation Plan that includes the manufacturer's recommended procedure for preparing the deck surface, pre-treatment or preparing at cracks and gaps, treatment at curbs, vertical surfaces or discontinuities, applying the primer and membrane, placing of aggregated coat and all Quality Control (QC Plan) testing operations to be performed during the membrane system's installation. Procedures shall also include recommended repairs of system non-compliant issues identified during application. The system shall be applied to the prepared area(s) as defined or shown in the plans, strictly in accordance with the Installation Plan.

A technical representative, in the direct employ of the manufacturer, shall be present on-Site immediately prior to and during application of the membrane. The representative shall inspect and approve the surface prior to priming, and provide guidance on the handling, mixing and addition of components and observe application of the primer and membrane. The technical representative 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.

1. Applicator Approval: The Contractor's membrane Applicator shall be fully trained and licensed by the membrane manufacturer and shall have successfully completed at least three spray membrane projects in the past five years. The Contractor shall furnish references from those projects, including names of contact persons and the names, addresses and phone numbers of persons who supervised the projects. This information shall be submitted to the Engineer prior to the 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.

2. Job Conditions:

   (a) Environmental Requirements: Air and substrate temperatures shall be between 32°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.

   (b) Safety Requirements: All open flames and spark producing equipment shall be removed from the work area prior to commencement of application.

   "No Smoking" signs shall be visibly posted at the Site during application of the membrane waterproofing.

   Personnel not involved in membrane application shall be kept out of the work area.

3. Delivery, Storage and Handling:

   (a) Packaging and Shipping: All components of the membrane system shall be delivered to the Site in the Manufacturer's packaging, clearly identified with the product type and batch number.

   (b) Storage and Protection: The Applicator shall be provided with a storage area for all components. The area shall be cool, dry and out of direct sunlight and shall be in accordance with the Manufacturer's recommendations and relevant health and safety regulations.

   Copies of Material Safety Data Sheets (MSDS) for all components shall be kept on Site for review by the Engineer or other personnel.

(c) Shelf Life - Membrane Components: Packaging of all membrane components shall include a shelf life date sealed by the Manufacturer. No membrane components whose shelf life has expired shall be used.

4. Surface Preparation:

(a) Protection: The Applicator shall be responsible for the protection of equipment and adjacent areas from over spray or other contamination. Parapets and bridge joints shall be masked prior to application of the materials.

(b) Surface Preparation: Sharp peaks and discontinuities shall be ground smooth. Any peak greater than ¼ inch above the surface profile of the prepared substrate shall be ground to the surrounding elevation. Any valley or minor surface deterioration of ½ inch or greater shall also be repaired. The extent and location of surface patches require the approval of the Engineer before the membrane system is applied.

Surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae, growth, laitance, friable matter, dirt, bituminous products, and previous waterproofing materials. If required, degreasing shall be done by detergent washing in accordance with ASTM D4258.

The surface shall be abrasively cleaned, in accordance with ASTM D4259, to provide a sound substrate free from laitance.

Voids, honeycombed areas, and blow holes on vertical surfaces shall be repaired as indicated in the Installation Plan.

All steel components to receive membrane waterproofing shall be blast cleaned in accordance with SSPC SP6 and shall be coated with the membrane waterproofing system within the same work shift.

5. Inspection and Testing: Prior to priming of the surface, the Engineer, Applicator and Manufacturer's technical representative shall inspect and approve the prepared substrate.

(a) Random tests for deck moisture content shall be conducted on the substrate by the Contractor at the Site using a "Sovereign Portable Electronic Moisture Master Meter," a "Tramex CMEXpertII Concrete Moisture Meter" or approved equal. The minimum frequency shall be one test per 1000 s.f. 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 system's Manufacturer, whichever is less.

(b) 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 D4541. 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 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.

If the tensile bond strength is lower than the minimum specified, the Engineer may request additional substrate preparation. Any primer not adequately applied shall be removed and new primer applied at the Contractor's expense, as directed by Engineer.

(c) 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.

6. 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.
   4) Membrane application (minimum 2 layers)
   5) Membrane with aggregate

(b) Immediately prior to the application of any components of the System, the surface shall be adequately dry (see Section 5(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.

(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.

(g) Membrane and Reinforcing Material: Application of the membrane on the primed surface shall not commence until the primer is cured as described in Section 6(f) of this specification and the adhesion pull tests are completed in accordance with Section 5(b) of this specification.

The waterproofing membrane shall consist of two coats for a total dry film thickness of a minimum 80 mils but not to exceed 120 mils. Adjacent coats shall be of a contrasting color to aid in Quality Assurance and inspection. Any reinforcing material shall be applied immediately before the first coat of membrane in accordance with the Manufacturer's recommendations.

The membrane shall be comprised of Components A and B and a hardener powder which is to be added to Component B in accordance with the Manufacturer's recommendations.

The substrate shall be coated in a methodical manner.

Thickness checks: For each layer, checks for wet film thickness using a gauge pin or standard comb-type thickness gauge shall be carried out 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 tensile bond strength shall be conducted on the membrane in accordance with the requirements of ASTM D4541. The minimum test frequency shall be one test per 5,000 s.f. 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: If an area is left untreated or the membrane becomes damaged, a patch repair shall be carried out to restore the integrity of the system. The damaged areas shall be cut back to sound materials and wiped with solvent (e.g. acetone) up to a width of at least four inches on the periphery, removing any contaminants unless otherwise recommended by the Manufacturer. The substrate shall be primed as necessary, followed by the membrane layers. A continuous layer shall be obtained over the substrate with a four-inch overlap onto existing membrane.

Where the membrane is to be joined to existing cured material, the new application shall overlap the existing by at least four inches. Cleaning and surface preparation on areas to be lapped shall be as recommended in the Manufacturer's written instructions.

(i) Aggregated Finish:
1) Apply an additional 40 mil 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) Localized areas not fully coated shall be touched-up with additional membrane and aggregate as needed.
3) Using motorized mechanical sweepers or a vacuum sweeper apparatus, remove all loose and excess aggregate from the surface to the satisfaction of the Engineer and dispose of properly after application prior to allowing traffic onto finished surface or application of tack coat. Any areas not fully coated after sweeping shall be touched up with additional membrane and aggregate as needed.

7. Final Review: The Engineer and the Applicator shall jointly review the area(s) over which the completed system has been installed. Any irregularities or other criteria that do not meet the requirements of the Engineer shall be addressed at this time.

Method of Measurement: This item shall 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 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.

Pay Item	Pay Unit
Membrane Waterproofing (Cold Liquid Elastomeric)	s.y.

ITEM #0817005 A – 6" GRANITE STONE CURBING FOR BRIDGES

8.17.01--Description: This curbing shall consist of approved granite stone, furnished in accordance with the dimensions and details shown on the plans, or as ordered, and installed to the lines and grades given and in conformity with these specifications.

8.17.02--Materials: The materials for this work shall conform to the requirements of Article M.12.08.

Where required and indicated on the plans, joint seal shall be placed in accordance with the provisions of Subarticle 4.01.03-B.6(f) insofar as it may apply.

8.17.03-Construction Methods: Granite stone curbing shall be constructed in the location and to the dimensions shown on the plans. The stone curbing shall be accurately set, straight and true to the line and grade as required. The stone curbing shall be set in a full mortar bed and full mortar end joints. As the stone curbing is being set, the anchors shall be grouted into the holes in the curbing by a method as approved by the Engineer. The concrete backing shall not be placed until the curbing and anchors have been properly placed. Care must be taken to prevent any movements of the stone curbing already in place while placing and compacting concrete backing. When required by the Engineer, the stone curbing shall be supported by such bracing and form work as may be necessary to prevent movement. Where vertical contraction joints or vertical expansion joints, or both, exist in the backing, the vertical joint of the curb shall coincide with the contraction or expansion joint.

All mortar joints shall be finished smooth and flush. These joints shall be carefully filled with cement mortar and shall be neatly pointed on the top and exposed front portions. After pointing, stone curbing shall be cleaned of all excess mortar to the satisfaction of the Engineer.

All fines shall be cleaned from the face of stones after all work on the parapets has been completed.

8.17.04--Method of Measurement: This work will be measured for payment by the actual number of linear feet of “6” Granite Stone Curbing for Bridges”, installed and accepted. Measurement shall be made along the top arris line of the face of the curb.

8.17.05--Basis of Payment: Payment for this work will be made at the contract unit price per linear foot for “6” Granite Stone Curbing for Bridges”, complete in place, which price shall include all materials including anchors, equipment, tools and labor incidental thereto.

The cost of drilling holes in stone curbing for anchors, beveling or rounding the ends of the stone curbing and pointing the joints with mortar, and sealing the longitudinal joint; shall be included in the cost of “6” Granite Stone Curbing for Bridges”.

Pay Item	**Pay Unit**
6” Granite Stone Curbing for Bridges	L.F

ITEM #0819002A - PENETRATING SEALER PROTECTIVE COMPOUND

Description: Work under this item shall consist of cleaning concrete surfaces of dirt, dust and debris, and furnishing and applying a clear, penetrating sealer where shown on the plans, to provide a hydrophobic barrier against the intrusion of moisture. This work also includes furnishing, installing and removing platforms, scaffolding, ladders and other means of access as well as shields, as required, to protect adjacent areas from overspray. Penetrating sealer shall not be applied to concrete surfaces that have been previously treated with coatings or curing compounds that would hinder penetration of the sealer into the concrete.

Materials: The penetrating sealer shall be a single component, 100% silane or silane siloxane from the list of materials below. The material shall be selected in anticipation of the expected ambient and surface temperature at the time of installation.

The following products may be used when ambient and surface temperatures are 40°F and above:

SIL-ACT ATS-100 (Silane)
Advanced Chemical Technologies, Inc.
9608 North Robinson Ave.
Oklahoma City, OK 73114
405-843-2585
www.advchemtech.com

Armor SX 5000 EXT-100 or SX 5000 WB (Silane Siloxane)
Foundation Armor, LLC.
472 Amherst St. STE 14
Nashua, NH 03063
866-306-0246
www.foundationarmor.com

Aquinil Plus 100 (Silane)
ChemMasters
300 Edwards Street
Madison, OH 44057
440-428-2105, 800-486-7866
www.chemmasters.net/Aquanil100.php

The following product may be used when ambient and surface temperatures are 20°F and above:

Certi-Vex Penseal 244 100% (Silane)
Vexcon Chemicals
7240 State Road
Philadelphia, PA 19135
888-839-2661
www.Vexcon.com

Construction Methods:

Submittals: The Contractor shall submit to the Engineer Safety Data Sheets (SDS) and product literature for the selected product. The literature shall include written instructions how to apply the product to vertical and horizontal surfaces, and where required, overhead surfaces.

The Contractor shall submit to the Engineer, in accordance with Article 1.05.02, written procedures for cleaning the concrete surfaces. The submittal shall include proposed equipment and materials and shall address how adjacent traffic and other areas shall be protected from dust, debris and overspray during the cleaning and application processes. Where the sealer is to be applied to parapets before pavement is placed, the submittal shall address protecting the deck and curb to which membrane waterproofing will be applied. Should the membrane already be present, the submittal shall address protecting the membrane. It shall also indicate how vegetation shall be protected from overspray. The submittal shall address the conditions under which work may proceed, including wind speed, temperature and precipitation. It shall also include procedures to be followed to protect the work should unfavorable weather conditions occur before the product has been absorbed.

The Contractor shall inspect the surfaces to be sealed to identify surface cleaning needs before submitting the procedures. The Contractor shall identify conditions that need repair or surfaces that may require special attention or cleaning procedures. Such observations shall be addressed in the written procedures.

Surface Preparation: Concrete surfaces to which penetrating sealer will be applied shall be dry, clean and free of grease, oil and other surface contaminants. New concrete and newly placed repair concrete shall be allowed to cure for at least 28 days before applying sealer. After rain or water cleaning, allow existing concrete surfaces to dry for at least 8 hours before applying sealer. Dry surfaces may be cleaned by sweeping with brushes or brooms, and blowing clean with oil-free, compressed air. The Contractor shall take care not to damage the concrete surface finish during cleaning operations. Care shall be taken so that cleaning methods do not damage joint sealant or other components of the structure.

Application: Application of the sealer can only begin after the Engineer evaluates the concrete surfaces for cleanliness and moisture, and determines that conditions are appropriate for application.

The sealer shall saturate the concrete surface with a rate of application of 200 square feet per gallon of sealer. The dispersion shall run six to eight inches down a vertical surface from the spray pattern. The maximum run-down is 12 inches. The Contractor shall monitor and record the number of square feet per gallon of sealer used to verify that the required application rate is being met. Additional sealer may be needed if surfaces are porous, rough or textured.

The Engineer will inspect the concrete surface during application and after the sealer has had adequate time to penetrate. As a test, water sprayed from a bottle on the sealed surface shall bead up and not be absorbed. Should water be absorbed into the concrete at a test area, additional areas shall be tested to determine which areas should receive additional application of sealer. The

Contractor shall apply additional sealer to the identified areas until absorption of water is prevented.

Method of Measurement: This work will be measured for payment by the actual number of square yards of concrete, coated completely and accepted, within the designated limits. The area will be measured once, regardless of the number of applications required.

Basis of Payment: This work will be paid for at the Contract unit price per square yard for "Penetrating Sealer Protective Compound," complete, which price shall include all equipment tools, labor and materials, incidental thereto, including the preparation of the concrete surfaces and proper disposal of debris.

Pay Item	Pay Unit
Penetrating Sealer Protective Compound	s.y.

ITEM #0904487A - METAL BRIDGE RAIL (HANDRAIL)

Description: Work under this item shall consist of fabricating and installing a metal bridge railing, consisting of extruded aluminum rail and aluminum plate support bracket connected to preset anchorages, as shown on the plans, as directed by the Engineer and in accordance with this specification.

Materials: Materials for this work shall conform to the following requirements:

1. Metal Bridge Rail:

The pipe rail, pipe sleeve, and splice pipe shall be extruded aluminum and conform to the requirements of ASTM B429, 6061-T6.

Pipe rail shall be 3" diameter IPS schedule 40 round pipe. Pipe sleeve shall be 3 ½" IPS schedule 80 round pipe. Splice pipe shall be 2 ½" IPS schedule 40 round pipe.

The support bracket for the rail shall be made of aluminum plate and conform to the requirements of ASTM B209, 6061-T6.

Bolts and set screws shall unified be stainless steel and conform to the requirements of ASTM A193, Class 2, Grade B8 (UNS designation S 30400 (304)). Washers shall be stainless steel and conform to the requirements of ASTM A276, Types 304 annealed.

2. Preset Anchorage:

The preset anchorage shall be fabricated as detailed on the contract plans. Preset anchorages configured differently from those detailed on the plans may be used provided they utilize the same materials described below and are approved by the Engineer prior to fabrication.

The wire struts shall be cold-drawn and conform to ASTM A510, Grade 1030 with minimum tensile strength of 100 ksi. These wire struts shall be securely welded to the ferrules with the welds capable of developing the tensile strength of the struts and the ferrules. Steel welding shall be in accordance with the American Welding Society "Structural Welding Code-Steel", ANSI/AWS D1.1.

The ferrules, either open end or closed end, shall conform to ASTM A108, Grade 12L14. A plastic cap shall be provided for sealing the bottom of each open end ferrule before placing concrete. Closed end ferrules shall provide a minimum full thread length of 2". Removable plastic washers of the same diameter as the ferrules and approximately 3/32" in thickness shall be provided for the top of each ferrule and shall be left in place until the temporary supporting bolts are removed. Removable plastic caps shall be provided for sealing the top of each ferrule until the erection of railing posts.

After fabrication, the preset anchorage shall be hot-dip galvanized in accordance with ASTM A123. The bolts shall be "free running" in the ferrules after galvanization.

Bolts for the preset anchorage shall be stainless steel heavy hex head and shall conform to the requirements of ASTM F738M, Group 1 (AISI Type 304). The manufacturer's symbol and the grade shall be clearly marked on the bolt heads. Nuts shall be stainless steel and conform to the requirements of ASTM F836M, Group 1 (AISI Type 304). Washers shall be stainless steel and conform to the requirements of ASTM A167, Types 302 through 305.

4. Molded Pads:

Molded pads shall be manufactured from new unvulcanized elastomer and unused synthetic fibers, with a weight proportion of fiber content equal to approximately one-half of the total weight of the pad. The pads shall be formed into single sheets of 1/8" minimum thickness, with a tolerance of plus or minus 10 percent. Pads shall have a Shore A Durometer hardness within the range of 70 to 90.

The Contractor shall furnish a Materials Certificate in conformance with the requirements of Article 1.06.07 for the following materials: rails, rail sleeves, support brackets, post connections devices, rail splices, preset anchorages, bolts, washers and molded pads.

A sample preset anchorage, and samples of all sizes of bolts and washers used with the metal bridge rail, shall be submitted to the Engineer for approval prior to incorporation into the project.

Construction Methods: Before fabricating any materials, the Contractor shall submit shop drawings to the Engineer for approval in accordance with Article 1.05.02. These drawings shall include but not be limited to the following information: The layout plan showing all railing support bracket spacings, expansion joint locations, and material designations.

Aluminum welding shall be in accordance with the American Welding Society "Structural Welding Code-Aluminum", ANSI/AWS D1.2.

The preset anchorages shall be fabricated for installation perpendicular to the grade of the parapet. The anchorages shall be firmly and accurately held in position prior to and during the placing of concrete.

The railings shall be accurately fabricated and installed as shown on the plans. Lengths of rail elements shall be continuous over a minimum of four rail posts wherever possible and in no case less than two. Welding of two or more rails to form an element will not be allowed. Rail splices shall be located between the support brackets. Splice bars shall have a sliding fit in the rail sections.

One section of rail shall be attached to the splice pipe using a pair of stainless steel set screws. This will secure the rail in place and allowing the rail to move into the mated section.

Posts shall be installed plumb.

For structures having railings with a radius of 410 feet or more, the railing may be sprung into place. For structures having railings with a radius of less than 410 feet, the railing shall be curved. Curving may be done by cold bending or by hot bending. Hot bending shall be done in accordance with Article 6.3 - Heating, of the "Specifications for Aluminum Structures".

Aluminum railings shall be carefully adjusted prior to fixing in place to insure proper matching at abutting joints and correct alignment and curvature throughout their length. After installation, all rails and posts shall be free of burrs, sharp edges and irregularities.

The open ends of the pipe rails shall be closed using an end cap.

Method of Measurement: This work will be measured for payment by the actual number of feet of metal bridge rail completed and accepted, measured along the rail from one rail end anchorage to the other rail end anchorage.

Basis of Payment: This work will be paid for at the contract unit price per foot for "Metal Bridge Rail (Handrail) complete and accepted in place, which price shall include all materials, equipment, tools, labor and work incidental thereto.

Pay Item	Pay Unit
Metal Bridge Rail (Handrail)	L.F.

ITEM #0969060A - CONSTRUCTION FIELD OFFICE, SMALL

Description: Under the item included in the bid document, adequate weatherproof office quarters with related furnishings, materials, equipment and other services, shall be provided by the Contractor for the duration of the work, and if necessary, for a close-out period determined by the Engineer. The office, furnishings, materials, equipment, and services are for the exclusive use of Municipality forces and others who may be engaged to augment Municipality forces with relation to the Contract. The office quarters shall be located convenient to the work site and installed in accordance with Article 1.08.02. This office shall be separated from any office occupied by the Contractor. Ownership and liability of the office quarters shall remain with the Contractor.

Furnishings/Materials/Supplies/Equipment: All furnishings, materials, equipment and supplies shall be in like new condition for the purpose intended and require approval of the Engineer.

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

Description \ Office Size	Small	Med.	Large	Extra Large
Minimum Sq. Ft. of floor space with a minimum ceiling height of 7 ft.	400	400	1000	2000
Minimum number of exterior entrances.	2	2	2	2
Minimum number of parking spaces.	7	7	10	15

Office Layout: The office shall have a minimum square footage as indicated in the table above, and shall be partitioned as shown on the building floor plan as provided by the Engineer.

Tie-downs and Skirting: Modular offices shall be tied-down and fully skirted to ground level.

Lavatory Facilities: For field offices sizes Small and Medium the Contractor shall furnish a toilet facility at a location convenient to the field office for use by Municipality personnel and such assistants as they may engage; and for field offices sizes Large and Extra Large the Contractor shall furnish two (2) separate lavatories with toilet (men and women), in separately enclosed rooms that are properly ventilated and comply with applicable sanitary codes. Each lavatory shall have hot and cold running water and flush-type toilets. For all facilities the Contractor shall supply lavatory and sanitary supplies as required.

Windows and Entrances: The windows shall be of a type that will open and close conveniently, shall be sufficient in number and size to provide adequate light and ventilation, and shall be fitted with locking devices, blinds and screens. The entrances shall be secure, screened, and fitted with a lock for which four keys shall be furnished. All keys to the construction field office shall be furnished to the Municipality and will be kept in their possession while State personnel are using the office. Any access to the entrance ways shall meet applicable building codes, with appropriate handrails. Stairways shall be ADA/ABA compliant and have non-skid tread surfaces. An ADA/ABA compliant ramp with non-skid surface shall be provided with the Extra-Large field office.

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

Parking Facility: The Contractor shall provide a parking area, adjacent to the field office, of sufficient size to accommodate the number of vehicles indicated in the table above. If a paved parking area is not readily available, the Contractor shall construct a parking area and driveway consisting of a minimum of 6 inches of processed aggregate base graded to drain. The base material will be extended to the office entrance.

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

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

A. 120/240 volt, 1 phase, 3 wire
B. Ampacity necessary to serve all equipment. Service shall be a minimum 100 amp dedicated to the construction field office.
C. The electrical panel shall include a main circuit breaker and branch circuit breakers of the size and quantity required.
D. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed at each desk and personal computer table (workstation) location.
E. Additional 120 volt, single phase, 20 amp, isolated ground dedicated power circuit with dual NEMA 5-20 receptacles will be installed, for use by the Telephone Company.
F. Additional 120-volt circuits and duplex outlets as required meeting National Electric Code requirements.
G. One exterior (outside) wall mounted GFI receptacle, duplex, isolated ground, 120 volt, straight blade.

Heating, Ventilation and Air Conditioning (HVAC): The field office shall be equipped with sufficient heating, air conditioning and ventilation equipment to maintain a temperature range of 68^{o}-80^{o} Fahrenheit within the field office.

Telephone Service: The Contractor shall provide telephone service with unlimited nation-wide calling plan. For a Small, Medium and Large field office this shall consist of the installation of two (2) telephone lines: one (1) line for phone/voice service and one (1) line dedicated for the facsimile machine. For an Extra-Large field office this shall consist of four (4) telephone lines: three (3) lines

for phone/voice service and one (1) line dedicated for facsimile machine. The Contractor shall pay all charges.

Data Communications Facility Wiring: The Contractor shall supply cables to connect the Wi-Fi printer to the Contractor supplied internet router and to workstations/devices as needed. These cables shall be separate from the LAN cables and data Jacks detailed above for the CTDOT network.

The number of networked devices anticipated shall be at least equal to the number of personal computer tables, Multi-Function Laser Printer/Copier/Scanner/Fax, and smartboards listed below.

Additional Equipment, Facilities and Services: The Contractor shall provide at the field Office at least the following to the satisfaction of the Engineer:

Furnishing Description	Office Size			
	Small	Med.	Large	Extra Large
	Quantity			
Office desk (2.5 ft. x 5 ft.) with drawers, locks, and matching desk chair that have pneumatic seat height adjustment and dual wheel casters on the base.	1	3	5	8
Standard secretarial type desk and matching desk chair that has pneumatic seat height adjustment and dual wheel casters on the base.	-	-	-	1
Personal computer tables (4 ft. x 2.5 ft.).	2	3	5	8
Drafting type tables (3 ft. x 6 ft.) and supported by wall brackets and legs; and matching drafters stool that have pneumatic seat height adjustment, seat back and dual wheel casters on the base.	1	1	1	2
Conference table, 3 ft. x 12 ft.	-	-	-	1
Table – 3 ft. x 6 ft.	-	-	-	1
Office Chairs.	2	4	8	20
Mail slot bin – legal size.	-	-	1	1
Non-fire resistant cabinet.	-	-	2	4
Fire resistant cabinet (legal size/4 drawer), locking.	1	1	2	3
Storage racks to hold 3 ft. x 5 ft. display charts.	-	-	1	2
Vertical plan racks for 2 sets of 2 ft. x 3 ft. plans for each rack.	1	1	2	2
Double door supply cabinet with 4 shelves and a lock – 6 ft. x 4 ft.	-	-	1	2
Case of cardboard banker boxes (Min 10 boxes/case)	1	1	2	3
Open bookcase – 3 shelves – 3 ft. long.	-	-	2	2
White Dry-Erase Board, 36” x 48”min. with markers and eraser.	1	1	1	1
Interior partitions – 6 ft. x 6 ft., soundproof type, portable and	-	-	6	6

freestanding.				
Coat rack with 20 coat capacity.	-	-	-	1
Wastebaskets - 30 gal., including plastic waste bags.	1	1	1	2
Wastebaskets - 5 gal., including plastic waste bags.	1	3	6	10
Electric wall clock.	-	-	-	2
Telephone.	1	1	1	-
Full size stapler 20 (sheet capacity, with staples)	1	2	5	8
Desktop tape dispensers (with Tape)	1	2	5	8
8 Outlet Power Strip with Surge Protection	3	4	6	9
Rain Gauge	1	1	1	1
Business telephone system for three lines with ten handsets, intercom capability, and one speaker phone for conference table.	-	-	-	1
Mini refrigerator - 3.2 c.f. min.	1	1	1	1
Hot and cold water dispensing unit. Disposable cups and bottled water shall be supplied by the Contractor for the duration of the project.	1	1	1	1
Microwave, 1.2 c.f. , 1000W min.	1	1	1	1
Fire extinguishers - provide and install type and *number to meet applicable State and local codes for size of office indicated, including a fire extinguisher suitable for use on a computer terminal fire.	*	*	*	*
Electric pencil sharpeners.	1	2	2	2
Electronic office type printing calculators capable of addition, subtraction, multiplication and division with memory and a supply of printing paper.	1	1	2	4
Small Multi-Function Laser Printer/Copier/Scanner/Fax combination unit, network capable, as specified below under Computer Related Hardware and Software.	1	1		
Large Multi-Function Laser Printer/Copier/Scanner/Fax combination unit, network capable, as specified below under Computer Related Hardware and Software.			1	1
Field Office Wi-Fi Connection as specified below under Computer Related Hardware and Software	1	1	1	1
Wi-Fi Printer as specified below under Computer Related Hardware and Software.	1	1	1	1
Digital Camera as specified below under Computer Related Hardware and Software.	1	1	3	3
Video Projector as specified below under Computer Related Hardware and Software.	-	-	-	1
Smart Board as specified below under Computer Related Hardware and Software.	-	-	-	1
Infrared Thermometer, including annual third party certified	1	1	1	2

calibration, case, and cleaning wipes.				
Concrete Curing Box as specified below under Concrete Testing Equipment.	1	1	1	1
Concrete Air Meter and accessories as specified below under Concrete Testing Equipment as specified below. Contractor shall provide third party calibration on a quarterly basis.	1	1	1	1
Concrete Slump Cone and accessories as specified below under Concrete Testing Equipment.	1	1	1	1
First Aid Kit	1	1	1	1
Flip Phones as specified under Computer Related Hardware and Software.	-	-	-	-
Smart Phones as specified under Computer Related Hardware and Software.	-	-	-	-

The furnishings and equipment required herein shall remain the property of the Contractor. Any supplies required to maintain or operate the above listed equipment or furnishings shall be provided by the Contractor for the duration of the project.

Computer Related Hardware and Software: The Contractor shall supply the Field Office Wi-Fi Connection, Wi-Fi Printer, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projectors, and Smart Board(s) as well as associated hardware and software, must meet the requirements of this specification as well as the latest minimum specifications posted, as of the project advertising date, at CTDOTs web site http://www.ct.gov/dot/cwp/view.asp?a=1410&q=563904

Within 10 calendar days after the signing of the Contract but before ordering/purchasing the Wi-Fi Printer (separate from the Multifunction Laser Printer/Copier/Scanner/Fax), Field Office Wi-Fi, Digital Camera(s), Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projector(s) and Smart Board(s) as well as associated hardware, the Contractor must submit a copy of their proposed order(s) with catalog cuts and specifications to the Municipality for review and approval. The Wi-Fi Printer, Wi-Fi Router, Flip Phones, Smart Phones, digital cameras, Projector(s) and Smart Board(s) will be reviewed by Municipality personnel. The Multifunction Laser Printer/Copier/Scanner/Fax will be reviewed by the Municipality. The Contractor shall not purchase the hardware, software, or services until the Municipality informs them that the proposed equipment, software, and services are approved. The Contractor will be solely responsible for the costs of any hardware, software, or services purchased without approval.

The Contractor and/or their internet service provider shall be responsible for the installation and setup of the field office Wi-Fi, Wi-Fi printer, and the configuration of the wireless router as directed by the Municipality.

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 Connection, Wi-Fi Printer, Digital Camera(s),

Flip Phones, Smart Phones, Multifunction Laser Printer/Copier/Scanner/Fax, Video Projectors and Smart Board(s), as well as associated hardware, software, supplies, and support documentation.

The Contractor shall provide all supplies, paper, maintenance, service and repairs (including labor and parts) for the Wi-Fi printers, copiers, field office Wi-Fi, fax machines and other equipment and facilities required by this specification for the duration of the Contract. All repairs must be performed with-in 48 hours. If the repairs require more than a 48 hours then an equal or better replacement must be provided.

Once the Contract has been completed, the hardware and software will remain the property of the Contractor.

First Aid Kit: The Contractor shall supply a first aid kit adequate for the number of personnel expected based on the size of the field office specified and shall keep the first aid kit stocked for the duration that the field office is in service.

Rain Gauge: The Contractor shall supply install and maintain a rain gauge for the duration of the project, meeting these minimum requirements. The rain gauge shall be installed on the top of a post such that the opening of the rain gauge is above the top of the post an adequate distance to avoid splashing of rain water from the top of the post into the rain gauge. The Location of the rain gauge and post shall be approved by the Engineer. The rain gauge shall be made of a durable material and have graduations of 0.1 inches or less with a minimum total column height of 5 inches. If the rain gauge is damaged the Contractor shall replace it prior to the next forecasted storm event at no additional cost.

Concrete Testing Equipment: If the Contract includes items that require compressive strength cylinders for concrete, in accordance with the Schedule of Minimum Testing Requirements for Sampling Materials for Test, the Contractor shall provide the following equipment.

A) Concrete Cylinder Curing Box – meeting the requirements of Section 6.12 of the Standard Specifications.

B) Air Meter – The air meter provided shall be in good working order and meet the requirements of AASHTO T 152.

C) Slump Cone Mold – Slump cone, base plate, and tamping rod shall be provided in like-new condition and meet the requirements of AASHTO T119, Standard Test Method for Slump of Hydraulic-Cement Concrete.

All testing equipment will remain the property of the Contractor at the completion of the project.

Insurance Policy: The Contractor shall provide a separate insurance policy, with no deductible, in the minimum amount of five thousand dollars ($5,000) in order to insure all Municipality-owned 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. These 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 the 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 weekly professional cleaning to include, but not limited to, washing & waxing floors, cleaning restrooms, removal of trash, etc. Exterior areas shall be mowed and clean of debris. A trash receptacle (dumpster) with weekly pickup (trash removal) shall be provided. Snow removal, sanding and salting of all parking, walkway, and entrance ways areas shall be accomplished during a storm if on a workday during work hours, immediately after a storm and prior to the start of a workday. If snow removal, salting and sanding are not completed by the specified time, the State will provide the service and all costs incurred will be deducted from the next payment estimate.

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

There will not be any price adjustment due to any change in the minimum computer related hardware and software requirements.

Basis of Payment: The furnishing and maintenance of the Construction Field Office will be paid for at the Contract unit price per month for "Construction Field Office, (Type)," which price shall include all material, equipment, labor, service contracts, licenses, software, repair or replacement of hardware and software, related supplies, utility services, parking area, external illumination, trash removal, snow and ice removal, and work incidental thereto, as well as any other costs to provide requirements of this specified this specification.

Pay Item	Pay Unit
Construction Field Office, (Type)	Month

ITEM NO. 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:

Cedar Street
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. The Contractor will be permitted to close Cedar Street to through traffic and detour traffic as shown on the Detour Plans. The Contractor shall notify the Engineer at least 14 days in advance of implementing the detour.

All Other Roadways
The Contractor shall maintain and protect a minimum of 1 lane of traffic in each direction with each lane on a paved travel path not less than 11 feet in width

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.

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.

On limited-access highways, construction vehicles entering travel lanes shall not be allowed without a lane closure. The lane closure shall be of sufficient length to allow vehicles to enter or exit the work area at the posted speed limit, in order to merge with existing traffic.

Existing Signing

The Contractor shall maintain all existing overhead and side-mounted signs within the Project limits throughout the duration of the Project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary, and shall install temporary sign supports if necessary and as directed by the Engineer.

Requirements for Winter

The Contractor shall schedule a meeting with representatives of the Department, including the offices of Maintenance and Traffic, and the Town/City to determine any interim traffic control measures the Contractor shall accomplish prior to winter to provide safety to motorists and permit adequate snow removal procedures. This meeting shall be held prior to October 31 of each year and will include, but not be limited to, discussion of the status and schedule of the following items: lane and shoulder widths, pavement restoration, traffic signal work, pavement markings, and signing.

Signing Patterns

The Contractor shall erect and maintain all signing patterns in accordance with the traffic control plans contained herein. Proper distances between advance warning signs and proper taper lengths are mandatory.

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.

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
1	LEFT LANE CLOSED	MERGE RIGHT
2	2 LEFT LANES CLOSED	MERGE RIGHT
3	LEFT LANE CLOSED	REDUCE SPEED
4	2 LEFT LANES CLOSED	REDUCE SPEED
5	RIGHT LANE CLOSED	MERGE LEFT
6	2 RIGHT LANES CLOSED	MERGE LEFT
7	RIGHT LANE CLOSED	REDUCE SPEED
8	2 RIGHT LANES CLOSED	REDUCE SPEED
9	LANES CLOSED AHEAD	REDUCE SPEED
10	LANES CLOSED AHEAD	USE CAUTION
11	EXIT XX CLOSED	USE EXIT YY
12	EXIT XX CLOSED USE YY	FOLLOW DETOUR
13	2 LANES SHIFT AHEAD	USE CAUTION
14	3 LANES SHIFT AHEAD	USE CAUTION

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.

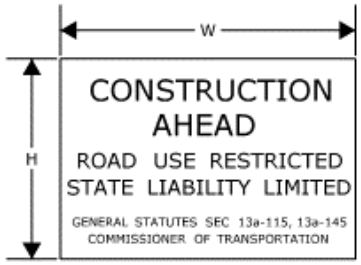
10.b) If a State Police presence is provided, once the pattern is in place, the State Police Officer should be positioned in a non- hazardous location in advance of the pattern to provide advance warning to the motorist. If traffic backs up beyond the beginning of the pattern, then the State Police Officer 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:

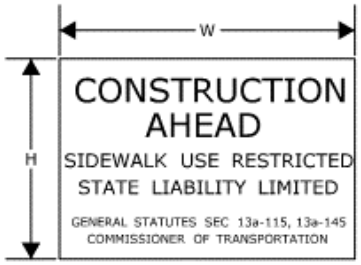
i. Assisting construction vehicles entering and exiting the work area.
ii. Enforcement of motor vehicle laws within the work area, if specifically requested by the Engineer.

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

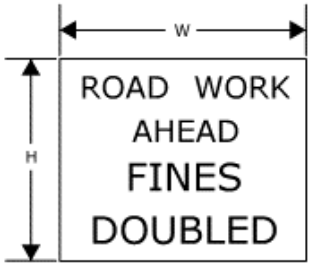
APPROVED Tracy L Fogarty Tracy L. Fogarty, P.E. 2013.10.09 16:30:32-04'00'
PRINCIPAL ENGINEER

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.

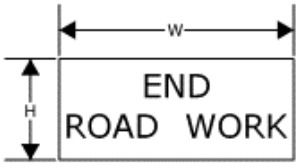
	W	H
31-1906	48"	42"
31-1907	60"	54"



"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 $\leqslant$ 40 MPH).

8. IF THIS PLAN IS TO REMAIN IN OPERATION FROM SUNSET TO SUNRISE, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.

9. A PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF MILE TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

10 SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180'
35	245'
40	320'
45	540'
50	600'
55	660'
65	780'

CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

SCALE: NONE

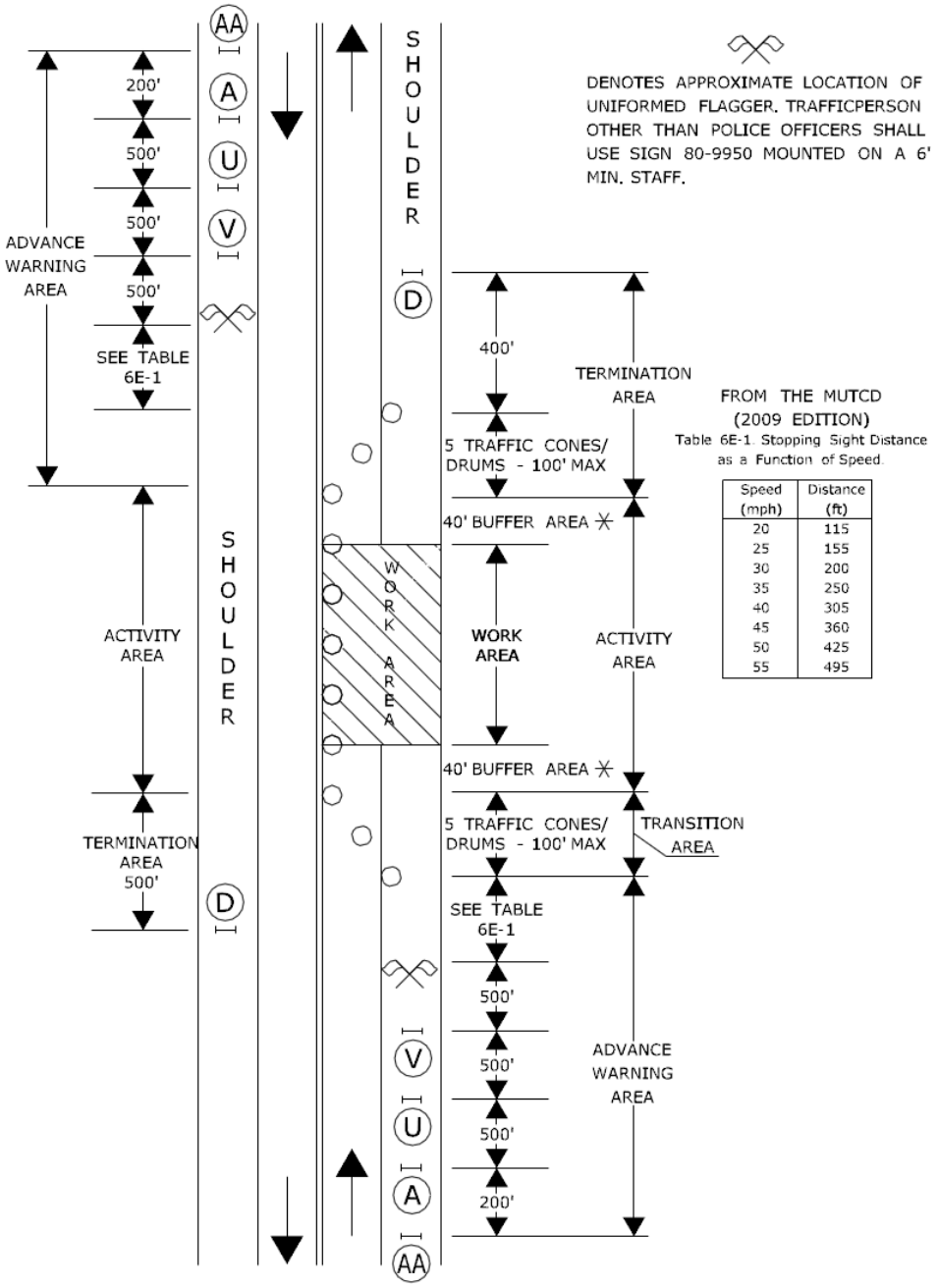
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Tracy L. Fogarty, P.E. 2019.09.13 08:47:47-04'00'

PRINCIPAL ENGINEER

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

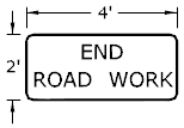
SIGN FACE
108 SQ. FT (MIN.)



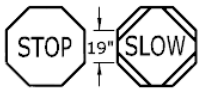
FROM THE MUTCD (2009 EDITION)
Table 6E-1 Stopping Sight Distance as a Function of Speed

Speed (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495

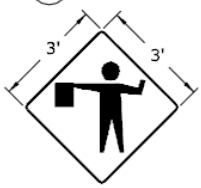
D 80-9612



80-9950
SIDE A SIDE B



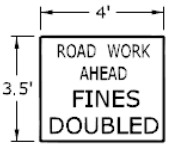
V 80-9803



U 80-9834

A 80-9603

AA 31-1906



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
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:55:23-04'00'
PRINCIPAL ENGINEER

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

SIGN FACE
108 SQ. FT (MIN.)

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.

B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.

C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.

◯ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢⊣ PORTABLE SIGN SUPPORT
⟵ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

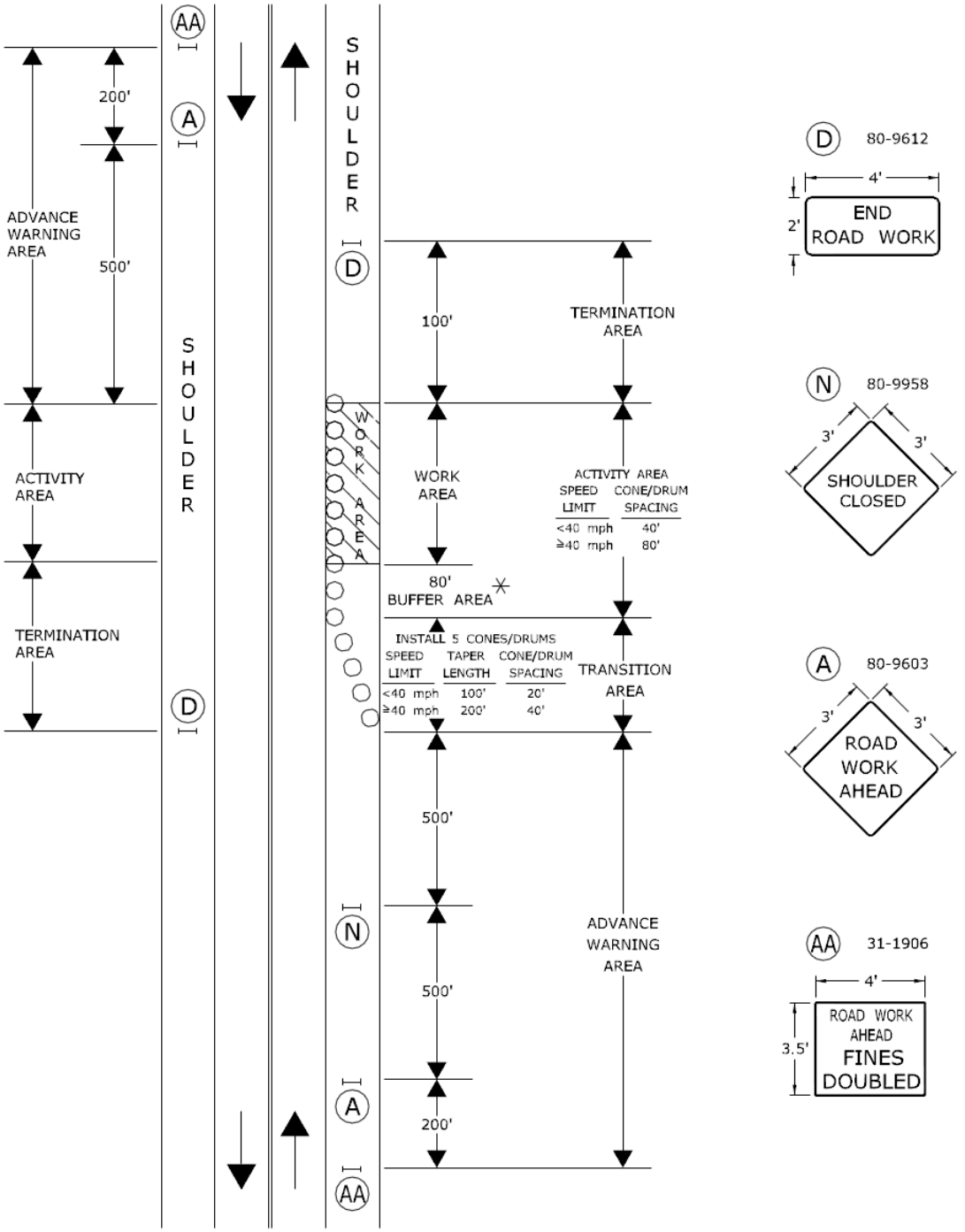
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:55:45-04'00'

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

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

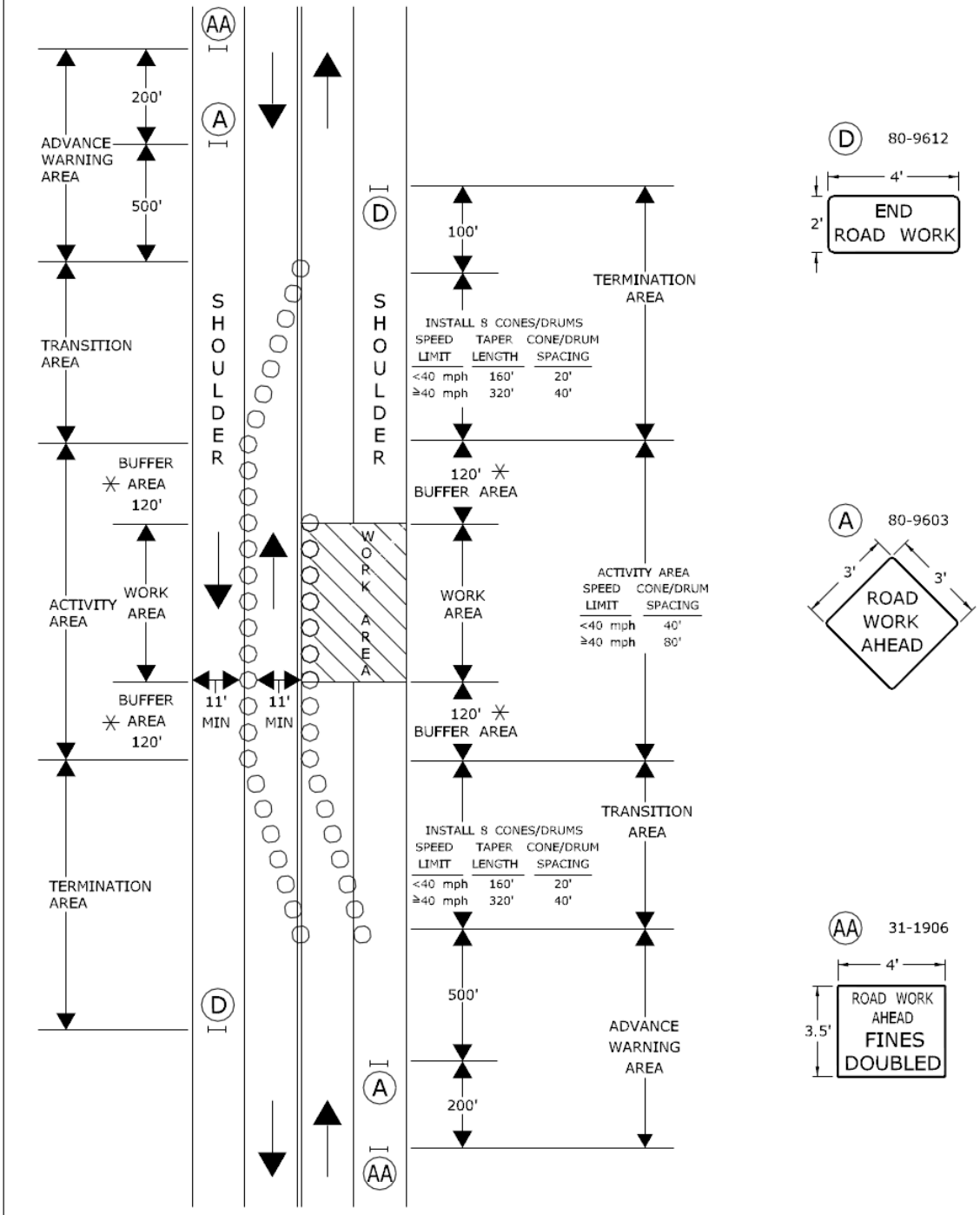
APPROVED

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.)



D 80-9612

A 80-9603

AA 31-1906

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

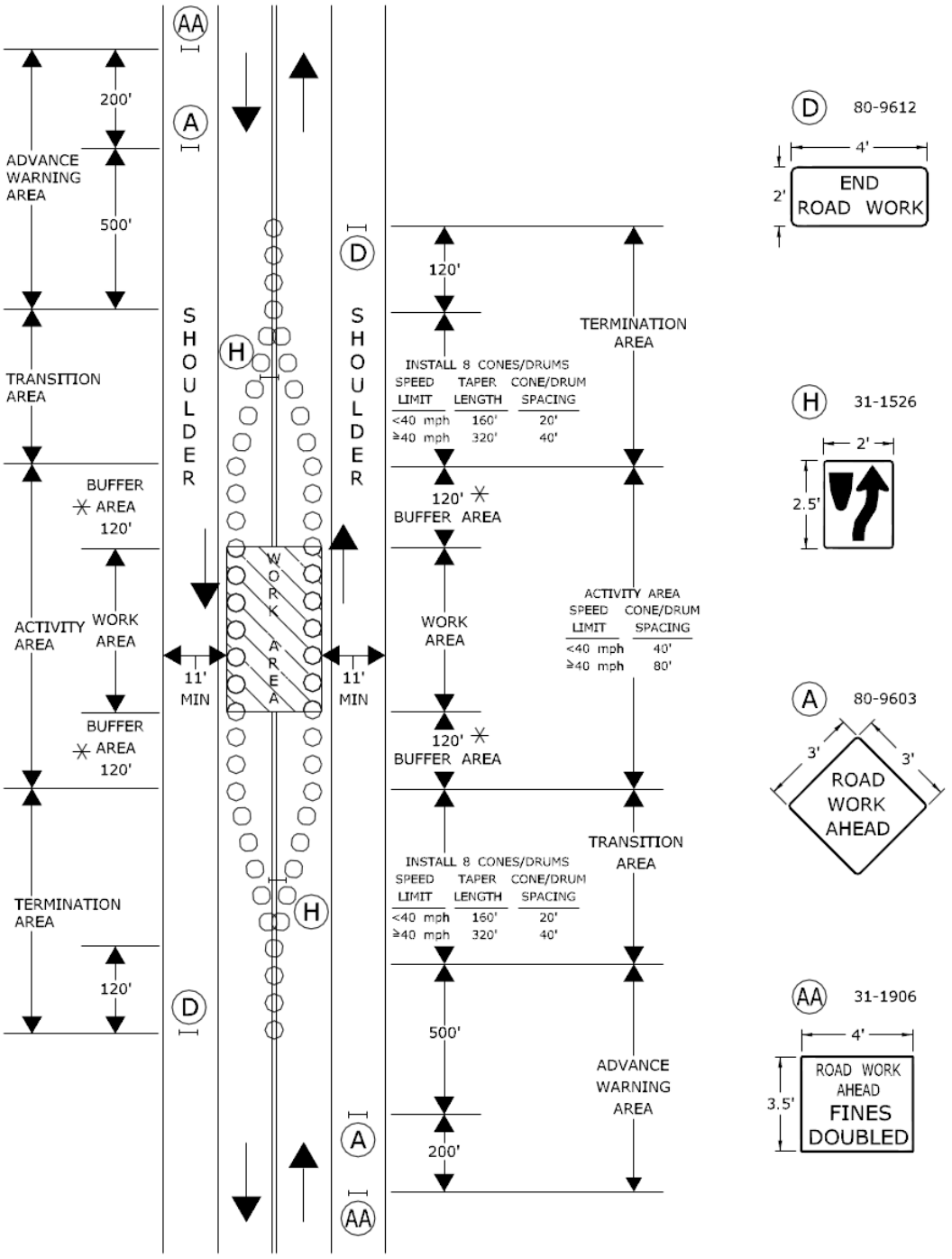
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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 _____ PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:56:51-04'00'

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

Section 12.08 is supplemented and amended as follows:

12.08.01—Description:

Add the following:

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

12.08.03—Construction Methods:

Delete the last sentence and add the following:

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

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

12.08.04—Method of Measurement:

Add the following:

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

12.08.05—Basis of Payment:

Replace the entire Article with the following:

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

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

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

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

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

ITEM #1301082A 8" DUCTILE IRON PIPE (WATER MAIN)
ITEM #1302004A 8" GATE VALVE

13.01.01 Description

A. This work will consist of furnishing and installing ductile iron water mains and appurtenances; removing, resetting, adjusting, or relocating existing water facilities; testing the completed water mains for pressure and leakage requirements; and disinfecting all completed water main, including all appurtenances; all in conformity with the requirements of this Specification and other Contract Documents. Work under this item shall also consist of installing all water main support brackets as shown on the plans.

   Pre-insulated pipe, joints and fittings shall be used where available cover will be less than 4.5 feet. Pre-insulated pipe, joints and fittings for below grade applications shall be as supplied by Urecon Ltd., or approved equal, complete with 50-100 mils black polyethylene jacket with UV inhibitor. The jacket thickness is dependent on the diameter and intended function. The insulation of associated joints, fittings and accessories shall be as per the manufacturer's recommendations, depending on the size and type of pipe involved. The product shall be manufactured in accordance to ISO 9001-2000 Standards, or approved equal.

B. The Contractor shall coordinate all work under this Section with the City of Meriden Water Department. The City shall be responsible for opening and closing all valves as required for the Contractor's work. The Contractor shall notify the City a minimum of 48 hours in advance of any desired valve operations. The Contractor is advised that the Water Department may not be able to respond to valve operation requests within 24 hours because of emergency conditions and that no claim shall be made against the Owner for this occurrence.

C. The Contractor shall notify the City in writing with a copy to the Engineer of any service disruptions related to work on this project at least 48 hours in advance of such disruptions. In addition, a notice concerning service disruptions must be placed in the local newspaper one day before, and on the actual day of the scheduled disruption.

D. The Contractor shall furnish to the Engineer, in the manner as directed, three (3) notarized Certificates of Conformance and Manufacture that all materials and/or equipment to be furnished under this contract meets the specification requirements. When directed, each shipment of material shall be accompanied by the manufacturer's notarized Certificate of Conformance and Manufacture. Unless otherwise specifically specified, all testing of materials shall be provided by the Contractor at no additional expense to the Owner. In addition, each manufacturer's Certificate shall be endorsed or accompanied by the Contractor's Certificate that the material certified by the manufacturer would be the material incorporated in the work.

E. The Contractor shall maintain at the jobsite, in good order, one copy of all contract documents. Upon completion of work, the Contractor shall record on a 24" x 36"mylar

set of the contract drawings, any field changes of dimensions and detail that may have occurred, changes by change orders, and details not on the original contract drawings.

Specifically, the following information shall be shown on the record drawings for utilities within the contract work area:

1. As-built surface profile of proposed utility.
2. Top of rock profile, if applicable.
3. Type, size and rates of grade of existing and proposed pipes.
4. Stations and elevations of existing manholes, wyes, and catch basins.
5. All existing sanitary and storm lateral with depth to the invert at end of lateral indicated.
6. All building utility services shall be accurately shown on the map. The existing sanitary sewer, water, gas, electric, or telephone services encountered shall be located by dimensions and elevation.
7. All newly installed water lines shall be shown with curb boxes, valves, reducers, increasers, T's, hydrants (for water only) and house lines. Accurate dimensions to each valve from ranges of buildings or curb lines shall be shown. The proposed water main shall be located from the curb line and labeled with size and date of installation.
8. Building and lot numbers shall be shown for all lots where applicable. On a set of specifications, the Contractor shall legibly mark each section to record the manufacturer, trade name, catalog number and supplier of products, which were actually installed. These record documents consisting of contract drawings and specifications shall be delivered to the Engineer as one of the requirements for final payment.

13.01.02 Materials

A. All materials shall be tested at the place of manufacture. All materials shall be subject to careful inspection in the presence of the Engineer or authorized inspector just before being laid or installed and shall be subject to approval before acceptance. All material found during the progress of the work to have cracks, flaws, or other defects shall be rejected by the Engineer or authorized inspector, and the Contractor shall promptly remove such defective material from the site of the work.

B. Ductile iron pipe and fittings shall be ductile iron pipe manufactured in accordance with AWWA C151 latest revision, thickness Class 54 per AWWA C150, latest revision. Fittings shall be ductile iron rated at 350 PSI conforming to AWWA C110 latest revision. Ductile iron pipe and fittings shall be provided with a double thickness of cement-mortar lining conforming to AWWA C104 latest revision. The cement-mortar lining shall be seal coated. Exterior surfaces of pipe and fittings shall be given a standard bituminous coating of coal tar or asphalt of 1 mil minimum thickness. Joints for ductile iron pipe shall be rubber gasket push-on type, while fittings shall have mechanical joints with retainer glands. Pipe and fitting joints shall conform to AWWA C111, latest revision.

C. The Contractor shall furnish and install the water main support brackets as indicated on the plans. The water main support shall be a B-Line Series Galvanized Steel B3064-3 Adjustable Strut Bracket, PHD Figure 855 Type No. 2 Bracket, or approved equal. Bracket supports shall be electro-galvanized in accordance with ASTM B633-15. Miscellaneous bolts, nuts and washers required for assembly or mounting shall be electroplated.

D. Anchoring couplings shall be ductile iron mechanical joint couplings that provide a positive restrained connection between fitting and valve. Anchoring tees shall have mechanical joint main run ends. The branch shall have a plain end with an integral gland and mechanical joint gland, which can be rotated, to provide a restrained connection with the adjacent valve; fitting, etc. All bolts, nuts, rods and miscellaneous connecting pieces not provided with an acceptable factory coating shall be given two (2) coats of bituminastic paint after installation. All pipe and fittings shall be plainly marked for weight and pressure rating. Fittings of substandard weight or dimensions will not be accepted.

E. Transition couplings or connecting sleeves shall be mechanical sleeve couplings designed for the specific types of pipe to be joined and shall be manufactured by the Dresser Manufacturing Division or approved equal,

F. Concrete for thrust blocks shall conform to the requirements of Article M.03 for Concrete Class PCC03340.

G. Strap rods shall be 3/4 inch round steel or wrought iron. Clamps shall not be less than 2” wide and 3/8” thick. Bolts securing clamps shall not be less than 5/8 inch round. Clamps and rods are to be protected against corrosion by a heavy coat of bituminous asphalt varnish after final assembly.

H. Gate valves shall be of the iron body, bronze mounted, resilient seated, solid wedge disc, non-rising stem type, fitted with "0" ring seals, conforming to the requirements of A WW A C509, latest revision. Valves shall be suitable for 200-PSI minimum working pressure and 400-PSI test pressure. The operating nut shall be two (2) inches square and valves shall open "right" or clockwise. All interior and exterior surfaces of the valve body and bonnet and any exposed metallic surfaces of the gate shall be coated with a fusion bonded epoxy conforming to the requirements of A WW A C550, latest revision.

I. Valve boxes shall be heavy pattern cast-iron three piece, screw type construction consisting of top section, mid-section and enlarged base (No- 6 for valve sizes up to 8” and No. 160 for 8” valves of sufficient length to provide without extension the required cover. The lower section shall be at least 5 ¼” inside diameter belled at the bottom to fit over the valve top. The middle section shall connect securely to the bottom section. The upper section shall screw over the outside threads of the middle section and be provided with a 6”diameter cover with the word "water" cast in raised letters. Valve boxes shall be coated with coal-tar pitch enamel or equal accepted coating. Valve boxes shall be

"Buffalo" type as manufactured by Buffalo Pipe and Foundry, J.C. Clow & Sons, Inc., or equal.

J. Underground-type plastic line marker shall be a manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, not less than 3" wide x 4 mils thick. Provide tape with printing which indicates "buried water."

K. Support brackets shall be Eaton B-Line Series B3065-3 with pipe anchor B3147B-12 or approved equivalent.

L. Miscellaneous materials not specified herein, shall be of the type, size, material and manufacture as shown on the drawings or as required for the installation. Such miscellaneous material shall be as approved by the Engineer.

M. Pre-insulated pipe, joints and fittings shall be in accordance with the following:

Insulation

i. Material: rigid polyurethane foam, factory applied
ii. Thickness: 2" or as required
iii. Density: (ASTM D 1622) 2.2-3.0 lbs/ft^3
iv. Closed cell content: (ASTM D 2856) 90%, minimum
v. Water absorption: (ASTM D 2842) 4.0% by volume
vi. Thermal conductivity: (ASTM C518) 0.14-0.17 Btu-in/ft^2-hr-ºF
vii. Temperature limitations: Cryogenic to 200ºF

System Properties

i. System compressive strength: (modified ASTM D 1621 with 2" jacket) approximately 60-80 lbs/in^2, varies with pipe diameter
ii. Temperature limitations: minimum ambient installation temperature @ -30ºF; service temperature approximately -49ºF

Outer Jacket on Pipe Insulation with Enhanced Cold Climate Handling Properties

The outer protective jacket shall consist of either-

Tape Wrap System

i. Jacket material: Scapa #366 polyethylene, UV inhibited, specially formulated for superior cold environment properties
ii. Sealant: butyl rubber and resin, applied hot in 25 mils multiple layers providing a shrink tightened waterproof bond throughout its entire length
iii. Minimum elongation: (ASTM D 1000) 300%, 6 month test
iv. Tensile strength: (ASTM D-1000) 38 lbs/in wide

Extruded System

The outer protective jacket on the casing system shall consist of high density polyethylene copolymer black PE, UV inhibited, factory applied as per the following specifications:

i. Minimum cell classification 435560A for PE as per ASTM D 3350

ii. Minimum 2% carbon black, well dispersed
iii. Density 0.953 gm/cc ASTM D 4883
iv. Tensile Strength at yield (2"/min) 3,700 psi, ASTM D 638

Recommended PE Jacket Thicknesses for Below Grade Applications
Jacket OD: ≤16" @ 50 mil
Jacket OD: >16" to <24" @ 75 mil
Jacket OD: ≥24" @ 100 mil

Insulated Pipe Joints

i. Butt-Fused and Welded Joints: Insulated pipe joints shall be completed using pre-fabricated rigid polyisocyanurate or urethane half shells and sealed with the application of suitable wrap around adhesive lined heat shrink sleeves as supplied by the manufacturer. The heat shrink sleeves shall overlap the insulation jacket by a minimum of 3" on either side of the joint.
ii. Bell & Spigot Joints: Insulated pipe joints shall be sealed with a 6" wide heat shrink sleeve or butyl mastic tape if the system is not electrically heat traced, 12" wide if traced.

Insulation Kits for Fittings

Insulation kits for fittings shall consist of rigid polyisocyanurate or urethane foam insulation with a fully bonded polymer protective coating on all exterior and interior surfaces, including ends. Kits to be supplied complete with silicone caulking for seams, stainless steel attachment straps and clips, and heat shrink sleeves or butyl mastic tape to seal between pipe and insulation kit.

i. Rigid Polyisocyanurate or Urethane Foam Insulation
   a) Density: (ASTM D1622) 1.7-2.0 lbs/ft^3
   b) Compressive strength: (ASTM D1621) 19-23 lbs/in^2
   c) Closed cell content: 90%, minimum
   d) Water absorption: (ASTM C272) 4.0% by volume
   e) Thermal Conductivity: (ASTM C 518) 0.19 Btu-in/ft^2-hr-ºF
   f) Thickness: to match pipe insulation thickness
ii. Polymer Coating
   a) Two component high density polyurethane coating, black in color
   b) Density: 73 lbs/ft^3
   c) Durometer D scale 60
   d) Tensile strength: 1610 lbs/in^2
   e) Tear strength: 151 lbs/in
   f) Thickness: 75 mils outside surfaces; 20 mils inside surfaces

13.01.03 Construction Methods

A. The construction of new water mains, services, and appurtenances shall be done by the Contractor subject to these documents. The Meriden Water Department shall retain the right to limit the length of time any main, or mains, shall be out of service, as emergency requirements demand. The length of any section of water main, temporarily removed

from service for the operations under the Contract, shall be determined by the capability of the distribution system to supply water by other routes to the areas adjacent to or directly affected by, the section of service. Water service to individual customers may be interrupted only during the Contractor's work hours and as allowed by the Water Department.

B. All pipe, fittings and valves shall be carefully inspected for defects prior to installation.

C. Support brackets shall be mounted to the outside face of the downstream bridge parapet and spaced as shown on the plans.

D. Each pipe shall be handled into the trench carefully. The Contractor shall furnish all slings, straps to permit satisfactory support of all spans of pipe when it is being handled. The Contractor shall take all necessary precautions to prevent movement of pipe in the event of the trench flooding. Any length of pipe broken or damaged due to mishandling or negligence on the part of the Contractor shall be replaced at no cost to the Owner.

E. Ends of the pipe shall be thoroughly cleaned before joint is made. The surface of the joint shall be painted with required lubricant applied in accordance with the manufacturer's directions. The lubricant shall be of type recommended by pipe manufacturer. Pipes shall be jointed in strict accordance with pipe manufacturer's directions and work shall be done by skilled personnel.

F. Pipe shall be laid on fine gravel bedding as shown on the trench details in the contract drawings with the bedding tamped under, around and up to the spring line of the pipe.

G. No pipe or fittings shall be laid in water or on a frozen trench bottom or when, in the opinion of the Engineer, the trench conditions or the weather is unsuitable for such work. All joints shall be checked by feeler ring gauge to insure proper positioning of rubber gaskets.

H. At locations where water main construction involves abrupt changes in pipe alignment, the changes shall be made with fittings as indicated on the contract drawings or ordered by the Engineer. Changes in pipe alignment shown at other locations shall be made with deflection of pipe joints and short lengths as required.

I. All ductile iron pipe filler pieces that must be cut on-site from full pipe lengths shall be cut with a power saw and prepared in accordance with the pipe manufacturer's recommendations. Insofar as it is practical, the Contractor shall have on hand manufacturer supplied filler pieces (short length of pipe with plain ends) and short lengths of pipe to minimize on-site cutting of pipe.

J. Concrete thrust blocks shall be constructed at all tees, bends, valves, plugs and caps. Thrust blocks shall be of the size indicated on the drawings and shall, in all cases be poured against undisturbed earth. Where thrust blocks are in contact with the pipe, concrete shall be kept clear of pipe joints.

K. Ductile iron fittings of the proper type shall be furnished and installed wherever shown on the drawings and as required by the Engineer. All mechanical joints of fitting shall be restrained with retainer glands torqued to 70 ft-lb or as recommended by the manufacturer. In addition, all pipe joints within 24 feet of bends or tees shall be restrained.

L. Vertical bends where shown on the drawings shall be anchored in both directions with pipe clamps and tie rods. The Contractor shall provide the necessary tie rods and clamps. Tie rods and clamps shall be as manufactured by the Grinnell Company, Inc., or equal.

M. Valves shall be installed in the mains approximately where shown on the contract drawings. Each valve shall be installed with a gate box set vertically with top even with finished grade.

N. The existing water main pipe shall be cut using methods approved by the pipe manufacturer with the open pipe end prepared for installation of watertight cap or plug. If the condition of the existing pipe is such that a cap or plug cannot be installed, then the Contractor shall install a flexible coupling and capped filler piece. The Contractor shall close all valves on abandoned water mains and remove the upper sections of their valve boxes.

O. Wherever curves are negotiated by deflecting successive lengths of pipe, the deflection of each length of pipe shall not exceed three (3) degrees at any one joint. Consult manufacturer's literature for allowable deflection in inches for various pipe sizes and lengths to meet this requirement.

P. During trench filling, install a continuous underground-type plastic line marker, located directly over buried pipe at 3 feet below finished grade.

Q. Adjusting water gates shall mean the minor adjustment of existing curb stop and gate valve boxes to the proposed grade not involving major reconstruction of the unit. (Examples of adjusting are: screwing/sliding adjustable type boxes up or down to bring the valve box to required grade, or using approved extension pieces to bring valve boxes to required grades).

R. Resetting gate boxes shall mean the minor construction required to re-align the valve boxes so that they are set plumb and are centered on the valve-operating nut. Care must be taken to ensure no part of the riser section bears on any pan of the valve.

S. For the pre-insulated pipe, joints and fittings: Pipe and casing shall be cleaned of surface dust or dirt, if necessary, to insure adhesion of the foam to the pipe and casing surface. The pipe may be treated by sand blasting or the application of a chemical foam-bonding compound to enhance adhesion, as deemed necessary by the manufacturer and project requirements.

Hydrostatic Testing

A. Test for leakage shall be conducted on all portions of completed water pipelines and appurtenances and all methods and procedures for performing the testing of water mains shall be subject to the acceptance of the Engineer. Unless otherwise permitted, the testing shall be conducted with partial backfilling over the barrel of any new pipe, between new pipes, pipe fittings, valves and appurtenances of the section. Interiors of all pipes shall be cleaned of all dirt and foreign materials. The water pipelines may be tested in convenient sections acceptable to the Engineer.

B. Testing of water mains shall conform to the requirements of Section 4 of the AWWA Specification C 600, latest revision, except as herein specified. The test pressure shall be a minimum of 150 PSI or 50% above working pressure; whichever is greater, for at least a three-hour duration. Maximum allowable leakage shall be as specified in the following table for the appropriate pipe diameter. Test results shall be accurate to within 0.4 of a liter.

Allowable Leakage per 1000 ft (305 m) of Pipeline*—*gph*†

Avg. Test Pressure *psi* (*bar*)	Nominal Pipe Diameter—*in.*															
	3	4	6	8	10	12	14	16	18	20	24	30	36	42	48	54
450 (31)	0.48	0.64	0.95	1.27	1.59	1.91	2.23	2.55	2.87	3.18	3.82	4.78	5.73	6.69	7.64	8.60
400 (28)	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.60	4.50	5.41	6.31	7.21	8.11
350 (24)	0.42	0.56	0.84	1.12	1.40	1.69	1.97	2.25	2.53	2.81	3.37	4.21	5.06	5.90	6.74	7.58
300 (21)	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	3.12	3.90	4.68	5.46	6.24	7.02
275 (19)	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49	2.99	3.73	4.48	5.23	5.98	6.72
250 (17)	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37	2.85	3.56	4.27	4.99	5.70	6.41
225 (16)	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70	3.38	4.05	4.73	5.41	6.03
200 (14)	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55	3.19	3.82	4.46	5.09	5.73
175 (12)	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38	2.98	3.58	4.17	4.77	5.36
150 (10)	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21	2.76	3.31	3.86	4.41	4.97
125 (9)	0.25	0.34	0.50	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01	2.52	3.02	3.53	4.03	4.53
100 (7)	0.23	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.80	2.25	2.70	3.15	3.60	4.05

***If the pipeline under test contains sections of various diameters, the allowable leakage will be the sum of the computed leakage for each size.**

†To obtain leakage in litres/hour, multiply the values in the table by 3.785.

C. Testing of water mains shall be performed by the Contractor at their expense as witnessed by the Engineer. Notarized records of the test results shall be submitted by the Contractor to the Engineer. In case the specified rate of leakage for the portion of the pipeline being tested is exceeded, the Contractor shall find and repair the leaks and the pipelines shall be retested repeatedly if necessary, by the Contractor, until the required conditions are met, at no additional expense to the Owner.

Disinfecting Water Mains and Appurtenances

A. All portions of completed water mains and appurtenances are to be disinfected before acceptance for operation by the City. Water mains shall be disinfected by the Contractor in conformance with AWWA Specification C 601, latest revision. In particular, the Contractor shall follow all of the disinfection procedures of Section 9 -Disinfection Procedures of AWWA Specification C 601, unless otherwise directed by the Engineer. The Contractor shall be responsible for satisfactory disposal of all flushing water and chlorinated water at no additional expense to the Owner. The Contractor shall submit to the Engineer, the type of chlorine to be used, the disinfection experience for the workers, and the procedures and equipment to be used.

B. After the mains have been flushed clean, samples of the water contained in the mains shall be arranged by the Contractor to be taken for bacterial analysis by a testing laboratory certified in Connecticut. Only after the analyses of the samples are acceptable to the City shall the mains be made part of the system. In the event that positive reports of contamination are received, the Contractor shall flush and rechlorinate the mains as many times as may be necessary to obtain acceptable results. Samples shall be obtained from corporation cocks with copper gooseneck assemblies installed as directed along the main to be disinfected. The taking of samples from hoses or fire hydrants will not be allowed. After samples have been collected, the gooseneck assembly may be removed and retained for future use.

C. The Contractor shall be warned the water main disinfection should be only accomplished by specially trained personnel and that the project's water mains are vital to the safety and well being of the municipality. State Health Department approval of the water main disinfection is to be received by the Contractor in a timely manner so as to quickly place the water mains into service.

D. The Contractor shall submit an affidavit of compliance to the Engineer. The affidavit of compliance shall be the bacteriological test results certifying the water samples from the water main to be free of coliform bacteria contamination.

E. The Contractor's workers who are responsible for the water main work should be aware of the potential health hazards with chlorine and should be trained to observe carefully the prescribed construction practices and disinfection procedures. The effectiveness of disinfection depends in large measure on maintaining clean pipes and avoiding major contamination during construction.

F. The Contractor shall give thorough consideration to the impact of highly chlorinated water flushed to the receiving environment. If there is any question that damage may be caused by a chlorinated water discharge (to fish life, plant life, physical installations, or other downstream water uses of any type), then an adequate amount of reducing agent should be applied by the Contractor to the water being disposed of in order to neutralize thoroughly the chlorine residual remaining in the water.

G. To prevent possible backflow or siphonage of contaminants into the water distribution system which is in service, the Contractor will be required to provide a reduced pressure

backflow preventer (RPD) on the temporary piping which is supplying water from the distribution system to the water main being treated and to provide such other safety and control measures as directed by the City.

H. The Contractor shall be required to take samples and have testing performed by a certified testing laboratory for a minimum of the following items:

I.

1. Total Coliform
2. Standard Plate
3. Count Gross Hydrocarbons
4. Volatile Organics

J. The Contractor shall take the required water samples after completion of flushing and disinfecting of the water main as directed by the Engineer. The Contractor shall be responsible for coordination and delivery of the samples to the certified testing laboratory. The Contractor shall also bear the costs of all water quality testing and analysis expenses by the certified laboratory.

13.01.04 Method of Measurement

A. Ductile iron pipe for water mains shall be measured for payment by the linear feet for 8" size as measured along the axis of the pipe from the face of the hub forming the beginning of the work to the hub or spigot constituting the end of the line, measured through all fittings and valves in the line. Pipe for side street connections shall be measured from the centerline of the cross or tee to the point of connection to existing pipe.

B. Flexible couplings, transition couplings, crosses, tees, bends, anchor couplings, joint restraints, thrust blocks will not be measured separately for payment, the cost of which shall be included in the price bid per linear feet for furnishing and installing the various sizes of ductile iron pipe for water mains.

C. Support brackets will not be measured separately for payment and will be included in the cost of the pipe.

D. Gate valves will be measured for payment by the unit of the 8" size in place and accepted, including valve box.

E. Testing, flushing and disinfection of new water mains and appurtenances will not be measured for payment.

F. Maintaining temporary service connections and providing temporary water will be paid for under the item "Temporary Support of Utilities".

G. The cost of pre-insulated pipe, joints and fittings shall be included in the cost of the item.

PAY ITEM	PAY UNIT
8” Ductile Iron Pipe (Water Main)	L.F.
8” Gate Valve	EA.

ITEM #1303204A – HYDRANT ASSEMBLY (WATER MAIN)

Description

Work specified in this section shall consist of furnishing and installing new fire hydrant assemblies and the removal and disposal of existing fire hydrant assemblies at the location shown on the plans or where directed by the Engineer.

Submit manufacturer's data sheets and certification of compliance with specifications for all hydrants, valves, fittings and appurtenances.

Materials

Unless otherwise specified by the Engineer, the hydrants, pipe, fittings, valves and appurtenances to be utilized in this work shall be new and unused, shall be of the types and materials specified herein and shall meet the requirements specified herein. All materials found during the progress of the work to have cracks flaws or other defects will be rejected by the Engineer. All defective materials shall be promptly removed from the work site and replaced at no additional expense to the Owner.

A. Hydrants: Shall be dry-barrel, post-type hydrants, with compression shut-offs which open with the pressure. Hydrants shall meet the requirements of ANSI/AWWA C502. They shall have a main valve opening of 5-1/4 inches and have a 6-inch mechanical joint inlet. Bury lengths shall be a minimum of 4-1/2 feet. Two (2) 2-1/2 inch hose and one (1) 4-1/2 inch pumper nozzles shall be provided in standard nozzle arrangement 2-1/2" and 4-1/2" outlets nozzles threads shall meet the requirements of ANSI B26, "National Standard Fire Hose Coupling Screw Threads" and meet ***Meriden*** standard thread size. Hydrants shall be of break flange construction, shall be ***RIGHT opening (clockwise)*** and shall have O-ring seals. Interior and exterior coatings shall meet the requirements of ANSI/AWWA C502. The second shop coat of primer is to be red in color. Hydrants shall receive two field coats of red paint meeting the approval of the Owner.

   In addition, that portion of each hydrant below finish grade shall be given a coating of hot bitumastic material, equal to that used for exterior coating of pipe and fittings, before installation. A drain outlet is required. Hydrants shall be furnished with barrels of sufficient length to allow connection to proposed water mains, regardless of depth, and 18 inch nozzle height above grade. Use of extension sections on deep installations will not be allowed. Hydrants shall be Mueller Centurion.

B. Ductile iron pipe (D.I.) mechanical joint fittings, gate valves, valve boxes, joint restraint and exterior and interior coatings shall meet the requirements specified under Sections 1301084A through 130208A of this specification.

C. Precast concrete masonry units shall meet the requirements of ASTM Designation: C139.

D. Crushed stone shall meet the requirements of No. 6 crushed stone in accordance with Section M.01.02 of DOT Form 818.

E. Capping existing water mains shall include cutting the existing pipe and installing a mechanical joint cap with retainer gland and providing concrete thrust support.

F. Pipe Bedding shall conform to the requirements shown on the Contract Drawings. The gravel/sand bedding for water mains and services shall consist of well graded sand, or sandy soil in accordance with Article M.08.03.1 of DOT Form 818. All of the material shall pass the 3/8" sieve and not more than 10 percent passing the #200 sieve. When groundwater is encountered No. 6 crushed stone in accordance with M.01.02 of DOT Form 818 may be used with prior approval from the Engineer.

Construction Methods

Fire hydrants shall be provided and located or removed where shown on the plans or as directed by the Engineer. Installation or removal shall be as detailed on the plans and as defined in these specifications.

A. Hydrants shall stand plumb and shall have their nozzles parallel with, or at right angles to the curb, with the pumper nozzle facing the curb. Hydrants shall be set to the established grade with a minimum 4-1/2 foot bury and with nozzles at least 18 inches, but not more than 24 inches above the ground.

B. Hydrant tees with restrained glands and joint restraint shall be utilized for all hydrant installations per these specifications and as delineated on the Contract Drawings.

C. Gate valves and hydrant bases shall rest on concrete masonry units.

D. Particular attention shall be made to insure that hydrant drain ports are free from debris before placement of 3/4" crushed stone.

E. A burlap bag shall be securely placed over each new hydrant until the hydrant is put into service. When the hydrants are put into service the burlap bags shall be removed and disposed off-site.

F. Testing of new fire hydrants shall be carried out as described in Sections 1301084A through 130208A of this specification.

G. The Contractor shall furnish and deliver to the Owner sufficient maintenance kits to maintain all hydrants furnished under this contract. Maintenance kits shall include packings, O-rings, gaskets, valve rubbers, thrust washers, thread lube, operating nut oil, nuts and bolts.

The Contractor shall also furnish any special tools required to maintain or operate the hydrants furnished under this contract.

H. The cutting of pipe for closure pieces shall be done in a neat manner without damage to the pipe or cement lining and so as to leave a smooth end at right angles to the axis of the pipe.

I. Joining of mechanical joint valves, fittings and accessories shall be provided in accordance with the recommendations of the manufacturer. The mechanical joint valves and fittings shall be suitable for jointing with the pipe with which they are used and the Contractor shall provide, at no additional expense to the Owner, all necessary adapters for the proper jointing of the pipe, fittings, valves and appurtenances. The range of bolt torque in making up joints shall be as recommended by the manufacturer of the mechanical joints. Overstressing of bolts will not be permitted; if effective sealing is not obtained at the recommended maximum bolt torque, the joint shall be disassembled, thoroughly cleaned and reassembled. All mechanical joints shall be furnished with retainer glands/restraints.

Method of Measurement

Hydrant Assemblies shall be measured as individual units for each hydrant assembly installed in place and accepted. Hydrant tee, valves, valve boxes piping, thrust restraint, and all other appurtenances shall not be measured for separate payment.

The removal and disposal of existing hydrant assemblies if applicable shall not be measured for separate payment.

Basis of Payment

Hydrant Assemblies shall be paid for as individual units for each Hydrant Assembly (Water Main) installed in place and accepted. Said payment shall include furnishing and installing the hydrant, pipe and all valves, valve boxes, fittings, tees, joint restraints, sheeting, shoring and bracing, excavation and backfill, furnishing, shaping and compacting pipe bedding, and the cost of all labor, materials, equipment and all incidental work necessary to complete the construction of the Hydrant Assemblies item.

All costs associated with the hydrant gate valve, valve box, tee, and piping to main shall be included in this item and will not be measured or paid for separately.

Removal and disposal of existing fire hydrant assemblies shall not be paid for separately, and the cost of all labor, materials, equipment and all incidental work necessary to complete the removal shall be included in the Hydrant Assembly price.

Pay Item	Pay Unit
Hydrant Assembly (Water Main)	Ea.

ITEM # 140124A 8" DUCTILE IRON PIPE (SANITARY SEWER)

ITEM # 1401643A 6" POLYVINYL CHLORIDE LATERALS (SANITARY SEWER)

Description:

Work under this item includes all work related to construction of a sanitary sewer main in conformance with the plans and specifications. This work shall also consist of trench excavation and backfilling, shoring and dewatering operations, pipe tests, pipe connections, pipe bedding material, and other miscellaneous work required in completing the sanitary sewer as shown on the plans and as directed by the Engineer.

Materials:

General: Steel and Iron products shall comply with the "Buy America" requirement set forth in 23 USC 313 and 23 CFR 635.410.

Pipe: The requirements of this specification are to provide pipe and fittings suitable for non Pressure drainage or sewage and certain other liquid wastes where toughness, resistance to deterioration from the action of water and chemicals, dimensional stability, resistance to aging and tight joints are required.

Polyvinyl Chloride Sewer Pipe: Polyvinyl chloride sewer pipe and fittings shall be made from Virgin Type 1, Grade 1 polyvinyl chloride compounds as defined and described in ASTM Specification D-1784 for "Rigid Poly (Vinyl Chloride) Compounds and Chlorinated Poly (Vinyl Chloride) Compounds".

Dimensions: The standard length of pipe used in house connections and/or laterals shall not exceed 6.5 feet in length unless otherwise approved by the Engineer. All pipes shall be dimensioned in inches and shall be manufactured to the following dimensions:

NOMINAL SIZE	OUTSIDE DIAMETER	MINIMUM WALL THICKNESS DR-42	DR-35
6	6.275	0.180	0.180
8	8.400	0.200	0.240
10	10.500	0.250	0.300
12	12.500	0.300	0.360
15	15.300	0.375	ASTM 3033

Joints: Joints shall be the bell and spigot type subject to the approval of the Engineer. All joints shall meet the requirements of ASTM D 3212 Standard Specifications for "Joint and Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals". Joints shall be sealed with a rubber compression gasket, approved by the Engineer and shall be of a composition and texture which is resistant to common ingredients of sewage, industrial wastes, including oils and ground water, and which will endure permanently under the conditions likely to be imposed by this use. The tensile strength shall be at least

1,300 psi. The elongation at rupture shall be such that two-inch gauge marks shall stretch to not less than ten inches. Hardness shall be between 40 and 50, as measured with a Shore Durometer. The compression set (constant deflection) shall not exceed 25 percent of the original deflection. The tensile strength after accelerated aging joint, when assembled, must be able to withstand a hydraulic pressure internally of at least 10 psi.

Fittings: Wyes, tees, bends, and adapters, and any other fittings required by the Engineer shall be provided. Plans for such fittings showing cross-sectional views with dimensions shall be provided, and such plans and fittings shall be approved by the Engineer prior to their use. The materials used in the manufacture of fittings shall conform with the requirements for the pipe with which they shall be used and any variation of such requirements shall be subject to the approval of the Engineer. Sizes of fittings shall be to the dimensions of standard pipe, as shown above. If dimensions, structural design, or materials from which they are manufactured vary from other provisions of this specification, it shall be done so only with the approval of the Engineer.

Testing: Pipe shall be tested and all sizes of pipe so designated shall be tested in accordance with ASTM D-2412-68 Standard Method of "Test for External Loading Properties of Plastic Pipe by Parallel-Plate Loading". The minimum value of pipe stiffness at five percent deflection computed from data obtained from the above testing procedure shall be indicated in Table 1.

TABLE 1

Minimum Value of Pipe Stiffness at 5% Deflection

NOMINAL PIPE SIZE	PIPE STIFFNESS
6 Inch	32 PSI
8 Inch	28 PSI
10 Inch	17 PSI
12 Inch	17 PSI
15 Inch	17 PSI

Marking: Pipe shall be marked along the outside of the barrel in bold type and shall indicate the manufacturer's name, pipe size, PVC compound used, i.e. PVC Type 1, Grade 1 and the ASTM material specification for the PVC compound used, i.e. ASTM D-1784.

Ductile Iron Sewer Pipe: Ductile iron sewer pipe shall conform to ANSI A21.50 (AWWA C150) and ANSI A21.51 (AWWA C151). Ductile iron pipe shall be Class 52 and furnished in nominal 18-foot lengths, with push-on or mechanical joints (where specified) as manufactured by U.S. Pipe and Foundry Company, Griffin Pipe Co., Clow Corporation, or approved equal with gaskets conforming to AWWA C111 ANSI A21.11 "Rubber Gasket Joints". The ductile iron pipe shall be unlined inside and asphalt seal coated on the outside.

Crushed Stone: Crushed stone for sewer bedding and haunching shall be 3/8" nominal diameter or shall conform to No. 8 stone per Section M 01.01 of the Standard Specifications Form 818 or latest.

Synthetic Fabric: Synthetic drainage fabric for crushed stone sewer bedding shall be manufactured by TenCate Geosynthetics North America, Hanes Geo Components, or an approved equal product.

Construction Methods:

TRENCHING, BACKFILLING, AND CONSOLIDATION

1.1 Trenching and backfilling shall be completed in conformance with Section 2.05.03 of the Standard Specifications.

2.0 TRENCH DEWATERING

2.1 To ensure proper conditions at all time during construction, the Contractor shall provide and maintain ample means and devices (including spare units kept ready for immediate use in case of breakdown) with which to intercept and/or remove promptly and dispose properly of all water entering trenches and other excavations. Such excavations shall be kept dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.

All water pumped or drained from the work shall be disposed of in an environmentally suitable manner in accordance with Section 1.10 Environmental Compliance of the Standard Specifications, and without undue interference with other work, damage to pavements, other surfaces, or property. Suitable temporary pipes, flumes, or channels shall be provided for water that may flow along or across the site of the work.

2.2 Temporary Underdrains:

Temporary Underdrains, if used, shall be laid in trenches beneath the grade of the structure. Trenches shall be of suitable dimensions to provide room for the chosen size of underdrain and its surrounding gravel. Underdrain pipe shall be acceptable PVC or ADS pipe of standard thickness.

Underdrains, if used, shall be laid at an approved distance below the bottom of the normal excavation wrapped in synthetic fabric, and entirely surrounded by graded gravel or crushed stone to prevent the admission of sand or other soil into the underdrains. The distance between the top of the bell of the underdrain pipe shall be at least three (3) inches unless otherwise permitted. The space between the underdrain and the pipe or structure shall be filled and crushed stone which shall be rammed, if necessary, and left with a surface suitable for laying the pipe or building the structure.

2.3 Drainage Wellpoint System:

If required, the Contractor shall dewater the excavations by means of an efficient drainage system which will drain the soil and prevent saturated soil from flowing into the excavation. The wellpoints shall be designed especially for this type of service. The pumping unit shall be

designed for use with the wellpoints and shall be capable of maintaining a high vacuum and of handling large volumes of air and water at the same time.

If required, the installation of the wellpoints and pump shall be done under the supervision of a competent representative of the manufacturer. The Contractor shall do all special work such as surrounding the wellpoints with sand or gravel or other work which is necessary for the wellpoint system to operate for the successful dewatering of the excavations.

3.0 CRUSHED STONE SEWER PIPE BEDDING

3.1 The Contractor shall lay and cover all sanitary sewer pipe in a bedding of compacted crushed stone or as directed by the Engineer.

3.2 Crushed Stone Foundation Bedding:

Unless otherwise provided or directed by the Engineer for a particular portion of a project, all pipe used for main sewers, laterals, connected thereto, shall be laid on a foundation of six inches of 3/8-inch crushed stone as required by the Engineer.

Crushed stone shall be placed in the trench to a sufficient height so that upon completion of compaction, as required in the specifications, the entire upper surface of the crushed stone shall be no lower than the bottom of the barrel of the pipe to be laid thereon. The upper surface of the crushed stone shall be shaped as necessary to provide proper grade for the pipe to be laid thereon, bell holes shall be made in the crushed stone so that the pipe shall be supported on its barrel portion only, and the pipe laid thereon to line and grade in the manner described in the specifications.

When the pipe is properly positioned, crushed stone, unless otherwise required by the Engineer, shall be pulled or scraped up against the pipe suitably rammed into place along the barrel of the pipe only to firmly hold the pipe in position. Care shall be taken during these operations to assure that the pipe shall not be disturbed.

3.3 Crushed Stone Haunching:

Unless otherwise provided for a particular portion of a project, all pipe used for main sewers, laterals connected thereto, in sizes up to and including 12-inch and plastic pipe larger than 12-inch size shall be haunched with crushed stone from the crushed stone foundation to a point at least half-way up the side of the pipe and to this same elevation out to the trench wall. The size of the crushed stone shall be ¾-inch. Care shall be taken when placing this crushed stone haunching to assure that the pipe shall not be disturbed. The Contractor shall use any means necessary to assure firm compaction of this crushed stone haunching and adequate side support for the pipe.

3.4 Pipe Laid in Rock Trench:

In trenches excavated through rock, the rock shall be removed so that there are no points or spurs of rock that project within the limits described elsewhere herein as minimum clearances for rock

excavation. The average clearances on sides of pipe shall be not less than six inches for pipe 18 inches or less in size, eight inches for larger pipe. The bottom of the trench will then be filled with crushed stone, as required or ordered.

In filling under, around, and directly over pipe laid in rock cuts, no fragments of broken rock more than three inches in longest dimension will be allowed to be placed within four inches of any part of the pipe. No fill of larger rock fragments will be allowed on sides of pipe or until pipe has been covered to a depth of at least one foot with fine, compacted material.

3.5 Synthetic Drainage Fabric on top of Crushed Stone Bedding:

At locations indicated on the plans and as directed by the Engineer, the Contractor shall furnish and install synthetic drainage fabric on top of the crushed stone bedding.

The crushed stone surface shall be formed to an even surface prior to placement of the fabric, and any sharp object shall be removed to avoid fabric punctures. The fabric shall not be placed until the Engineer has approved the surface upon which it will be placed.

The fabric shall be placed in double layers and turned up at trench sides to the height shown on the plans, or as directed by the Engineer. At joints, fabric shall be overlapped at least three feet. Inadvertent tears or punctures in the fabric may be repaired by placing an additional layer of fabric over tear or puncture with an overlap of three feet from the damaged area.

After the fabric has been placed and approved by the Engineer, approved trench backfill material shall be placed and compacted to dimensions as shown on the plans or as directed by the Engineer. If the fabric is punctured during placing of the backfill, fabric shall be repaired to the satisfaction of the Engineer at the expense of the Contractor.

4.0 POLYVINYL CHLORIDE SEWER PIPE

4.1 The Contractor shall furnish all materials, labor, tools and equipment and shall construct the polyvinyl chloride pipe sewers as indicated on the drawings and as herein specified.

4.2 Workmanship:

Prior to installation, the pipe and fittings shall be checked to be sure that it is homogeneous throughout and free from visible cracks, holes, foreign inclusions or other injurious defects. The pipe shall be as uniform as commercially practical in color, opacity, density and other physical properties.

4.3 Waterstops:

Waterstops, meeting pipe manufacturer requirements and acceptable to the Engineer, shall be provided on plastic pipe when the pipe is to be enclosed in a structure where concrete or mortar is used which will prevent leakage along the outer wall of the barrel of the pipe.

4.4 Allowable Pipe Deflection:

Plastic pipe provided under this specification shall be so installed in the ground that a deflection of no more than five percent can be anticipated. Such deflection shall be computed by dividing the amount of deflection (nominal diameter less minimum diameter when measured) by the nominal diameter of the pipe.

However, between any two adjacent manholes, the average deflection shall not exceed six percent and no deflection at any point in the pipe shall exceed seven percent, computed in the manner described herein.

After an initial inspection and, if in the opinion of the Engineer the deflection may be excessive, the Engineer may order the Contractor to arrange for and take accurate measurements of the pipe at whatever intervals and at whatever locations between such adjacent manholes the Engineer deems advisable.

All costs involved in taking measurements ordered by the Engineer following the initial inspection shall be borne by the Contractor if the deflection in the pipe exceeds either of the maximum limits specified herein. If neither of the maximum limits are exceeded, all costs shall be borne by the Town.

4.5 Pipe Straightness:

No single piece of pipe shall be laid on any project covered by these detailed specifications unless it is found to be generally straight. Such pipe shall have a maximum ordinate as measured from the concave side of the pipe not to exceed 1/16-inches per foot of length. If the deviation from straightness exceeds this requirement, then the particular piece of pipe shall be rejected for use until it can comply with this provision. This molded bell of each pipe section shall be concentric and true with the wall and theoretical center lien axis of the pipe barrel. If the deviation from straightness exceeds these requirements and/or the molded configuration of the bell with respect to the pipe axis is questionable, then the particular piece of pipe shall be rejected for use.

4.6 Certification:

At the time of shipment, a copy of the manufacturer's test report or a statement by the seller accompanied by a copy of the test report shall be included with the pipe. The seller's statement or the manufacturer's report shall state that the material has been sampled, tested, and inspected in accordance with ASTM Specification D-3033 and that the pipe conforms with these specifications.

4.7 Handling Pipe:

All pipe shall be stored at the site until installation in a manner acceptable to the Engineer which will keep the pipe at ambient outdoor temperatures. Temporary shading shall be provided as

required to meet this requirement. Simply covering the pipe or structures which allows temperature build-up when exposed to direct sunlight will not be permitted.

Each pipe unit shall be handled into its position in the trench only in such manner and by such means as acceptable to the Engineer. Care shall be taken to avoid damaging the pipe and fittings.

4.8 Installation:

Each pipe unit shall be inspected before being installed. No single piece of pipe shall be laid unless it is generally straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16-inch per foot of length. If a piece of pipe fails to meet this requirement for straightness, it shall be rejected and removed from the site. Any pipe unit or fitting discovered to be defective either before or after installation shall be removed and replaced with a sound unit.

Except as otherwise indicated on the drawings, the pipe shall be supported by compacted crushed stone. No pipe or fitting shall be permanently supported on saddles, blocking, or stones. Crushed stone shall be as specified elsewhere.

Suitable bell holes shall be provided so that after placement, only the barrel of the pipe receives bearing pressure from the supporting material.

All pipe and fittings shall be cleared of all debris, dirt, etc. before being installed and shall be kept clean until accepted in the complete work.

Pipe and fittings shall be installed to the lines and grades indicated on the drawings or as required by the Engineer. Care shall be taken to ensure true alignments and gradients.

Before any joint is made, the previously installed unit shall be checked to assure that a close joint with the adjoining unit has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be driven down to the required grade by striking it with a shovel handle, timber, or other unyielding object.

All joint surfaces shall be cleaned. Immediately before jointing the pipe, the bell or groove shall be lubricated in accordance with the manufacturer's recommendation. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. Suitable devices shall be used to force the pipe units together so that they will fit with a minimum open recess inside and outside and have tightly sealed joints. Care shall be taken not to use such force as to wedge apart and split the bell or groove ends.

Joints shall not be "pulled" or "cramped" unless permitted by the Engineer.

Where any two pipe units do not fit each other closely enough to enable them to be properly jointed, they shall be removed and replaced with suitable units and new gaskets.

Details of gasket installation and joint assembly shall follow the direction of the manufacturers of the joint material and of the pipe, all subject to review by the Engineer. The resulting joints shall be water tight and flexible.

All pre-molded gasket joint polyvinyl chloride pipe of a particular manufacturer may be rejected if there are more than five unsatisfactory joint assembly operations or "bell breaks" in 100 consecutive joints, even though the pipe and joint conform to the appropriate ASTM Specifications as hereinbefore specified. If the pipe is unsatisfactory as determined above, the Contractor shall, if required, remove all pipe of that manufacturer of the same shipment from the work and shall furnish pipe from another manufacturer which will conform to all of the requirements of these specifications.

Open ends of pipe and branches shall be closed with polyvinyl chloride stoppers secured in place in an acceptable manner.

After each pipe has been properly bedded, enough crushed stone shall be placed between the pipe and the sides of the trench and thoroughly compacted to hold the pipe in correct alignment. Bell holes provided for jointing shall be filled with crushed stone and compacted and then crushed stone shall be placed and compacted to complete the pipe bedding as indicated on the drawings.

The Contractor shall take all necessary precautions to prevent flotation of the pipe in the trench.

At all times when pipe installation is not in progress, the open ends of the pipe shall be closed with temporary watertight plugs, or by other acceptable means.

If water is in trench when work is to be resumed, the plug shall not be removed until suitable provisions have been made to prevent water, earth, or other substances from entering the pipe.

Pipelines shall not be used as conductors for trench drainage during construction.

4.9 Cleaning:

Care shall be taken to prevent earth, water, and other materials from entering the pipeline. As soon as possible after the pipe and manholes are completed, the Contractor shall cleanout the pipeline and manholes, being careful to prevent soil, water, and debris from entering any existing sewer.

5.0 DUCTILE IRON SEWER PIPE

5.1 Installing Pipe and Fittings:

No defective pipe or fittings shall be laid or placed in the piping, and any piece discovered to be defective after having been laid or placed shall be removed and replaced by a sound and satisfactory piece.

Each pipe and fitting shall be cleared of all debris, dirt, etc. before being laid and shall be kept clean until accepted in the complete work.

Pipe and fittings shall be laid accurately to the lines and grades indicated on the drawings or as required. Care shall be taken to ensure a good alignment both horizontally and vertically. In buried pipelines, each pipe shall have a firm bearing along its entire length.

When mechanical joint, push-on joint, or similar pipe is laid, the bell of the pipe shall be cleaned of excess tar or other obstruction and wiped out before the cleaned and prepared spigot of the next pipe is inserted into it. The new pipe shall be shoved firmly into place until properly seated and held securely until the joint has been completed.
Casting to be encased in masonry shall be accurately set with the bolt holes, if any, carefully aligned. Immediately prior to being set, castings shall be thoroughly cleaned of all rust, scale, and other foreign material.

5.2 Temporary Plugs:

At all times when pipe laying is not actually in progress, the open ends of pipe shall be closed by temporary watertight plugs or by other approved means. If water is in the trench when work is resumed, the plug shall not be removed until all danger of water entering the pipe has passed.

5.3 Assembling Push-On Joints:

Push-on joints shall be made up by first inserting the gasket into the groove of the bell and applying a thin film of special non-toxic gasket lubricant uniformly over the inner surface of the gasket that will be in contact with the spigot end of the pipe. The chamfered end of the plain pipe shall be inserted into the gasket and then forced past it until it seats against the bottom of the socket.

5.4 Bolted Joints:

Materials for bolted joints shall be as hereinbefore specified. Before the pieces are assembled, rust-preventive coatings shall be removed from machined surfaces. Pipe ends, sockets, sleeves, housings, and gaskets shall be thoroughly cleaned and all burrs and other defects shall be carefully smoothed.

5.5 Assembling Flanged Joints:

Flanged joints shall be made up tight, care being taken to prevent undue strain upon pump nozzles, valves, and other pieces of equipment.

5.6 Assembling Mechanical Joints:

Surfaces against which the gasket will come in contact shall be thoroughly brushed with a wire brush prior to assembly of the joint. The gasket shall be cleaned. The gasket, bell and spigot shall be lubricated by being washed with soapy water. The gland and gasket, in that order, shall be slipped over the spigot, and the spigot shall be inserted into the bell until it is correctly seated. The gasket shall then be seated evenly in the bell at all points, centering the spigot, and the gland shall be pressed firmly against the gasket. After all bolts have been inserted and the nuts have been made finger-tight, diametrically opposite nuts shall be progressively and uniformly tightened all around the joint to the proper tension, preferably by means of a torque wrench.

The correct torque as indicated by a torque wrench and the length wrench (if not a torque wrench) used by an average man to produce such range of torque shall not exceed the values specified in the tabulation entitled "Torque Range Values".

TORQUE RANGE VALUES

Nominal Pipe Size, in.	Bolt Diameter, in.	Range of Torque, Ft. – Lb.	Length of Wrench, in.
3	5/8	40-60	8
4-24, incl.	3/4	60-90	10
30, 36	1	70-100	12
42, 48	1-1/4	90-120	14

If effective sealing of the joint is not attained at the maximum torque indicated above, the joint shall be disassembled and thoroughly cleaned, then reassembled. Bolts shall not be over stressed to tighten a leaking joint.

6.0 LATERAL CONNECTIONS

6.1 The work under this item shall consist of the installation of building connection laterals in accordance with details as shown on the plans and as specified herein. Construction shall be at locations shown on the plans or as determined by the Engineer.

6.2 General:

Unless otherwise specified on the drawings or contract documents, or otherwise approved by the Engineer, sewer lateral connections shall be constructed using a nominal pipe diameter of 6 inches and shall be of the same material as that used for the main sewer line. The Contractor shall furnish stoppers for plugging the unconnected ends of laterals. Stopper configuration shall be as

recommended by the manufacturer of the lateral pipe as approved by the Engineer. Stoppers shall be watertight once installed.

6.3 Installation:

Lateral connections shall be laid to the grade and to the points ordered. They will not be laid on a grade flatter than one percent, and will usually have eight feet of cover at the curb or street line in most residential streets or zones. On business streets, or streets adjacent to the business section of the city, or where the adjacent land is low, they will have not less than ten feet of cover at the curb, if possible. If so directed, the whole of the trench shall be dug to the required grade before any pipe is laid herein, and the pipe shall be laid closely to line and grade, using a grade line, hand level, or straight edge as may be ordered.

House lateral connections will generally be laid at right angles to the main sewer from Y-branches on sewers by means of 45-degree bends of approved form, or from drop inlets or chimneys built into the sewers. The Contractor shall take proper means to temporarily locate all wyes, etc. in the main sewer before connections are laid and will be responsible for finding wyes, etc. from which the Contractor is to lay connections or laterals.

Extra care shall be taken to make smooth, close-fitting joints at all bends. Pipes shall be trimmed or extra bends used when ordered to accomplish this, without extra charge. So far as possible, every pipe shall be swabbed out inside after being installed. All requirements for laying pipe of this size, as described elsewhere herein, shall be observed in laying lateral connections so far as those requirements apply.

The end of each lateral connection shall be closed with an approved stopper. Stoppers shall be watertight and yet be installed in a manner which would allow them to be removed with reasonable ease without causing damage to any portion of the lateral.

A stout stake to mark the location and elevation of the end of each lateral will be driven as directed by the inspector near the end of each lateral.

This stake will be protected and maintained undisturbed until the Engineer has completed all his measurements and, if so ordered, will thereafter be removed by the Contractor.

Except where otherwise indicated or ordered, house lateral connections will be of six-inch pipe. If pipe larger than six inches is ordered in a lateral or connection where such larger size had not previously been indicated, and where the price for lateral or connection was based on use of six-inch pipe, the Contractor will be paid the additional cost of the larger size pipe over and above what would have been the cost of equivalent six-inch pipe and fittings.

6.4 Sheeting at Branches:

Sheeting shall be cut away and removed from in front of capped wyes and other branches or inlets in sewer for future connections to permit conveniently finding them and making future connections with them. If required by drawings or directed by the Engineer, a 45-degree bend will

be set in Y-branches or a short piece of pipe set into inlets left in the sewer, the end of the bend or pipe stub being capped in the manner described previously so that a future connection can be made thereto without excavating against the side of the main sewer.

6.5 Markers at Branches:

A piece of lumber not less than two-inch by four-inch will be set vertically and left in place, extending from a point directly in front of, but not in contact with, the capped end of the lateral connection to a point about two feet below the ground surface or finished street grade to guide persons who in future years may have occasion to excavate to find the connections, and to protect the end of the lateral connection from damage when making such excavation.

7.0 PIPE TESTS

7.1 The pipeline shall be made as nearly watertight as practicable, and pipe tests and measurements shall be made after the pipeline has been backfilled.

Where the groundwater level is more than one foot above the top of the pipe at its upper end, the Contractor shall conduct an infiltration test. However, if the groundwater level is four feet or less at this point, a low-pressure air test may be performed instead. Where the groundwater is less than one foot above the top of the pipe at its upper end, the contractor shall conduct either exfiltration or low-pressure air tests as determined by the Engineer.

Tests will be made after the pipe installation is complete including all laterals as indicated on the plan, manholes are installed, and backfill in the trench has been placed and compacted or consolidated as required by the Engineer.

7.2 Visual Alignment Test:

Upon completion of a section of pipe, the contractor will request that a visual inspection be made by the Engineer. All associated appurtenances installed in conjunction with the installation of the pipeline will also be examined for compliance with these specifications. Prior to the visual inspection, the contractor shall ensure that the line has been properly cleaned of all foreign materials that might have entered the pipeline.

If, in the opinion of the Engineer, the installed pipe does not conform to the alignment indicated on the drawings, or does not satisfy the requirements outlined under “Allowable Pipe Deflection”, the Contractor shall take accurate measurements as outlined elsewhere within these specifications. All pipeline determined to be outside the noted tolerances shall be corrected to the satisfaction of the Engineer at no cost to the Town.

7.3 Low Pressure Air Test:

7.3.1 General:

When the Engineer specifies or directs that pipe tests shall be made using the low-pressure air test method, the Contractor will be required to provide all equipment, test plugs in the required sizes, appurtenances, connecting hose or pipe, labor, and materials necessary to conduct and control the test as herein specified.

The tests may be conducted by the Contractor using the contractor's equipment, or a subcontractor approved by the Engineer. All equipment proposed for use in conducting the low-pressure air test shall be subject to the approval of the Engineer. The Contractor shall submit shop drawings on the proposed equipment for review by the Engineer. These shop drawings must be in sufficient detail to show the details, set-up, and proposed operation of the low-pressure air test equipment, and no testing will be permitted without prior approval of the proposed equipment by the Engineer.

7.3.2 Procedure:

The Contractor shall determine the elevation of the groundwater table in the area of the pipeline being subjected to the low-pressure air test in a manner approved by the Engineer.

After cleaning and flushing the line, test plugs will be installed in the pipeline being subjected to the low-pressure air test, and braced as necessary to secure the plugs in place.

Utilizing the approved equipment, air at low pressure will be slowly introduced into the pipeline until the pressure within the pipeline being tested increases to 4 PSIG greater than the back pressure exerted by the groundwater table over the pipe being tested (back pressure = 1 PSIG per 2.31 feet of water), as determined above. If the water table is not a level above the pipe, the test pressure should be brought up to 4 PSIG. Allow at least two minutes to elapse prior to starting the test. If necessary, allow a small amount of air to slowly enter into the pipeline in order to maintain a pressure of 4 PSIG above the back pressure due to the water table, or 4 PSIG if there is no back pressure to compensate for.

At this point, start measuring the time for the pressure in the pipeline to drop 1 PSIG.
The time necessary to drop 1 PSIG shall not be less than that indicated in Table 7.3 for the size and length of pipeline being tested. If the time is less than that indicated in Table 7.3, the line will be considered as having failed the test.

Any section of pipeline which fails to meet this test will be repaired or replaced as necessary by the Contractor, and retested at no additional expense to the Town.

No pipeline will be considered acceptable until it successfully passes the requirements of this test.

All testing will be conducted by the Contractor or his approved subcontractor in the presence of the Town's inspector. The contractor or subcontractor shall keep a written record which will show the results of the tests conducted. The records should include sufficient data on length of line, pressure levels, time for pressure drop, and related features noted during the testing of each segment of the line. A copy of this record shall be given to the Town.

TABLE 7.3
LOW PRESSURE AIR TEST
MINIMUM TIME REQUIRED FOR A 1 PSIG PRESSURE DROP

Pipe (in)	Specification Time for Lengths Below (Min:Sec)											Time for Longer Length (Sec)
	100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft	500 ft	550 ft	600 ft	
6	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:25	7:07	7:50	8:33	0.854 x L (ft)
8	7:33	7:33	7:33	7:33	7:36	8:52	10:08	11:24	12:40	13:56	15:12	1.519 x L (ft)
10	9:27	9:27	9:27	9:54	11:52	13:51	15:50	17:48	19:47	21:46	23:45	2.374 x L (ft)
12	11:20	11:20	11:20	14:15	17:06	19:57	22:48	25:39	28:30	31:20	34:11	3.419 x L (ft)
15	14:10	14:10	17:48	22:16	26:43	31:10	35:37	40:04	44:31	48:58	53:25	5.342 x L (ft)
18	17:00	19:14	25:39	32:03	38:28	44:52	51:17	57:42	64:06	70:31	76:56	7.692 x L (ft)
21	19:50	26:11	34:54	43:38	52:21	61:05	69:48	78:32	87:15	95:59	104:42	10.47 x L (ft)
24	22:48	34:11	45:35	56:59	68:23	79:47	91:10	102:34	113:58	125:22	136:46	13.67 x L (ft)
27	28:51	43:16	57:42	72:07	86:33	100:58	115:24	129:49	144:14	158:40	173:05	17.3 x L (ft)
30	35:37	53:25	71:14	89:02	106:51	124:39	142:28	160:16	178:05	195:53	213:41	21.36 x L (ft)
33	43:06	64:38	86:11	107:44	129:17	150:50	172:23	193:55	215:28	237:01	258:34	25.85 x L (ft)

Note:
If the section of pipe to be tested is composed of both main line and more than a total of 100 feet of laterals, 1 minute 30 seconds must be added to the length of time indicated above for the test required for the main pipe.

7.4 Exfiltration Tests:

For making the exfiltration tests, the pipe shall be subjected to an internal pressure by plugging the pipe at the lower end and then filling the pipelines and manholes with clean water to a height of two feet above the top of the pipe at its upper end. Where conditions between manholes may result in test pressures which would cause leakage at the stoppers in branches, provisions shall be made by suitable ties, braces, and wedges to secure the stoppers against leakage resulting from the test pressure.

The rate of leakage from the pipe shall be determined by measuring the amount of water required to maintain the level two feet above the top of the pipe.

Leakage from the pipes under test shall not exceed the requirements for leakage into pipes as hereinbefore specified.

The equipment used to introduce the low-pressure air into the pipeline shall include a safety valve or release device located in the equipment at a point which will ensure that during the build-up of test pressure, the pipeline being tested will not be subjected to an internal pressure that could damage a properly installed pipe.

All tests shall be conducted on the completed pipeline between manholes. Testing of shorter sections of pipeline will only be permitted with the approval of the Engineer.

Immediately prior to testing, all lines will be cleaned and flushed with water. Pipe manufactured in accordance with ASTM Specifications C-76, C-428, C-644 and/or C-700 shall be soaked for a period of 12 hours to saturate the pipe wall prior to testing with low pressure air.

All gages, controls, and appurtenances for equipment used to conduct the test will be located out of manholes. Connections to the line under test, test plugs, and other equipment will be made with hose or pipe extensions which will safely contain the pressures necessary to conduct and control the test.

The gage used to measure the drop in pressure shall have a four-inch diameter face with a scale of 0 to 15 PSI in 0.1 PSI increments, or as approved by the Engineer.

The Contractor is cautioned of the importance of properly installing the end caps used to plug hubs, wyes, bends, ends of laterals, and other inlets, and securing them against movement during the installation of pipe. Failure to take this precaution can cause a properly installed pipeline to fail the low-pressure air test.

The Contractor is cautioned further regarding the safety of personnel during the test. Low pressure air can exert a substantial force on a test plug, even on small diameter pipe plugs. The Contractor will be responsible to ensure that all test plugs utilized are in good condition and that they will not be pressurized beyond the limits recommended by their manufacturer.

No one will be permitted in a manhole containing a test plug while air is under pressure in the pipeline being subjected to the test.

The pipes shall be tested before any connections are made to buildings.
The Contractor shall construct weirs or other means of measurements as may be required.

Suitable bulkheads shall be installed, as required, to permit the test of the pipe.

Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting as the Engineer may require without additional compensation.

The water used to conduct an exfiltration test shall not be allowed to enter any active sewer.

If, in the judgment of the Engineer, it is impracticable to follow the foregoing procedures for any reason, acceptable modifications in the procedures shall be made as required, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

7.5 High Pressure Water Test:

Except as otherwise directed, all pipelines shall be given combined pressure and leakage tests in sections of approved length.

The Contractor shall furnish and install suitable temporary testing plugs or caps, all necessary pressure pumps, pipe connections, meters, gages, and other necessary equipment, and all labor required.

Subject to approval, and provided that the tests are made within a reasonable time considering the progress of the project as a whole, and the need to put the section into service, the Contractor may make the tests when the Contractor desires.

However, pipelines in excavation or embedded in concrete shall be tested prior to the backfilling of the excavation or placing of the concrete, and exposed piping shall be tested prior to field painting.

Unless it has already been done, the section of the pipe to be tested shall be filled with water of approved quality, and all air shall be expelled from the pipe. If blow-offs are not available at high points for releasing air, the Contractor shall make the necessary excavations and do the necessary backfilling and make the necessary taps at such points and shall plug said holes after completion of the test.

The section under test shall be maintained full of water for a period of 24 hours prior to the combined pressure and leakage test being applied.

The pressure and leakage test shall consist of first raising the water pressure (based on the elevation of the lowest point of the section under test and corrected to the gage location) to a pressure in pounds per square inch numerically equal to the pressure rating of the pipe, but not to exceed 150 PSI.

While maintaining this pressure, the Contractor shall make a leakage test by metering the flow of water into the pipe. If the average leakage during a two-hour period exceeds a rate of ten gallons per inch of diameter per 24 hours per mile of pipeline, the section shall be considered as having failed the test. All joints within chambers and all flanged joints shall have no visible leakage.

8.0 MISCELLANEOUS

Miscellaneous materials not specified herein, shall be of the type, size, material and manufacture as shown on the drawings, required by the manufacturer for the installation, or as specified by the City of Meriden Water Pollution Control Division.

Method of Measurement:

The number of linear feet of 8” Ductile Iron Pipe (Sanitary Sewer) measured for payment shall be the number of linear feet of sewer main of the size installed and accepted measured along the horizontal projection of the centerline of the completed sewer to the connection at existing mains or manholes or a capped or terminated end, including any fittings or couplings attached thereto. The diameter of manholes (as measured between the inside walls of the manholes) shall be deducted there from.

The number of linear feet of 6” Polyvinyl Chloride Laterals (Sanitary Sewer) – Sewer laterals to be measured for payment shall the number of linear feet of sewer lateral installed and accepted as measured from the centerline of the sewer main or chimney drop inlet (at right angles thereto from said center to the first straight pipe) and along the flow line of the lateral to a point vertically beneath the connection at existing laterals or buildings, including any fittings or couplings attached thereto.

Basis of Payment:

All work covered by this item will be paid for at the contract unit price under one of the following pay items:

- 8” Ductile Iron Pipe (Sanitary Sewer) l.f.
- 6” Polyvinyl Chloride Laterals (Sanitary Sewer) l.f.

The above pay items shall be complete and accepted in place, including all materials, equipment, tools and labor incidental thereto, including, but not limited to;

A. Trenching and excavation, removal of existing (bituminous or concrete) pavement, sheeting, shoring, bracing, aggregate or stone bedding or cover, pervious or other backfill material, backfilling and compacting, disposal of surplus and unsuitable excavated materials, cleaning pipelines and appurtenances, markers, filter fabric, laying and jointing pipe, digging of test pits, dewatering, restoration of trench surfaces, and other incidental work.

B. Sawcutting of neat lines for trench limits prior to excavation.

C. Temporary bituminous concrete pavement or patch in pavement or sidewalk areas.

D. Removal, resetting and replacement of curbs and sidewalks.

E. All fittings and specialized joints, including flexible couplings, transition couplings, mechanical joints, tees, bends, anchor couplings, joint restraints, etc.

F. Pipe tests and all other materials, equipment, tools and labor incidental thereto.

G. Planning and coordination of all work.

The contract unit price for the pay items for 8” Ductile Iron Pipe (Sanitary Sewer) and 6” Polyvinyl Chloride Laterals (Sanitary Sewer) shall also include concrete encasement for watercourse crossings, making of connection to existing pipes or manholes, resetting, replacing or rebuilding items removed or disturbed, and all labor, equipment, material, and maintenance connected therewith.

The Contractor will be responsible for all costs and delays incurred due to efforts to locate and repair leaks in any pipeline which fails the low-pressure air test, regardless of whether the failure is due to workmanship, material failure, the result of an improperly installed or braced end cap, or any pipeline damaged due to improper testing procedure. Payment made under the appropriate item shall be considered full compensation for conducting the specified test.

Rock-in-trench excavation or excavation of unsuitable material beyond the limits of the trench will be paid as extra work as outlined in Section 02.86 - Drainage Trench Excavation, Rock In Drainage Trench Excavation (Rev. 10/31/17). Additional stone foundation material or concrete mat for areas of unsuitable foundation material shall also be paid as additional work under items if provided for these materials or as negotiated under Section 1.09 of the Standard Specifications Form 818, or latest.

PAY ITEM	**PAY UNIT**
8" Ductile Iron Pipe (Sanitary Sewer)	l.f.
6" Polyvinyl Chloride Laterals (Sanitary Sewer)	l.f.

ITEM # 1401662A SANITARY MANHOLE (4' DIA.) 0' TO 10' DEEP

1.0 DESCRIPTION

A. The work covered by this section includes the furnishing of all plant, labor, equipment, appliances and materials and performing all operations in connection with the satisfactory installation of precast reinforced concrete manholes frame and cover, and all incidental work, complete, in strict accordance with the specifications and applicable drawings and conditions of the contract.

B. The work also covers the abandonment and removal of existing sanitary sewer manholes as indicated on the plans.

C. The Contractor shall provide the Engineer with shop drawings for all precast materials with a description of all methods of jointing. In addition, shop drawings for manhole steps, manhole frames and manhole covers shall be submitted to the Engineer for approval prior to installation.

D. It is the intention of these specifications and the desire of the Engineer that the manholes, including all component parts, have adequate space, strength and leak proof qualities considered necessary by the Engineer for the intended service. Space requirements and configurations, shall be as shown on the drawings. Manholes shall be an assembly of precast sections with steel reinforcement, with approved jointing or concrete cast monolithically in place with reinforcement. In any approved manhole, the complete structure shall be of such material and quality as to withstand loads of 8 tons (H2O loading) without failure and excess leakage, as defined in paragraph 3g, for the life of the structure. A period generally in excess, of 25 years is to be understood as the life of the structure.

E. Manholes shall be constructed at the locations, to the elevations, and in accordance with notes and details shown on the drawings.

2.0 MATERIALS

A. Precast reinforced concrete units:

1. Precast reinforced concrete manhole bases, risers, tops and grade rings shall be of the types indicated or as directed.

2. Precast reinforced concrete manhole bases, risers, transition sections and tops shall conform to the requirements of ASTM C478, latest revision except as modified herein, and/or on the drawings.

3. The height and diameter of manhole bases shall be as required to accommodate the size of sewer pipe used.

4. The manhole risers shall be available in 2, 3, or 4-foot lengths. Manhole tops of the eccentric cone type shall be 3 or 4 feet high with a 36-inch inside

diameter opening at the top. Wall thickness of manhole risers shall not be less than 5 inches.

5. When shallow installations do not permit the use of a cone type top or where directed, flat slab tops shall be used. Flat slab tops shall not be less than 6 inches thick and shall have an opening with an inside diameter of 36 inches.

6. Transition sections shall be similar to the tops and used as reducers to join the larger bases with the four-foot diameter risers. The transition sections shall be of the length required and have a four-foot opening at the top. Wall thickness of transition sections and cone type tops shall not be less than 5 inches at the base and shall taper to a thickness not less than 8 inches at the top.

7. Manhole steps shall be provided in each manhole. Manhole steps shall be arranged in the manhole bases, transition sections, risers and cones so as to provide a manhole step ladder approximately 12 inches on center for the full height of installation. Manhole steps shall be copolymer polypropylene plastic coated 1/2"grade 60 I steel reinforced step Model No. PS2-PFSL in conformance with ASTM C478 paragraph 11 as revised, as manufactured by M.A. Industries, Peachtree City, Ga.

8. All manhole bases, transition sections, risers and tops shall be joined using Butyl Rubber Section Joints conforming to Federal Specification SS-S-210.

9. The exterior surfaces of all manholes shall be shop coated with two coats of Super Service Black as manufactured by Koppers Company Inc., or Heavy Duty Black 46-449 as manufactured by Tnemec or approved equal.

B. Openings in Manhole Bases and Risers

1. Openings for pipes entering manhole bases and risers shall be provided at the locations and to the arrangements and dimensions shown on the approved shop drawings.

2. Openings in manhole bases and risers shall be provided with a prefabricated mechanical type joint seal between manhole walls and entering pipes. Joint seal shall be of a type to insure water tight jointing between manhole and pipes under all conditions of installation. The type of joint seals to be used shall be subject to approval and shall be as shown on the approved shop drawings.

C. Mortar Grout

Non-shrink type mortar or grout shall be a factory-mixed ready-to-use product containing an especially prepared metallic aggregate, cement and sand and other components which shall produce a mortar or grout with properties to counteract

shrinkage, increase density, withstand impact, improve workability and produce watertight joints.

D. Concrete

1. The concrete used for precast manhole bases, transition sections, risers and tops shall have an average strength of 5,000 psi at 28 days.

2. Strength shall be determined by tests on 6-inch by 12-inch vibrated test cylinders cured in the same manner as the manhole bases, transition sections, risers and tops or by any other approved method.

3. Not less than two concrete strength tests shall be made for each 100 linear feet of manhole bases, transition sections, risers and tops.

4. Testing may be conducted at the manufacturer's plant or at an approved testing laboratory and shall be the responsibility of the Contractor, at no additional expense to the Owner.

E. Reinforcing steel

1. Reinforcing steel used for precast manhole bases, transition sections, risers, and tops shall conform to ASTM A18S, latest revision.

F. Cement

Cement shall be moderate heat-of-hardening portland cement conforming to ASTM Designation C 150, latest revision, Type 1 for Brick work and Type 11 for precast units.

G. Absorption

Absorption is to be determined by absorption test described in ASTM Designation C 478, latest revision, and shall not exceed 8 percent of dry weight.

H. Brick

1. Brick for manholes shall conform in all respects to ASTM Designation C 32, Grade SM, latest revision, size 2-1/2 inches by 3-3/4 inches by 8 inches.

2. Bricks that are broken, warped, cracked or of improper size or quality or unduly chipped or otherwise defective shall not be used in the work and shall be removed from the site.

I. Mortar Plaster

1. Mortar and plaster for brick work shall be composed of one part Portland cement and two parts sand with only sufficient water added to make a stiff plastic mortar of a consistency and texture satisfactory to the owner.

2. Mortar shall be used so that it will be in place before the initial setting of cement has taken place; retempering of mortar in which the cement has started to set will not be permitted.

J. Sand

1. Sand for mortar shall be graded uniformly from fine to coarse and when dry shall pass a screen having 8 meshes to the inch.

2. Sand shall consist of an aggregate having clean, hard, durable, strong, uncoated grains and free from deleterious amounts of dust, lumps, soft or flaky particles, shale, alkali, organic matter, loam or other deleterious substances.

3. The sand shall be washed clean before loading on delivery trucks. Natural sand which shows a color darker than the standard color when tested in accordance with the Standard Method of Test for Organic Impurities of ASTM Designation C 40, latest revision, will be cause for rejection.

K. Water

Mixing water for concrete and mortar shall be clean and fit to drink and obtained preferably from the municipal supply.

L. Bedding Materials

1. Gravel bedding shall consist of hard durable material free from roots, sod, rubbish, organic material, clay or loam and meeting ASTM C33 stone size No. 67 as follows:

100%	passing	1" screen
90 -100%	passing	3/4" screen
20 -55%	passing	3/8" screen
0 -10%	passing	#4 sieve
0 -5%	passing	#8 sieve

2. Where ordered by the Engineer to stabilize the base, screened gravel or crushed stone 1/2 inch to 1-1/2 inches shall be used.

M. Manhole Frames and Covers

1. Cast-iron manhole covers and cast-iron watertight frames and covers shall conform to the details, types and styles as specified and as shown on the drawings. Shop drawings shall be submitted to the Owner for approval before fabrication.

2. Gray iron castings shall conform to the requirements of AASHTO Designation: H 105-49, Class 30, latest revision. Iron castings shall be true to pattern in form and dimensions, free from pouring faults, sponginess, cracks, blow-holes and other defects in positions effecting the strength and value for the service intended. The finished castings shall be painted with a coal-tar epoxy coating so as to produce a smooth, finished coating, tough and tenacious when cold and not tacky or with any tendency to scale off under reasonable temperature changes.

3. The cast-iron manhole covers and cast-iron watertight manhole frame and covers for manhole structures shall be as manufactured by E.L. LeBaron Foundry Company, Campbell Foundry Company Cat. No. LJ 116 or equal.

3.0 CONSTRUCTION METHODS

A. Inspection

1. All manhole bases, transition sections, risers, tops, steps, frames and covers will be inspected upon delivery. Those which do not conform to these specification requirements will be rejected and shall be removed immediately from the site by the Contractor. The Contractor shall furnish all labor and facilities necessary to assist the inspector in inspecting the material.

2. All manhole bases, transition sections, risers, tops, steps, frames and covers which have been damaged after delivery or during installation shall be removed and replaced by the Contractor with new, sound and approved material, at no additional expense to the Owner. At the time of inspection, the surfaces of bases, transition sections, risers and tops shall be dense and close-textured. Cores shall serve as a basis for rejection of manhole bases, transition sections, risers and tops if poor bond with reinforcement steel exists or reinforcement is exposed.

3. The quality of all materials, processed of manufacture, and the finished manhole bases, transition sections, risers, and tops shall be subject to inspection and approval by the Owner. Such inspection may be made at the place of manufacture and/or on the site, and the manhole bases, transition sections, risers, and tops shall be subject to rejection at any time on account of failure to meet any of the specification requirements, even though sample manhole bases, transition sections, risers, and tops may have been accepted as satisfactory.

B. Excavation and Backfilling

1. Excavation, backfilling and compacting shall be completed in accordance with Section 02221.

C. Installation of Manhole Bases and Sections

1. Precast bases shall be placed on a six-inch layer of compacted bedding material as described in Paragraph 2. The excavation shall be properly dewatered while placing bedding material and setting the base.

2. Each manhole base, transition section, riser, and top shall be eased into its: position in the trench using materials and methods as recommended by the manufacturer of the precast units. The Contractor shall provide all necessary slings, straps and other devices for the safe and satisfactory handling and support of manhole bases, transition sections, risers and tops during lifting, installation and final positioning. Lifting holes may be permitted provided the holes are plugged and sealed watertight with mortar, all as approved.

3. Manhole bases, transition sections, risers and tops shall be installed using approved jointing methods which are completed in accordance with the manhole manufacturer's recommendations, and as approved. Manhole bases, transition sections, risers, and tops shall be installed level and plumb. Water shall not be permitted to rise over newly made joints until after inspection and acceptance. All jointing shall be done in a manner to ensure watertight joints.

4. Openings shall be provided in the precast manhole bases and risers to receive entering pipes, and these openings shall be made at the place of manufacture. The openings for all entering pipes shall be provided with the approved type mechanical joint sealing device shown on the approved shop drawings and the installation of pipes entering the manholes and the installation of the mechanical joint sealing device made in strict conformance with the manhole manufacturer's printed recommendations and so as to obtain watertight joints between manholes and pipe and in a satisfactory manner. Five copies of the manufacturer's printed recommendations shall be furnished to the owner.

5. Care shall be taken to assure that the openings are made to permit setting of the entering pipe at its correct elevation as indicated or directed. Mortar used in sealing spaces between entering pipes and , openings in manhole walls shall be of the non-shrink type. Damaged bases and risers by jointing devices will be rejected and shall be replaced by the Contractor at no additional expense to the Owner.

6. Manhole bases, transition sections, risers and tops shall be installed so that the manhole steps are in alignment.

7. Manhole steps shall be installed in accordance with the requirements of the U.S. Department of Labor, Occupational Safety and Health Administration, CFR 29, Part 1910.27g, as amended.

D. Drop Manhole Connections

Drop manhole connections shall be constructed as shown on the drawings. The encasement for the drop pipe shall be constructed after the installation of the pipe. Special care shall be taken to provide a watertight seal between the pipe and the manhole wall.

E. Installation of Cast Iron Frames and Covers

1. Cast iron frames and covers shall be installed where shown on the plans and listed in the specifications. Frames shall be set concentric with the top of the masonry and in a full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around and on the top of the bottom flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

2. The cover shall not have vent holes, and shall fit firmly within the existing frame, with the top being flush with the existing frame. Gaskets or fillers will not be allowed. The cover shall have concealed pick holes.

F. Installation -Cast Iron Watertight Frames and Covers

1. Cast iron watertight frames and covers shall be installed where shown on the plans and listed in the specifications. Frames shall be set concentric with the top of the masonry and in a full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around and on the top of the bottom flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

2. The cover shall fit firmly within the frame with the top being flush. The entire installation shall be watertight.

G. Masonry Construction

1. Brick masonry shall include brick masonry walls for extending manhole walls to grade when directed; formed brick masonry for constructing manhole inverts and invert tables, cement-mortar plaster on exterior surfaces of masonry walls, mortar, building-in or manhole steps and pipes and appurtenant work.

2. Brick masonry shall be provided to the details and dimensions indicated or as directed. All exterior surfaces of brick masonry manhole walls shall be plastered with a 1:2 Portland cement and sand mortar plaster to provide a minimum thickness of 1/2 inch; mortar plaster shall be applied with sufficient pressure to ensure a dense plaster completely filling all voids and thoroughly bonded to the brick work.

3. Inverts shall have a cross section shaped to conform with connecting sewers; changes in size shall be made gradually and evenly.

4. Brick masonry construction shall be done in a manner to ensure watertight construction ", and all leaks in brick masonry shall be sealed. Brick masonry shall be repaired or replaced so as to obtain watertight construction at no additional expense to the Owner.

5. All workmanship shall conform to the best standard practice and all brick masonry shall be laid by skilled workmen. Brick masonry walls shall be constructed to the thickness indicated. All beds on which masonry is to be laid shall be cleaned and wetted properly. Brick shall be wetted as required and shall be damp but free of any surface water when placed in the work.

6. Bed joints shall be formed of a thick layer of mortar which shall be smoothed or furrowed slightly. Head joints shall be formed by applying to the brick to be laid a full coat of mortar on the entire end or on the entire sides as the case requires, and then shoving the mortar-covered end or side of the brick tightly against the bricks laid previously; the practice of buttering at the corners of the brick and then throwing mortar or scrapings into the empty joints will not be permitted. Dry or butt joints will not be permitted. Joints shall be uniform in thickness and shall be approximately 1/4 inch thick. Joints on the inside face of walls shall be tooled slightly concave with an approved jointer when the mortar is thumbprint hard, the mortar shall be compressed with complete contact along the edges to seal the surface of the joints.

7. Brickwork shall be constructed accurately to dimensions and brickwork at top of manholes shall be to the dimensions of the flange of the cast iron frames.

8. No water shall be allowed to flow against brickwork or to rise on the masonry for 10 hours after it has been laid and any brick masonry damaged in this manner shall be replaced as directed at no additional expense to the Owner.

9. Adequate precautions shall be taken in freezing weather to protect the masonry from damage by frost.

10. All pipes, or castings to be embedded in the brickwork shall be accurately set and built-in as the work progresses; pipe stubs shall be closed with suitable plugs in an approved manner.

11. The outside face of all brickwork shall be plastered to the thickness and using the mortar specified herein; plaster shall be troweled to a smooth, hard finish and no backfill shall be placed until the mortar has thoroughly hardened.

H. Leakage Tests

1. Leakage tests shall be made by the Contractor at his expense and observed by the Engineer on each manhole. The test shall be by vacuum in accordance with ASTM Specification C-828-80. Notarized records of the test results shall be submitted by the Contractor to the Owner for approval.

2. The vacuum testing system shall be as supplied by NPC Systems, Inc., or approved equal. The testing shall be done immediately after assembly of the manhole and before back-filling. A GO-inch/lb. torque wrench shall be used to tighten the external clamps that secure the test cover to the top of the manhole. All lift holes shall be plugged with a non-shrinking mortar, as specified in this Specification. The Contractor shall plug the pipe openings, taking care to securely brace the plugs and the pipe to prevent the pipes from being drawn into the manhole. A vacuum of 10 inches Hg (4.9 psi) shall be drawn and the vacuum pump shut off. The test shall pass if the vacuum remains at 10-inches of Hg or drops to 9 inches Hg (4.4 psi) in a time greater than one minute.

3. If the manhole fails the initial test, the Contractor shall locate the leak and make proper repairs. Leaks may be filled with a wet slurry of accepted quick setting material. The manhole shall then be retested, repeatedly, if necessary, by the Contractor, until the required conditions are met, at no additional expense to the owner.

4.0 METHOD OF MEASUREMENT

A. Precast concrete manholes shall be measured for payment by the unit. "each" as listed in the Bid. The depth of a unit shall be the total depth from the top of the manhole frame to the invert of the sewer at the center of the manhole.

5.0 BASIS OF PAYMENT

A. Precast concrete manholes measured in place as provided in the preceding paragraph, will be paid for at the contract unit price bid "each", as listed in the bid.

B. The price and payments listed above shall constitute full compensation for furnishing and constructing precast manhole bases, transition sections, risers, cones, flat tops, complete with cast iron frames and covers, including watertight frames and covers, all pipe and pipe fittings and encasements for drop manholes, steps, brick masonry, for furnishing openings and connecting existing sewer pipelines, excavating and backfill, and appurtenant work, for leakage tests, removal of existing sanitary sewer manholes, complete " in place; and for all labor, equipment, tools, materials, and all other costs and appurtenant work incidental and necessary to complete the items as specified, as indicated and as directed by the Owner.

Pay Item	Pay Unit
Sanitary Manhole (4’ Dia.) 0’ to 10’ Deep	Each

ITEM #1403501A – RESET MANHOLE (SANITARY SEWER)

Description:

Work under this item shall include adjusting all manhole frames and covers on the sanitary sewer to the final grade as called for on the Contract Drawings, specified, or as directed.

Materials:

A. Non-Shrink Grout shall conform to the requirements of Section M.03.05 of DOT Form 818.
B. Brick shall conform to the requirements of A.S.T.M. Designation C-32 latest revision, grade MA.
C. Concrete masonry units shall conform to the requirements of A.S.T.M. Designation C-139, latest revision. Block shall be eight inch radial units. Corbel blocks shall be used for taper.
D. Manhole frames and covers shall be Campbell Foundry Company pattern 1030 with a 6" frame and 2-1" diameter vent holes in the cover. Covers shall bear the word "sewer". Frames and covers shall be capable of withstanding AASHTO HS20-44 loading.
E. Manhole frame riser extensions shall conform to Section M08.02-5 of DOT Form 818.
F. Precast concrete manholes and components shall conform to Item #1403001.

Construction Methods:

The Contractor shall carefully excavate the manhole frame and cover and add or delete brick masonry as necessary to reset the frame and cover to the final grade.

The present cover slab or cone section may be reused if it is not damaged. If the cover slab or cone section is damaged during manhole frame and cover removal, it shall be replaced by the Contractor at their expense.

The Contractor may be required to "un-stack" the existing cone section so that riser sections can be added or deleted, where the change in grade is greater than 12 inches.

Any material damaged by the Contractor shall be repaired or replaced by the Contractor at no cost to the Owner.

The Contractor shall adjust/lower manhole frame and cover to match the exposed aggregate or milled surface grades where necessary to provide for safe traffic operations. Prior to paving the final course, Contractor shall adjust/raise manhole frame and cover to final grades. Where the change in grade is 3 inches or less, metal manhole extension rings may be used to raise and support the existing manhole covers to the grade of the proposed roadway surface without disturbing the existing manhole frame.

Method of Measurement:
Reset Manhole (Sanitary Sewer) shall be measured as individual units for each manhole frame installed, adjusted to final grade, in place and accepted. Excavation, backfill, all jointing materials, brick masonry, concrete masonry units, non-shrink grout, and all other appurtenant work for a complete manhole installation shall not be measured for separate payment.

The removal and disposal of existing brick, masonry, or other components as necessary to adjust frames to grade, shall not be measured for separate payment.

Basis of Payment:
Adjusting manhole cover frames to grade shall be paid for as individual units for each "Reset Manhole (Sanitary Sewer)" installed, adjusted to final grade, in place and accepted. Said payment shall include excavation, backfill, furnishing, installing and/or removing brick, mortar, removing, storing, and reinstalling existing frames and covers, and the cost of all labor, materials, equipment and all incidental work necessary to complete the construction of the Manhole item.

Removal and disposal of existing brick, masonry, or other components necessary to adjust frames to grade, if applicable, shall not be paid for separately.

The cost of all labor, materials, equipment and all incidental work necessary to complete the frame and cover reinstallation to final grade shall be included in the "Reset Manhole (Sanitary Sewer)" price.

Pay Item	Pay Unit
Adjust Existing Manhole Cover Frame to Grade (Sanitary Sewer)	Ea.

ITEM #1504010A – TEMPORARY SUPPORT OF UTILITIES

Description:

Work under this item shall consist of the protection and temporary support of utilities currently attached to, supported by, or adjacent to the existing bridge which will require support during the construction of the new bridge structure. The Contractor shall be responsible for providing facilities for the temporary support of the following utilities during construction:

- Electrical Conduits (owner Eversource)
- Telecommunication Conduits (owner Frontier)

Construction Methods:

The Contractor shall design and construct the temporary support system for the utilities in a temporary location necessary to complete the new structure and shall be solely responsible for the adequacy of the design and erection scheme. The Contractor shall obtain all necessary permits for the performance of the work and shall assume all liabilities in connection therewith. The Contractor shall prepare and submit to the Engineer or any regulatory agency, working drawings showing the plan for construction of the temporary support system. Working drawings shall be developed and submitted in accordance with Article 1.05.02. These drawings shall bear the seal of a Professional Engineer licensed in the State of Connecticut. Work shall not be initiated until approval from the Engineer and the respective utility companies has been obtained.

The approval of any regulatory agency or of the Engineer shall not serve to relieve the Contractor of the responsibility for the safety of the method or equipment or from carrying out the work in full accordance with the plans and specifications.

The relocation of the existing utilities, except for the water main and sanitary sewer main, will be accomplished by the respective utility companies involved. The Contractor shall fully coordinate the activities with the utility companies, giving them adequate opportunity to relocate their facilities to the temporary locations as required and insuring that utility services remain uninterrupted if and as required by the utility company.

The Contractor shall be aware of the respective utility company's timetable, in the phases of construction where the utility related work is to be done.

All parts of any temporary structures used in this work shall be removed and disposed of off the site after relocation of the utilities to their final location.

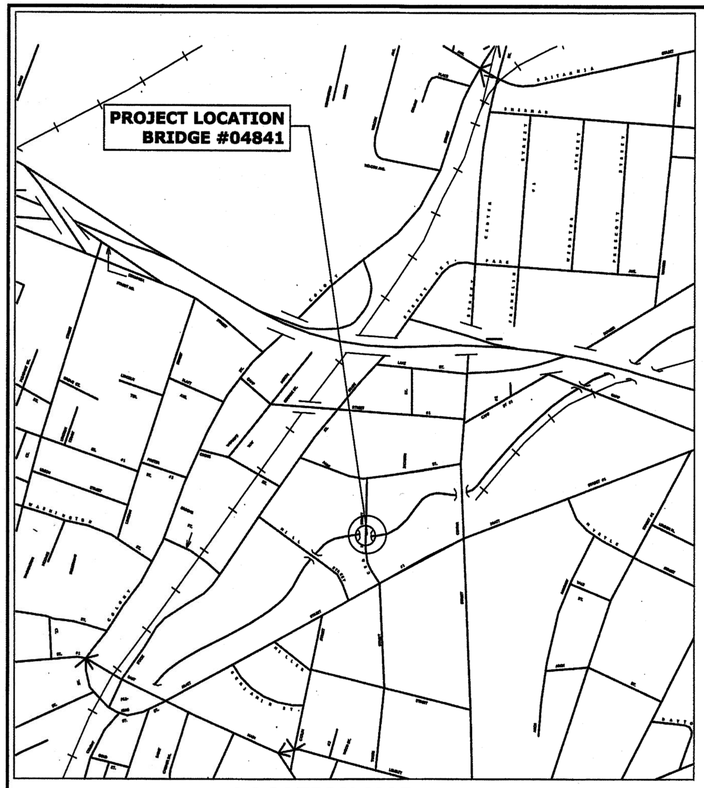
Method of Measurement:

Work on this item, being paid for on a lump sum basis, will not be measured for payment.

Basis of Payment:

This work will be paid for at the Contract lump sum price for "Temporary Support of Utilities", which price shall include all materials, equipment, tools, labor and work incidental thereto. This shall include the construction and removal of any temporary structure used for the temporary support of the existing utility.

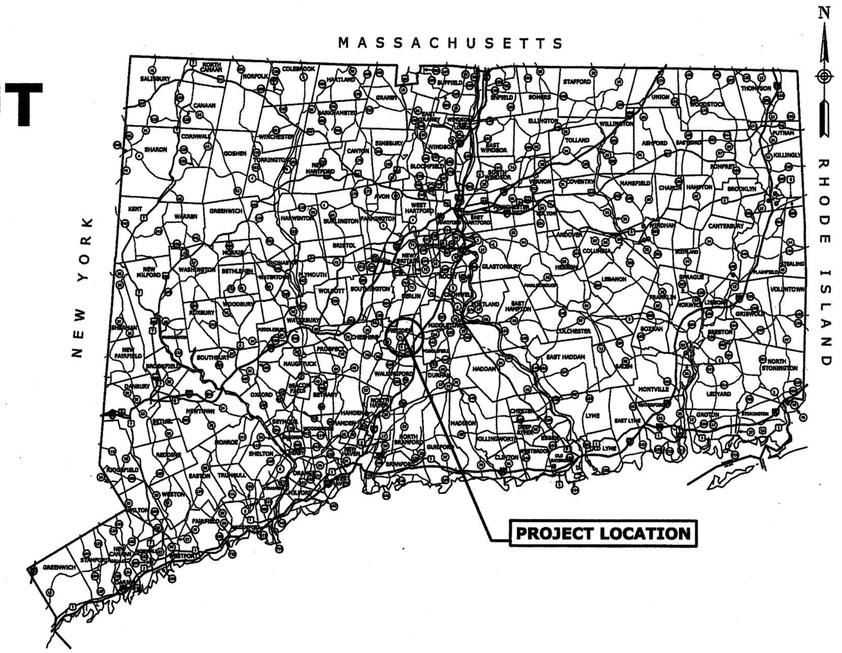
Pay Item	Pay Unit
Temporary Support of Utilities	L.S.



LOCATION MAP
SCALE: 1" = 500'

CITY OF MERIDEN, CONNECTICUT

PLAN FOR
REPLACEMENT OF CEDAR STREET BRIDGE
OVER HARBOR BROOK
LOTCIP PROJECT NUMBER L079-0003
BRIDGE #04841
ROADWAY RECONSTRUCTION
STATION 0+90.28 TO STATION 5+32.05
TO BE MAINTAINED BY THE CITY OF MERIDEN



ROAD CLASSIFICATION: URBAN LOCAL
DESIGN SPEED: 25 MPH
ADT (ConnDOT): 776 V.P.D.
ROADSIDE CLEAR ZONE: 12'

TECHNICAL SPECIFICATIONS: STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION (FORM 818 DATED 2020) AND LATEST SUPPLEMENTAL SPECIFICATIONS DATED JANUARY 2021 THERETO, AS WELL AS ANY SPECIAL PROVISIONS BY THE CITY OF MERIDEN.

DESIGN STANDARDS: AASHTO POLICY ON THE GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, DATED 2004 AND THE CONNECTICUT DEPARTMENT OF TRANSPORTATION HIGHWAY DESIGN MANUAL DATED 2003.

SURVEY: ALL COORDINATES ON THE PROJECT ARE BASED ON N.A.D 1927. ALL ELEVATIONS ARE BASED ON N.A.V.D 1929.

CONNECTICUT DEPARTMENT OF TRANSPORTATION OR CITY OF MERIDEN BIDDING AND OTHER INFORMATION AND DOCUMENTS WHICH ARE OBTAINED THROUGH THE INTERNET, WORLD WIDE WEB SITES OR OTHER SOURCES ARE NOT TO BE CONSTRUED TO BE OFFICIAL INFORMATION FOR THE PURPOSES OF BIDDING OR CONDUCTING OTHER BUSINESS WITH THE CITY OF MERIDEN.

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 CITY OF MERIDEN.

PERSONS AND/OR ENTITIES WHICH REPRODUCE AND/OR MAKE SUCH INFORMATION AVAILABLE BY ANY MEANS ARE NOT AUTHORIZED BY THE CITY OF MERIDEN TO DO SO AND MAY BE LIABLE FOR CLAIMS RESULTING FROM THE DISSEMINATION OF UNOFFICIAL, INCOMPLETE AND/OR INACCURATE INFORMATION.

LIST OF DRAWINGS

SHEET NO.	TITLE
1	TITLE SHEET
2	DETAILED ESTIMATE SHEET
3	DETOUR PLAN
4	EXISTING CONDITIONS PLAN
5	ROADWAY PLAN
6	UTILITY PLAN
7	ROADWAY PROFILE
8	ROADWAY DETAILS
9-10	ROADWAY SECTIONS
11-12	SANITARY SEWER DETAILS
13-14	WATER DETAILS
15	STAGING PLAN
16	HANDLING WATER DETAILS
17	EROSION AND SEDIMENTATION CONTROL DETAILS
18	STRUCTURE, ELEVATION AND SECTION PLAN
19	STRUCTURAL GENERAL NOTES
20-21	BORING LOGS
22	STRUCTURE LAYOUT PLAN
23	ABUTMENT #1 PLAN & ELEVATION
24	ABUTMENT #2 PLAN & ELEVATION
25	WINGWALL PLANS AND ELEVATIONS
26	ABUTMENT, WINGWALL, CHECKWALL, BACKWALL DETAILS
27	FRAMING PLAN
28	PRESTRESSED DECK UNITS
29	DECK SLAB PLAN
30	MISCELLANEOUS STRUCTURE DETAILS
31	METAL BEAM RAIL ATTACHMENT DETAILS
32	METAL BRIDGE RAIL (HANDRAIL)
UTL-1	UTILITY RELOCATION PLAN (EVERSURCE -GAS) (FOR INFORMATION ONLY)
ENV.1	ENVIRONMENTAL PLAN (FOR INFORMATION ONLY)

STANDARD DRAWINGS

DWG. NO.	TITLE
HW-586-01	TYPE "C", "C-L" & DROP INLET CATCH BASIN
HW-586-07	TYPE "C", "C-L" CATCH BASIN TOPS AND CURBS
HW-586-08	CATCH BASIN FRAMES AND GRATES
HW-813-02	STONE CURBING
HW-815-01	BITUMINOUS CONCRETE CURBING
HW-822-01	TEMPORARY PRECAST CONCRETE BARRIER CURB
HW-910-07	R-B 350 BRIDGE ATTACHMENT VERTICAL SHAPE PARAPET
HW-911-01	R-B END ANCHORAGE TYPE I AND II
HW-913-01A	CHAIN LINK FENCE
HW-913-01B	CHAIN LINK FENCE HARDWARE
HW-921-01	DRIVEWAY RAMPS AND SIDEWALKS
TR-1205_01	DELINEATION, DELINEATORS AND OBJECT MARKER DETAILS
TR-1208_01	SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS
TR-1208-02	METAL SIGN POSTS AND SIGN MOUNTING DETAILS
TR-1210_04	PAVEMENT MARKING LINES AND SYMBOLS
TR-1210_08	PAVEMENT MARKINGS FOR NON FREEWAYS
TR-1220-01	SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS
TR-1220-02	CONSTRUCTION SIGN SUPPORTS AND CHANNELIZING DEVICES

STATE OF CONNECTICUT
KEEGAN O. ELLER
PRIN 0001802
LICENSED
PROFESSIONAL ENGINEER

DESIGNED BY WMC CONSULTING ENGINEERS

SUBMITTED BY Keegan O. Eller DATE 9/8/2021

CITY MANAGER - CITY OF MERIDEN

DATE 2/16/22
TIMOTHY COON

DATE: 09/07/2021

THE INFORMATION INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE CITY OF MERIDEN AND IS NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

WHEREVER THE PAY UNITS IN THE LEFT COLUMN APPEAR ON THE DETAILED ESTIMATE SHEET, THEY SHALL BE CONSTRUED TO MEAN THE EQUIVALENT PAY UNITS IN THE RIGHT COLUMN ON THE PROPOSAL FORM.

c.y.	C.Y.
l.f.	L.F.
ton	TON
s.y.	S.Y.
lb.	LB.
s.f.	S.F.
gal.	GAL.
c.f.	C.F.
c.i.	C.I.

FOR THE CONSTRUCTION OF REPLACEMENT OF THE CEDAR STREET BRIDGE NO. 04841, CEDAR STREET BRIDGE OVER HARBOR BROOK IN THE CITY OF MERIDEN, CONNECTICUT

ROADWAY ITEMS

ITEM NUMBER	0201001	0020763 A	0101000 A	0101117 A	0101128 A	0201199 A	0202000	0202315 A	0202318 A	0204210 A	0202529	0209001	0212000	0219001	0286001.10	0406170	0406171	0406236	0586001.10	0686000.18	0686950.10	0703012	0755014	0813021	0815001	0822001	0910173	0911924	0913021	0921001	0922501	0924006	0944000	0950005	0969060 A	0970007	0971001 A	0975004	0976002	0977001	0979003	0980020	1208931 A	1210101	1210102	1220027
ITEM DESCRIPTION	CLEARING AND GRUBBING	DISPOSAL OF SEDIMENTS	ENVIRONMENTAL HEALTH AND SAFETY	CONTROLLED MATERIALS HANDLING	SECURING, CONSTRUCTION AND DISMANTLING OF A WASTE TOXIC AND TREATMENT AREA	REMOVE AND RESET FENCE	EARTH EXCAVATION	DISPOSAL OF CONTROLLED MATERIALS	MANAGEMENT OF REUSABLE CONTROLLED MATERIAL	HANDLING CONTAMINATED GROUNDWATER	CUT BITUMINOUS CONCRETE PAVEMENT	FORMATION OF SUBGRADE	SUBBASE	SEDIMENTATION CONTROL SYSTEM	ROCK IN DRAINAGE TRENCH EXCAVATION 0'-10' DEEP	HMA S1	HMA S0.5	MATERIAL FOR TACK COAT	TYPE 'C' CATCH BASIN - 0'-10' DEEP	18" R.C. PIPE - 0'-10' DEEP	REMOVE EXISTING PIPE - 0' - 10' DEEP	MODIFIED RIPRAP	GEOTEXTILE (SEPARATION HIGH SURVIVABILITY)	6" GRANITE STONE CURBING	BITUMINOUS CONCRETE LIP CURBING	TEMPORARY PRECAST CONCRETE BARRIER CURB	R-B 350 BRIDGE ATTACHMENT - VERTICAL SHAPED PARAPET	R-B END ANCHORAGE - TYPE II	6' CHAIN LINK FENCE	CONCRETE SIDEWALK	BITUMINOUS CONCRETE DRIVEWAY	CONCRETE DRIVEWAY RAMP	FURNISHING AND PLACING TOPSOIL	TURF ESTABLISHMENT	CONSTRUCTION FIELD OFFICE (SMALL)	TRAFFICPERSON (UNIFORMED FLAGGER)	MAINTENANCE AND PROTECTION OF TRAFFIC	MOBILIZATION AND PROJECT CLOSEOUT	BARRICADE WARNING LIGHT-HIGH INTENSITY	TRAFFIC CONE	CONSTRUCTION BARRICADE TYPE III	CONSTRUCTION SURVEYING	SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)	4" WHITE EPOXY RESIN PAVEMENT MARKING	4" YELLOW EPOXY RESIN PAVEMENT MARKING	CONSTRUCTION SIGNS
UNIT	L.S.	TON	L.S.	C.Y.	L.S.	L.F.	C.Y.	TON	C.Y.	L.S.	L.F.	S.Y.	C.Y.	L.F.	C.Y.	TON	TON	GAL.	EA.	L.F.	L.F.	C.Y.	S.Y.	L.F.	L.F.	L.F.	EA.	EA.	L.F.	S.F.	S.Y.	S.F.	S.Y.	S.Y.	MO.	HR.	L.S.	L.S.	DAY	EA.	EA.	L.S.	S.F.	L.F.	L.F.	S.F.
TOTAL	L.S.	50	1	1400	1	410	1215	2100	1300	1	80	1635	455	785	5	585	405	420	2	132	117	25	70	760	55	120	4	4	155	3840	60	250	950	950	9	120	L.S.	L.S.	1620	25	4	L.S.	5	930	930	325
TOTAL	L.S.	50	L.S.	1400	L.S.	410	1215	2100	1300	L.S.	80	1635	455	785	5	585	405	420	2	132	117	25	70	760	55	120	4	4	155	3840	60	250	950	950	9	120	L.S.	L.S.	1620	25	4	L.S.	5	930	930	325

STRUCTURE ITEMS

ITEM NUMBER	0202200	0202216 A	0203202	0203304	0204001	0204151 A	0213100	0216000	0406171	0406173	0406236	0503890 A	0514227	0520036 A	0521021 A	0601062	0601064	0601088 A	0601118	0601121	0601122	0601123	0601504	0601640	0602030	0607001 A	0707009 A	0708001	0817005 A	0819002 A	0904487 A	0974001	1008320
ITEM DESCRIPTION	CHANNEL EXCAVATION-EARTH	EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL	STRUCTURE EXCAVATION - EARTH (EXCLUDING COFFERDAM AND DEWATERING)	STRUCTURE EXCAVATION - ROCK (EXCLUDING COFFERDAM AND DEWATERING)	COFFERDAM AND DEWATERING	HANDLING WATER	GRANULAR FILL	PERVIOUS STRUCTURE BACKFILL	HMA S0.5	HMA S0.25	MATERIAL FOR TACK COAT	REMOVAL OF EXISTING BRIDGE	PRESTRESSED DECK UNITS (4'-0" X 2'-0")	ASPHALTIC PLUG EXPANSION JOINT SYSTEM	STEEL-LAMINATED ELASTOMERIC BEARINGS	FOOTING CONCRETE	ABUTMENT AND WALL CONCRETE	CONCRETE FORM LINERS	BRIDGE DECK CONCRETE	PARAPET CONCRETE	BRIDGE SIDEWALK CONCRETE	APPROACH SLAB CONCRETE	1" PREFORMED EXPANSION JOINT FILLER FOR BRIDGES	1" CLOSED CELL ELASTOMER	DEFORMED STEEL BARS-GALVANIZED	DRY RUBBLE MASONRY	MEMBRANE WATERPROOFING COLD LIQUID ELASTOMER)	DAMPPROOFING	6" GRANITE STONE CURBING FOR BRIDGES	PENETRATING SEALER PROTECTIVE COMPOUND	METAL BRIDGE RAIL (HANDRAIL)	REMOVAL OF EXISTING MASONRY	5" RIGID METAL CONDUIT IN STRUCTURE
UNIT	C.Y.	C.Y.	C.Y.	C.Y.	L.F.	L.S.	C.Y.	C.Y.	TON	TON	GAL.	L.S.	L.F.	C.F.	C.I.	C.Y.	C.Y.	S.F.	C.Y.	L.F.	C.Y.	C.Y.	S.F.	C.I.	LBS.	C.Y.	S.Y.	S.Y.	L.F.	S.Y.	L.F.	C.Y.	L.F.
TOTAL	890	35	2020	195	500	L.S.	135	900	55	30	75	L.S.	754	35	7375	275	290	590	85	130	30	65	405	625	92000	15	410	360	130	160	130	155	765
TOTAL	890	35	2020	195	500	L.S.	135	900	55	30	75	L.S.	754	35	7375	275	290	590	85	130	30	65	405	625	92000	15	410	360	130	160	130	155	765

UTILITY ITEMS

ITEM NUMBER	1301082 A	1302004 A	1303204 A	1401242 A	1401662 A	1403501 A	1504010 A
ITEM DESCRIPTION	8" DUCTILE IRON PIPE (WATER MAIN)	8" GATE VALVE	HYDRANT ASSEMBLY (WATER MAIN)	8" DUCTILE IRON PIPE (SANITARY SEWER)	SANITARY MANHOLE (4' DIA.) 0'-10' DEEP	RESET MANHOLE (SANITARY SEWER)	TEMPORARY SUPPORT OF UTILITIES
UNIT	L.F.	EA.	EA.	L.F.	EA.	EA.	L.S.
TOTAL	190	1	1	13	2	3	L.S.
TOTAL	190	1	1	13	2	3	L.S.

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NO.	DATE	DESCRIPTION

REVISIONS

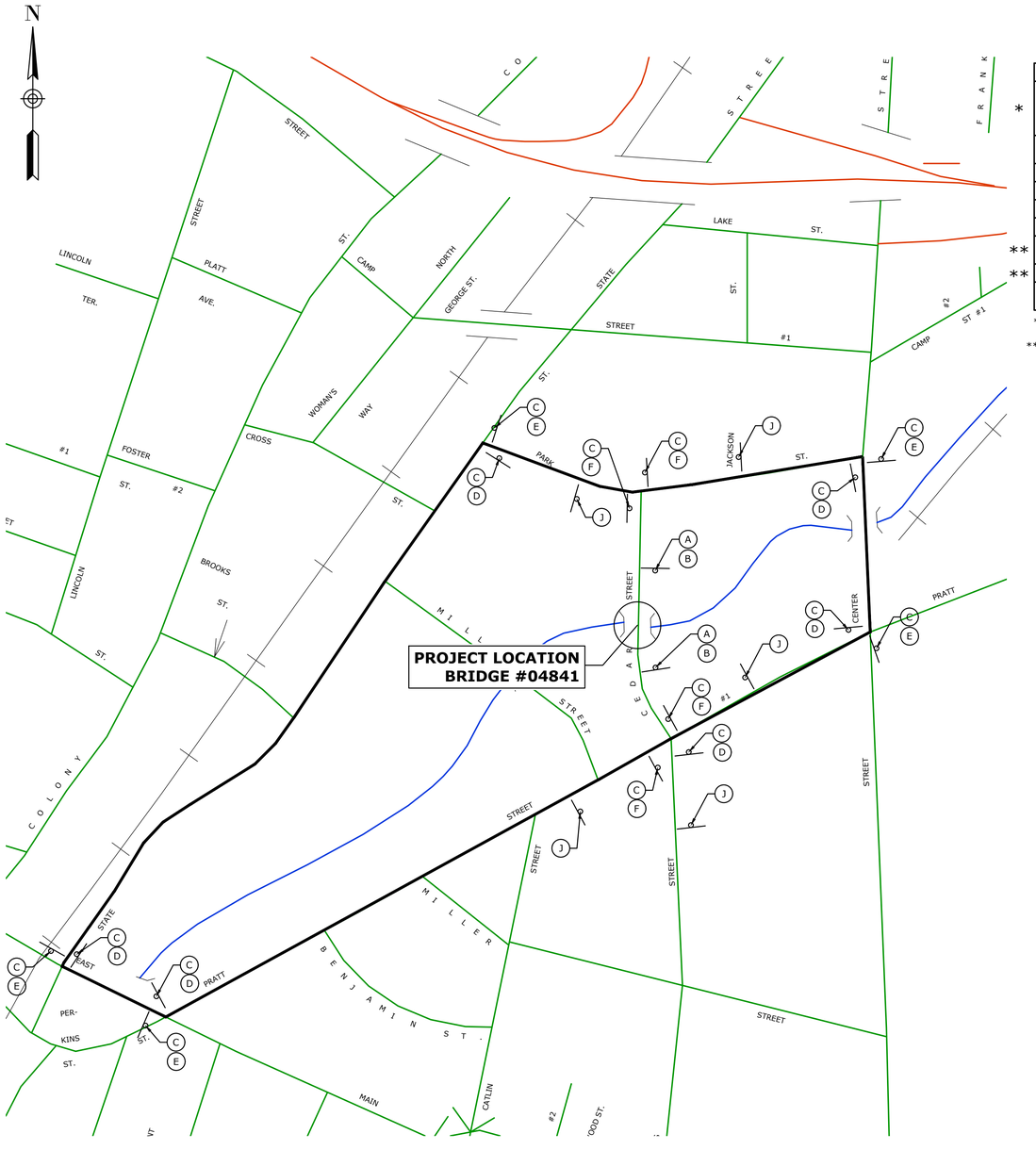
SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

WMC CONSULTING ENGINEERS
• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR
CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK DETAILED ESTIMATE SHEET

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		2	32



DETOUR PLAN

SCALE : 1" = 200'

CEDAR STREET BRIDGE REPLACEMENT CONSTRUCTION SIGNING

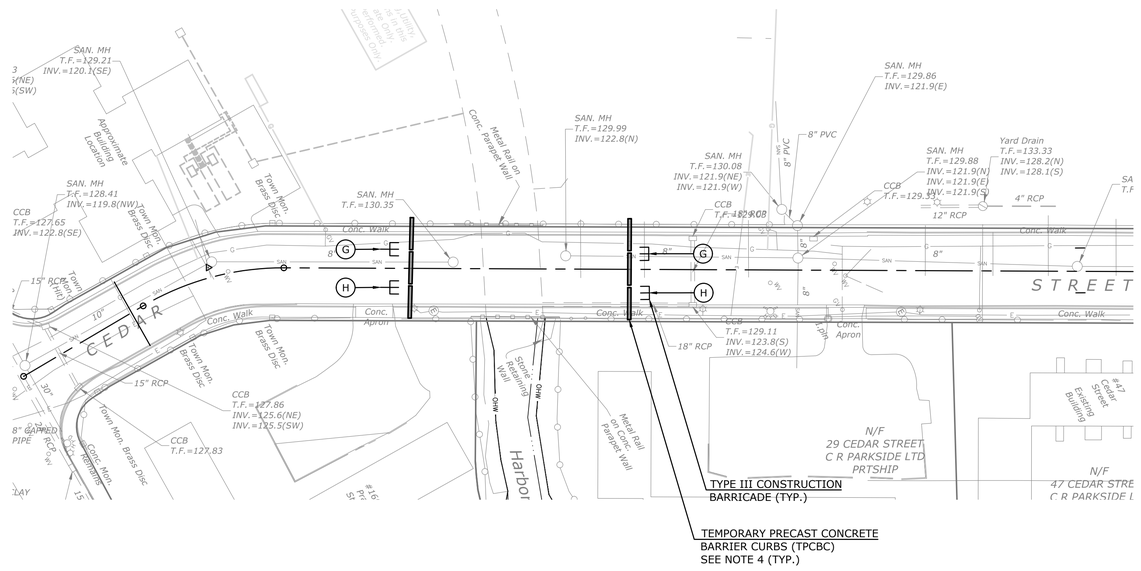
	SIGN	CONNDOT	DIMENSION	DESCRIPTION	NO. REQ.'D
*	A	80-9929	72" X 48"	CEDAR STREET CLOSED TO THRU TRAFFIC EFFECTIVE MONDAY (00/00)	2
	B	80-9078	60" X 30"	BRIDGE CLOSED 0.1 MILES AHEAD. LOCAL TRAFFIC ONLY	2
	C	80-9913	60" X 10"	CEDAR STREET	15
	D	80-9710	30" X 24"	DETOUR (RIGHT ARROW)	6
	E	80-9710	30" X 24"	DETOUR (LEFT ARROW)	5
	F	80-9710	30" X 24"	DETOUR (STRAIGHT ARROW)	4
**	G	80-9080	48" X 30"	ROAD CLOSED	2
**	H	31-0552	30"	STOP	2
	J	80-9710	60" X 30"	CEDAR STREET CLOSED TO THRU TRAFFIC	5

* INDICATES SIGNS TO BE POSTED AT LEAST 2 WEEKS PRIOR TO CONSTRUCTION AND THEN COVERED OR REMOVED DURING CONSTRUCTION (SEE NOTE 7, THIS SHEET).

** INDICATES SIGNS MOUNTED ON TYPE III CONSTRUCTION BARRICADES WHICH SHALL BE INSTALLED WITH A BARRICADE WARNING LIGHT - HIGH INTENSITY.

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES

1. THE CONTRACTOR SHALL LOCATE AND PLACE ALL SIGNS AS INDICATED ON THIS SHEET OR AS DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR SHALL CLOSE CEDAR STREET FOR THE DURATION OF THE BRIDGE REPLACEMENT AND ROADWAY CONSTRUCTION.
3. ALL TRAFFIC OVER CEDAR STREET SHALL BE DETOURED TO PARK STREET, STATE STREET, EAST MAIN STREET, PRATT STREET AND CENTER STREET.
4. TEMPORARY PRECAST CONCRETE BARRIER CURBS (TPCBC) SHALL BE PROVIDED AT BOTH ENDS OF THE WORK AREA TO ADEQUATELY WARN, AND PROHIBIT MOTORISTS AND PEDESTRIANS FROM USING THE BRIDGE DURING CONSTRUCTION. THE TPCBC SHALL EXTEND ACROSS THE FULL WIDTH OF THE EXISTING ROADWAY AND BEYOND. THE COST OF THE TPCBC SHALL INCLUDE THE COST OF MOVING THE TBCPC TO ALLOW THE CONTRACTOR ACCESS AND EGRESS TO THE BRIDGE CONSTRUCTION SITE. THE CONTRACTOR SHALL ALSO PROVIDE MOVEABLE TYPE III CONSTRUCTION BARRICADE IN FRONT OF THE TPCBC, OR AS ORDERED BY THE ENGINEER, TO FURTHER ENSURE MOTORIST AND PEDESTRIAN SAFETY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE UPRIGHT STABILITY OF THE TYPE III CONSTRUCTION BARRICADES AT ALL TIMES.
5. ALL TRAFFIC CONTROL AND PROTECTION DEVICES, INCLUDING PAVEMENT MARKINGS, SHALL BE IN PLACE BEFORE RESPECTIVE CONSTRUCTION OPERATION COMMENCES.
6. THE CONTRACTOR SHALL POST THE ADVANCE NOTICE SIGNS AT LEAST 2 WEEKS PRIOR TO CLOSING THE ROAD. NOTICE TO PROCEED WILL BE GIVEN TO INSTALL THE ADVANCED NOTICE SIGNS, BUT THE ROAD MUST REMAIN OPEN UNTIL THE DATE ON THE ADVANCE NOTICE SIGNS.
7. ALL EXISTING CONFLICTING SIGNS SHALL BE COVERED OR REMOVED WHILE THE DETOUR IS IN EFFECT. ANY REMOVED SIGN SHALL BE REINSTALLED BEFORE THE BRIDGE IS REOPENED TO TRAFFIC.
8. ALL DETOUR SIGNS SHALL BE COVERED WHILE THE DETOUR IS NOT IN EFFECT.



PROJECT AREA DETAIL

SCALE : 1" = 40'

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NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

WMC CONSULTING ENGINEERS

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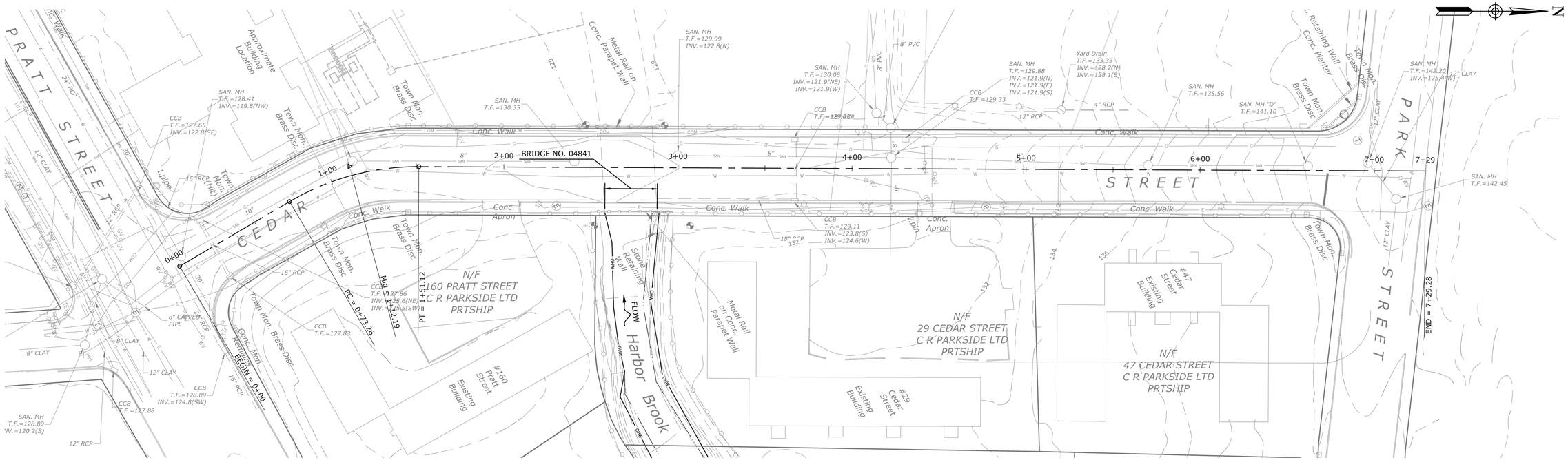
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK DETOUR PLAN

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		3	32

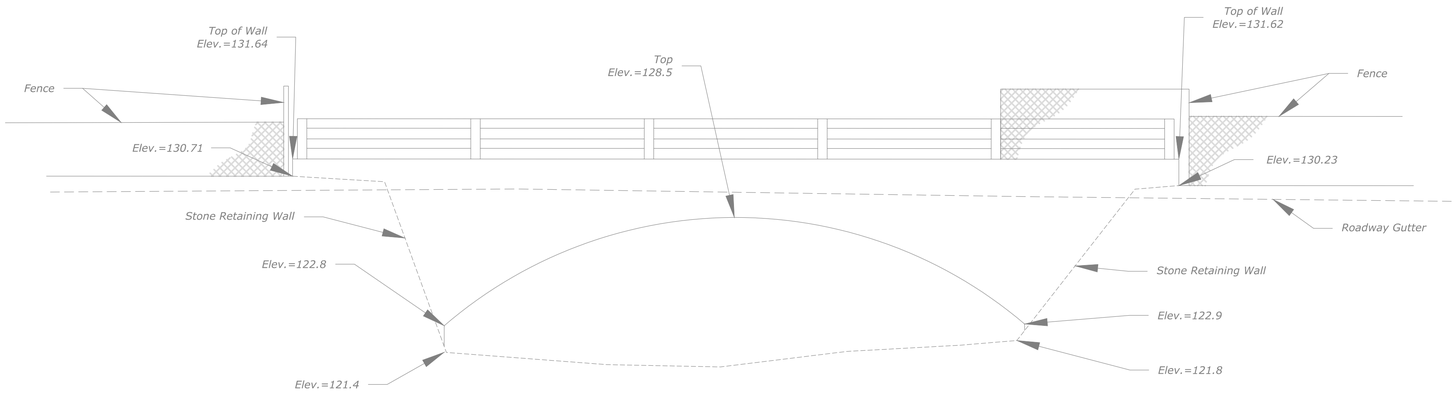


NOTES:
1. WETLANDS DELINEATED BY MMI IN 2011.
2. TOPOGRAPHY PROVIDED BY THE CITY OF MERIDEN.
3. PARCELS PROVIDED BY THE CITY OF MERIDEN.

EXISTING CONDITIONS PLAN

SCALE: 1" = 30'-0"

LEGEND	
⊕	APPROXIMATE BORING LOCATIONS



EXISTING BRIDGE ELEVATION (LOOKING DOWNSTREAM)

SCALE: 1/4" = 1'-0"

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NO.	DATE	DESCRIPTION

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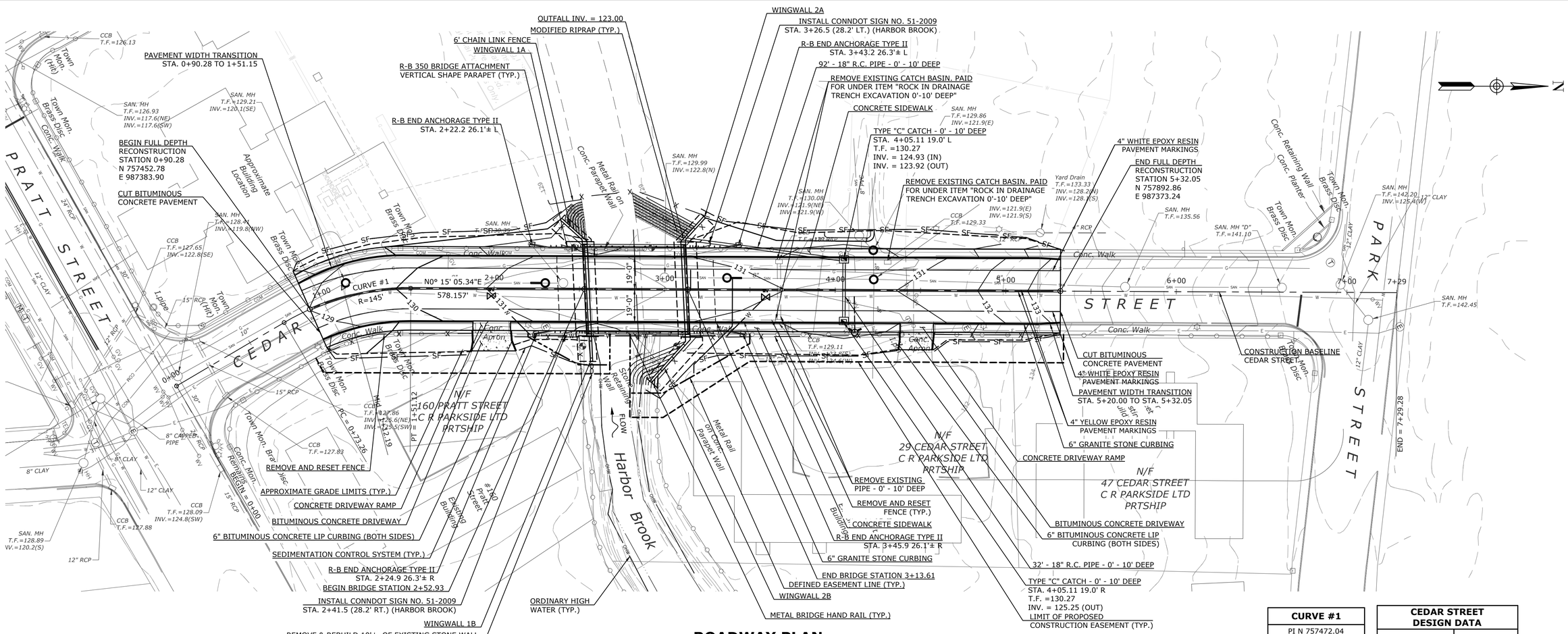
PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
EXISTING CONDITIONS PLAN

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		4	32



ROADWAY PLAN

SCALE: 1" = 30'-0"

CURVE #1
PI N 757472.04
PI E 987371.39
L = 77.86'
Δ = 39° 51' 43"
R = 145.00'
T = 39.89'

CEDAR STREET DESIGN DATA	
ROAD CLASS	LOCAL URBAN
DESIGN SPEED	25 MPH
ADT (2020)	776 VPD
RADIUS (MIN.)	145 FT.
e	N/A
MAXIMUM GRADE	3.75%
CROSS SLOPE	2.00%
K (SAG MIN.)	26
K (CREST MIN.)	12

NOTES:

1. TOPOGRAPHIC AND BOUNDARY SURVEY INFORMATION & BASE MAPPING PROVIDED BY MILONE & MACBROOM, INC., 99 REALTY DRIVE, CHESHIRE, CT 06410, DATED: 5/7/18, REVISED 6/5/18 AND HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THRU 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPT. 26, 1996. IT IS A TOPOGRAPHIC SURVEY CONFORMING TO TOPOGRAPHIC ACCURACY CLASS T-2, AND IS INTENDED TO DEPICT THE EXISTING CONDITIONS OF THE SITE.
2. HORIZONTAL CONTROL BASED ON N.A.D. 1983.
3. VERTICAL DATUM BASED ON N.G.V.D. 1929.
4. CONTOURS PROVIDED BY THE CITY OF MERIDEN.
5. STREET LINES FOR ALL ROADWAYS SHOWN ARE BASED UPON CITY OF MERIDEN TAX ASSESSORS MAPS.
6. PROPERTY LINES ARE BASED UPON CITY OF MERIDEN TAX ASSESSORS MAPS AND LIMITED RESEARCH. PROPERTY LINES ARE NOT TO BE CONSIDERED AS ACCURATE UNTIL SUCH TIME AS AN ACCURATE SURVEY IS PERFORMED.
7. ALL DIMENSIONS ARE SHOWN IN FEET UNLESS NOTED OTHERWISE. ALL ELEVATIONS ARE GIVEN IN FEET. WHEN THE ELEVATIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS.
8. UTILITY LOCATIONS AS SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD. CALL BEFORE YOU DIG 1-800-922-4455. IN ADDITION THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES NEAR UTILITY LOCATION WITH RESPECTIVE UTILITY REPRESENTATIVES. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR DISRUPTION AND REPAIRS OF EXISTING INDIVIDUAL UTILITY SERVICE CONNECTION.
9. LIMIT OF INLAND WETLANDS DELINEATED BY MMI IN 2011.
10. UNCONFINED IN-STREAM ACTIVITIES MUST BE LIMITED TO THE TIME PERIOD JUNE 1 THROUGH SEPTEMBER 30.
11. THE PROJECT SHOULD NOT BE CONDUCTED IN A MANNER WHICH IMPEDES STREAM FLOW.
12. EFFLUENT FROM DEWATERED WORK AREA(S) SHOULD NOT BE DISCHARGED DIRECTLY TO THE STREAM BUT MUST BE PROCESSED THROUGH TREATMENT STRUCTURE(S). SUCH STRUCTURES SHOULD NOT BE LOCATED WITHIN THE STREAM CHANNEL OR ADJACENT WETLANDS.
13. ALL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE ESTABLISHED PRIOR TO AND MAINTAINED THROUGHOUT ALL CONSTRUCTION PHASES. SEE SEPARATE PLAN SHEET FOR EROSION & SEDIMENTATION DETAILS.
14. ALL CUT OR FILL SLOPES GREATER THAN 2H:1V SHALL BE COVERED WITH JUTE NETTING UNTIL PERMANENT GROUND COVER IS ESTABLISHED AS MAY BE DIRECTED BY THE ENGINEER.
15. ANY ACTIVITIES OTHER THAN THOSE SHOWN ON THE PLANS OR DETAILED IN THE WETLANDS PERMIT THAT OCCUR IN THE REGULATED WETLANDS AREA SHALL BE SUBJECT TO APPROVAL BY THE LOCAL INLAND/WETLANDS AUTHORITY OR ITS DESIGNATED REPRESENTATIVE.
16. UTILITY RELOCATIONS: OVERHEAD OR UNDERGROUND UTILITY LINES MAY BE IN CONFLICT WITH DRIVING SHEET PILING, THE SETTING OF PRECAST BOX CULVERT SECTIONS AND OTHER CONSTRUCTION. DEPENDING UPON THE CONTRACTOR'S CONSTRUCTION OPERATIONS, THESE UTILITIES MAY NEED TO BE TEMPORARILY RELOCATED FOR PORTIONS OF THE CONSTRUCTION OPERATIONS AND THEN MOVED BACK TO PERMANENT LOCATIONS WHICH MAY BE OTHER THAN CURRENT LOCATIONS. EXCEPT FOR UTILITY WORK SPECIFICALLY INCLUDED IN THIS CONTRACT THE ACTUAL UTILITY RELOCATIONS (PERMANENT OR TEMPORARY) WILL BE THE RESPONSIBILITY OF THE INDIVIDUAL UTILITY OWNER, HOWEVER THE CONTRACTOR WILL BE REQUIRED TO COORDINATE ALL UTILITY RELOCATIONS WITH EACH UTILITY OWNER AND TO PHASE HIS WORK AS REQUIRED TO ACCOMMODATE TEMPORARY AND PERMANENT UTILITY RELOCATION WORK.
17. THERE IS NO FEMA FLOODWAY FOR THIS REACH OF HARBOR BROOK. DEPICTED FLOOD LIMITS EXTEND BEYOND LIMITS OF PLAN.

PAVEMENT MARKING NOTES:

1. FINAL PAVEMENT MARKING SHALL BE EPOXY RESIN AND SHALL MATCH EXISTING MARKINGS AT CONSTRUCTION LIMITS.
2. PAVEMENT MARKINGS SHALL BE INSTALLED PER TRAFFIC STANDARD SHEET TR-1210_04 "PAVEMENT MARKING LINES AND SYMBOLS" AND TR-1210_08 "PAVEMENT MARKINGS FOR NON FREEWAYS".

SIGNING NOTES:

1. ALL EXISTING SIGNS WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED AND RESET UNLESS OTHERWISE NOTED ON THE PLAN OR DIRECTED BY THE ENGINEER. REMOVING AND RESETTING SIGNS SHALL BE PAID FOR IN "CLEARING AND GRUBBING".
2. SIGNS TO BE INSTALLED PER TRAFFIC STANDARD SHEETS TR-1208_01 "SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS" AND TR-1208_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS", EXCEPT AS NOTED.
3. EXACT SIGN LOCATIONS TO BE VERIFIED BY THE ENGINEER.
4. SIGNS SHALL BE PLACED NO CLOSER THAN 10 FEET FROM UTILITY POLES.

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NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

WMC CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK ROADWAY PLAN

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		5	32

REMOVE SANITARY MANHOLE. PAID FOR UNDER ITEM "SANITARY MANHOLE (4' DIA.) 0'-10' DEEP".

SANITARY MANHOLE (4' DIA.) 0'-10' DEEP
STA. 2+29.98 3.42' L
TF=131.59
INV. = MATCH EXISTING

RESET MANHOLE (SANITARY SEWER)
RAISE FRAME TO ELEV. = 129.32'

6' OF 8" DUCTILE IRON PIPE (SANITARY SEWER) (TO MATCH EXISTING)

6' OF 8" DUCTILE IRON PIPE (SANITARY SEWER) (TO MATCH EXISTING)

SANITARY MANHOLE (4' DIA.) 0'-10' DEEP
STA. 3+36.55 6.90' L
TF=131.19
INV.= 122.8 (EXISTING)

REMOVE SANITARY MANHOLE. PAID FOR UNDER ITEM "SANITARY MANHOLE (4' DIA.) 0'-10' DEEP".

EXISTING GAS SERVICE TO BE RELOCATED (BY EVERSOURCE)

RESET MANHOLE (SANITARY SEWER)
RAISE FRAME TO ELEV. = 130.91'

RESET MANHOLE (SANITARY SEWER)
RAISE FRAME TO ELEV. = 130.73'

BEGIN FULL DEPTH
RECONSTRUCTION
STATION 0+90.28
N 757452.78
E 987383.90

STANDARD AIR VALVE. PAID FOR UNDER 8" DUCTILE IRON PIPE (WATER MAIN)

8" DUCTILE IRON PIPE (WATER MAIN) SHALL BE PRE-INSULATED WHERE COVER CANNOT BE ATTAINED AND WHERE EXPOSED ON THE SUPPORT SYSTEM.

EXISTING GATE VALVE

EXISTING GATE VALVE

BEGIN FULL DEPTH
RECONSTRUCTION
STATION 5+32.05
N 757892.86
E 987373.24

EXISTING GATE VALVE

8" DUCTILE IRON PIPE BENDS AS NECESSARY (TYP.)

INSTALL HYDRANT ASSEMBLY

EXISTING UNDERGROUND ELECTRIC SERVICE TO BE RELOCATED OR REMOVED (BY EVERSOURCE)

PROPOSED 8" GATE VALVE

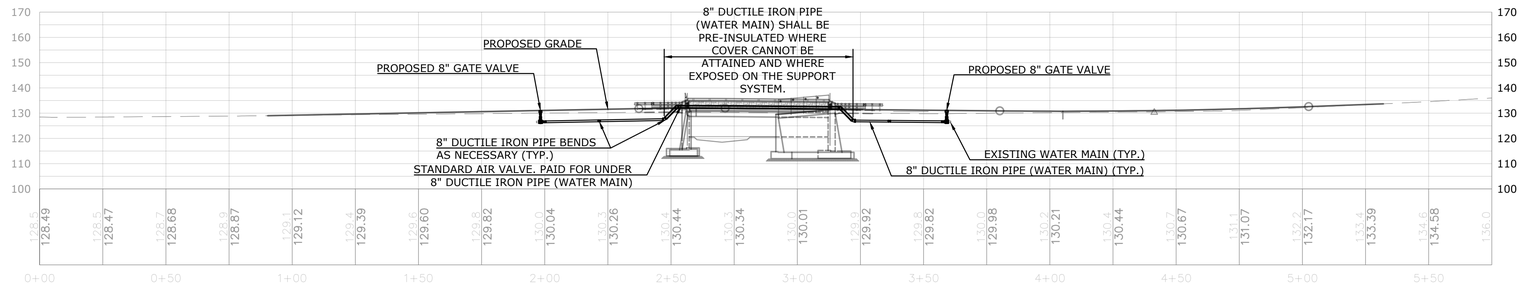
8" DUCTILE IRON PIPE (WATER MAIN) (TYP.)

6" POLYVINYL CHLORIDE LATERALS (SANITARY SEWER)

APPROXIMATE LOCATION OF 6" SANITARY SEWER LATERAL

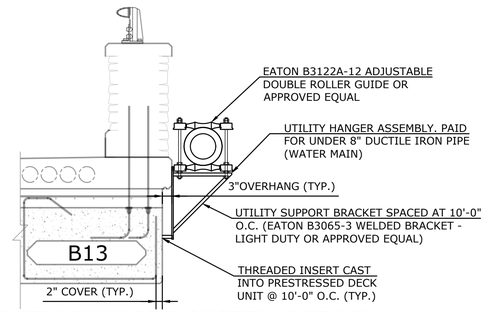
UTILITY PLAN

SCALE: 1" = 30'-0"



WATER MAIN PROFILE

SCALE: 1" = 30'-0"



UTILITY SUPPORT SYSTEM DETAIL

SCALE: 1/2" = 1'-0"

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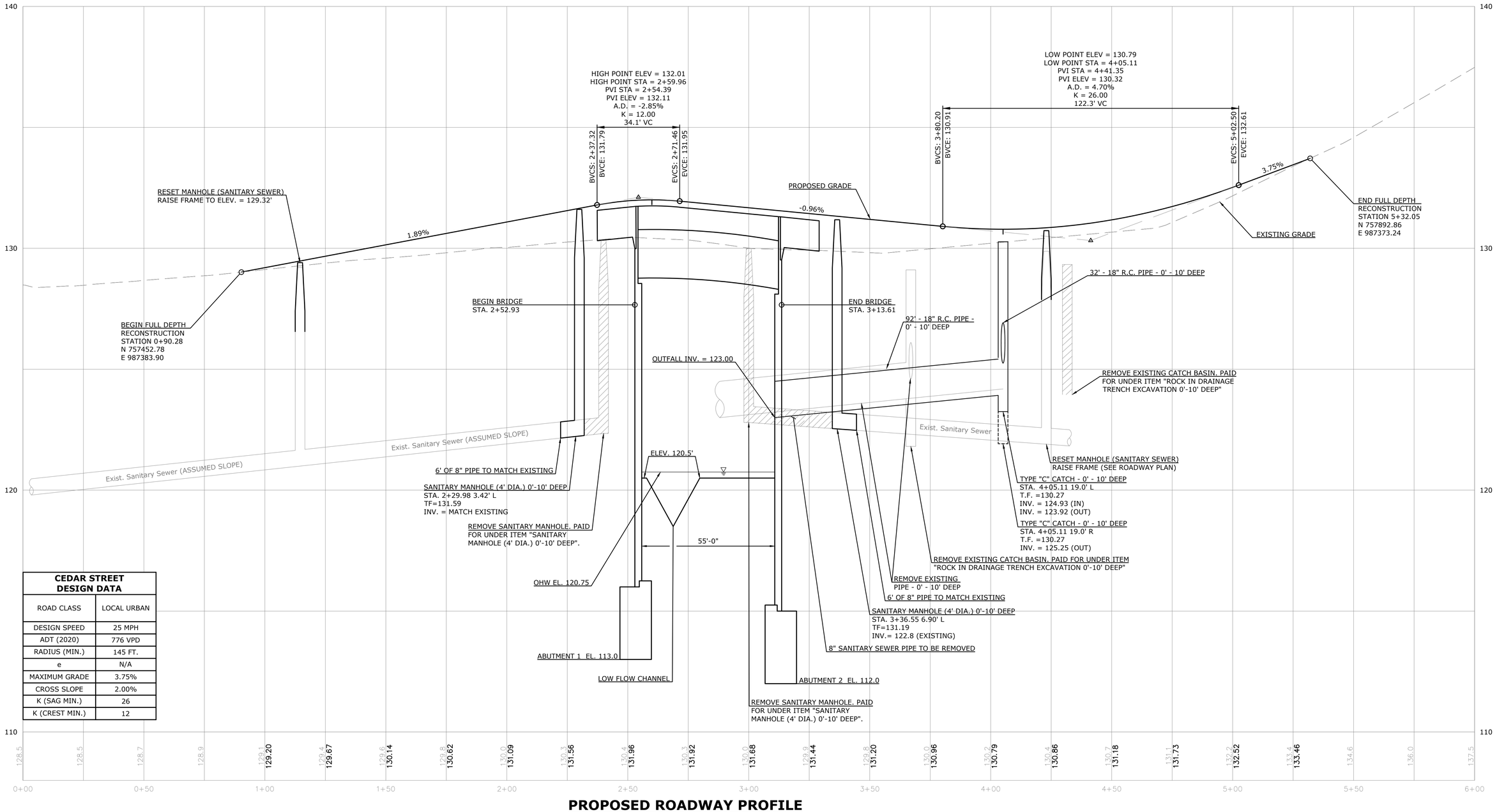
PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK UTILITY PLAN

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		6	32



CEDAR STREET DESIGN DATA	
ROAD CLASS	LOCAL URBAN
DESIGN SPEED	25 MPH
ADT (2020)	776 VPD
RADIUS (MIN.)	145 FT.
e	N/A
MAXIMUM GRADE	3.75%
CROSS SLOPE	2.00%
K (SAG MIN.)	26
K (CREST MIN.)	12

PROPOSED ROADWAY PROFILE

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 2'-0"

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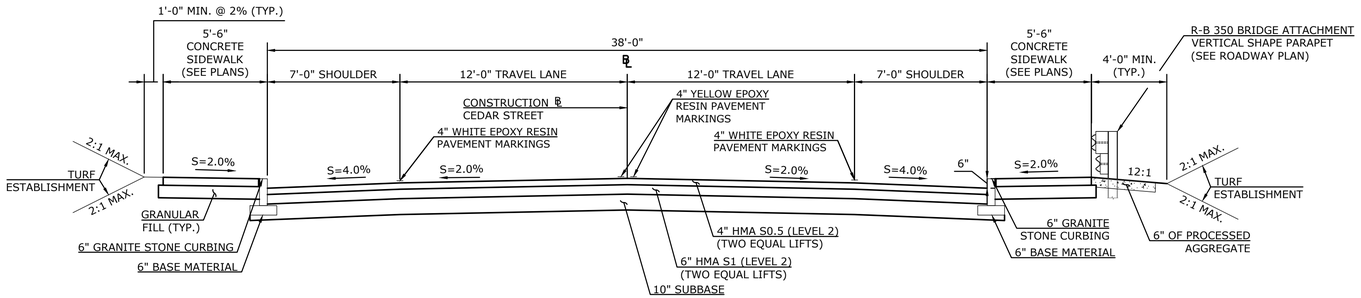
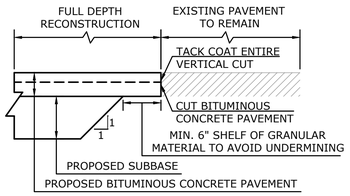
REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK ROADWAY PROFILE

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D –	CEDAR STREET	– F.D. –	17088	–	7	32



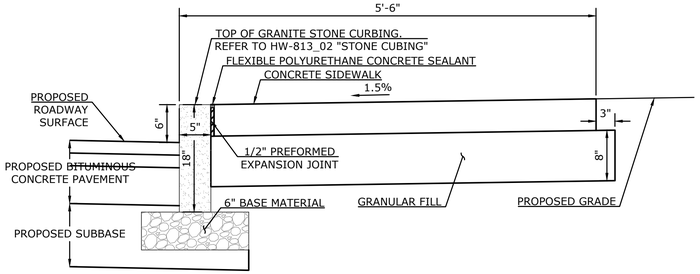
TYPICAL ROADWAY SECTION

SCALE: 1/4" = 1'-0"



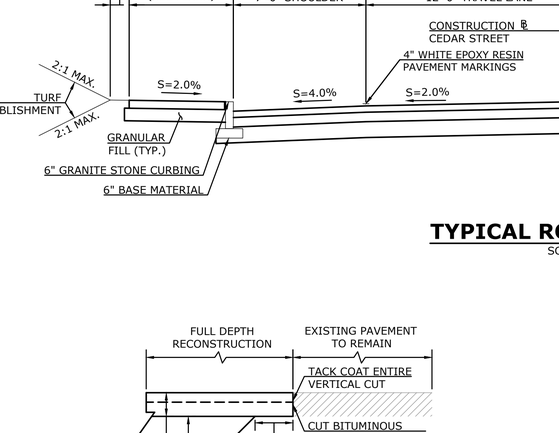
ROADWAY PAVEMENT TRANSITION DETAIL AT CONSTRUCTION LIMITS

SCALE: N.T.S.



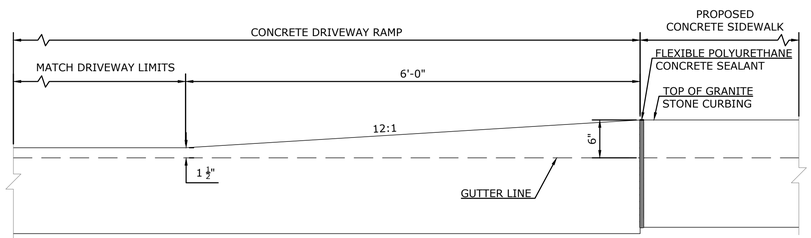
SIDEWALK DETAIL

SCALE: 1" = 1'-0"



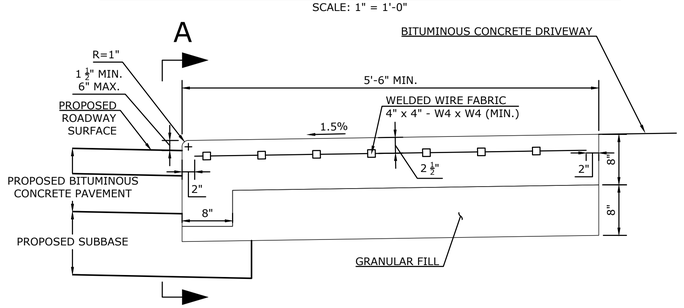
TRENCH SECTION FOR R.C.P.

SCALE: N.T.S.



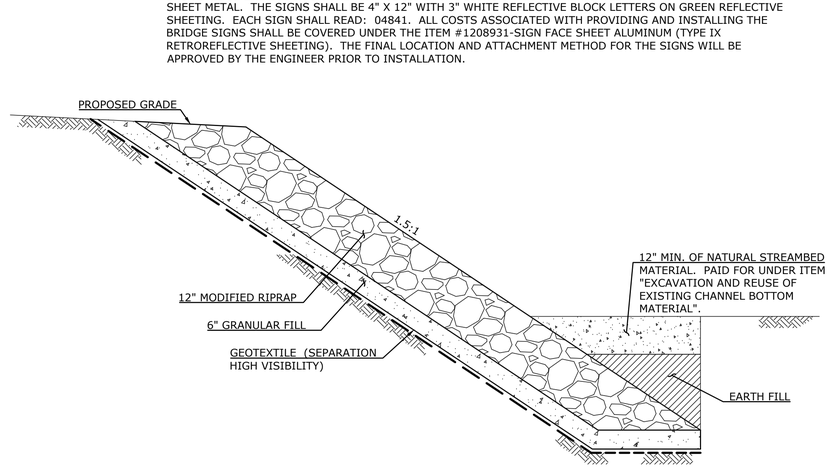
CONCRETE DRIVEWAY RAMP SECTION (A-A)

SCALE: 1" = 1'-0"



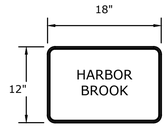
CONCRETE DRIVEWAY RAMP SECTION

SCALE: 1" = 1'-0"



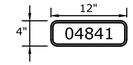
RIPRAP DETAIL

SCALE: 1" = 2'



CONNDOT SIGN NO. 51-2009

NOT TO SCALE



BRIDGE IDENTIFCATION PLACARD

NOT TO SCALE

SCHEDULE OF SIGNS							
CONNDOT SIGN NO.	SIZE	LEGEND	LOCATION	ALUM. THK.	POSTS	BACKGROUND COLOR	LEGEND COLOR
51-2009	18" X 12"	HARBOR BROOK	STA. 2+80±, 19± R	0.080	1	GREEN	WHITE
51-2009	18" X 12"	HARBOR BROOK	STA. 3+78±, 24'± L	0.080	1	GREEN	WHITE

* NOTE: ALL COLORS SHALL BE TYPE IX RETROREFLECTIVE WITH THE EXCEPTION OF BLACK WHICH SHALL BE OPAQUE.

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. SIGNS SHALL BE PAID FOR UNDER ITEM "SIGN FACE-SHEET ALUMINIUM (TYPE IX RETROREFLECTIVE SHEETING)".

BRIDGE IDENTIFICATION PLACARDS:
THE CONTRACTOR SHALL PROVIDE AND INSTALL NEW BRIDGE IDENTIFICATION SIGNS AT THE LEADING END OF EACH BRIDGE END BLOCK 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 REFLECTIVE SHEETING. EACH SIGN SHALL READ: 04841. ALL COSTS ASSOCIATED WITH PROVIDING AND INSTALLING THE BRIDGE SIGNS SHALL BE COVERED UNDER THE ITEM #1208931-SIGN FACE SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING). THE FINAL LOCATION AND ATTACHMENT METHOD FOR THE SIGNS WILL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

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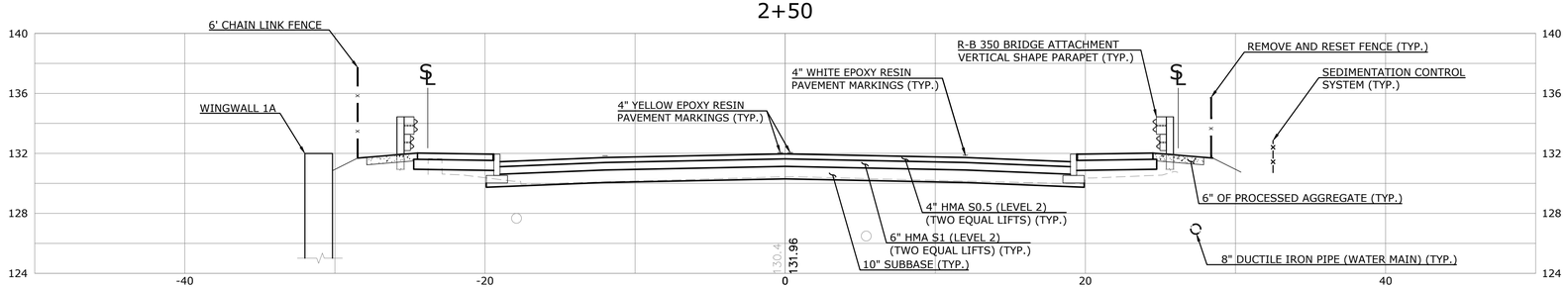
PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

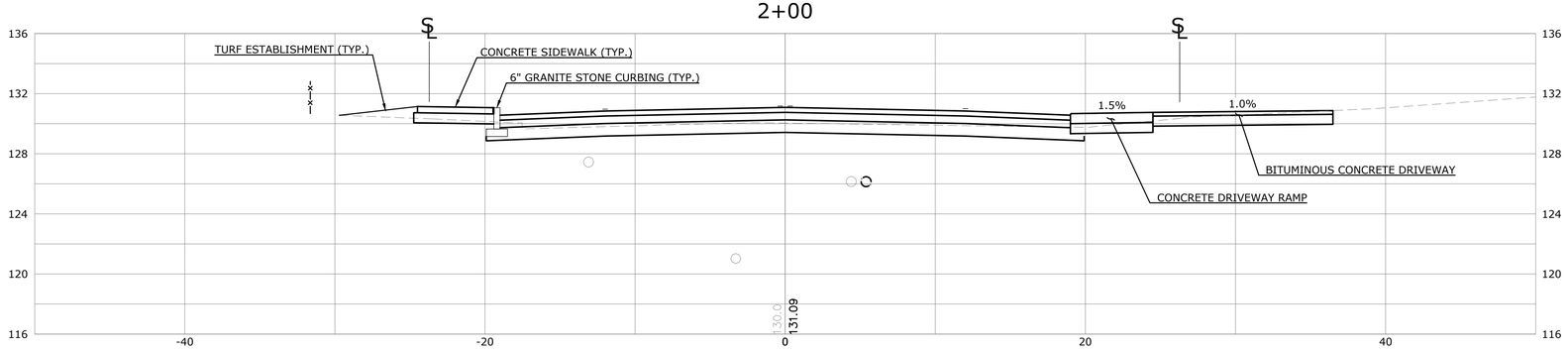
REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK ROADWAY DETAILS

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		8	32

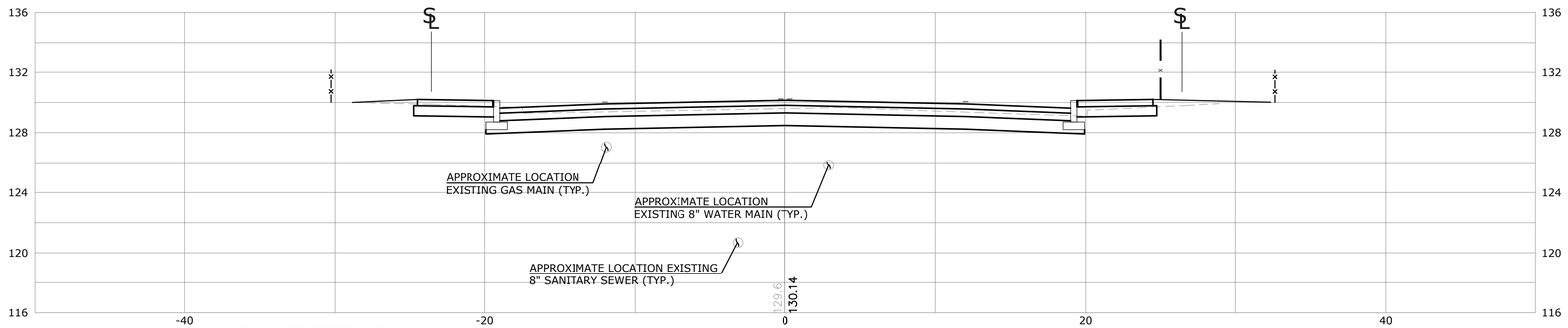
2+50



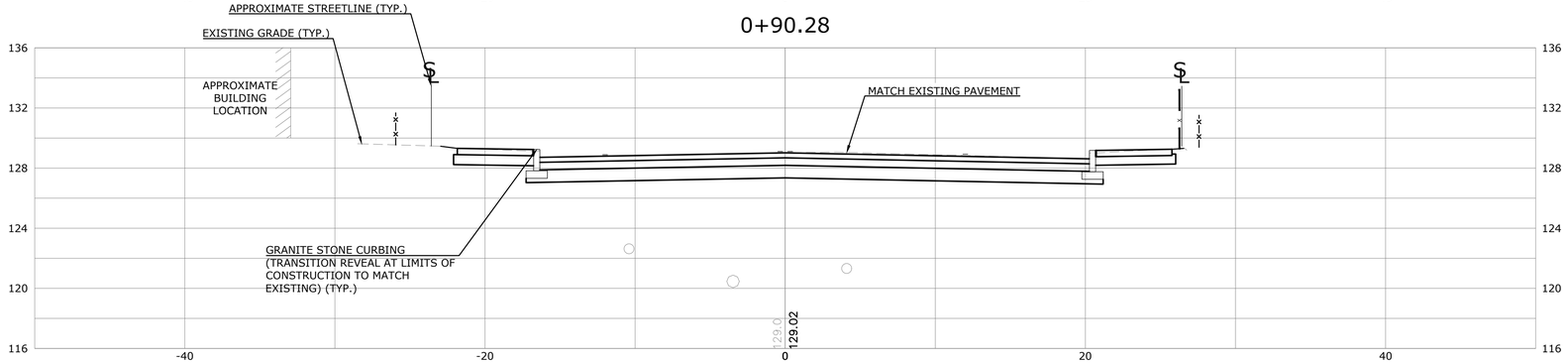
2+00



1+50



0+90.28



ROADWAY SECTIONS

SCALE: 1" = 5'-0"

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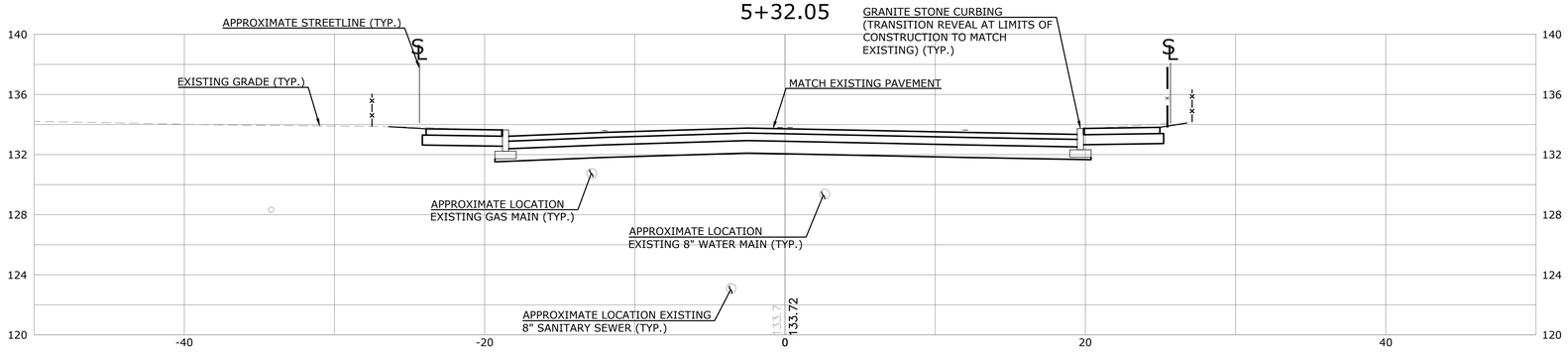
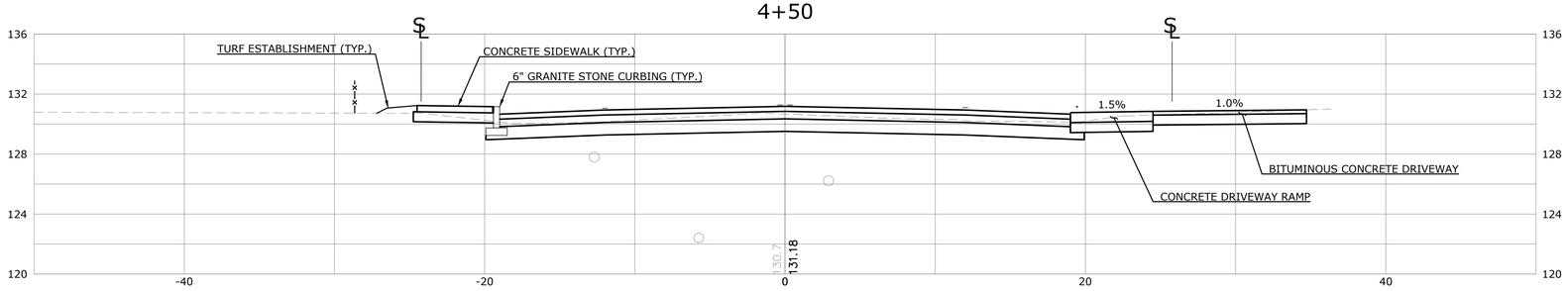
REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
ROADWAY SECTIONS 1

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		9	32

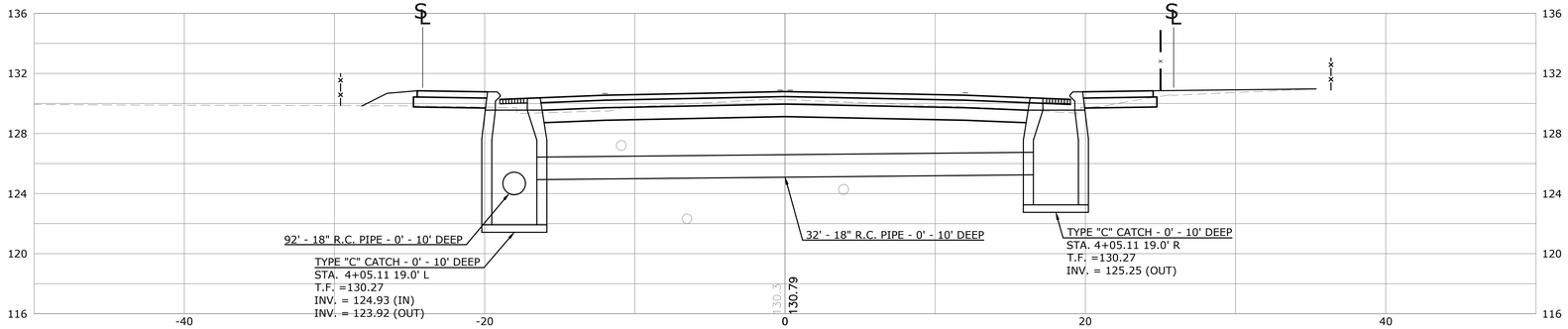
5+32.05



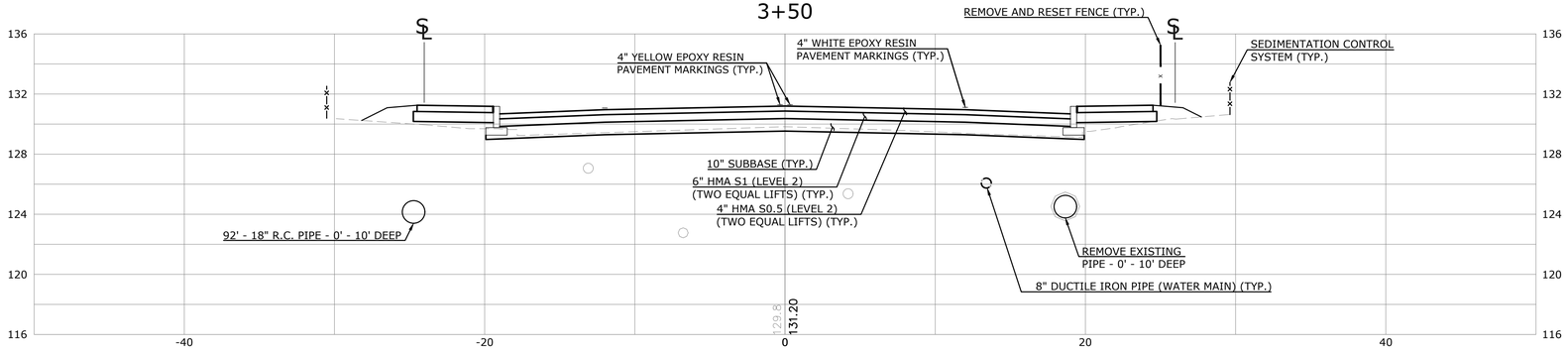
4+50



4+05.11



3+50



ROADWAY SECTIONS

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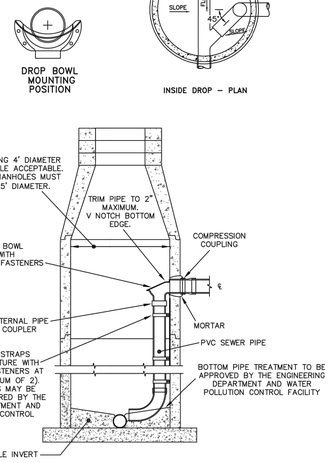
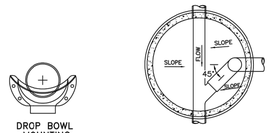
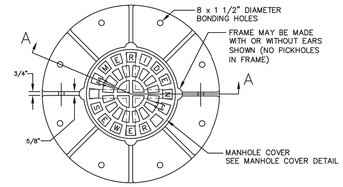
REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
ROADWAY SECTIONS 2

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		10	33

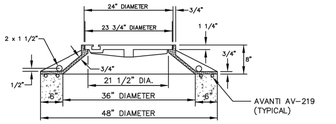




INSIDE DROP MANHOLE
SANITARY SEWER



PLAN



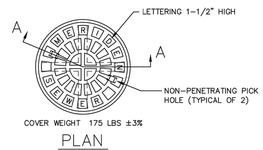
SECTION A–A

FRAME WEIGHT 427 LBS ±3%
COVER WEIGHT 175 LBS ±3%

NOTES

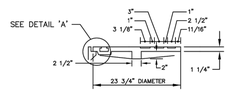
1. MANHOLE FRAME AND COVER TO BE LeBARON FOUNDARY INC. CATALOG NUMBER LJ 116 OR APPROVED EQUAL WITH A MINIMUM WEIGHT OF 602 LBS ±3%
2. MACHINE BEARING SURFACE REQUIRED ON THE FRAME SEAT AND COVER.

SANITARY SEWER MANHOLE FRAME

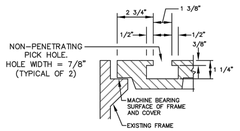


COVER WEIGHT 175 LBS ±3%

PLAN

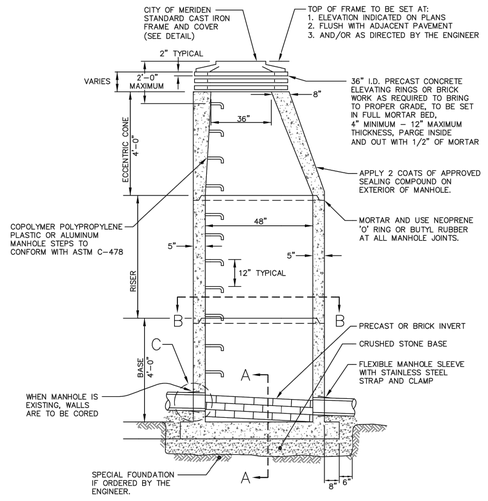


SECTION A–A



DETAIL 'A'

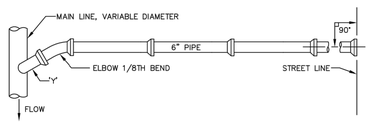
SANITARY SEWER MANHOLE COVER



SANITARY SEWER MANHOLE

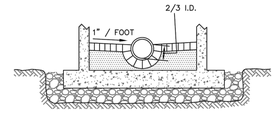
GENERAL NOTES FOR MANHOLES:

1. Backfill all manholes with bank–run gravel.
2. All pipe, chimney, and drop encasements to be class 'A' concrete. Class 'A' concrete shall be 3000 psi strength at 28 days.
3. Manholes which are located in rights–of–way off City streets shall have bolt down manhole covers.

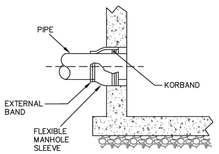


TYPICAL HOUSE CONNECTION LATERAL
PLAN VIEW

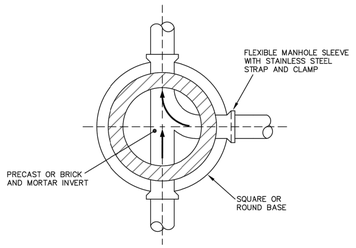
TYPICAL CHIMNEY



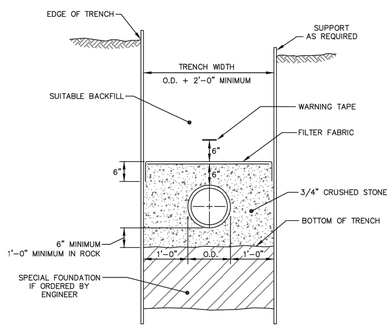
SECTION A–A



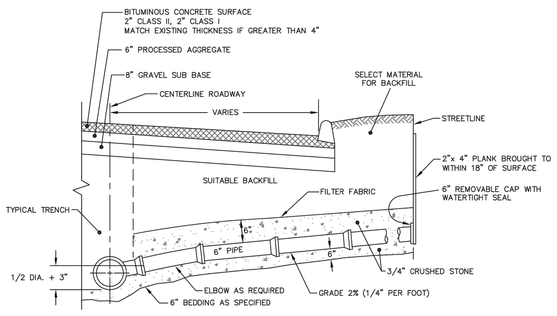
VIEW C
CORING OF
EXISTING MANHOLE



SECTION B–B



TYPICAL TRENCH SECTION
SANITARY SEWER



TYPICAL HOUSE CONNECTION LATERAL
PROFILE VIEW

SANITARY SEWER MAIN EXTENSION STANDARD NOTES:

1. The sanitary sewer main and service connection must be constructed in accordance with the City of Meriden Department of Public Works Standards and Specifications.
2. The Contractor must contact "Call Before You Dig" at 1–800–922–4455 for location and marking of all existing utilities prior to any excavation.
3. Upon completion of the sanitary sewer main installation, as–built plans must be submitted to the City of Meriden Engineering Division and certified by a licensed Land Surveyor or Civil Engineer. These plans must be in accordance with the Engineering Division standards.
4. Sanitary sewer lines shall be a minimum of ten feet apart horizontally and 18" apart vertically from any water line.
5. A pre–construction meeting must be held one week prior to beginning construction to include the Contractor, Design Engineering, and City Engineering staff. The Contractor shall be responsible for organizing this meeting.
6. The City Public Works Facility Inspector must be notified by the Contractor a minimum of 48 hours prior to beginning construction.
7. Final wye locations must be coordinated with the individual property owners prior to begining construction.
8. A public hearing must be held for any sanitary sewer main extension and Public Utilities Commision approval will be required.
9. Sanitary sewer main lines must pass a low pressure air test per City of Meriden Specifications. TV/videotape inspection of the main line will be required per City of Meriden Requirements.
10. Sanitary sewer manholes must pass a vacuum test per City of Meriden Specifications.

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NO.	DATE	DESCRIPTION

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DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

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87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

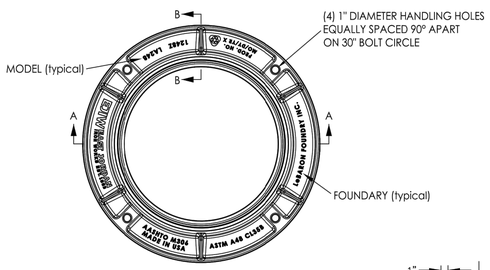
REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
SANITARY SEWER DETAILS - 1

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		11	32

Top Hat Frame

Weight **120 lbs.**

EJ FOUNDRY PRODUCT
#00124811 OR APPROVED
EQUAL

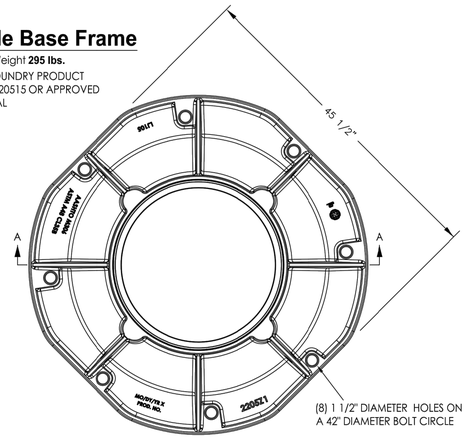


SECTION A - A

Wide Base Frame

Weight **295 lbs.**

EJ FOUNDRY PRODUCT
#00220515 OR APPROVED
EQUAL

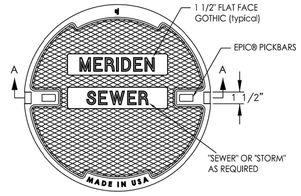


SECTION A-A

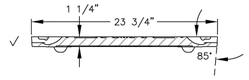
Cover

Weight 123

EJ FOUNDRY PRODUCT
#00124878 OR APPROVED
EQUAL



BOTTOM VIEW

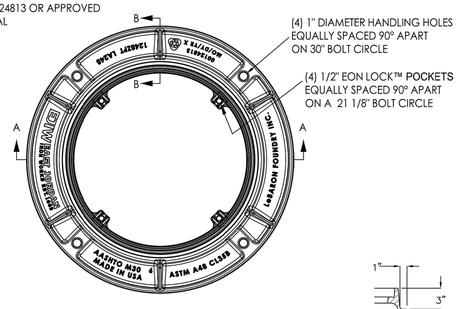


SECTION A-A

Top Hat Frame
Lockable / Watertight

Weight **120 lbs.**

EJ FOUNDRY PRODUCT
#00124813 OR APPROVED
EQUAL

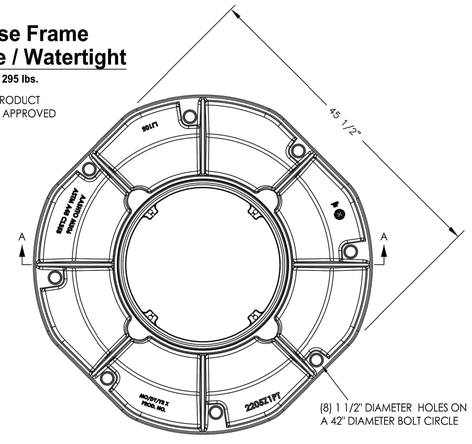


SECTION A-A

Wide Base Frame
Lockable / Watertight

Weight **295 lbs.**

EJ FOUNDRY PRODUCT
#00220517 OR APPROVED
EQUAL

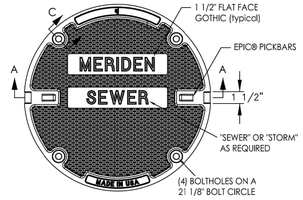


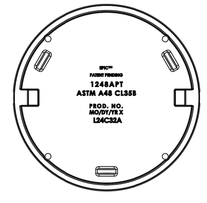
SECTION A-A

Cover
Lockable / Watertight

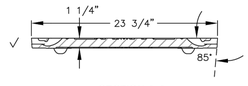
Weight 116

EJ FOUNDRY PRODUCT
#00124876 OR APPROVED
EQUAL

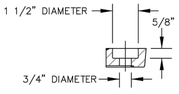




BOTTOM VIEW



SECTION A-A



SECTION C-C

Design Features
-Materials
Gray Iron (CL35B)
-Design Load
Heavy Duty
-Open Area

-Coating
Undipped
-√ Designates Machined Surface

Certification
-ASTM A48
-Country of Origin: USA

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PREPARED FOR

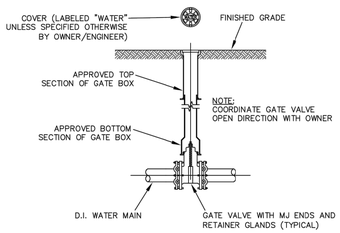
CITY OF MERIDEN

142 E MAIN STREET

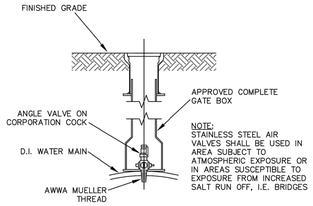
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK SANITARY SEWER DETAILS - 2

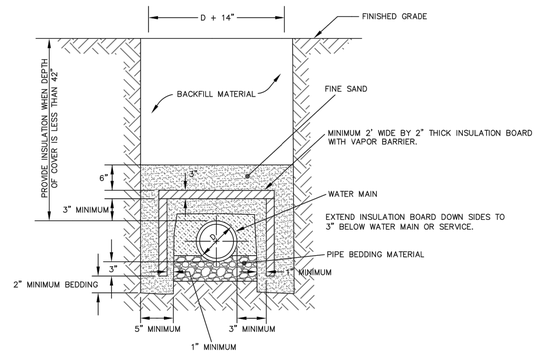
SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		12	32



GATE VALVE
NOT TO SCALE



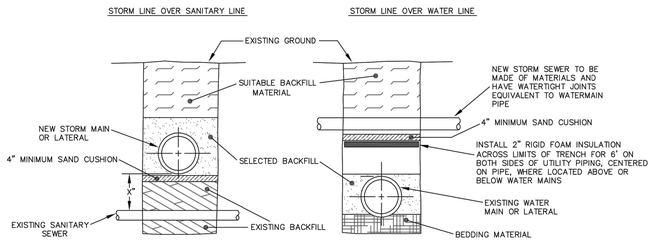
AIR VALVE
NOT TO SCALE



NOTES:

1. INSULATION BOARD TO BE FOAMGLAS OR APPROVED EQUAL MEETING ASTM C-552 WITH A COMPRESSIVE STRENGTH OF 90 PSI.
2. VAPOR BARRIER TO BE PITTCOTE 300 OR APPROVED EQUAL.
3. BACKFILL MATERIAL AROUND INSULATION MUST BE FINE SAND FREE FROM ROOTS, ORGANIC MATTER, OR OTHER INJURIOUS MATERIALS.
4. MAINTAIN 3" MINIMUM CLEARANCE FROM WATER MAIN ON ALL SIDES.
5. FOR REDUCTION IN COVER ONLY WHERE RESULTANT COVER IS LESS THAN 42".

WATER MAIN TRENCH
INSULATION DETAIL
NOT TO SCALE



EXISTING SANITARY LINE

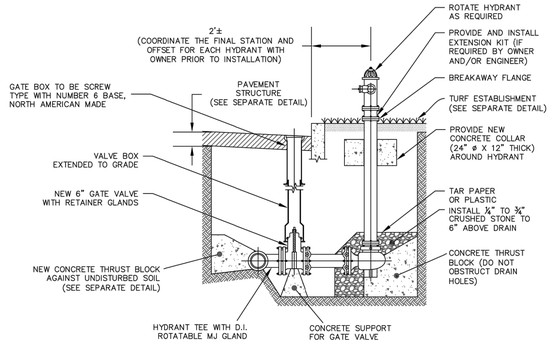
1. IF "X" IS 4" TO 18", REPLACE SANITARY SEWER WITH 18' LONG D.I.P.
2. IF "X" IS 18" TO 36", LINE SANITARY SEWER FROM MANHOLE TO MANHOLE

EXISTING WATER LINE

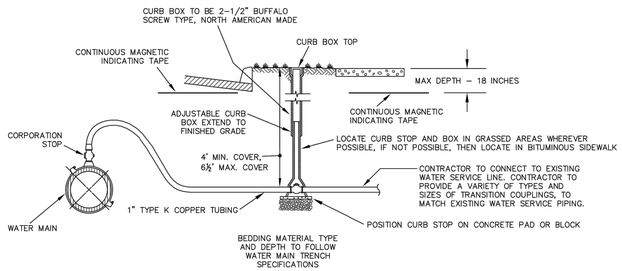
1. FOR SEPARATION OF WATER AND STORM SEWER BETWEEN 4" AND 18"
2. 2" INSULATION LAYER TO BE INSTALLED BETWEEN WATER MAIN AND ALL PROPOSED SANITARY AND STORM SEWERS WHERE VERTICAL SEPARATION IS LESS THAN 18"
3. INSULATION DIMENSIONS EQUAL TO NEW TRENCH WIDTH BY EXISTING WATER MAIN O.D. PLUS 4'

- NEW JOINTS TO BE CENTERED EQUIDISTANT FROM WATER MAIN
- PIPE JOINT REPAIR CLAMPS OR EQUIVALENT TO BE USED ON ALL NEW MAINS AND LATERALS

STORM LINE CONFLICTS
NOT TO SCALE

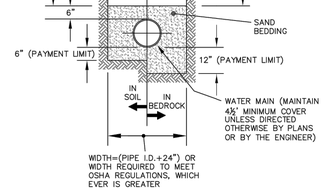


HYDRANT ASSEMBLY
NOT TO SCALE

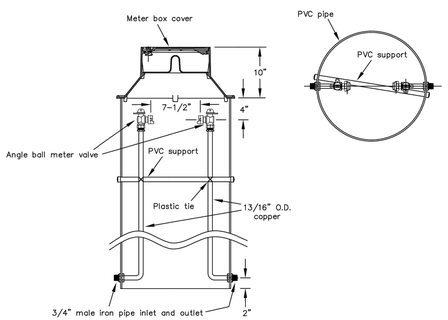


TYPICAL 1" WATER SERVICE CONNECTION
NOT TO SCALE

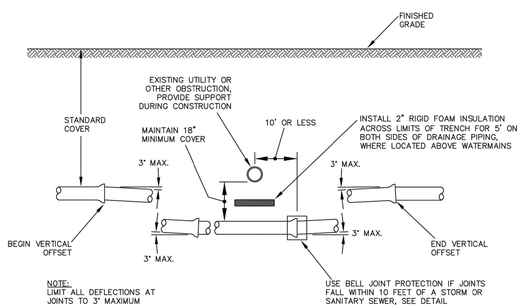
NOTE;
CITY OF MERIDEN TO CONNECT ALL SERVICE TAPS, AND PROVIDE CORPORATION STOP AND SWING.



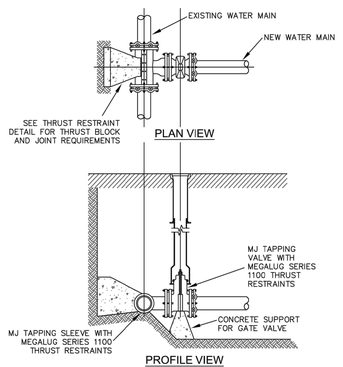
WATER MAIN TRENCH
NOT TO SCALE



METER PIT DETAIL
NOT TO SCALE



GRADUAL VERTICAL OFFSET
NOT TO SCALE



TAPPING SLEEVE & VALVE
NOT TO SCALE

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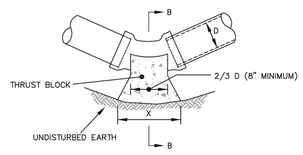
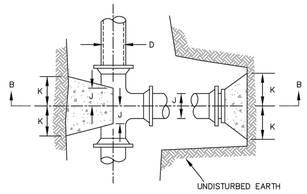
PREPARED FOR
CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
WATER DETAILS - 1

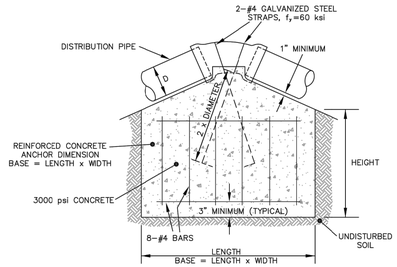
SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		13	32



PLAN

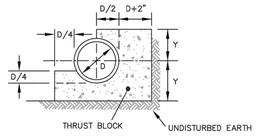


PLAN

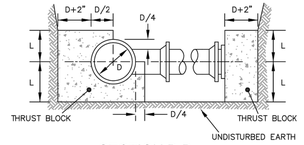


TYPICAL CONCRETE ANCHOR
NOT TO SCALE

BEND		45°			22½°
PIPE DIAMETER (D) IN INCHES		12	8	6	12
VOLUME OF CONCRETE REQUIRED (CF)		157	74	43	81
TYPICAL DIMENSIONS IN FEET	LENGTH	6.33	5	4	5.25
	WIDTH	6.33	5	4	5.25
	HEIGHT	4	3	3	3



SECTION A-A



SECTION B-B

1. ALL CONCRETE SHALL BE 3000 psi @ 28 DAYS.
2. DIMENSIONS SHOWN ARE MINIMUM AND ARE BASED UPON SOIL PRESSURE OF 2000 psf AND STATIC WATER PRESSURE OF 200 psi.
3. THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.

TABLE OF DIMENSIONS																				
DIMENSION	90° BEND					45° BEND					22½° BEND					11¼° BEND				
D (in)	6	8	10	12	16	6	8	10	12	16	6	8	10	12	16	6	8	10	12	16
X (in)	26	37	42	54	70	18	26	34	38	51	21	19	24	28	38	9	14	16	20	28
Y (in)	15	18	24	26	35	12	14	16	20	26	10	10	12	14	18	6	7	9	10	12

WATER MAIN BEND CONCRETE THRUST BLOCK DETAIL
NOT TO SCALE

1. ALL CONCRETE SHALL BE 3000 psi @ 28 DAYS.
2. DIMENSIONS SHOWN ARE MINIMUM AND ARE BASED UPON SOIL PRESSURE OF 2000 psf AND STATIC WATER PRESSURE OF 200 psi.
3. THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.

TABLE OF DIMENSIONS					
B (in)	6	8	10	12	16
J (in)	6	7	9	10	12
K (in)	12	15	20	24	30
L (in)	12	16	18	22	30

WATER MAIN TEE / PLUG CONCRETE THRUST BLOCK
NOT TO SCALE

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PREPARED FOR

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REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
WATER DETAILS - 2

SIZE	PROJECT		FILE NAME	NUMBER	REV.	SHEET	OF
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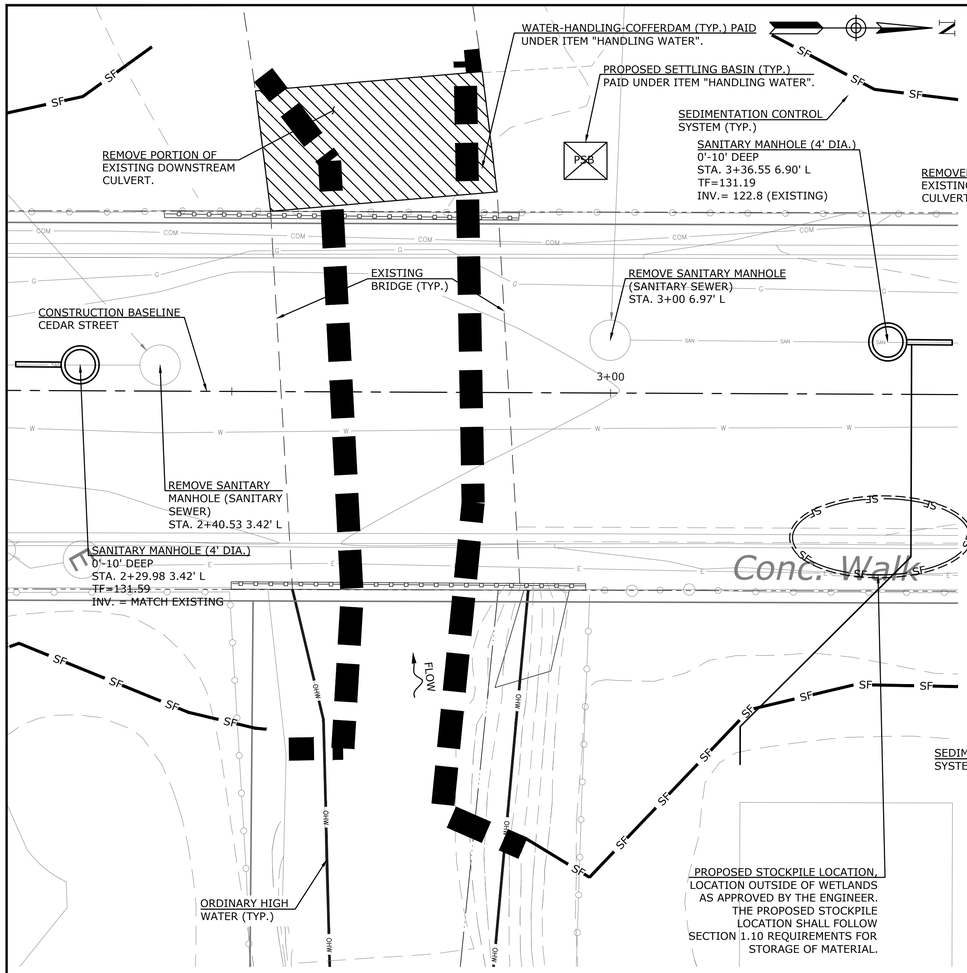
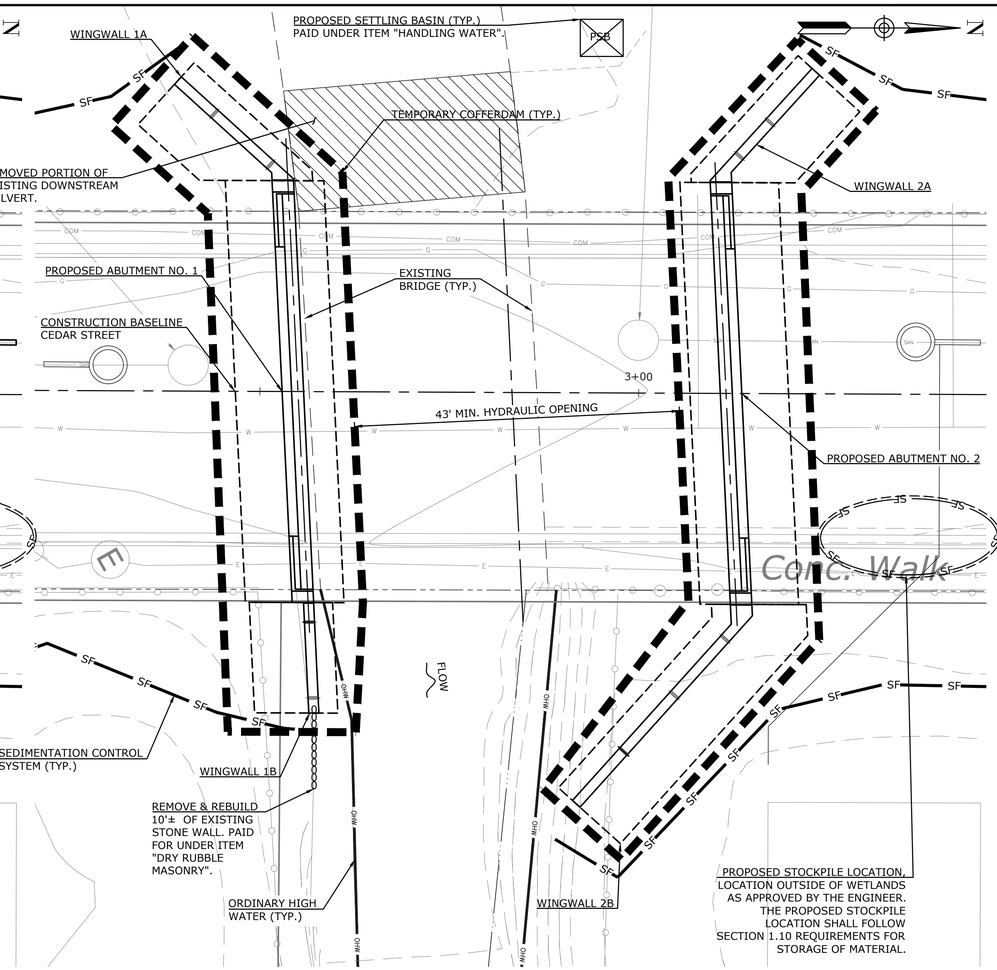


STAGE 1 PLAN

SCALE: 1" = 10'-0"



STAGE 2 PLAN

SCALE: 1" = 10'-0"

TEMPORARY FACILITIES HYDRAULICS	
AVERAGE DAILY FLOW	16 CFS
AVERAGE SPRING FLOW	32 CFS
2 - YEAR FREQUENCY DISCHARGE	716 CFS
TEMPORARY DESIGN DISCHARGE	716 CFS
TEMPORARY DESIGN FREQUENCY	2-YR
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	125.19
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	124.41

TIME RESTRICTIONS:

UNCONFINED IN-STREAM: UNCONFINED IN-STREAM ACTIVITIES MUST BE LIMITED TO THE TIME PERIOD JUNE 1 THROUGH SEPTEMBER 30.

WATER HANDLING NOTES:

1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH BRIDGE 04841 USING WATER-HANDLING COFFERDAMS AS SHOWN DURING CONSTRUCTION DURING STAGE 1.
2. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH BRIDGE 04841 USING TEMORARY COFFERDAMS AS SHOWN DURING CONSTRUCTION DURING STAGE 2.
3. EQUIPMENT SHALL NOT BE PERMITTED IN THE STREAM WHEN TEMPORARY COFFERDAMS OR WATER-HANDLING-COFFERDAMS ARE NOT IN PLACE WITHOUT THE APPROVAL OF THE ENGINEER.
4. PRIOR TO ANY DEWATERING, THE CONTRACTOR MUST SUBMIT TO THE ENGINEER A WRITTEN PROPOSAL FOR SPECIFIC METHODS AND DEVICES TO BE USED AND MUST OBTAIN THE ENGINEER'S WRITTEN APPROVAL OF SUCH METHODS AND DEVICES.
5. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS. THE LOCATION OF THE GROUNDWATER TREATMENT FACILITY IS APPROXIMATE. THE EXACT POSITION MAY VARY BASED ON THE PUMPING DESIGN SUBMISSION, DISCHARGE REQUIREMENTS AND APPROVED BY THE ENGINEER. DEWATERING BASIN SHALL BE PAID UNDER ITEM "HANDLING WATER" OR "TEMPORARY COFFERDAMS", AS APPLICABLE.
6. TEMPORARY COFFERDAMS AND WATER-HANDLING-COFFERDAMS SHALL CONSIST OF ANY APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY PROTECT THE CONSTRUCTION AREA FROM THE TEMPORARY DESIGN DISCHARGE ELEVATION, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND EXCAVATION, AND SHALL CONFORM TO PERMITS.

SUGGESTED CONSTRUCTION SEQUENCE NOTES:

STAGE 1:

1. INSTALL NECESSARY EROSION AND SEDIMENTATION CONTROLS AS SHOWN ON THE PLAN THROUGHOUT THE DURATION OF THE PROJECT, IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED PLAN OR AS DIRECTED BY THE ENGINEER.
2. PERFORM NECESSARY CLEARING AND GRUBBING.
3. COORDINATE RELOCATION OF EXISTING UTILITIES.
4. INSTALL T.P.C.B.C. AND CLOSE CEDAR STREET TO TRAFFIC.
5. INSTALL WATER-HANDLING-COFFERDAMS AS SHOWN AND MAINTAIN FLOW THROUGH BRIDGE 04841. THE TOP OF WATER-HANDLING COFFERDAMS SHALL BE ELEVATION (124.5') WHICH WILL PROVIDE PROTECTION FOR THE COMPUTED AVERAGE SPRING FLOW CONDITION.
6. INSTALL DEWATERING BASIN. EFFLUENT FROM DEWATERED WORK AREA(S) SHOULD NOT BE DISCHARGED DIRECTLY TO THE STREAM BUT MUST BE PROCESSED THROUGH A DEWATERING BASIN. TO BE PAID FOR UNDER ITEM "HANDLING WATER". SUCH FACILITIES SHOULD NOT BE LOCATED WITHIN THE STREAM CHANNEL OR ADJACENT WETLANDS. SEE WATER HANDLING NOTES.
7. MAINTAIN EXISTING DRAINAGE. ANY STORM DRAINAGE DISCHARGING INTO A CONFINED WORK AREA FROM EXISTING OR PROPOSED STORM DRAINAGE SHALL BE DIVERTED OR PUMPED OUTSIDE THE CONFINED AREAS. THE CONTRACTOR SHALL SUBMIT THE MEANS AND METHODS OF HANDLING STORM DRAINAGE TO THE ENGINEER FOR APPROVAL. WORK PAID UNDER "HANDLING WATER."
8. REMOVE EXISTING BRIDGE, WINGWALLS, ASSOCIATED FOOTINGS AND APPROXIMATELY 16 FEET OF DOWNSTREAM CULVERT AS SHOWN, PROTECTING THE BROOK FROM FALLING DEBRIS DURING THE REMOVAL. A DEBRIS SHIELD SHALL BE USED AND INSTALLED ABOVE ELEVATION 126.5'.
9. THE DOWNSTREAM CULVERT SHALL BE REMOVED WHERE IN CONFLICT WITH THE PROPOSED BRIDGE OR TO 1 FOOT BELOW THE STREAMBED.
10. GRADE NORTHERLY CHANNEL AS NECESSARY.
11. RECONFIGURE WATER-HANDLING COFFERDAMS AS NECESSARY TO COMPLETE CHANNEL GRADING.
12. REMOVE WATER-HANDLING COFFERDAMS.
13. INSTALL THE PROPOSED SANITARY MANHOLES AS SHOWN.

SUGGESTED CONSTRUCTION SEQUENCE NOTES:

STAGE 2:

1. MAINTAIN NECESSARY EROSION AND SEDIMENTATION CONTROLS.
2. INSTALL TEMPORARY COFFERDAMS. THE MINIMUM HYDRAULIC CLEAR OPENING BETWEEN THE COFFERDAMS SHALL BE (43'), NORMAL TO THE ALIGNMENT OF THE COFFERDAMS. THE TOP OF COFFERDAMS SHALL BE ELEVATION (126.19') UPSTREAM AND (125.41') DOWNSTREAM WHICH WILL PROVIDE PROTECTION FOR THE COMPUTED 2-YEAR TEMPORARY CONDITION FLOOD LEVEL WITH 1 FOOT FREEBOARD.
3. INSTALL DEWATERING BASIN. EFFLUENT FROM DEWATERED WORK AREA(S) SHOULD NOT BE DISCHARGED DIRECTLY TO THE STREAM BUT MUST BE PROCESSED THROUGH A DEWATERING BASIN. TO BE PAID FOR UNDER ITEM "HANDLING WATER". SUCH FACILITIES SHOULD NOT BE LOCATED WITHIN THE STREAM CHANNEL OR ADJACENT WETLANDS. SEE WATER HANDLING NOTES.
4. MAINTAIN EXISTING DRAINAGE. ANY STORM DRAINAGE DISCHARGING INTO A CONFINED WORK AREA FROM EXISTING OR PROPOSED STORM DRAINAGE SHALL BE DIVERTED OR PUMPED OUTSIDE THE CONFINED AREAS. THE CONTRACTOR SHALL SUBMIT THE MEANS AND METHODS OF HANDLING STORM DRAINAGE TO THE ENGINEER FOR APPROVAL. WORK PAID UNDER "HANDLING WATER."
5. INSTALL NEW ABUTMENTS AND WINGWALLS.
6. REBUILD PORTION OF THE EXISTING STONEWALL.
7. PERFORM CHANNEL GRADING AND INSTALL RIPRAP EMBANKMENT PROTECTION AND NATURAL STREAMBED MATERIAL.
8. COMPLETE EMBANKMENT GRADING, DRAINAGE AND PREFORMED SCOUR HOLE.
9. REMOVE ALL TEMPORARY COFFERDAMS.
10. COMPLETE REMAINING BRIDGE, UTILITY AND ROADWAY WORK.
11. THE SEDIMENTATION CONTROL SYSTEM IS TO BE REMOVED AFTER THE IMPACTED AREAS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

WMC CONSULTING ENGINEERS
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(860) 667-9624

PREPARED FOR

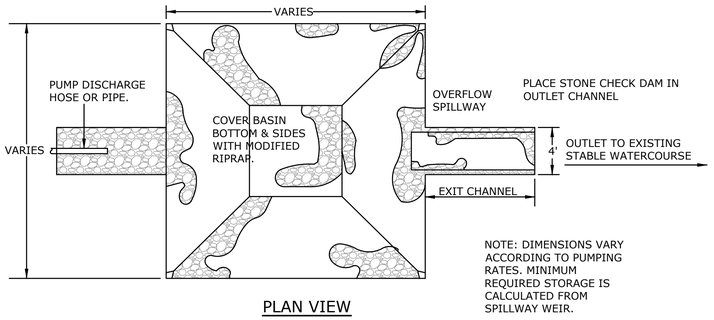
CITY OF MERIDEN

142 E MAIN STREET

MERIDEN, CT 06450

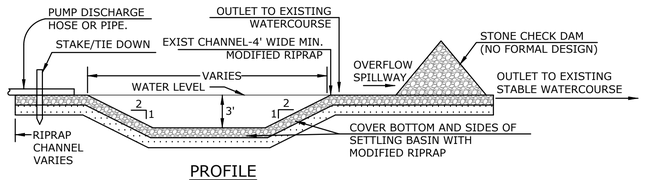
REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK STAGING PLAN

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		15	32



NOTE: DIMENSIONS VARY ACCORDING TO PUMPING RATES. MINIMUM REQUIRED STORAGE IS CALCULATED FROM SPILLWAY WEIR.

PLAN VIEW



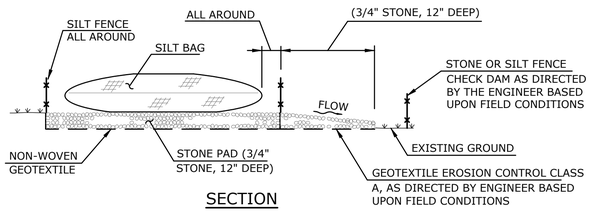
PROFILE

REFER TO PAGE 5-13-7 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL".

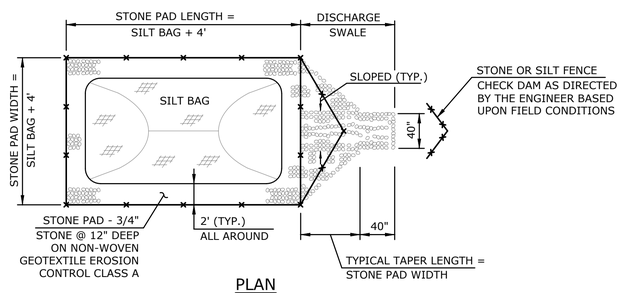
TYPE III PUMPING SETTLING BASIN

N.T.S.

PUMPING SETTLING BASIN NOTES:
1. LOCATION AS DIRECTED BY ENGINEER. REMOVE WHEN PUMPING IS COMPLETED.
2. PUMP DISCHARGE PAD HALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST THE GENERAL WORK.
3. STORAGE VOLUME BASED UPON PUMP DISCHARGE, LARGER PAD DIMENSIONS MAY BE REQUIRED AS DIRECTED BY THE ENGINEER. (MINIMUM REQUIRED STORAGE, CUBIC FEET) = 16 x (PUMP DISCHARGE RATE, GPM)
4. TYPE II PUMPING SETTLING BASIN TO BE USED WHEN THE EXPECTED DURATION OF USE IS LESS THAN 3 MONTHS. TYPE III PUMPING SETTLING BASIN TO BE USED WHEN THE EXPECTED DURATION OF USE IS LONGER THAN 3 MONTHS.
5. SETTLING BASIN AND EXIT CHANNEL TO BE BACKFILLED AT COMPLETION OF WORK. AREA SHALL BE GRADED AND STABILIZED ACCORDING TO PLANS OR AS DIRECTED BY THE ENGINEER.

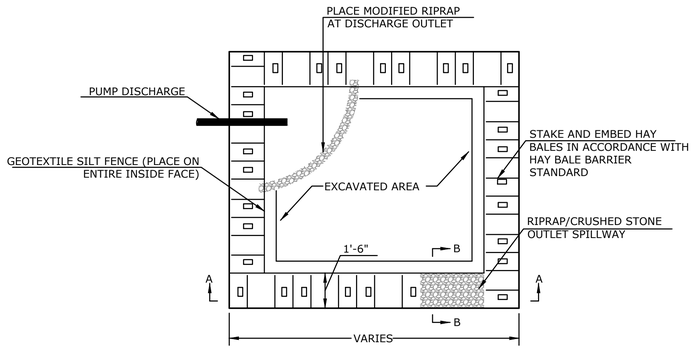


SECTION

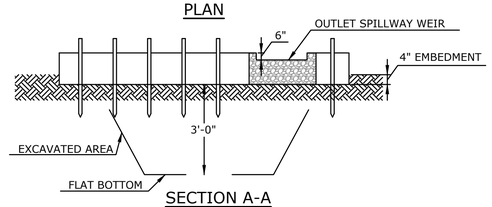


PLAN

SILT BAG INSTALLATION

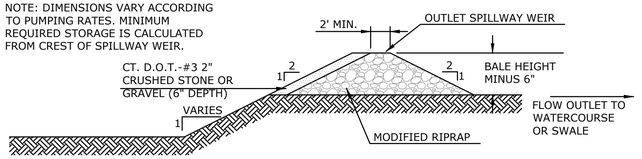


PLAN



SECTION A-A

NOTE: DIMENSIONS VARY ACCORDING TO PUMPING RATES. MINIMUM REQUIRED STORAGE IS CALCULATED FROM CREST OF SPILLWAY WEIR.

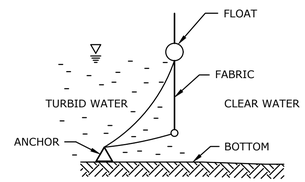


SECTION B-B

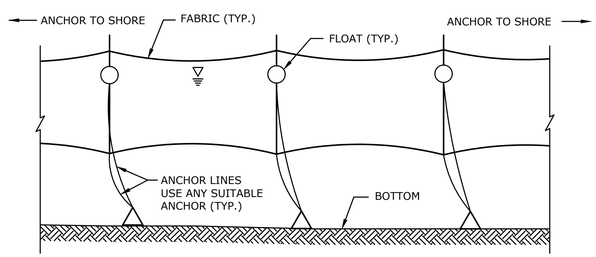
REFER TO PAGE 5-13-7 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL".

TYPE II PUMPING SETTLING BASIN

N.T.S.

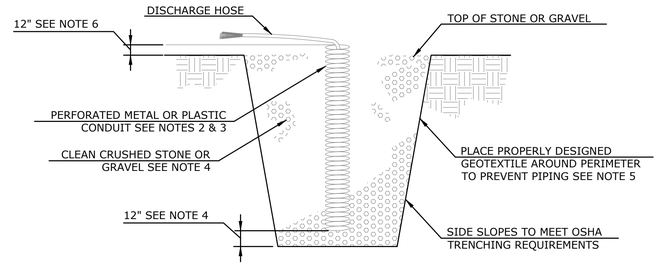


FLOATING SECTION



TURBIDITY CONTROL CURTAINS

NOT TO SCALE



REFER TO PAGE 5-13-3 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL".

NOTE:
1. OVERALL SUMP PIT DIMENSIONS SHALL BE COMPATIBLE WITH ANTICIPATED SEEPAGE RATES AND PUMP SIZE TO BE USED.
2. THE STANDPIPE DIAMETER AND NUMBER OF PERFORATIONS SHALL BE COMPATIBLE WITH THE PUMP SIZE BEING USED.
3. PERFORATIONS IN THE STANDPIPE SHALL BE EITHER CIRCULAR OR SLOTS. PERFORATION SIZE SHALL NOT EXCEED 1/2" IN DIAMETER.
4. CRUSHED STONE OR GRAVEL SHALL BE NO SMALLER THAN CT DOT #8 SIZE NOR LARGER THAN CT DOT #3 SIZE. CRUSHED STONE SHALL EXTEND A MINIMUM OF 12" BELOW THE BOTTOM OF THE STANDPIPE.
5. IF EXCESSIVE MOVEMENT OF FINE SOIL PARTICLES FROM THE SURROUNDING EXISTING SOILS IS ANTICIPATED, A PROPERLY DESIGNED GEOTEXTILE SHALL BE PLACED BETWEEN THE EXISTING SOILS AND THE CRUSHED STONE OR GRAVEL BACKFILL.
6. THE STANDPIPE SHALL EXTEND A MINIMUM OF 12" ABOVE THE SURROUNDING GROUND.

PUMP INTAKE

TYPICAL SECTION OF SUMP PIT

N.T.S.

GENERAL
EFFLUENT FROM DEWATERED WORK AREA(S) SHOULD NOT BE DISCHARGED DIRECTLY TO THE BROOK BUT BE PROCESSED THROUGH TREATMENT STRUCTURE(S). SUCH STRUCTURES SHOULD NOT BE LOCATED WITHIN THE STREAM CHANNEL OR ADJACENT WETLANDS.

THE PROJECT SHOULD NOT BE CONDUCTED IN A MANNER WHICH IMPEDES STREAM FLOW.

COFFERDAM NOTES
1. A CONSTRUCTION SEQUENCING PLAN AND A WATER HANDLING PLAN INCLUDING A CONTINGENCY PLAN FOR FLOOD EVENTS MUST BE SUBMITTED IN WRITING TO THE ENGINEER AND APPROVED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION IN A WATERWAY.

2. TEMPORARY COFFERDAM AND PUMPING NOT PAID SEPARATELY. COST TO BE INCLUDED IN THE PAY ITEM "COFFERDAM AND DEWATERING".

3. WATER HANDLING PLAN IS EXAMPLE ONLY.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

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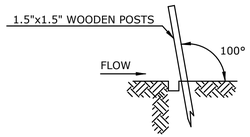
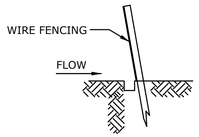
PREPARED FOR
CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
HANDLING WATER DETAILS

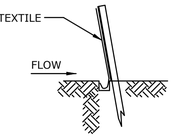
SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		16	32



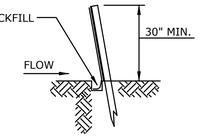
1. SET POSTS AND EXCAVATE A 6"x6" TRENCH. SET POSTS DOWN SLOPE. ANGLE 10° UPSLOPE FOR STABILITY AND SELF CLEANING.



2. ATTACH THE WIRE MESH FENCING TO POST.



3. ATTACH GEOTEXTILE TO THE WIRE FENCING AND EXTEND IT TO THE TRENCH.



4. BACKFILL THE TRENCH AND COMPACT THE EXCAVATED SOIL.

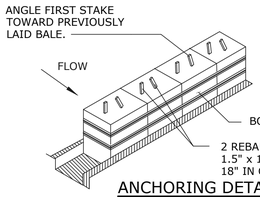
* WHEN INSTALLATION OF TRENCH IS IMPRACTICAL, ALTERNATE INSTALLATION SHALL BE TO LAY 6" FLAP HORIZONTALLY ON GROUND AND BURY FLAP BY RAMP SOIL OR STONE UP TO CONTROL FENCE. DEPTH OF RAMP SHALL BE AS REQUIRED TO HOLD DOWN FLAP WITHOUT LEAKAGE UNDER CONTROL FENCE WHILE MAINTAINING MINIMUM HEIGHT.

GEOTEXTILE FENCE SYSTEM

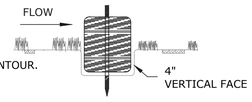
REFER TO PAGE 5-11-35 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AND PAGE 55 "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

SEDIMENTATION CONTROL SYSTEM INSTALLATION

N.T.S.



ANCHORING DETAIL



BEDDING DETAIL

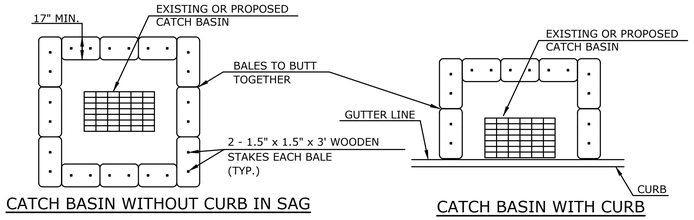
HAY BALE CONSTRUCTION SPECIFICATIONS:

1. HAY BALES SHALL BE PLACED AROUND NEWLY INSTALLED CATCH BASINS IN SAGS AND DROP INLETS TO PREVENT SEDIMENTATION AND OTHER DEBRIS FROM ACCUMULATING ON THE GRATE OR IN THE SUMP. HAY BALES SHOULD BE KEPT CLEAN AND FREE OF DEBRIS TO FACILITATE FLOW.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4", AND PLACED SO THE BINDINGS ARE HORIZONTAL.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR REBARS DRIVEN THROUGH THE BALE. THE FIRST STAKE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
4. INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

REFER TO PAGE 5-11-30 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AND PAGE 53 "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

HAY BALE DETAIL

N.T.S.



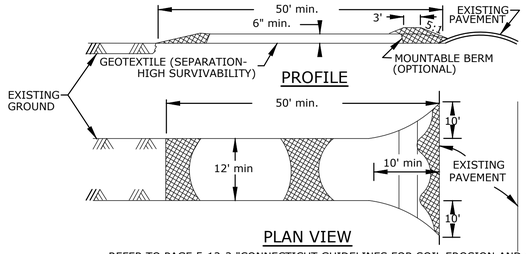
CATCH BASIN WITHOUT CURB IN SAG

CATCH BASIN WITH CURB

REFER TO PAGE 5-11-33 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AND PAGE 40 "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

SEDIMENTATION CONTROL DETAILS

N.T.S.



PROFILE

PLAN VIEW

REFER TO PAGE 5-12-2 "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" AND PAGE 50 "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

CONSTRUCTION SPECIFICATION:

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FT (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN 6".
4. WIDTH - 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. GEOTEXTILE WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAYS MUST BE REMOVED IMMEDIATELY.
8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SETTLING AREA SIZED TO HOLD THE VOLUME OF WATER USED DURING ANY 2-HOUR PERIOD.
9. PERIODIC INSPECTION AND NECESSARY MAINTENANCE SHALL BE PROVIDED AFTER EACH RAINFALL.
10. THE COST OF CONSTRUCTING THE STABILIZED CONSTRUCTION ENTRANCE WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE GENERAL WORK.

STABILIZED CONSTRUCTION ENTRANCE

N.T.S.

GENERAL

THIS PLAN PROPOSES EROSION CONTROL MEASURES TO HELP CONTROL ACCELERATED EROSION AND SEDIMENTATION AND REDUCE THE DANGER FROM STORM WATER RUNOFF AT THE SITE. THE RUNOFF SHALL BE CONTROLLED BY THE INTERCEPTION, DIVERSION, AND SAFE DISPOSAL OF PRECIPITATION. RUNOFF SHALL ALSO BE CONTROLLED BY STAGING CONSTRUCTION ACTIVITY AND PRESERVING NATURAL VEGETATION WHENEVER POSSIBLE. EXISTING VEGETATION SHALL BE PROTECTED AND ONLY THAT CLEARING AND GRUBBING ABSOLUTELY NECESSARY FOR THE PROPOSED CONSTRUCTION SHALL BE PERFORMED. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND CONTOUR, UNLESS OTHERWISE INDICATED ON THE PLANS. THE CONTRACTOR SHALL TAKE SPECIAL CARE WITH HIS CONSTRUCTION METHODS AND SHALL COMPLY WITH THE FOLLOWING GUIDELINES. REFERENCE IS MADE TO THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" (2002), AS AMENDED. THE GUIDELINES ARE OBTAINABLE FROM THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION, 79 ELM STREET, HARTFORD, CONNECTICUT 06106, AND SHOULD BE USED AS A REFERENCE IN CONSTRUCTING THE EROSION AND SEDIMENTATION CONTROLS INDICATED ON THESE PLANS. AN ADDITIONAL REFERENCE IS THE 1994 CONNDOT PUBLICATION "ON-SITE MITIGATION FOR CONSTRUCTION ACTIVITIES".

EROSION CONTROL

ALL AREAS SHALL BE PROTECTED FROM EROSION DURING AND AFTER CONSTRUCTION, PARTICULARLY THE STORAGE OF EXCAVATED OR STOCKPILED MATERIAL. THE CONTRACTOR SHALL CAREFULLY STRIP ALL TOPSOIL, LOAM, OR ORGANIC MATTER PRIOR TO TRENCHING OR OTHER OPERATIONS AND SHALL STORE THEM SEPARATELY FROM ALL OTHER MATERIALS DURING EXCAVATION. EACH STOCKPILE MUST BE ADEQUATELY RINGED WITH SEDIMENTATION CONTROL SYSTEM (I.E. HAY BALES AND/OR GEOTEXTILE FENCE). DEBRIS AND OTHER WASTE RESULTING FROM EQUIPMENT MAINTENANCE AND CONSTRUCTION WILL NOT BE DISCARDED ON SITE. STABILIZING OF SLOPES SHALL BE DONE IMMEDIATELY AFTER CONSTRUCTION OF SLOPES. SLOPES STEEPER THAN 4:1 SHALL BE PROTECTED WITH EROSION CONTROL MATTING. THIS MATTING IS MANUFACTURED COMBINATIONS OF MULCH AND NETTING AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL OTHER AREAS SHALL BE MULCHED WITH HAY OR STRAW AT A RATE OF 2 TO 3 TONS PER ACRE. STRAW OR HAY MULCH MUST BE ANCHORED IMMEDIATELY AFTER SPREADING TO PREVENT WINDBLOWING. THE METHODS RECOMMENDED BY THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENTATION CONTROL" SHALL BE USED FOR THE ANCHORING OF MULCH OR NETTING.

EROSION AND SEDIMENTATION CONTROL PLAN

AN EROSION AND SEDIMENTATION CONTROL PLAN MUST BE SUBMITTED IN WRITING TO THE ENGINEER AND APPROVED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
SEDIMENTATION CONTROL SYSTEM - THE SEDIMENTATION CONTROL SYSTEM SHALL CONSIST OF A GEOTEXTILE BARRIER FENCE. THE SEDIMENTATION CONTROL SYSTEM SHALL BE INSTALLED IMMEDIATELY AFTER A CUT SLOPE HAS BEEN GRADED, BEFORE A FILL SLOPE HAS BEEN CREATED AND AS INDICATED ON THE PLANS. THE SYSTEM IS DESIGNED TO INTERCEPT SILT AND SEDIMENT BEFORE IT REACHES THE WETLANDS OR WATERCOURSES. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE FENCE. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. THE SEDIMENTATION CONTROL SYSTEM IS TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE SYSTEM IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE FENCE ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

STACKED HAY BALES - HAY OR STRAW BALES USED FOR EROSION CONTROL SHALL BE STACKED AT CATCH BASINS WHERE SEDIMENT MAY ENTER THE CATCH BASIN OR AS DIRECTED BY THE RESIDENT ENGINEER. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE EROSION CHECKS. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. HAY OR STRAW BALES ARE TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE SYSTEM IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE EROSION CHECKS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

IN ALL AREAS, REMOVAL OF TREES, BUSHES, AND OTHER VEGETATION, AND DISTURBANCE OF THE SOIL, IS TO BE KEPT TO AN ABSOLUTE MINIMUM WHILE ALLOWING PROPER DEVELOPMENT OF THE SITE.

DURING CONSTRUCTION, AS SMALL AN AREA OF SOIL AS POSSIBLE SHOULD BE EXPOSED FOR AS SHORT A TIME AS POSSIBLE. AFTER CONSTRUCTION, GRADE, RESPREAD TOPSOIL, AND STABILIZE SOIL BY SEEDING AND MULCHING AS TO PREVENT EROSION.

EROSION AND SEDIMENTATION CONTROL MAINTENANCE PROCEDURES

ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED DURING CONSTRUCTION ON A DAILY BASIS AND FOLLOWING ALL STORMS BY THE RESIDENT ENGINEER. THE CONTRACTOR SHALL MAINTAIN AND MAKE REPAIRS AND REMOVE SEDIMENT AS REQUESTED BY THE RESIDENT ENGINEER. THIS WORK SHALL BE PERFORMED WITHIN 24 HOURS OF THE REQUEST AND THERE SHALL BE NO SEPARATE PAYMENT FOR THIS WORK.

THE CONTRACTOR SHALL CLEAN SEDIMENT AND DEBRIS FROM ALL DRAINAGE STRUCTURES, AND PIPES AT THE COMPLETION OF CONSTRUCTION, AND AS REQUESTED BY THE RESIDENT INSPECTOR TO KEEP THE SYSTEM FUNCTIONING PROPERLY DURING CONSTRUCTION.

FOLLOWING COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL REPAIR ALL ERODED AREAS AND ENSURE A GOOD STAND OF TURF IS ESTABLISHED THROUGHOUT. THE CONTRACTOR SHALL REPAIR ALL ERODED OR DISPLACED RIPRAP, AND CLEAN SEDIMENT COVERED STONES.

ALL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE ESTABLISHED PRIOR TO AND BE MAINTAINED THROUGH ALL CONSTRUCTION PHASES.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

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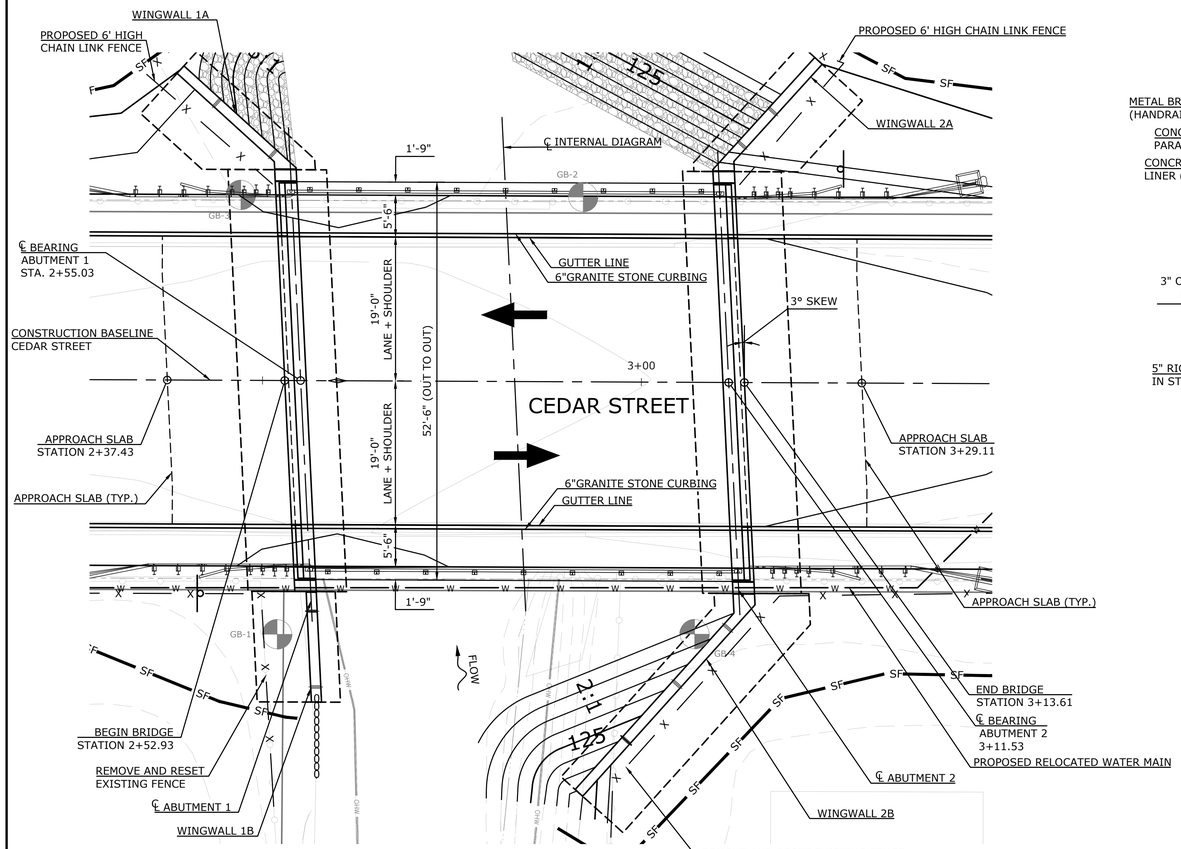
PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
EROSION & SEDIMENTATION CONTROL DETAILS

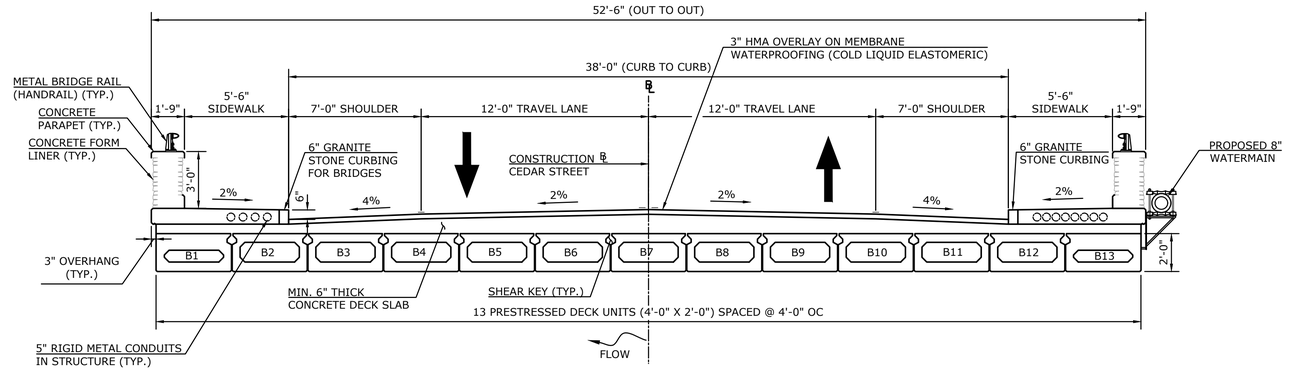
SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D –	CEDAR STREET –	F.D. –	17088 –		17	32



STRUCTURE PLAN

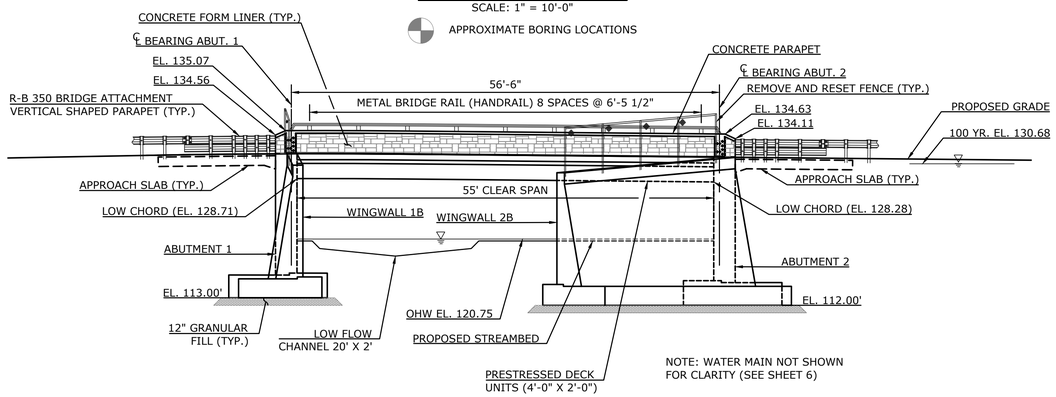
SCALE: 1" = 10'-0"

APPROXIMATE BORING LOCATIONS



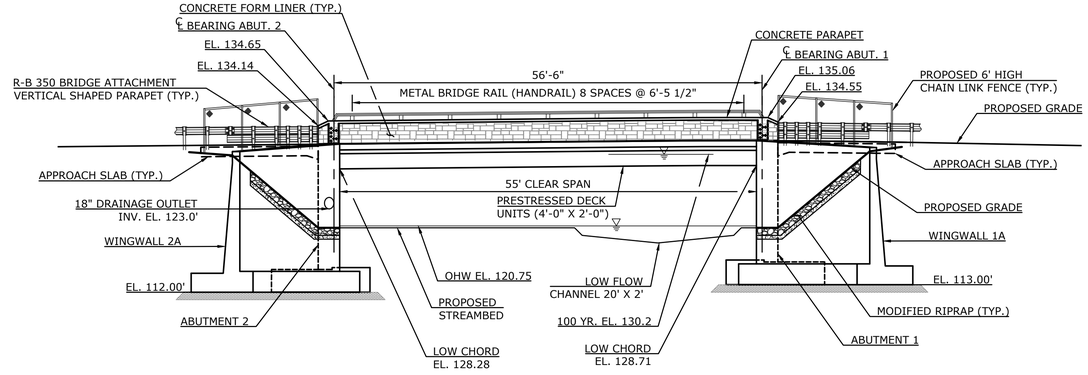
BRIDGE SECTION (NORMAL TO BASELINE)

SCALE: 1" = 4'-0"



UPSTREAM BRIDGE ELEVATION (LOOKING DOWNSTREAM)

SCALE: 1" = 10'-0"



DOWNSTREAM BRIDGE ELEVATION (LOOKING UPSTREAM)

SCALE: 1" = 10'-0"

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

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PREPARED FOR

CITY OF MERIDEN

142 E MAIN STREET

MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK STRUCTURE, ELEVATION & SECTION PLAN

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	– CEDAR STREET	– F.D.	– 17088	–	18	32

GENERAL NOTES:

SPECIFICATIONS: CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 818 (2020), SUPPLEMENTAL SPECIFICATIONS DATED JANUARY 2021, AND SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (AASHTO 2017, 8TH EDITION WITH LATEST INTERIMS), AS SUPPLEMENTED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL (2003) UP TO 2019 REVISIONS.

MATERIAL STRENGTHS:

CONCRETE:

CLASS PCC 03340 f'c = 3000 P.S.I.
CLASS PCC 04460 f'c = 4000 P.S.I.
CLASS PCC 04462 f'c = 4000 P.S.I.
CLASS PCC 07262 f'c = 6500 P.S.I.

THE SPECIFIED CONCRETE STRENGTH USED IN DESIGN (f'c) OF THE CONCRETE COMPONENTS IS NOTED ABOVE. THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE IN THE CONSTRUCTED COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 6.01 - CONCRETE FOR STRUCTURES, AND M.03 - PORTLAND CEMENT CONCRETE.

REINFORCEMENT:

ASTM A615 GRADE 60 fy = 60,000 P.S.I.

LIVE LOAD: HL-93, LEGAL AND PERMIT VEHICLES

FUTURE PAVING ALLOWANCE: NONE

HMA OVERLAY: THIS SHALL CONSIST OF 2" MIN. OF HMA S0.5 ON TOP OF 1" OF HMA S0.25 ON MEMBRANE WATERPROOFING (COLD LIQUID ELASTOMERIC).

FOUNDATION PRESSURES: THE VARIOUS GROUP LOADINGS NOTED ON THE SUBSTRUCTURE PLAN SHEETS REFER TO THE GROUP LOADS AS GIVEN IN THE AASHTO *LRFD BRIDGE DESIGN SPECIFICATIONS*.

DIMENSIONS: ALL DIMENSIONS SHOWN ON THE PLANS ARE IN FEET AND INCHES EXCEPT IF NOTED OTHERWISE. ALL ELEVATIONS ARE GIVEN IN FEET. WHEN ELEVATIONS AND 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 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 OF THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER.

REMOVAL OF EXISTING BRIDGE: BEFORE INITIATING CONSTRUCTION, CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL DEFINING METHOD FOR PROTECTION OF THE STREAM AREA DURING REMOVAL OF EXISTING BRIDGE. COST TO BE INCLUDED IN THE COST OF "REMOVAL OF EXISTING BRIDGE".

COFFERDAMS AND DEWATERING AND HANDLING WATER: BEFORE INITIATING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL THAT DEFINES METHODS AND MATERIALS FOR CONTROLLING STREAM WATER (COFFERDAMS, ETC.), DEWATERING, STRUCTURE EXCAVATION AND PROTECTING THE STREAM DURING VARIOUS STAGES OF CONSTRUCTION. THE COST OF THIS WORK SHALL BE INCLUDED IN THE COST OF "COFFERDAM AND DEWATERING" AND "HANDLING WATER".

UTILITY RELOCATIONS: OVERHEAD OR UNDERGROUND UTILITY LINES MAY BE IN CONFLICT WITH TEMPORARY SHEETING OR COFFERDAMS, SETTING OF PRECAST BOX BEAMS OR OTHER CONSTRUCTION. DEPENDING UPON THE CONTRACTOR'S CONSTRUCTION OPERATIONS, THESE UTILITIES MAY NEED TO BE RELOCATED TO TEMPORARY LOCATIONS FOR PORTIONS OF THE CONSTRUCTION OPERATIONS AND THEN MOVED BACK TO PERMANENT LOCATIONS WHICH MAY BE OTHER THAN CURRENT LOCATIONS. THE ACTUAL UTILITY RELOCATIONS (PERMANENT OR TEMPORARY) WILL BE THE RESPONSIBILITY OF THE INDIVIDUAL UTILITY OWNER, HOWEVER THE CONTRACTOR WILL BE REQUIRED TO COORDINATE ALL UTILITY RELOCATIONS WITH EACH UTILITY OWNER AND TO PHASE HIS WORK AS REQUIRED TO ACCOMMODATE TEMPORARY AND PERMANENT UTILITY RELOCATION WORK. THE CONTRACTOR SHALL HAVE NO RIGHT TO CLAIM EXTRA COMPENSATION FOR DELAYS OR STAGING AND PHASING OF HIS WORK DUE TO UTILITY RELOCATION WORK.

UNCONFINED IN-STREAM ACTIVITY: UNCONFINED IN-STREAM ACTIVITIES MUST BE LIMITED TO THE TIME PERIOD JUNE 1 THROUGH SEPTEMBER 30.

BRIDGE IDENTIFICATION PLACARDS: THE CONTRACTOR SHALL PROVIDE AND INSTALL NEW BRIDGE IDENTIFICATION PLACARDS AT EACH LEADING END OF THE BRIDGE ON THE TRAFFIC SIDE. THE SIGNS SHALL BE FABRICATED WITH 40 GUAGE ALUMINUM SHEET METAL. THE SIGNS SHALL BE 4"X12" WITH 3" WHITE REFLECTIVE BLOCK LETTERS ON GREEN REFLECTIVE SHEETING. EACH SIGN SHALL READ "04841". ALL COST ASSOCIATED WITH PROVIDING AND INSTALLING THE BRIDGE SIGNS SHALL BE COVERED UNDER 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:

CONCRETE: THE FOLLOWING PAY ITEMS AND CONCRETE CLASSES ARE REQUIRED FOR CAST-IN-PLACE BRIDGE COMPONENTS:

ITEM	BRIDGE COMPONENTS	PCC CLASS
FOOTING CONCRETE	WINGWALL, ABUTMENT FOOTINGS	PCC03340
ABUTMENT AND WALL CONCRETE	ABUTMENT, WINGWALL, BACKWALL STEMS, , AND CHEEKWALLS	PCC03340
APPROACH SLAB CONCRETE	APPROACH SLABS	PCC04460
BRIDGE DECK CONCRETE	BRIDGE DECK	PCC04462
PARAPET CONCRETE	BRIDGE PARAPETS	PCC04462
BRIDGE SIDEWALK CONCRETE	BRIDGE SIDEWALKS	PCC04462

JOINT SEAL: SEE SECTION 6.01 "CONCRETE FOR STRUCTURE".

EXPOSED EDGES: EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1"X1" UNLESS DIMENSIONED OTHERWISE

CONCRETE COVER: ALL REINFORCEMENT SHALL HAVE MIN. 2" COVER UNLESS DIMENSIONED OTHERWISE.

REINFORCEMENT: ALL REINFORCEMENT SHALL BE GALVANIZED AFTER FABRICATION UNLESS OTHERWISE NOTED. ALL REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A767, CLASS1, INCLUDING SUPPLEMENTAL REQUIREMENTS. THE COST OF FURNISHING AND PLACING REINORCEMENT SHALL BE INCLUDED IN THE ITEM "DEFORMED STEEL BARS - GALVANIZED". ALL REINFORCEMENT SHALL BE ASTM A615 GRADE 60.

CONSTRUCTION JOINTS: CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS, WILL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.

COMPOSITE STRUCTURE: NO TEMPORARY INTERMEDIATE SUPPORT SHALL BE USED DURING THE PLACING AND SETTING OF THE CONCRETE DECK SLAB. CONSTRUCTION LOADS AND DEAD LOADS WILL BE PERMITTED WHEN DIRECTED BY THE ENGINEER BUT ONLY WHEN THE DECK CONCRETE HAS REACHED A STRENGTH OF f'c=3500 PSI. LIVE LOADS (TRAFFIC WILL BE PERMITTED ON THE STRUCTURE AFTER THE DECK CONCRETE HAS REACHED A STRENGTH OF f'c=4000 PSI

PREFORMED EXPANSION JOINT FILLER: AS SHOWN ON THE PLANS. THE COST OF FURNISHING AND INSTALLING PREFORMED EXPANSION JOINT FILLER IS PAID FOR AS "(THICKNESS AND TYPE) JOINT FILLER FOR BRIDGES".

CLOSED CELL ELASTOMER: FURNISHING AND INSTALLING CLOSED CELL ELASTOMER SHALL BE INCLUDED IN THE ITEM "1" CLOSED CELL ELASTOMER".

PRESTRESSED DECK UNIT SHIPPING DATA

MEMBER	SHIPPING LENGTH	SHIPPING HEIGHT	SHIPPING WIDTH	SHIPPING WEIGHT
B1,B13	58'-0"	2'-3"	4'-0"	53,976 LBS
B2-B12	58'-0"	2'-3"	4'-0"	43.368 LBS

HYDRAULIC DATA

DRAINAGE AREA	9.06 SQ. MILES
DESIGN FREQUENCY	100 YEAR
DESIGN DISCHARGE	3,164 C.F.S.
AVERAGE DAILY FLOW ELEVATION	120.75 FT.
UPSTREAM DESIGN WATER SURFACE ELEVATION	130.68 FT.
DOWNSTREAM DESIGN WATER SURFACE ELEVATION	130.20 FT.

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.

COMPONENT OR DETAIL	STRUCTURE SHEET REFERENCE
NONE	NONE

CONCRETE DISTRIBUTION

SUPERSTRUCTURE	C.Y.	186
SUBSTRUCTURE	C.Y.	272
FOOTING	C.Y.	258
TOTAL	C.Y.	716

INSPECTION OF FIELD WELDS

METHODS	UNIT	QUANTITY
ULTRASONIC	INCHES	NONE
MAGNETIC PARTICLE	FEET	NONE

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

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PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
STRUCTURAL GENERAL NOTES

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		19	32

TEST BORING LOG

MILONE & MACBROOM 99 Realty Drive Cheshire, CT 06410 (203) 271-1773	**PROJECT:** Cedar Street Bridge	**BORING NO.:** GB-1	**SHEET:** 1 of 2
	LOCATION: Meriden, Connecticut	**CONTRACTOR:** SITE, LLC	
	PROJ. NO: 1261-72	**FOREMAN:** John	
	CLIENT: City of Meriden	**INSPECTOR:** Peter S	
	DATE: April 17, 2018	**GROUND SURFACE ELEVATION:** xx	

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER DEPTH (FT.)			TYPE OF RIG:
TYPE	HSA	-	SS	-	DATE	TIME	WATER DEPTH	ATV/BOMBARDIER
SIZE OD (IN.)	4	-	2	-	17-Apr-18	8:00	7.8'	RIG MODEL:
HMR. WT (LB.)	-	-	140	-				CME-55
HMR. FALL (IN.)	-	-	30	-				LABORATORY TESTING ☐

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remark
1	S-1	14	1 1 2 2	S-1: Very Loose, Top 9": brown, fine SAND AND SILT, some Organic. Middle 5": reddish-brown, fine SAND, some Silt, trace red-brick fragments, trace coal fragments, trace fire-brick fragments. Bottom 14": reddish-brown, fine SAND, little Silt, trace coal fragments, trace red-brick fragments	0.75	TOPSOIL	#####	1
2								
3	S-2	14	4 5 5 4	S-2: Loose, reddish-brown, fine to medium SAND, trace Silt, trace coal fragments, trace fire-brick.				
4								
5								
6	S-3	10	1 2 1 2	S-3: Very Loose, reddish-brown, fine to medium SAND, trace Silt, trace coal fragments, trace slag, trace glass fragments		FILL		
7								
8	S-4	11	2 2 2 4	S-4: Very Loose, Top 2": red-brick crushed. Bottom 9": Wet, reddish-brown fine SAND, little gray ash, trace coal fragments, trace red-brick fragments, trace coal fragments.	7.8	G.W.T ▽	####	2
9								
10					10.5		#####	
11	S-5	14	6 3 2 2	S-5: Loose, Top 4": Wet, reddish-brown, fine to medium SAND, trace fine Gravel, trace red-brick fragments, trace coal fragments. Bottom 10": Wet, reddish-brown, fine SAND, trace Silt		FINES		
12								
13								
14								
15								
16	S-6	20	1 2 4 3	S-6: Loose, Top 18": Wet, reddish-brown, fine SAND. Bottom 2": Wet, reddish-brown, fine SAND, some Silt, little Clay, trace fine Gravel.	16.5		####	
17								
18								
19								
20								
21	S-7	6	5 6 10 19	S-7: Medium dense, Top 5": Wet, reddish-brown, fine to medium SAND, some clayey Silt, trace fine Gravel. Bottom 1": Arkose fragments		GLACIAL TILL		
22								

Remarks: 1. Environmental Sample from 1-3'
2. Environmental Sample from 6-8'

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

MILONE & MACBROOM 99 Realty Drive Cheshire, CT 06410	**PROJECT:** Cedar Street Bridge	**BORING NO.:** GB-1	**SHEET:** 2 of 2
	LOCATION: Meriden, Connecticut	**CONTRACTOR:** SITE, LLC	
	PROJ. NO: 1261-72	**FOREMAN:** John	
	CLIENT: City of Meriden	**INSPECTOR:** Peter S	
	DATE: April 17, 2018	**GROUND SURFACE ELEVATION:** xx xx	

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER DEPTH (FT.)			TYPE OF RIG:
TYPE	SSA	-	SS	-	DATE	TIME	WATER DEPTH	ATV/BOMBARDIER
SIZE OD (IN.)	4	-	2	-				RIG MODEL:
HMR. WT (LB.)	-	-	140	-				CME-55
HMR. FALL (IN.)	-	-	30	-				LABORATORY TESTING ☐

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remark
23					23.5	Possible Weathered Bedrock	#####	3
24	S-8	1	50 at 1"	S-8: Very Dense, Arkose chip.	24.1		#####	
25				Bottom of Exploration (Auger Refusal) 24'3"				
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								

Remarks:
3. Auger Refusal at 24'3", possible weathered bedrock at 23'5".

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

MILONE & MACBROOM 99 Realty Drive Cheshire, CT 06410 (203) 271-1773	**PROJECT:** Cedar Street Bridge	**BORING NO.:** GB-2	**SHEET:** 1 of 1
	LOCATION: Meriden, Connecticut	**CONTRACTOR:** SITE, LLC	
	PROJ. NO: 1261-72	**FOREMAN:** John	
	CLIENT: City of Meriden	**INSPECTOR:** Peter S	
	DATE: April 17, 2018	**GROUND SURFACE ELEVATION:** xx	

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER DEPTH (FT.)			TYPE OF RIG:
TYPE	HSA	-	SS	-	DATE	TIME	WATER DEPTH	ATV/BOMBARDIER
SIZE OD (IN.)	4	-	2	-	17-Apr-18	9:50	5.5'	RIG MODEL:
HMR. WT (LB.)	-	-	140	-				CME-55
HMR. FALL (IN.)	-	-	30	-				LABORATORY TESTING ☐

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remark
1	S-1	12	1 2 2 3	S-1: Very Loose, Top 4": brown, fine SAND, little Silt, some Organic. Bottom 8": reddish-brown, fine to medium SAND, little fine Gravel.	0.75	TOPSOIL	#####	1
2								
3	S-2	14	2 2 2 1	S-2: Very Loose, reddish-brown, medium to coarse SAND, little fine Gravel.		FILL		
4								
5								
6	S-3	4	1 3 4 3	S-3: Loose, wet, reddish-brown, fine to medium SAND, trace Silt, trace slag, trace red-brick fragments.	5.5	G.W.T ▽	#####	2
7								3
8	S-4	4	3 5 5 6	S-4: Loose, wet, reddish-brown, fine to medium SAND, trace Silt, trace slag, trace red-brick fragments.				
9								
10					10.		#####	
11	S-5	14	2 4 3 3	S-5: Loose, wet, reddish-brown, fine SAND, trace Silt.		FINES		
12								
13								
14								
15								
16	S-6	15	4 11 8 9	S-6: Medium dense, wet, reddish-brown, fine SAND, some Clayey Silt, little fine Gravel.		GLACIAL TILL		
17								
18								
19								
20								
21	S-7	12	12 12 60+ 3"	S-7: Very dense, Top 10": wet, reddish-brown, fine SAND, some Silt and Clay, little fine Gravel. Bottom 2": arkose fragment	21.5		#####	
22				Bottom of Exploration (Auger Refusal) at 22'5"	22.5	INFERRED BEDROCK	#####	4

Remarks: 1. Environmental Sample from 1-3'
2. Environmental Sample from 5-7'
3. Temporary well installed, water sample at 9:50
4. Auger Refusal at 22'5", possible weathered bedrock at 23'5".

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

GB-1

STATION=2+52.08
OFFSET=33.5' RT.
ELEV. 130.5±
NORTHING=757612.74
EASTING=987405.50

GB-2

STATION=2+92.21
OFFSET=24.4' LT
ELEV. 130.4±
NORTHING=757653.13
EASTING=987347.81

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

WMC CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
BORING LOGS - 1

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		20	32

TEST BORING LOG

MILONE & MACBROOM
99 Realty Drive
Cheshire, CT 06410
(203) 271-1773

PROJECT:	Cedar Street Bridge	**BORING NO.:** GB-3	**SHEET:** 1 of 1
LOCATION:	Meriden, Connecticut	**CONTRACTOR:** SITE, LLC	
PROJ. NO:	1261-72	**FOREMAN:** John	
CLIENT:	City of Meriden	**INSPECTOR:** Peter S	
DATE:	April 17/18, 2018	**GROUND SURFACE ELEVATION:** xx	

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER DEPTH (FT.)			TYPE OF RIG:
TYPE	HSA	-	SS	NX	DATE	TIME	WATER DEPTH	ATV/BOMBARDIER
SIZE OD (IN.)	4	-	2	3	17-Apr-18	11:00	6'	RIG MODEL:
HMR. WT (LB.)	-	-	140	-				CME-55
HMR. FALL (IN.)	-	-	30	-				LABORATORY TESTING ☐

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remark
1	S-1	12	1 1 1 2	S-1: Very Loose, Top 6": brown, fine SAND, little Silt, some Organic. Bottom 6": reddish-brown, fine to medium SAND, little Silt, trace red-brick fragments, trace ash.	0.5	TOPSOIL	#####	1
2								
3	S-2	12	2 2 2 2	S-2: Very Loose, Top 3": ash. Bottom 9": reddish-brown, fine to medium SAND, trace red-brick fragments, trace coal fragments.				
4								
5	S-3	18	2 4 2 1 2	S-3: Very loose, Top 6": red-brick fragments. Bottom 12": reddish-brown, fine to medium SAND, trace Silt, trace red-brick fragments, trace fire-brick.		FILL		
6					-6	G.W.T ▽ #####	#####	2
7								
8								
9								
10					10		#####	
11	S-4	16	3 5 4 4	S-4: Loose, wet, reddish-brown, fine to medium SAND, trace Silt		FINES		
12								
13					13.5		#####	3
14								
15	S-5	15	10 10 26 24	S-5: Dense, wet, reddish-brown, fine to medium Sand, some Silt, little fine Gravel, trace Clay.		GLACIAL TILL		
16								
17								
18					18.6		#####	4
19						POSSIBLE WEATHERED BEDROCK		
20			65/4"	S-6: Very Dense, arkose fragment				
21								
22	C-1	2.16		Auger Refusal at 22' *See Next Page*	22	BEDROCK (ARKOSE)	#####	

Remarks: 1. Environmental Sample from 1-3'
2. Environmental Sample from 4-6'
3. Auger chatter, possible transition to Glacial Till
4. Possible transition to weathered rock based on auger rate of drilling and pressure.

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0-2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

MILONE & MACBROOM
99 Realty Drive
Cheshire, CT 06410

PROJECT:	Cedar Street Bridge	**BORING NO.:** GB-3	**SHEET:** 2 of 2
LOCATION:	Meriden, Connecticut	**CONTRACTOR:** SITE, LLC	
PROJ. NO:	1261-72	**FOREMAN:** John	
CLIENT:	City of Meriden	**INSPECTOR:** Peter S	
DATE:	April 17/18, 2018	**GROUND SURFACE ELEVATION:** ± xx	

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER DEPTH (FT.)			TYPE OF RIG:
TYPE	HSA	-	SS	NX	DATE	TIME	WATER DEPTH	ATV/BOMBARDIER
SIZE OD (IN.)	4	-	2	3	17-Apr-18	11:00	6'	RIG MODEL:
HMR. WT (LB.)	-	-	140	-				CME-55
HMR. FALL (IN.)	-	-	30	-				LABORATORY TESTING ☐

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	MIN. PER (FT)	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remark
23	C-1	60	2.16	C-1: Good, Hard, reddish-brown, Arkose RQD: 70%				
24			2.12					
25			2.22			BEDROCK (ARKOSE)		
26			2.35					
27			3		27'		103'	
				Bottom of Exploration ±27'				

Remarks:

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0-2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

GB-3

STATION=2+47.03
OFFSET=24.5' LT.
ELEV. 129.0±
NORTHING=757607.95
EASTING=987347.52

TEST BORING LOG

MILONE & MACBROOM
99 Realty Drive
Cheshire, CT 06410
(203) 271-1773

PROJECT:	Cedar Street Bridge	**BORING NO.:** GB-4	**SHEET:** 1 of 2
LOCATION:	Meriden, Connecticut	**CONTRACTOR:** SITE, LLC	
PROJ. NO:	1261-72	**FOREMAN:** John	
CLIENT:	City of Meriden	**INSPECTOR:** Peter S	
DATE:	April 17/18, 2018	**GROUND SURFACE ELEVATION:** xx	

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER DEPTH (FT.)			TYPE OF RIG:
TYPE	HSA	-	SS	NX	DATE	TIME	WATER DEPTH	ATV/BOMBARDIER
SIZE OD (IN.)	4	-	2	3	18-Apr-18	8:00	7.08'	RIG MODEL:
HMR. WT (LB.)	-	-	140	-				CME-55
HMR. FALL (IN.)	-	-	30	-				LABORATORY TESTING ☐

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remark
1	S-1	12	1 2 4 5	S-1: Loose, Top 6": brown, fine SAND, little Silt, some Organic. Bottom 6": reddish-brown, fine to medium SAND, little Silt, trace red-brick fragments, trace ash.	0.5	TOPSOIL	#####	1
2								
3	S-2	8	4 2 3 3	S-2: Loose, Top 3": reddish-brown, fine to medium SAND, little Silt, trace red-brick fragments. Bottom 5": red-brick fragments.				
4								
5	S-3	8	4 5 12 2	S-3: Medium dense, red BRICK fragments, some reddish-brown fine to medium SAND, little Silt, trace porcelain fragments.		FILL		
6								
7	S-4	4	1 2 1	S-4: Very Loose, red BRICK fragments, some reddish-brown fine to medium SAND, little Silt, trace coal fragments, trace porcelain fragments.	7	G.W.T ▽ #####	#####	2 3
8								
9	S-5	8	0 2 4 3	S-5: Loose, wet, reddish-brown, coarse SAND, little Silt, some ash, some coal fragments, some porcelain fragments.				
10			4		10		#####	
11	S-6	10	3 2 2 1	S-6: Very Loose, wet, reddish-brown, fine SAND, trace Silt		FINES		
12								
13			0					
14			0					
15			0					
16	S-7	14	1 1 1 2	S-6: Very Loose, wet, reddish-brown, fine SAND, trace Silt				
17								
18					18.5		#####	4
19						GLACIAL TILL		
20			21					
21	S-8	18	11 16 20	S-8: Medium dense, wet, reddish-brown, fine to medium SAND, some Silt, little fine Gravel, trace Clay.				
22								

Remarks: 1. Environmental Sample from 1-3'
2. Environmental Sample from 5-7'
3. Temporary well installed, sample at 8:00 on 4/18
4. Increased drilling effort reported.

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0-2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

MILONE & MACBROOM
99 Realty Drive
Cheshire, CT 06410

PROJECT:	Cedar Street Bridge	**BORING NO.:** GB-4	**SHEET:** 2 of 2
LOCATION:	Meriden, Connecticut	**CONTRACTOR:** SITE, LLC	
PROJ. NO:	1261-72	**FOREMAN:** John	
CLIENT:	City of Meriden	**INSPECTOR:** Peter S	
DATE:	April 18, 2018	**GROUND SURFACE ELEVATION:** ± xx	

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER DEPTH (FT.)			TYPE OF RIG:
TYPE	SSA	-	SS	-	DATE	TIME	WATER DEPTH	ATV/BOMBARDIER
SIZE OD (IN.)	4	-	2	-				RIG MODEL:
HMR. WT (LB.)	-	-	140	-				CME-55
HMR. FALL (IN.)	-	-	30	-				LABORATORY TESTING ☐

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	DEPTH (FT.)	STRATUM DESCRIPTION	ELEV. (FT.)	Remark
23						GLACIAL TILL		
24								
25			16	S-9: Medium Dense, wet, reddish-brown, fine to medium SAND, some Silt, some fine Gravel, trace Clay.				
26	S-9	23	19					
27			18					
28			19					
				Auger Refusal 28'10"				
29			1.11	C-1: Dense, reddish-brown, fine SAND, some Clayey Silt, little fine Gravel.				
30	C-1	60	1.08		30		#####	
31			2.21	C-1: Good, Hard, Arkose		BEDROCK (ARKOSE)		
32			2.1					
33			1.55		33		#####	
				Bottom of Exploration ±33'				
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								

Remarks:
1. Coring time shown as minutes and seconds per foot

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0-2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

GB-4

STATION=3+07.17
OFFSET=33.2' RT.
ELEV. 130.5±
NORTHING=757667.83
EASTING=987405.49

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

NO.	DATE	DESCRIPTION

REVISIONS

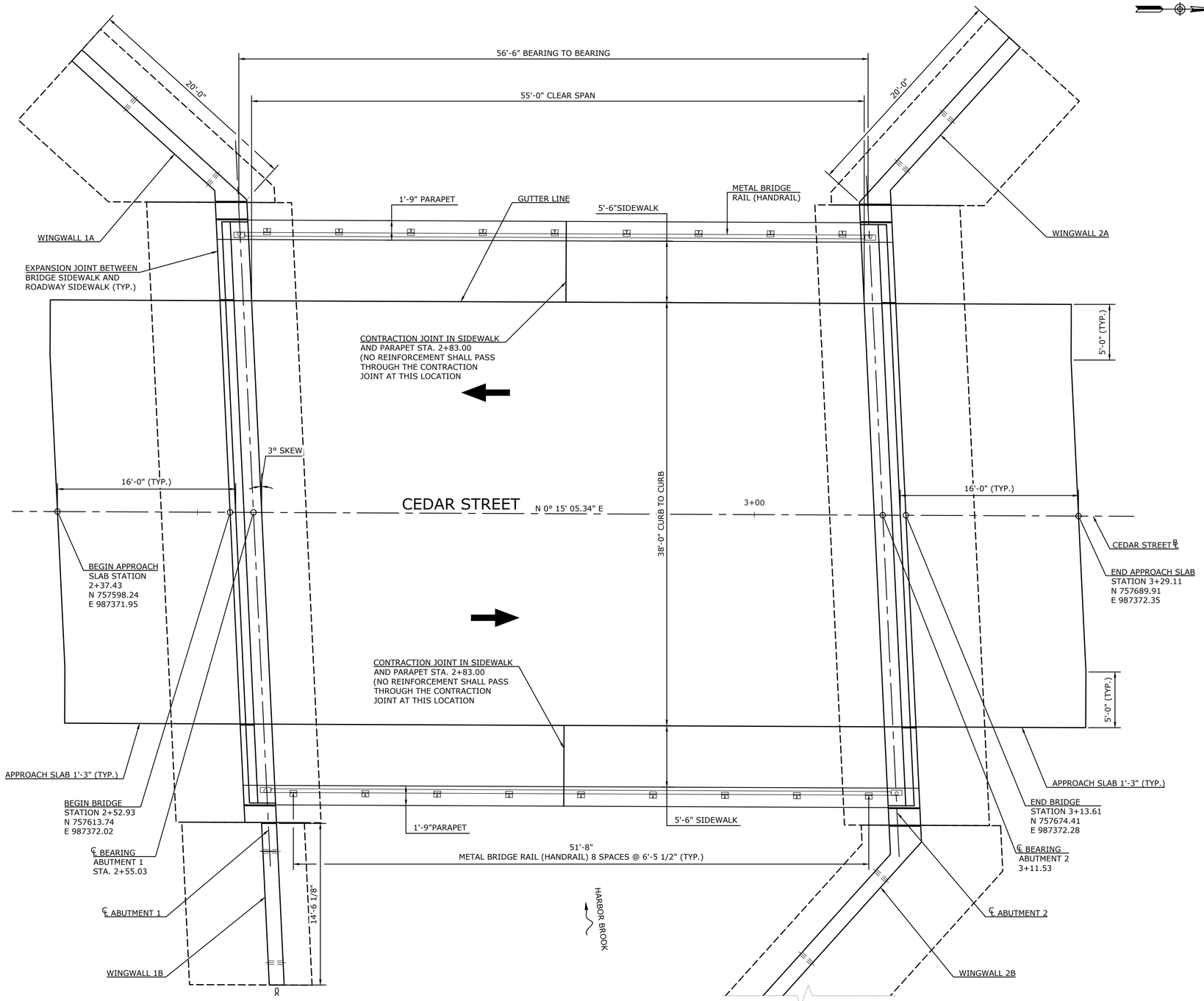
SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

WMC CONSULTING ENGINEERS
• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR
CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
BORING LOGS - 2

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D –	CEDAR STREET	– F.D.	– 17088	–	21	32



STRUCTURE LAYOUT PLAN

SCALE: 1" = 5'-0"

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

WMC CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

CITY OF MERIDEN

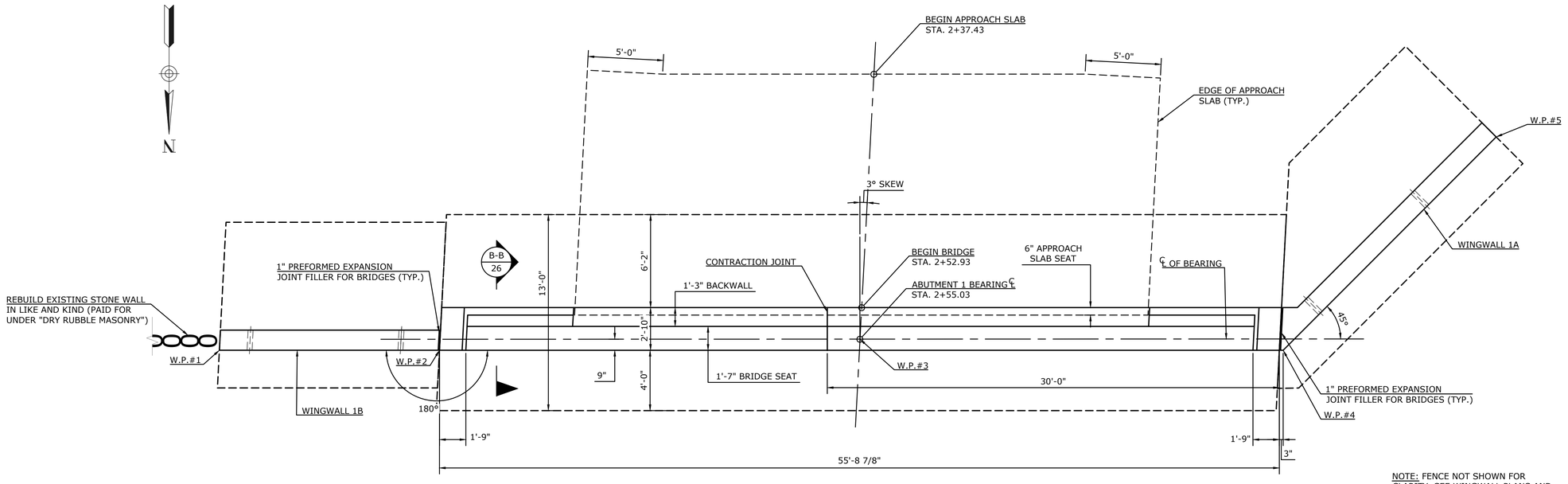
142 E MAIN STREET

MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK STRUCTURE LAYOUT PLAN

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		22	32

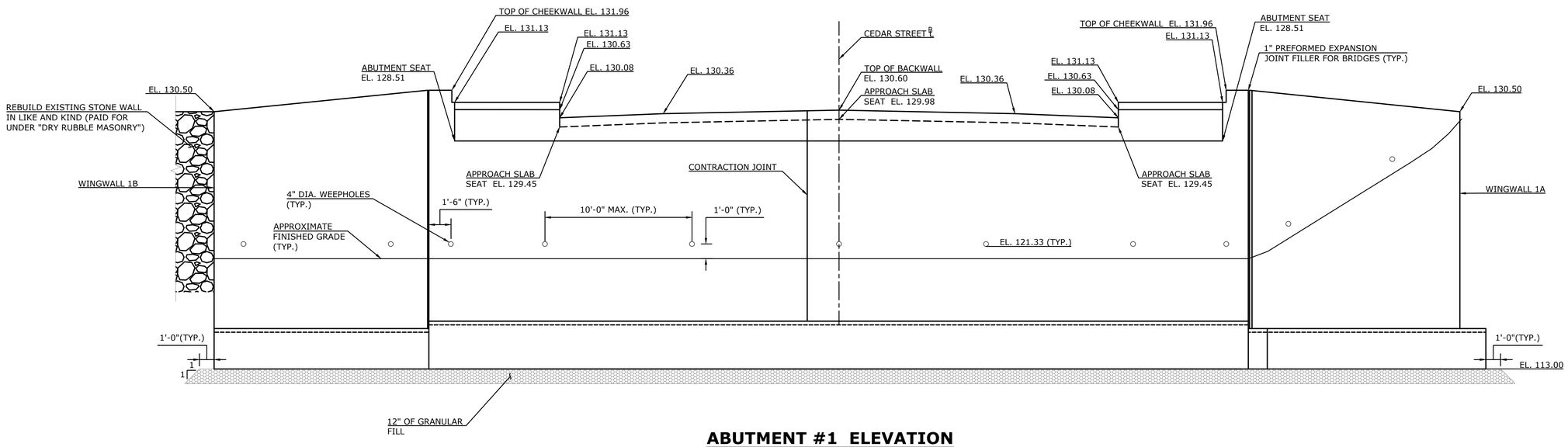
WORKING POINTS		
W.P. #	NORTHING	EASTING
1	757618.59	987414.46
2	757617.90	987399.87
3	757615.83	987372.02
4	757615.24	987343.94
5	757600.43	987330.50



ABUTMENT #1 PLAN

SCALE : 1/4" = 1'-0'

NOTE: FENCE NOT SHOWN FOR CLARITY. SEE WINGWALL PLANS AND ROADWAY PLAN.



ABUTMENT #1 ELEVATION

SCALE : 1/4" = 1'-0'

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NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

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NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

CITY OF MERIDEN

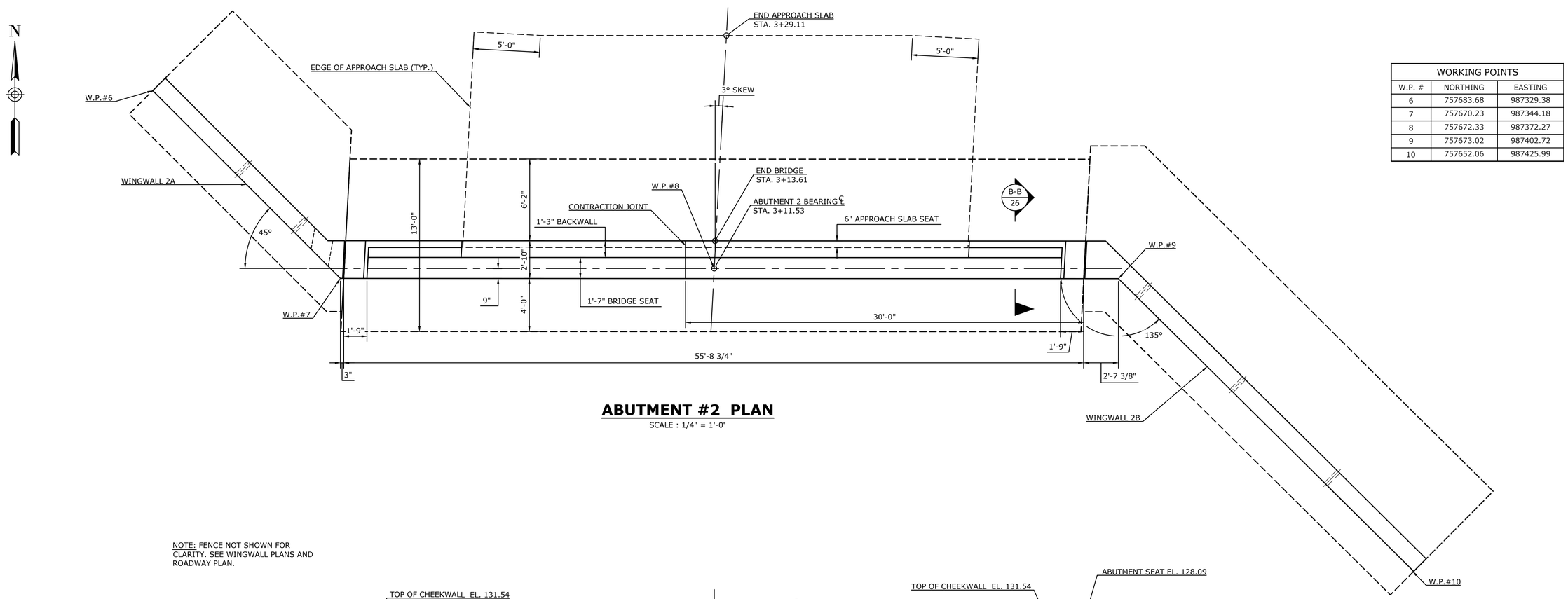
142 E MAIN STREET

MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
ABUTMENT #1 PLAN AND ELEVATION

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		23	32

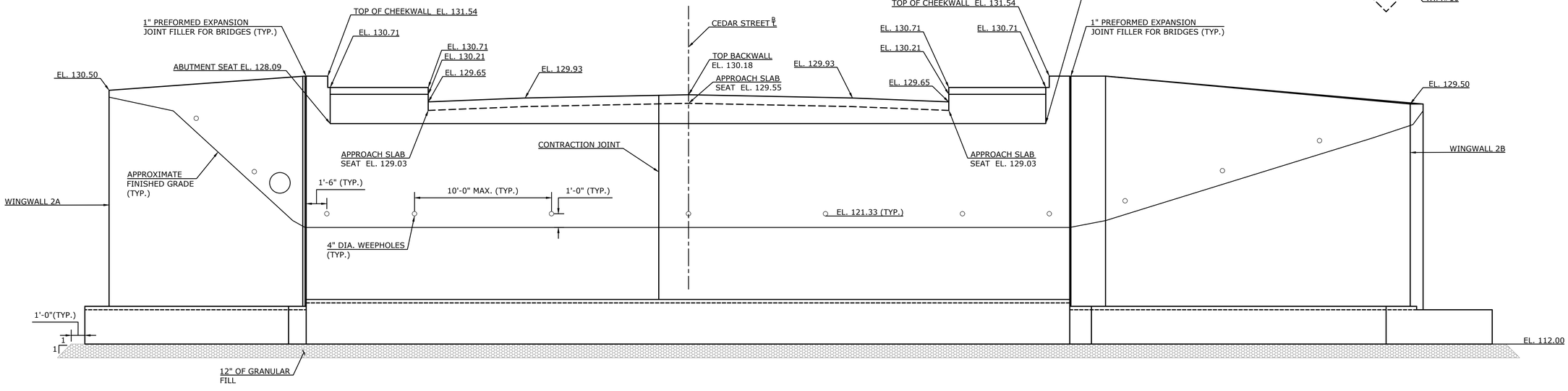
WORKING POINTS		
W.P. #	NORTHING	EASTING
6	757683.68	987329.38
7	757670.23	987344.18
8	757672.33	987372.27
9	757673.02	987402.72
10	757652.06	987425.99



ABUTMENT #2 PLAN

SCALE : 1/4" = 1'-0'

NOTE: FENCE NOT SHOWN FOR CLARITY. SEE WINGWALL PLANS AND ROADWAY PLAN.



ABUTMENT #2 ELEVATION

SCALE : 1/4" = 1'-0'

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

WMC CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

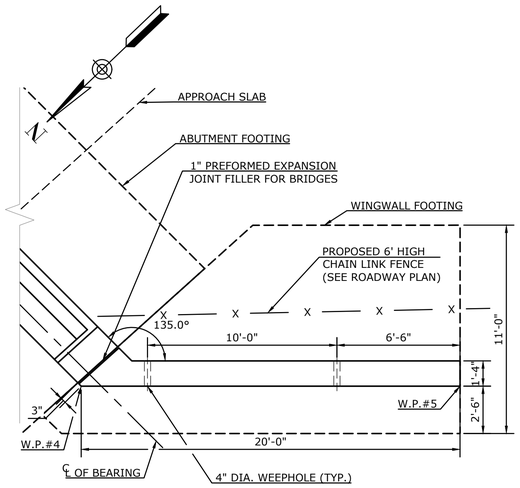
PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK ABUTMENT #2 PLAN AND ELEVATION

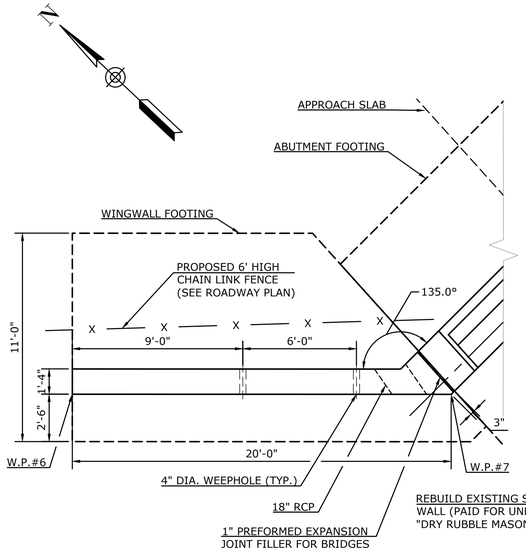
SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		24	32

WORKING POINTS			WORKING POINTS		
W.P. #	NORTHING	EASTING	W.P. #	NORTHING	EASTING
1	757618.59	987414.46	6	757683.68	987329.38
2	757617.90	987399.87	7	757670.23	987344.18
4	757615.24	987343.94	9	757673.02	987402.72
5	757600.43	987330.50	10	757652.06	987425.99



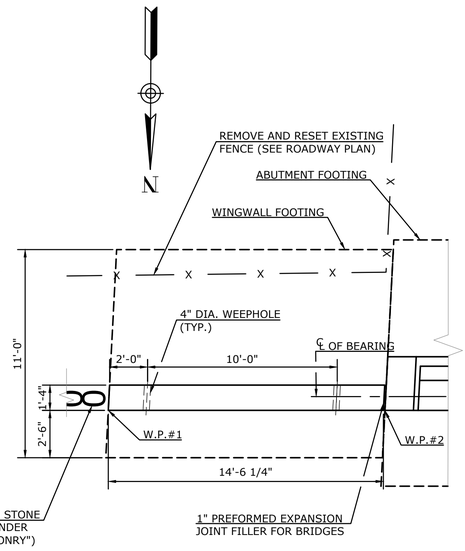
WINGWALL 1A PLAN VIEW

SCALE : 1/4" = 1'-0'



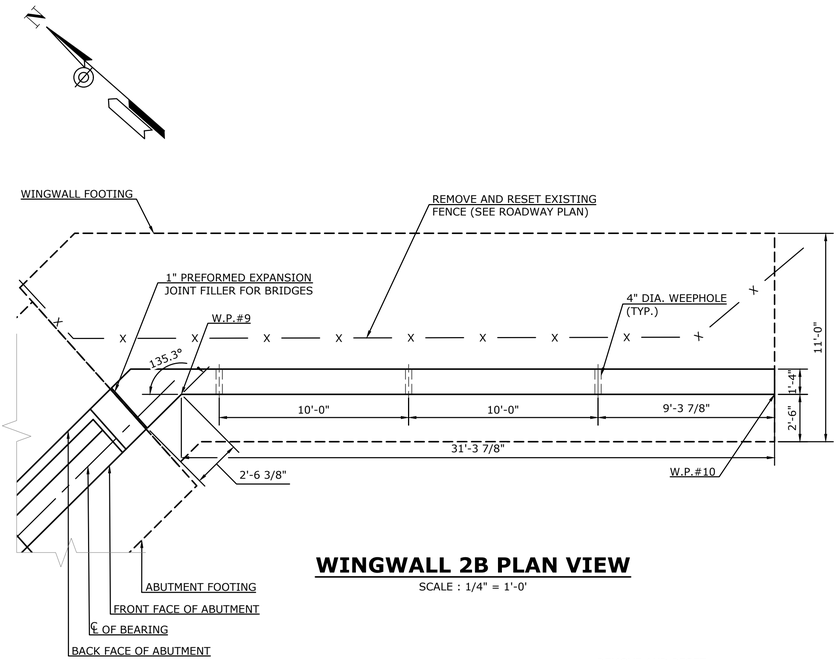
WINGWALL 2A PLAN VIEW

SCALE : 1/4" = 1'-0'



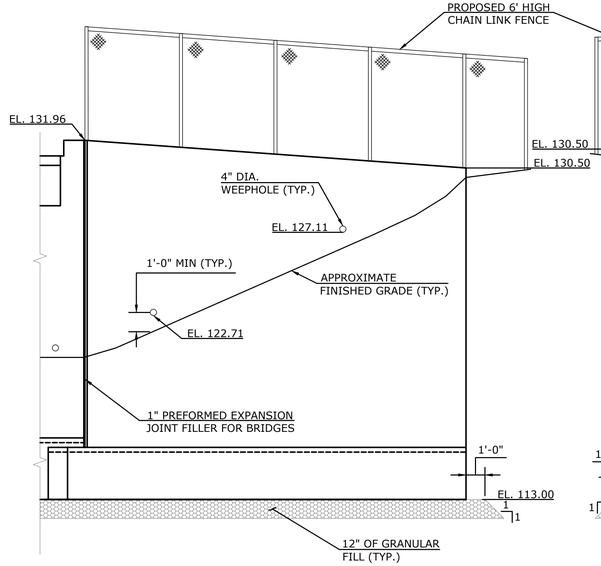
WINGWALL 1B PLAN VIEW

SCALE : 1/4" = 1'-0'



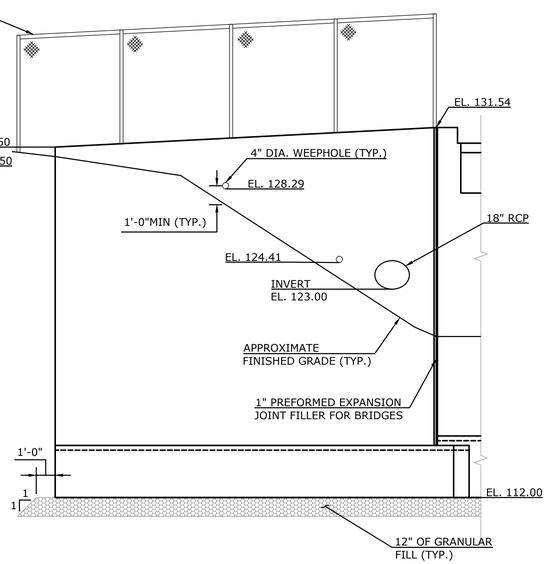
WINGWALL 2B PLAN VIEW

SCALE : 1/4" = 1'-0'



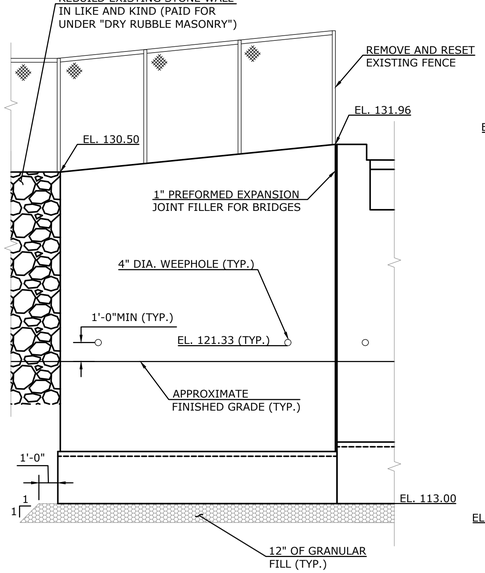
WINGWALL 1A ELEVATION VIEW

SCALE : 1/4" = 1'-0'



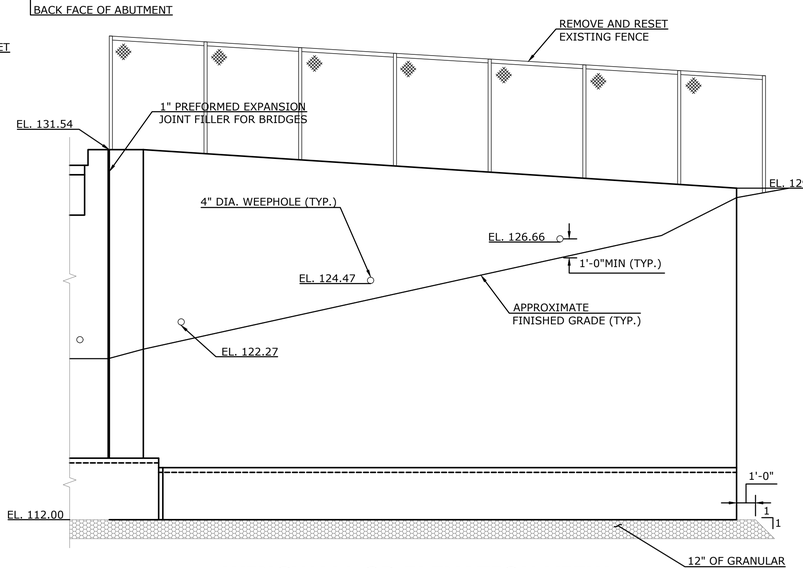
WINGWALL 2A ELEVATION VIEW

SCALE : 1/4" = 1'-0'



WINGWALL 1B ELEVATION VIEW

SCALE : 1/4" = 1'-0'



WINGWALL 2B ELEVATION VIEW

SCALE : 1/4" = 1'-0'

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DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	09/07/2021

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PREPARED FOR

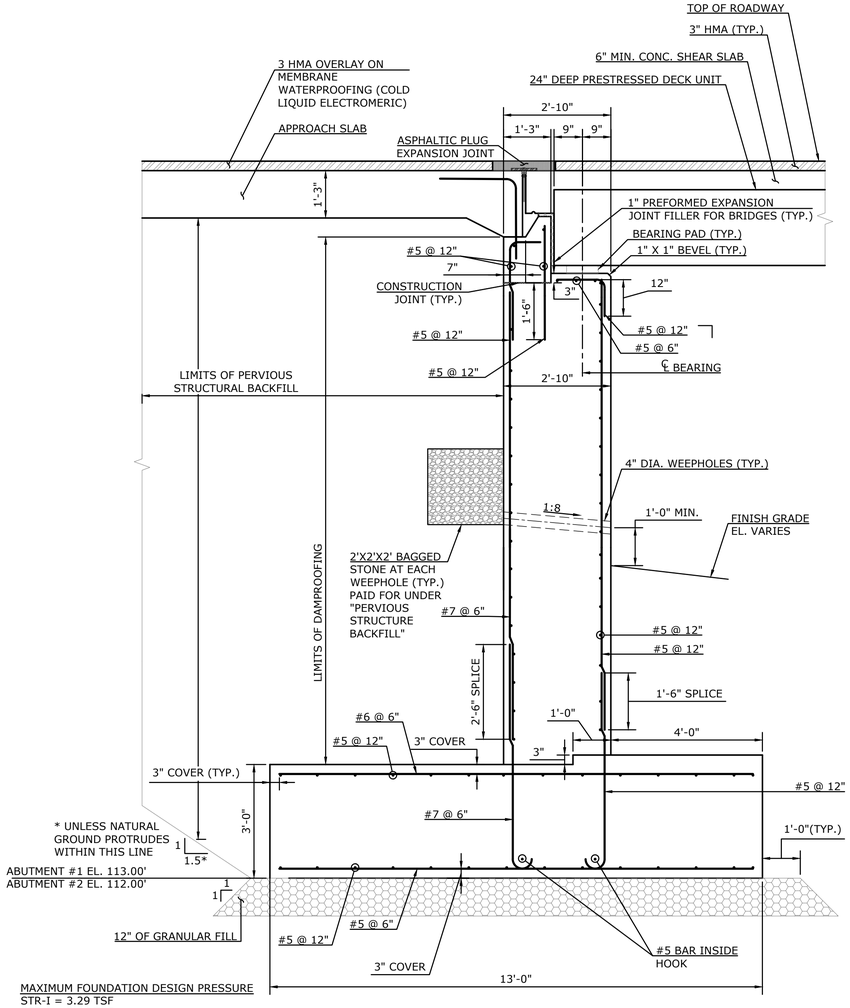
CITY OF MERIDEN

142 E MAIN STREET

MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK WINGWALL PLANS AND ELEVATION

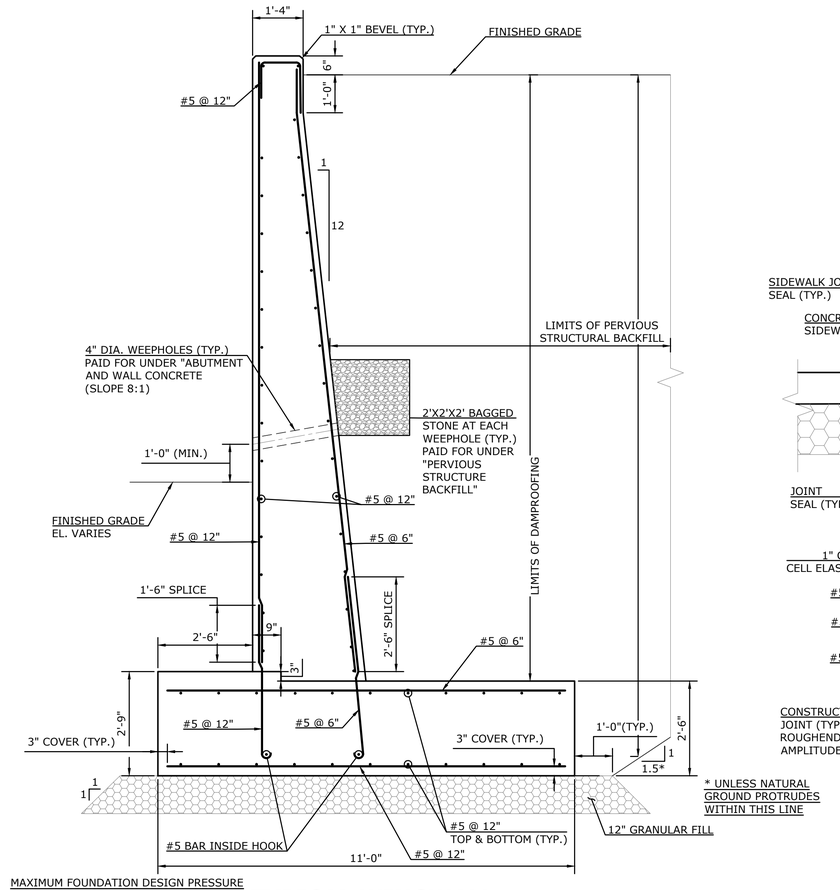
SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	– CEDAR STREET	– F.D.	– 17088	–	25	32



MAXIMUM FOUNDATION DESIGN PRESSURE
STR-I = 3.29 TSF
SER-I = 2.44 TSF

TYPICAL ABUTMENT REINFORCING DETAIL

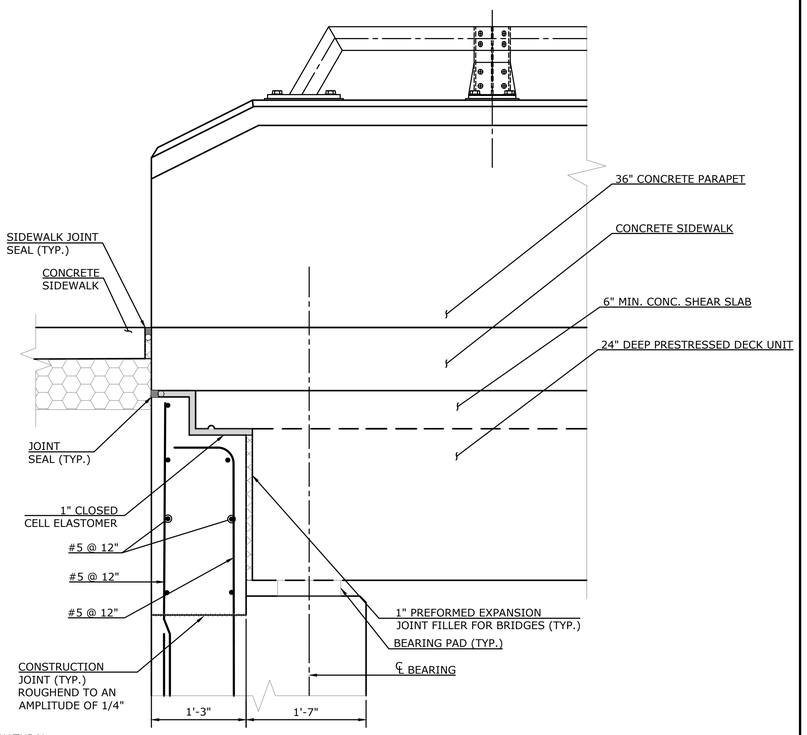
SCALE : 1/2" = 1'-0"



MAXIMUM FOUNDATION DESIGN PRESSURE
STR-I = 2.31 TSF
SER-I = 1.63 TSF

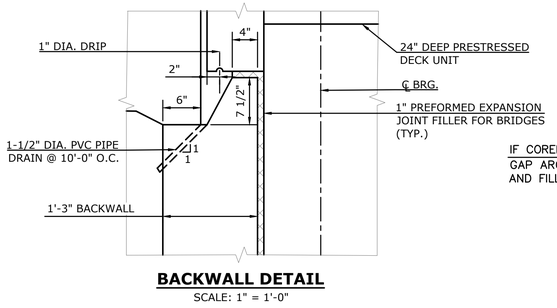
TYPICAL WINGWALL REINFORCING DETAIL

SCALE : 1/2" = 1'-0"



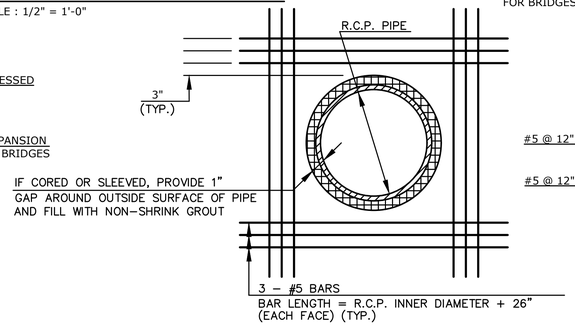
DETAIL AT ABUTMENT-SIDEWALK SECTION B-B

SCALE: 1" = 1'-0"



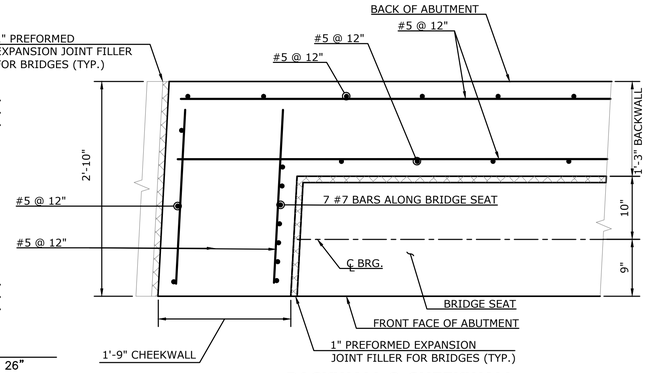
BACKWALL DETAIL

SCALE: 1" = 1'-0"



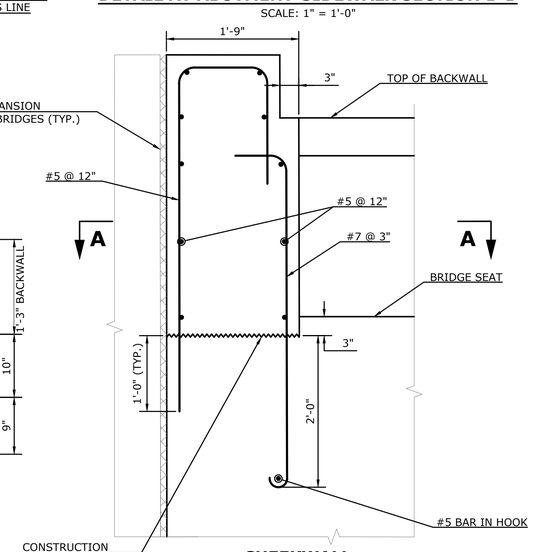
WINGWALL REINFORCMENT @R.C.P. PIPE

SCALE : N.T.S.



BACKWALL & CHEEKWALL REINFORCEMENT DETAIL SECTION A-A

SCALE: 1" = 1'-0"



CHEEKWALL REINFORCEMENT DETAIL

SCALE: 1" = 1'-0"

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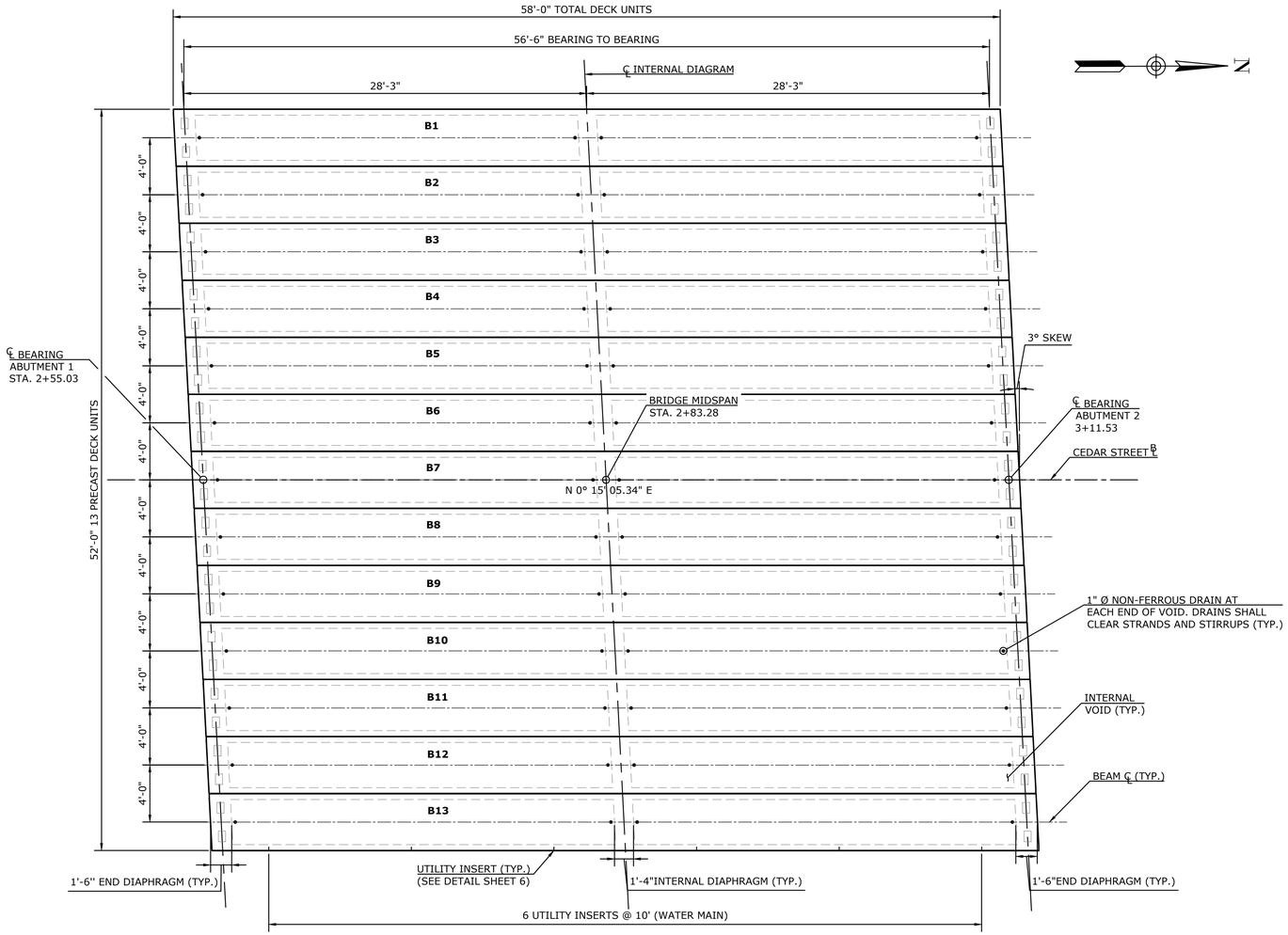
PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

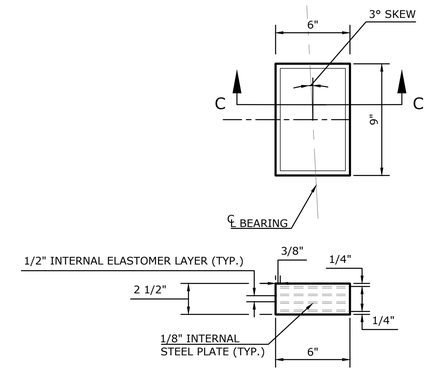
REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK ABUTMENT, WINGWALL, BACKWALL DETAILS

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		26	32



FRAMING PLAN

SCALE : 1" = 5'-0"



SECTION C-C

TYPICAL STEEL LAMINATED ELASTOMERIC BEARING PAD DETAIL

SCALE: 2" = 1'-0"

BEARING ASSEMBLY NOTES:

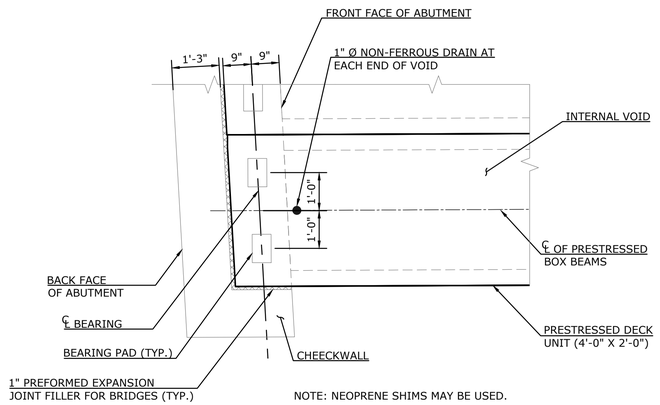
1. THE ELASTOMER SHALL BE TYPE CR, GRADE 3 AS DEFINED BY ASTM D4014 AND SHALL HAVE A SHORE A DUROMETER HARDNESS OF 60+/-5 POINTS AND A MINIMUM SHEAR MODULUS OF 160 PSI.

2. THE STEEL LAMINATE SHALL CONFORM TO ASTM A570, GRADE 36 OR 40, ASTM A611, GRADE C OR D OR APPROVED EQUAL. ALL LAMINAE SHALL HAVE 3/8" MINIMUM SIDE COVER.

3. THE STEEL LAMINATE ELASTOMERIC BEARINGS SHALL BE INSTALLED WHEN THE AMBIENT AIR TEMPERATURE IS BETWEEN 41°F AND 77°F AND HAS BEEN WITHIN THIS RANGE FOR MORE THAN TWO HOURS.

4. THE CONCRETE ABUTMENT SEATS SHALL BE CAREFULLY FINISHED SMOOTH TO AN EVEN, LEVEL SURFACE AND SHALL SHOW NO VARIATIONS FROM A TRUE PLANE GREATER THAN 1/16".

5. THE MAXIMUM DESIGN LOAD (DL + LL W/O IMPACT) FOR STEEL LAMINATED ELASTOMERIC BEARING IS 50.72 KIPS.



NOTE: NEOPRENE SHIMS MAY BE USED.

ELASTOMERIC BEARING PAD LAYOUT

SCALE : 1" = 2'-0"

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PREPARED FOR

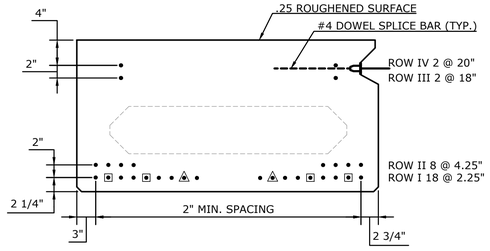
CITY OF MERIDEN

142 E MAIN STREET

MERIDEN, CT 06450

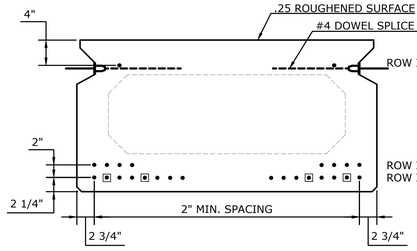
REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK FRAMING PLAN

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		27	32



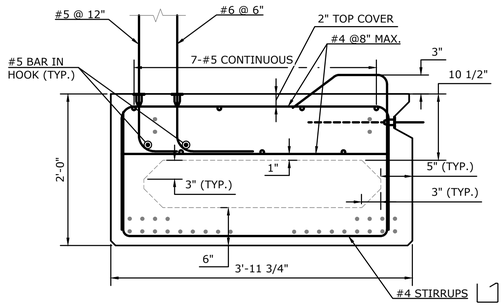
BEAM B1 & B13 STRAND LAYOUT

SCALE : 1" = 1'-0"



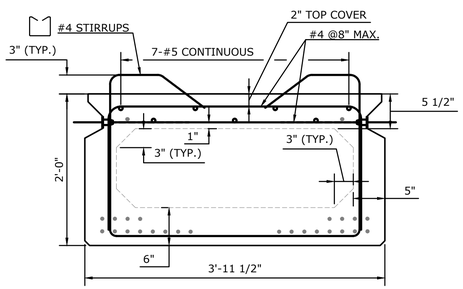
BEAM B2 - B12 STRAND LAYOUT

SCALE : 1" = 1'-0"



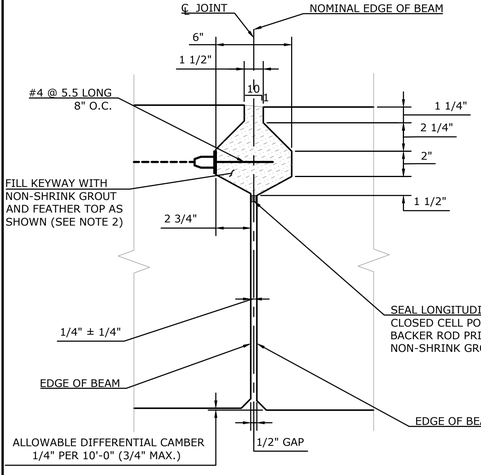
BEAM B1 & B13 DIMENSIONS (B1 SHOWN - B13 SIMILAR AND REVERSE)

SCALE : 1" = 1'-0"



BEAM B2 - B12 DIMENSIONS

SCALE : 1" = 1'-0"

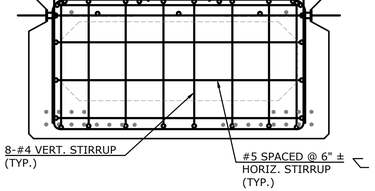


NOTES:

THE BOX BEAMS SHALL BE PLACED AT THE NOMINAL SPACING SHOWN ON THE PLAN WITH A GAP BETWEEN THE UNITS. THE WIDTH OF THE GAPS WILL VARY DUE TO THE SWEEP OF THE UNITS

TYPICAL LONGITUDINAL SHEAR KEY PRESTRESSED CONCRETE BOX BEAMS

2"=1'-0"

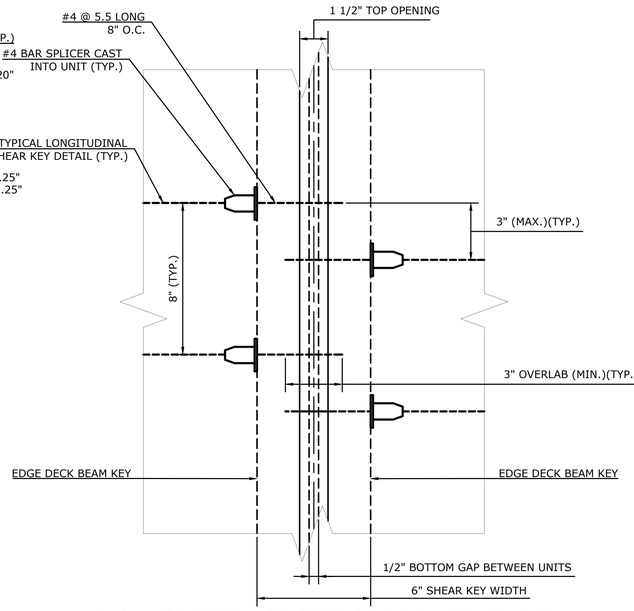


END SECTION FOR BEAM B2 - B12 SHOWN (B1 & B13 SIMILAR)

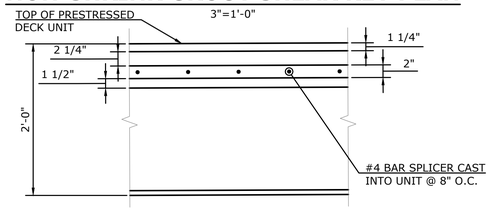
SCALE : 1" = 1'-0"

STRAND LEGEND	
•	FULLY BONDED
◘	DEBONDED 4'-0" FROM ENDS
◬	DEBONDED 6'-0" FROM ENDS

STRAND DATA			
MEMBER NUMBER	NUMBER OF STRANDS	C.G. OF STRANDS (INCHES)	
		END (A)	MIDSPAN (B)
B1,B13	30	5.71"	5.02"
B2 - B12	26	4.59"	4.23"

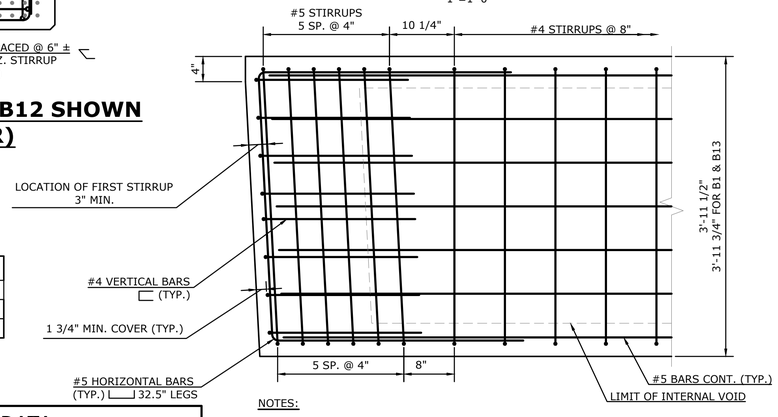


NON-SHRINK GROUT SHEAR KEY PLAN



SHEAR KEY FOR PRECAST CONCRETE DECK UNITS

1"=1'-0"



NOTES:

1) EXTEND LONGITUDINAL LEGS OF HORIZONTAL STIRRUPS A MINIMUM DISTANCE EQUAL TO THE DEPTH OF THE BEAM OR 12" INTO THE WEB OF THE VOIDED SECTION, WHICHEVER IS LARGER.

2) HORIZONTAL LEGS OF THE VERTICAL STIRRUPS ARE EQUAL TO THE DEPTH OF THE BEAMS.

REBAR PLAN VIEW B1 - B13 (STRANDS NOT SHOWN FOR CLARITY)

SCALE : 1" = 1'-0"

PRESTRESSED BOX BEAMS NOTES:

1. PRESTRESSED BOX BEAMS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
   F'C= 6,500 PSI
   F'CI = 5,000 PSI
2. ALL PRESTRESSED STRANDS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
   ULTIMATE STRENGTH (f's) = 270,000 PSI
   JACKING TENSION (FJ) = 43,900 LBS. PER STRAND
3. PRESTRESSED STRANDS SHALL BE PLACED 2" ON CENTERS MINIMUM AND SHALL HAVE A MINIMUM COVER OF 2".
4. THE DRILLING OF HOLES IN PRESTRESSED BOX BEAMS, OR THE USE OF POWER ACTUATED TOOLS ON PRESTRESSED BOX BEAMS WILL NOT BE PERMITTED.
5. ALL PRESTRESSING STRANDS SHALL BE 0.6" DIAMETER, UNCOATED SEVEN WIRE, LOW RELAXATION STRANDS CONFORMING TO AASHTO M203 (ASTM DESIGNATION A416).
6. FURNISHING AND INSTALLING ALL BOX BEAM REINFORCEMENT SHALL BE INCLUDED IN THE COST OF THE PRESTRESSED BOX BEAM UNDER THE ITEM "PRESTRESSED DECK UNITS (4'-0" X 2'-0")".
7. ALL NON-PRESTRESSED REINFORCING BARS SHALL BE GALVANIZED AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615, GRADE 60, AFTER FABRICATION, TO THE REQUIREMENTS OF ASTM A 767, CLASS 1, INCLUDING SUPPLEMENTAL REQUIREMENTS. BARS SHALL BE SECURELY TIED TO PREVENT DISLOCATION. ALL TIES SHALL BE GALVANIZED. ENDS OF TIE WIRES SHALL BE TURNED INWARD, AWAY FROM SURFACES.
8. PRECAST MANUFACTURING PLANT FURNISHING PRECAST PRESTRESSED BRIDGE MEMBERS SHALL BE CERTIFIED BY THE PRECAST PRESTRESSED CONCRETE INSTITUTE PLANT CERTIFICATION PROGRAM. THE CERTIFICATION SHALL BE AS A MINIMUM IN THE B3 CATEGORY. THE MANUFACTURER SHALL SUBMIT PROOF OF CERTIFICATION PRIOR TO THE START OF PRODUCTION.
9. TOLERANCES FOR PRESTRESSED MEMBERS SHALL CONFORM TO THE LIMITS SPECIFIED IN THE "MANUAL FOR QUALITY CONTROL FOR PLANS AND PRODUCTION OF PRECAST PRESTRESSED CONCRETE PRODUCTS".
10. PROPER BEAM HANDLING HOOKS LOCATED ON THE TOP OF THE PRESTRESSED BOX BEAMS SHALL BE PROVIDED BY THE FABRICATOR. THE FABRICATOR SHALL CONSIDER THE LOCATION OF THE CENTER OF GRAVITY. DURING HANDLING, THE BEAMS MUST BE MAINTAINED IN AN UPRIGHT POSITION AT ALL TIMES AND MUST BE PICKED UP ONLY BY MEANS OF APPROVED LIFTING DEVICES AT THEIR APPROVED SUPPORT POINTS.
11. ANY STRUCTURAL MEMBERS DAMAGED DURING FABRICATION, SHIPPING OR ERECTION, SUCH THAT THEIR STRUCTURAL INTEGRITY IS COMPROMISED, SHALL BE REJECTED AND REPLACED AT THE CONTRACTORS'S OWN EXPENSE. THE ENGINEER SHALL BE THE SOLE JUDGE IN DETERMINING THE STRUCTURAL INTEGRITY OF DAMAGED PRESTRESSED MEMBERS.
12. INSERTS, ANCHORS AND ANY OTHER ITEMS REQUIRED TO BE CAST INTO THE BOX BEAMS SHALL BE SHOWN ON THE SHOP DRAWINGS. ALL HARDWARE SHALL BE GALVANIZED.
13. NO ADDITIONAL DEAD LOADS OR LIVE LOADS SHALL BE APPLIED TO THE PRESTRESSED BOX BEAMS UNTIL THE GROUT IN THE LONGITUDINAL SHEAR KEYS HAS REACHED A SEVEN-DAY COMPRESSIVE STRENGTH OF 4500 PSI. NO ADDITIONAL DEAD LOADS OR LIVE LOADS SHALL BE APPLIED TO THE PRESTRESSED BOX BEAMS UNTIL THE CAST-IN-PLACE DECK SLAB HAS REACHED A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
14. GROUT FOR SHEAR KEYS SHALL BE RODDED OR VIBRATED TO ENSURE THAT ALL VOIDS IN THE SHEAR KEY ARE FILLED.
15. TOPS OF BEAMS ARE TO BE INTENTIONALLY ROUGHENED (RAKED FINISH) TO PROVIDE ADEQUATE CONTACT SURFACE WITH THE CONCRETE SHEAR SLAB.
16. THE PRESTRESSED BOX BEAMS SHALL BE PLACED AT THE NOMINAL SPACING SHOWN ON THE PLANS WITH A 1/2" WIDE GAP BETWEEN THE BEAMS. THE WIDTH OF THIS GAP CAN VARY DUE TO SWEEP OF THE UNITS.

NON-SHRINK GROUT SHEAR KEY NOTES:

1. NON-SHRINK GROUT SHALL CONFORM TO THE FOLLOWING:
   F'C = 6,000 PSI
2. SHEAR KEYS TO BE FILLED WITH NON-SHRINK GROUT SHALL BE ROUGHENED AND CLEANED PRIOR TO DECK UNIT PLACEMENT.
3. SECURE #4 SPLICE BARS TO DECK UNIT AFTER ROUGHENING CONCRETE BUT PRIOR TO DECK UNIT PLACEMENT.
4. AFTER FINAL DECK UNIT PLACEMENT, SHEAR KEYS SHALL BE FILLED WITH NON-SHRINK GROUT IN ONE CONTINUOUS POUR PER KEY.
5. IF THE TOP SURFACES OF THE ADJACENT DECK UNITS DO NOT MATCH, THE GROUT SHALL BE SLOPED FOR A SMOOTH TRANSITION.
6. GRIND ANY NON-SHRINK GROUT OVER FLOW FLUSH AFTER CURING.
7. NON-SHRINK GROUT TO BE PAID FOR UNDER ITEMS "PRESTRESSED DECK UNITS (4'-0" X 2'-0").

CAMBER TABLE				
MEMBER NUMBER	ESTIMATED CAMBER AT MIDSPAN			
	AT TRANSFER	AT ERECTION	TOTAL CAMBER	FINAL
	CAMBER DUE TO PRETENSIONING FORCE AT TRANSFER MINUS THE DEFLECTION DUE TO THE DEAD LOAD OF THE MEMBER.	CAMBER (DUE TO PRETENSIONING FORCE AT TRANSFER MINUS DEFLECTION DUE TO THE DEAD LOAD OF THE MEMBER) APPROXIMATELY 30 DAYS AFTER TRANSFER.	CAMBER AFTER ALL DEAD LOADS ARE APPLIED TO THE STRUCTURE.	CAMBER AFTER ALL DEAD LOADS ARE APPLIED TO THE STRUCTURE, AND AFTER LONG TERM CREEP AND RELAXATION HAVE TAKEN PLACE
B1	1.366"	2.411"	1.759"	1.054"
B2 - B12	1.323"	2.341"	1.673"	.941"
B13	1.366"	2.411"	1.626"	.656"

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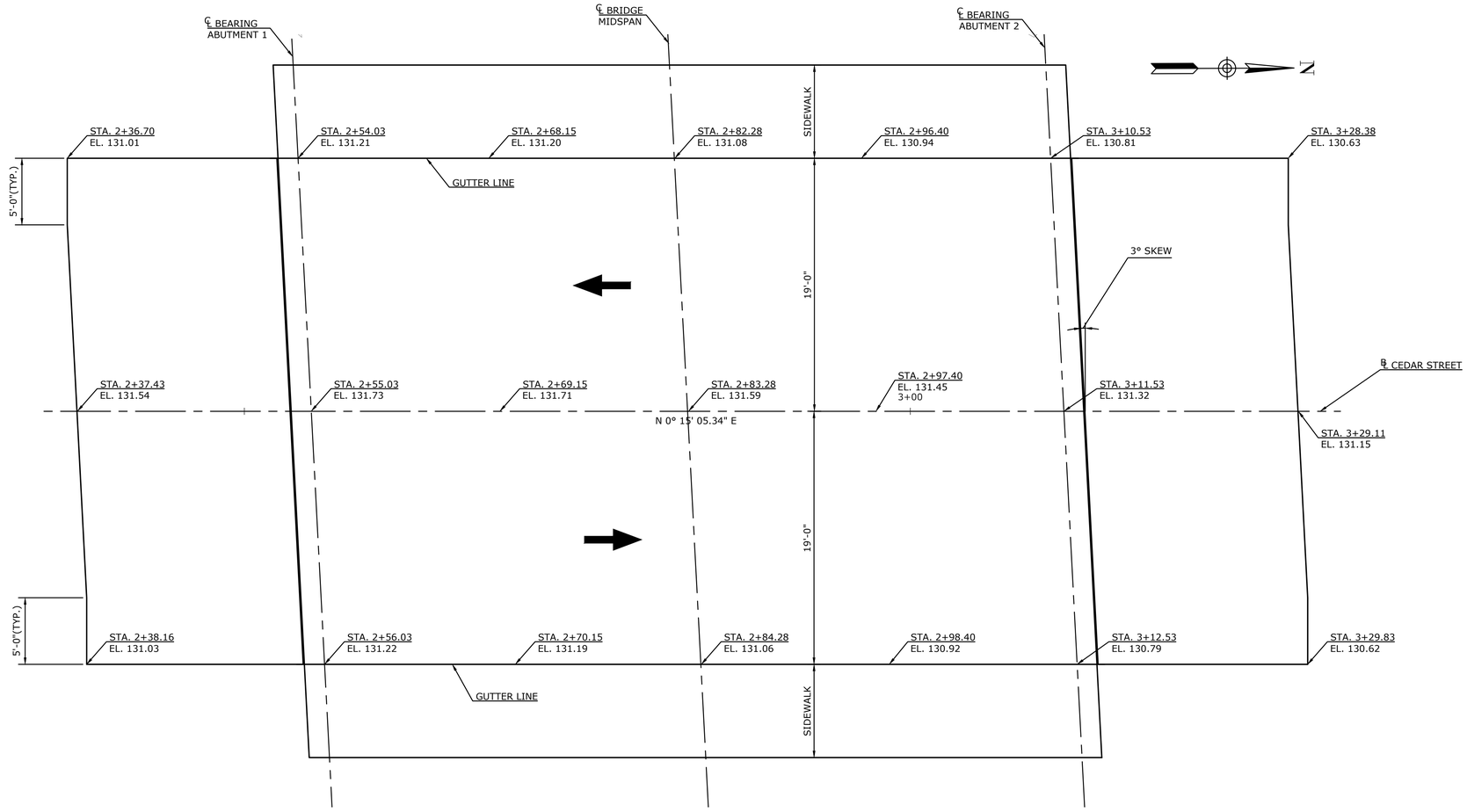
PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK PRESTRESSED DECK UNITS

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		28	32



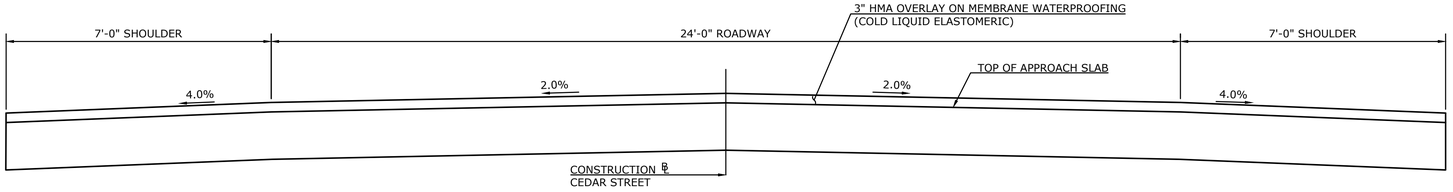
NOTES:

ALL ELEVATIONS GIVEN ARE FOR THE TOP OF CONCRETE SHEAR SLAB OR TOP OF APPROACH SLAB

FLOW

DECK SLAB PLAN

SCALE : 1" = 5'-0"



TYPICAL APPROACH SLAB SECTION

SCALE: 1/2" = 1'-0"

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DESIGN	E.D.
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CHECKED	J.A.W.
DATE	09/07/2021

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87 HOLMES ROAD
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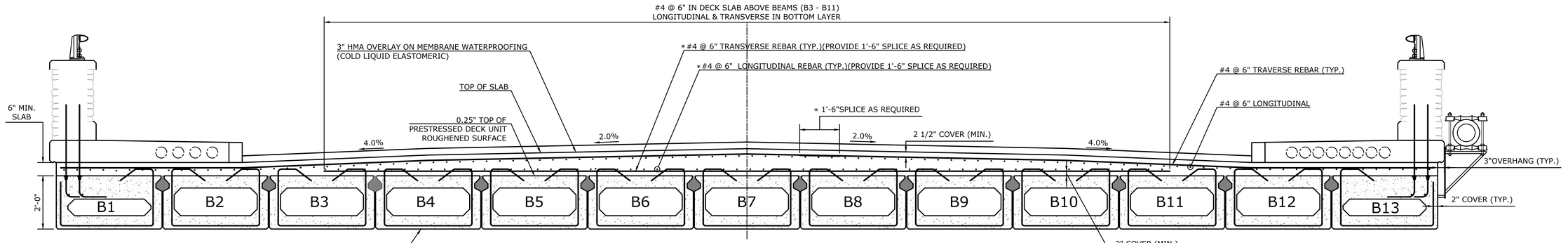
(860) 667-9624

PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
DECK SLAB PLAN

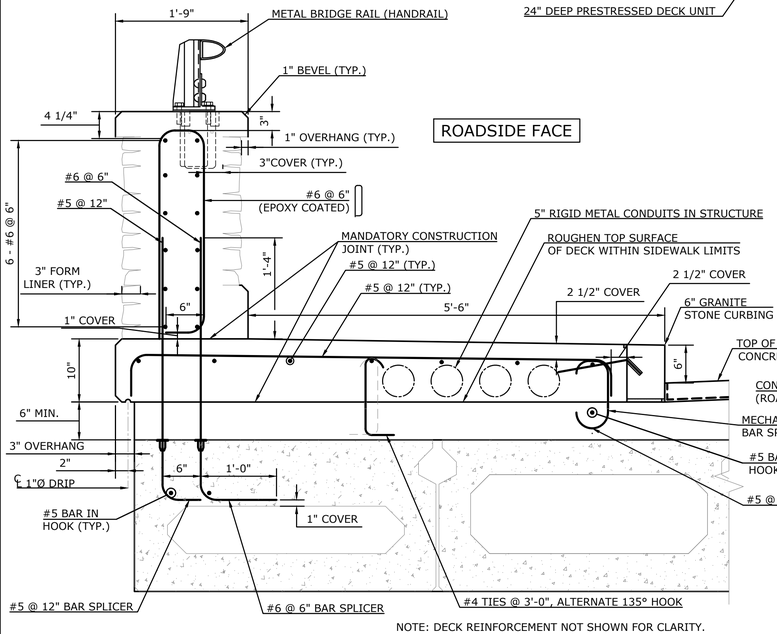
SIZE	PROJECT		FILE NAME		NUMBER	REV.	SHEET	
D	CEDAR STREET	–	F.D.	–	17088	–	OF	32



DECK SLAB REINFORCEMENT DETAIL

SCALE: 1/2" = 1'-0"

*NOTE
REBAR SPLICES SHALL BE STAGGERED.



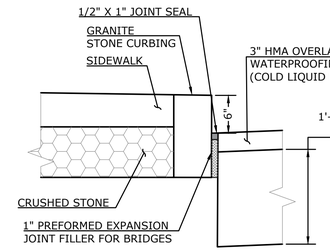
NOTE: DECK REINFORCEMENT NOT SHOWN FOR CLARITY.

PARAPET AND SIDEWALK REINFORCMENT DETAIL

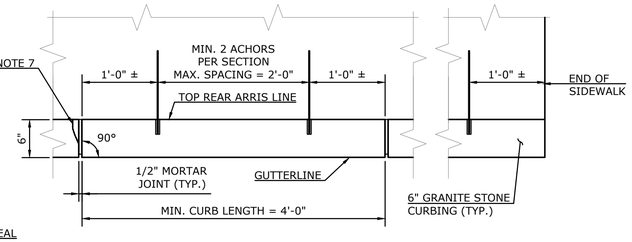
SCALE: 1" = 1'-0"

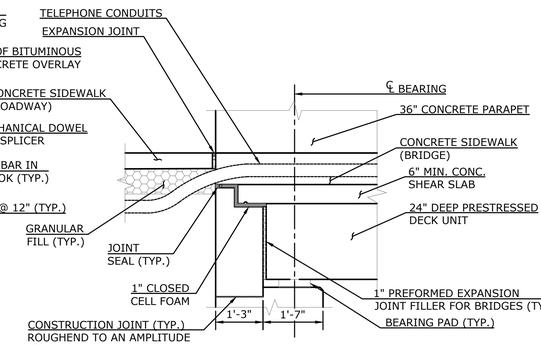
GRANITE STONE CURBING TOLERANCE NOTES:

1. SAWED SURFACE APPROXIMATING A TRUE PLANE WITH NO PROJECTIONS OR DEPRESSIONS GREATER THAN 1/4".
2. SMOOTH, QUARRY SPLIT SURFACE, FREE OF DRILL HOLES, WITH PROJECTIONS OR DEPRESSIONS NOT GREATER THAN 1/2".
3. NO PROJECTIONS OR DEPRESSIONS GREATER THAN 1/4" IN THIS AREA.
4. SPLIT SURFACE SHALL BE FREE OF ANY PROJECTIONS OVER 1".
5. SAWED OR SPLIT SURFACE APPROXIMATING A TRUE PLANE TO THE SPECIFIED DIMENSIONS WITH PROJECTIONS NOT GREATER THAN 1/4".
6. THESE ARRIS LINES SHALL BE STRAIGHT AND TRUE WITHIN A TOLERANCE OF 1/4".
7. ENDS OF STONES AT INTERMEDIATE JOINTS SHALL BE HELD FULL FOR 2" FROM ALL EXPOSED SURFACES WITH A PERMITTED VARIATION OF 1/4". BEYOND THIS AREA THE JOINT MAY FALL AWAY A MAX. OF 3".



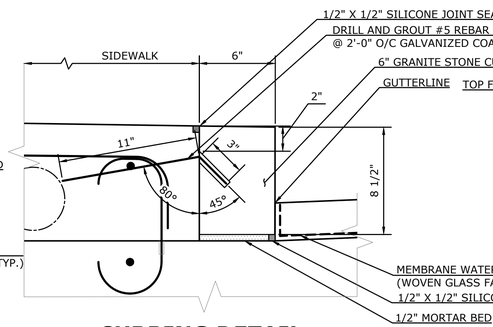
SIDEWALK WITH APPROACH SLAB DETAIL





TELEPHONE CONDUITS TRANSITION

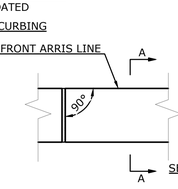
SCALE: 1/2" = 1'-0"



CURBING DETAIL

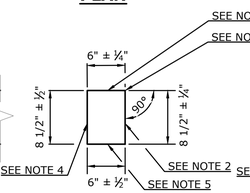
SCALE: 2" = 1'

PLAN



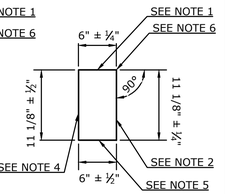
ELEVATION

(N.T.S)



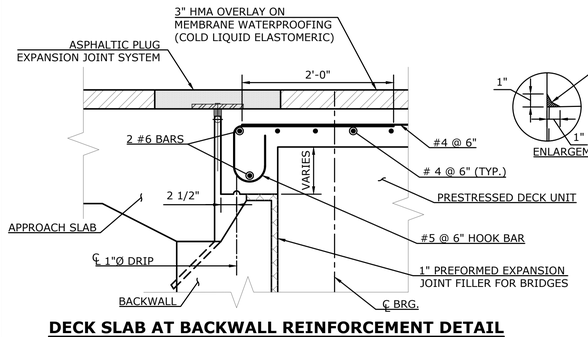
MIN. CURB DIMENTIONS SECTION A-A

(N.T.S)



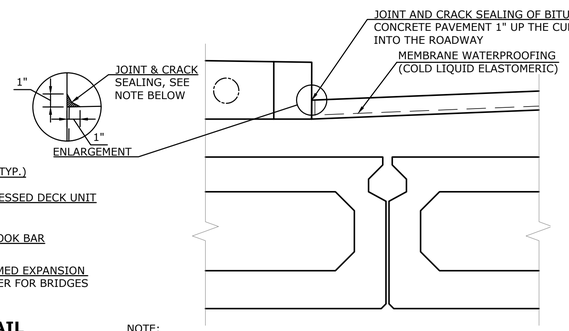
MAX. CURB DIMENTIONS SECTION A-A

(N.T.S)



DECK SLAB AT BACKWALL REINFORCEMENT DETAIL

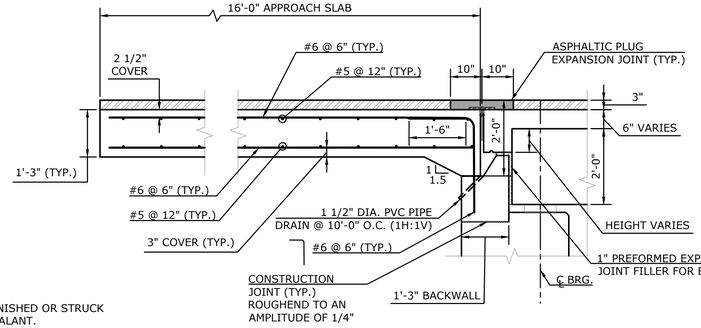
SCALE: 1" = 1'-0"



NOTE:
JOINT AND CRACK SEALING OF BITUMINOUS CONCRETE PAVEMENT SHALL BE FINISHED OR STRUCK OFF WITH A SMALL "V" SHAPED SQUEEGEE DESIGNED TO STRIKE OFF CRACK SEALANT.

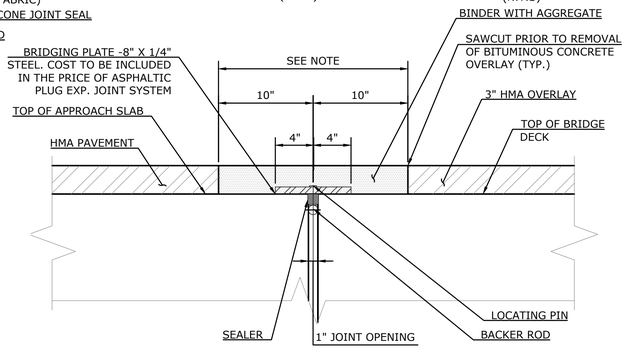
MEMBRANE WATERPROOFING CURB DETAIL

SCALE: 1" = 1'-0"



APPROACH SLAB REINFORCEMENT DETAIL

SCALE: 1/2" = 1'-0"



NOTE
REMOVE NEW BITUMINOUS CONCRETE OVERLAY AND MEMBRANE WATERPROOFING. REPLACE WITH ASPHALTIC PLUG EXPANSION JOINT SYSTEM. TO BE PAID FOR UNDER THE ITEM "ASPHALTIC PLUG EXPANSION JOINT SYSTEM". (SEE SPECIAL PROVISION)

ASPHALTIC PLUG EXPANSION JOINT DETAIL

SCALE: 1-1/2" = 1'-0"

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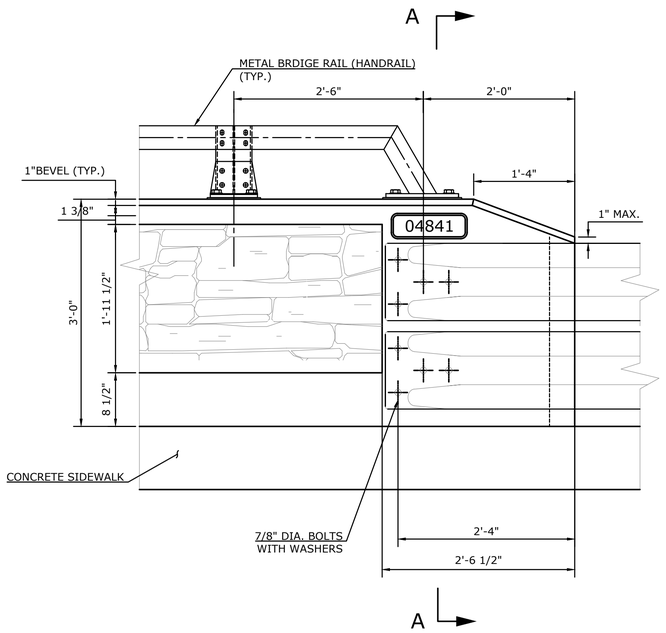
PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

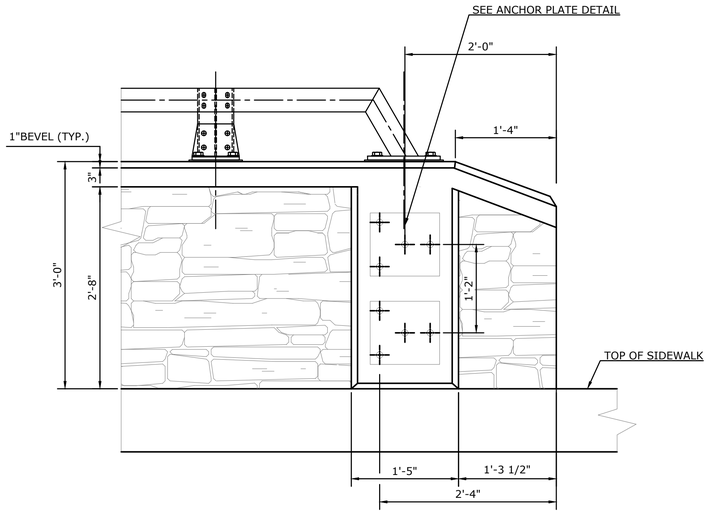
REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK MISCELLANEOUS STRUCTURE DETAILS

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		30	32



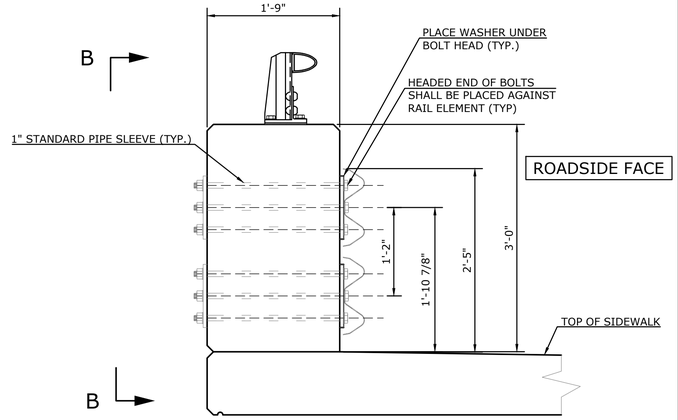
ELEVATION VIEW ROADSIDE FACE

SCALE: 1" = 1'-0"



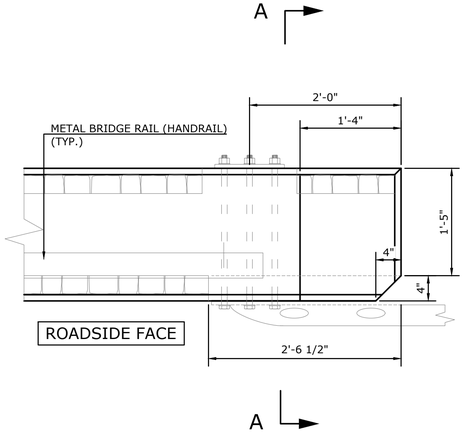
ELEVATION VIEW B-B

SCALE: 1" = 1'-0"



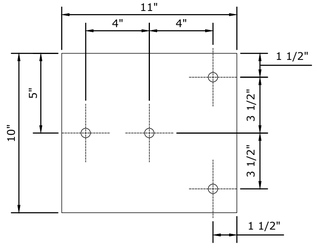
SECTION A-A

SCALE: 1" = 1'-0"



STANDARD 36" PARAPET PLAN VIEW

SCALE: 1" = 1'-0"



ANCHOR PLATE DETAIL

SCALE: N.T.S.

NOTES:

1. STEEL PLATES SHALL CONFORM TO REQUIREMENTS OF ASTM A36. THE STEEL PLATES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A123
2. 1" DIA. PIPE SHALL CONFORM TO ASTM A53 GRADE B ASTM A501 AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A123.
3. ALL RAIL ANCHORAGE MATERIAL REQUIRED FOR END ATTACHMENTS SHALL BE PAID FOR UNDER THE APPLICABLE ROADWAY ITEMS.
4. THE $\frac{7}{8}$" DIAMETER ANCHOR BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A449
5. NUTS SHALL BE HEAVY HEX AND CONFORM TO THE REQUIREMENTS OF ASTM A563, PROPERTY CLASS 10S
6. WASHERS SHALL BE CIRCULAR, HARDENED WASHERS CONFORMING TO THE REQUIREMENTS OF ASTM F436
7. ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153
8. SEE CTDOT STANDARD SHEET HW-910_07 "R-B 350 BRIDGE ATTACHMENT TO VERTICAL SHAPE PARAPET" FOR MORE DETAILS.

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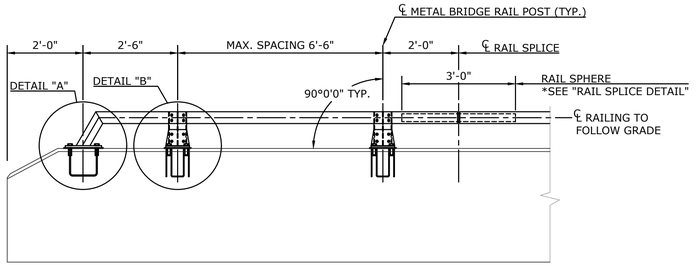
142 E MAIN STREET
MERIDEN, CT 06450

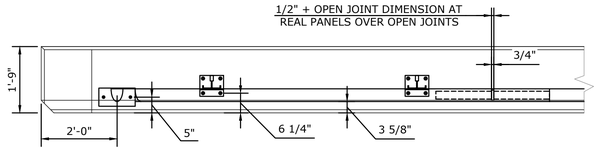
REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK METAL BEAM RAIL ATTACHMENT DETAILS

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		31	32



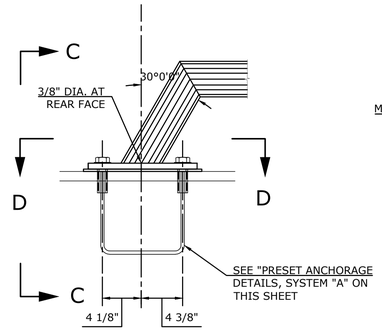
ELEVATION

SCALE: 1/2" = 1'-0"



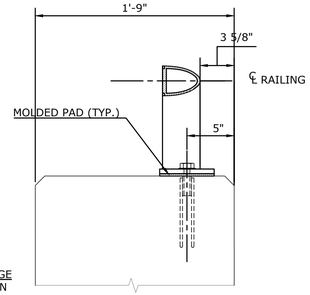
PLAN

SCALE: 1/2" = 1'-0"



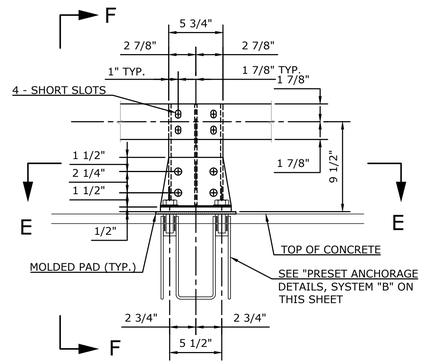
DETAIL-END RAIL "A"

SCALE: 1 1/2" = 1'-0"



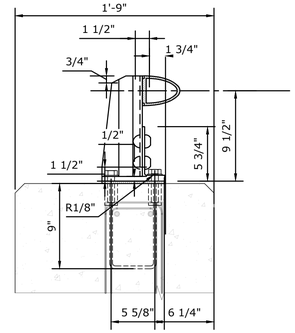
DETAIL-END RAIL "C-C"

SCALE: 1 1/2" = 1'-0"



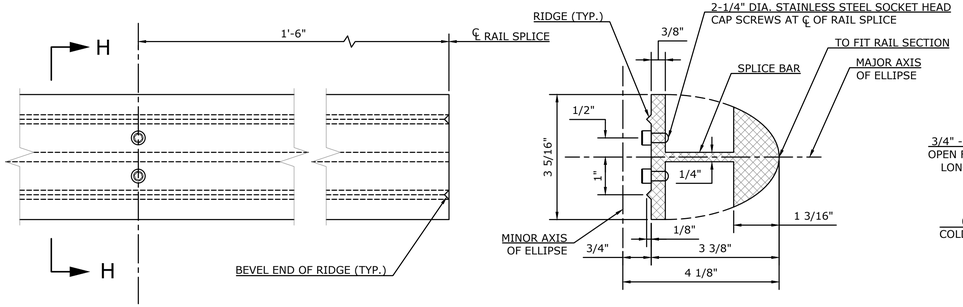
DETAIL-INTERIOR POST "B"

SCALE: 1 1/2" = 1'-0"



DETAIL-INTERIOR POST "F-F"

SCALE: 1 1/2" = 1'-0"

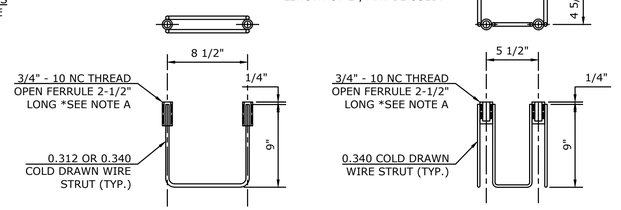


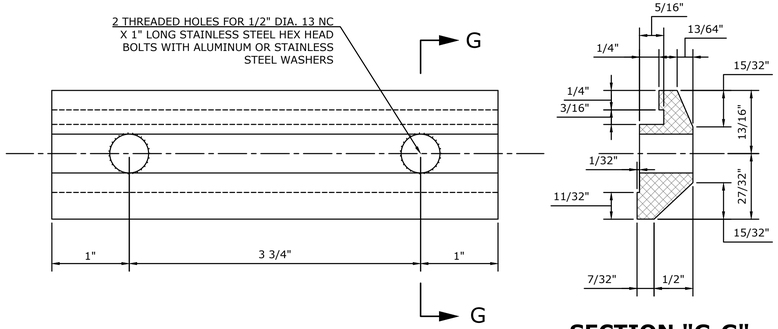
RAIL SPLICE DETAILS

SCALE: 6" = 1'-0"

NOTES:

ALTERNATIVELY, 2 -1/2" LONG CLOSE END FERRULES PROVIDING A MINIMUM FULL LENGTH OF 2", MAY BE USED.



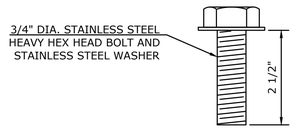


POST CONNECTION DEVICE DETAIL

SCALE: NTS

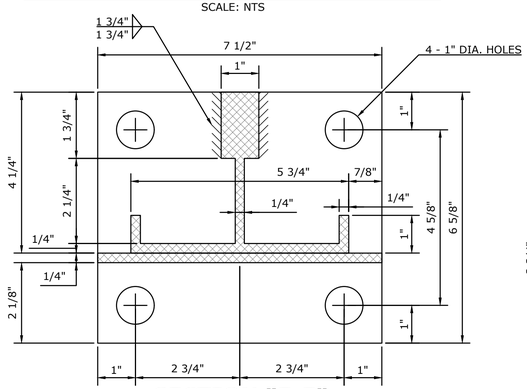
SECTION "G-G"

SCALE: NTS



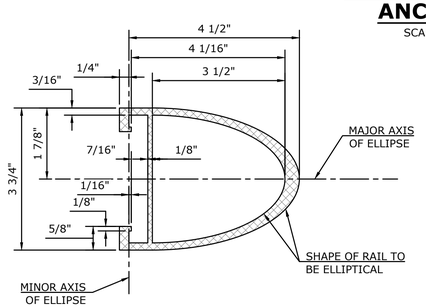
BOLT FOR PRESET ANCHORAGE

SCALE: 6" = 1'-0"



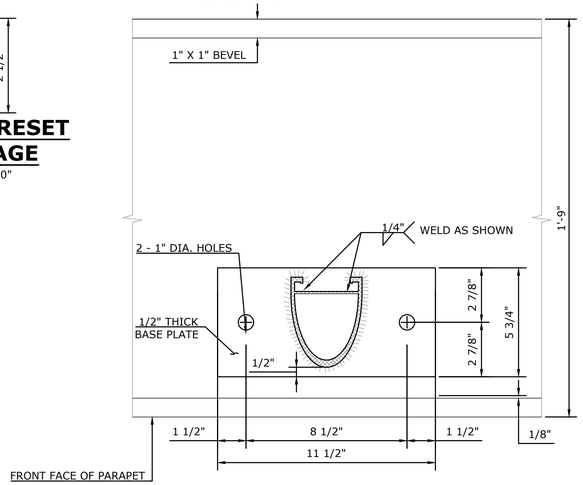
SECTION "E-E"

SCALE: 6" = 1'-0"



RAIL SECTION

SCALE: 6" = 1'-0"



SECTION-END RAIL "D-D"

SCALE: 3" = 1'-0"

PRESET ANCHORAGE DETAILS

SCALE: 1 1/2" = 1'-0"

NOTES:

ALUMINUM WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY "STRUCTURAL WELDING CODE-ALUMINUM", ANSI/AWS D1.2.

RIVETING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 6.5 - RIVETING OF THE AASHTO SPECIFICATIONS FOR ALUMINUM STRUCTURES".

METAL BRIDGE RAIL: THE RAILING POSTS, POST CONNECTION DEVICES, SPLICE BARS AND RAILS SHALL BE EXTRUDED ALUMINUM AND CONFORM TO THE REQUIREMENTS OF ASTM B221, ALUMINUM ALLOY 6061-T6 OR 6005-T5.

SOCKET HEAD CAP SCREWS SHALL BE STAINLESS SHALL BE STAINLESS STEEL AND CONFORM TO THE REQUIREMENTS OF ASTM F837, GROUP 1 (ANSI TYPE 304).

ALL BOLTS SHALL BE STAINLESS STEEL AND CONFORMS TO THE REQUIREMENTS OF ASTM F593, GROUP 1, (ANSI TYPE 304). NUTS SHALL BE STAINLESS STEEL AND CONFORM TO THE REQUIREMENTS OF ASTM F594, GROUP 1. WASHERS SHALL BE STAINLESS AND CONFORM TO THE REQUIREMENTS OF ASTM A167, TYP 302 THROUGH 305.

CONE POINT RIVETS SHALL CONFORM TO ASTM B316, ALUMINUM ALLOY 6061-T6 OR ASTM B221, ALUMINUM ALLOY 6061-T-6.

LENGTHS OF RAIL ELEMENTS SHALL BE CONTINUOUS OVER FOUR RAIL POSTS WHEREVER POSSIBLE BUT IN NO CASE LESS THAN TWO. WELDING OF TWO OR MORE RAILS TO FORM AN ELEMENT WILL NOT BE ALLOWED. RAIL SPLICES SHALL BE LOCATED IN RAIL PANELS OVER OPEN JOINTS IN PARAPETS. SPLICE BARS SHALL HAVE A SLIDING FIT IN THE RAIL SECTIONS.

ALUMINUM RAILINGS SHALL BE CAREFULLY ADJUSTED PRIOR TO FIXING IN PLACE TO INSURE PROPER MATCHING AT ABUTTING JOINTS AND CORRECT ALIGNMENT AND CURVATURE THROUGH OUT THEIR LENGTH. AFTER INSTALLATION, ALL RAILS AND POSTS SHALL BE FREE OF BURRS, SHARP EDGES AND IRREGULARITIES.

PRESET ANCHORAGES: THE WIRE STRUTS SHALL BE COLD-DRAWN AND CONFORM TO ASTM A510, GRADE 1030. THE FERRULES SHALL CONFORM TO ASTM 108, GRADE 12L14. AFTER FABRICATION, THE PRESET ANCHORAGES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153. THE BOLTS SHALL BE "FREE RUNNING" IN THE FERRULES AFTER GALVANIZATION.

THE ANCHORAGE ASSEMBLIES SHALL BE INSTALLED PERPENDICULAR TO THE GRADE OF THE BRIDGE DECK. THE ANCHORAGES SHALL BE FIRMLY AND ACCURATELY HELD IN POSITION PRIOR TO AND DURING THE PLACING OF CONCRETE.

MOLDED PADS: MOLDED PADS SHALL BE MANUFACTURED FROM NEW UNVULCANIZED ELASTOMER AND UNUSED SYNTHETIC FIBERS, WITH A WEIGHT PROPORTION OF FIBER CONTENT EQUAL TO APPROXIMATELY ONE-HALF OF THE TOTAL WEIGHT OF THE PAD.

ANODIZING: METAL BRIDGE RAIL SHALL NOT BE ANODIZED.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

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WMC CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR

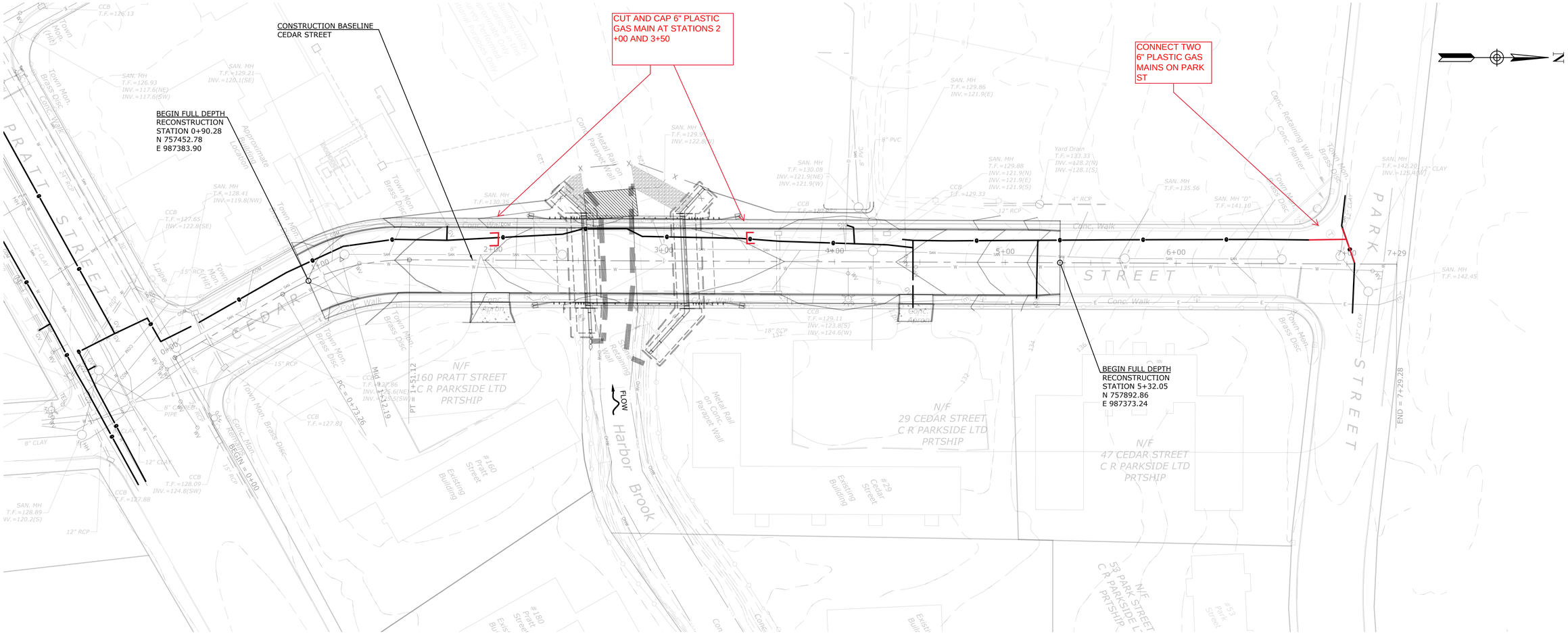
CITY OF MERIDEN

142 E MAIN STREET

MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK METAL BRIDGE RAIL (HANDRAIL)

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D	CEDAR STREET	F.D.	17088		32	32



UTILITY RELOCATION PLAN

SCALE: 1" = 30'

FOR INFORMATIONAL PURPOSES ONLY

Phase 1 - Gas Main Cut and Cap Isolation

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

NO.	DATE	DESCRIPTION

REVISIONS

SUPV.	K.O.E.
DESIGN	E.D.
DRAWN	N.S. / S.A.M.
CHECKED	J.A.W.
DATE	5/21/2021

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PREPARED FOR

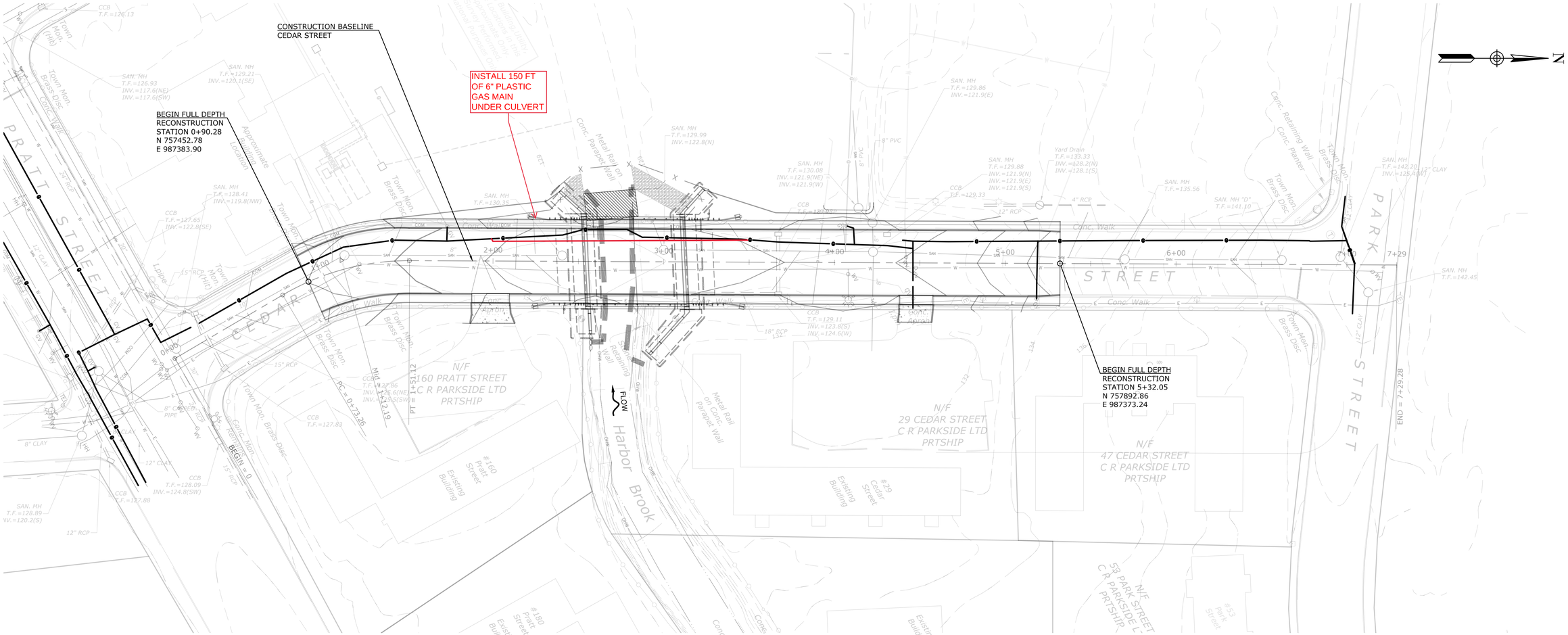
CITY OF MERIDEN

142 E MAIN STREET

MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
UTILITY RELOCATION PLAN
(EVERSOURCE-GAS)

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D –	CEDAR STREET	– F.D. –	17088	–	UTL-1	1



UTILITY RELOCATION PLAN

SCALE: 1" = 30'

FOR INFORMATIONAL PURPOSES ONLY

Phase 2 - Gas Main Installation and Reactivation

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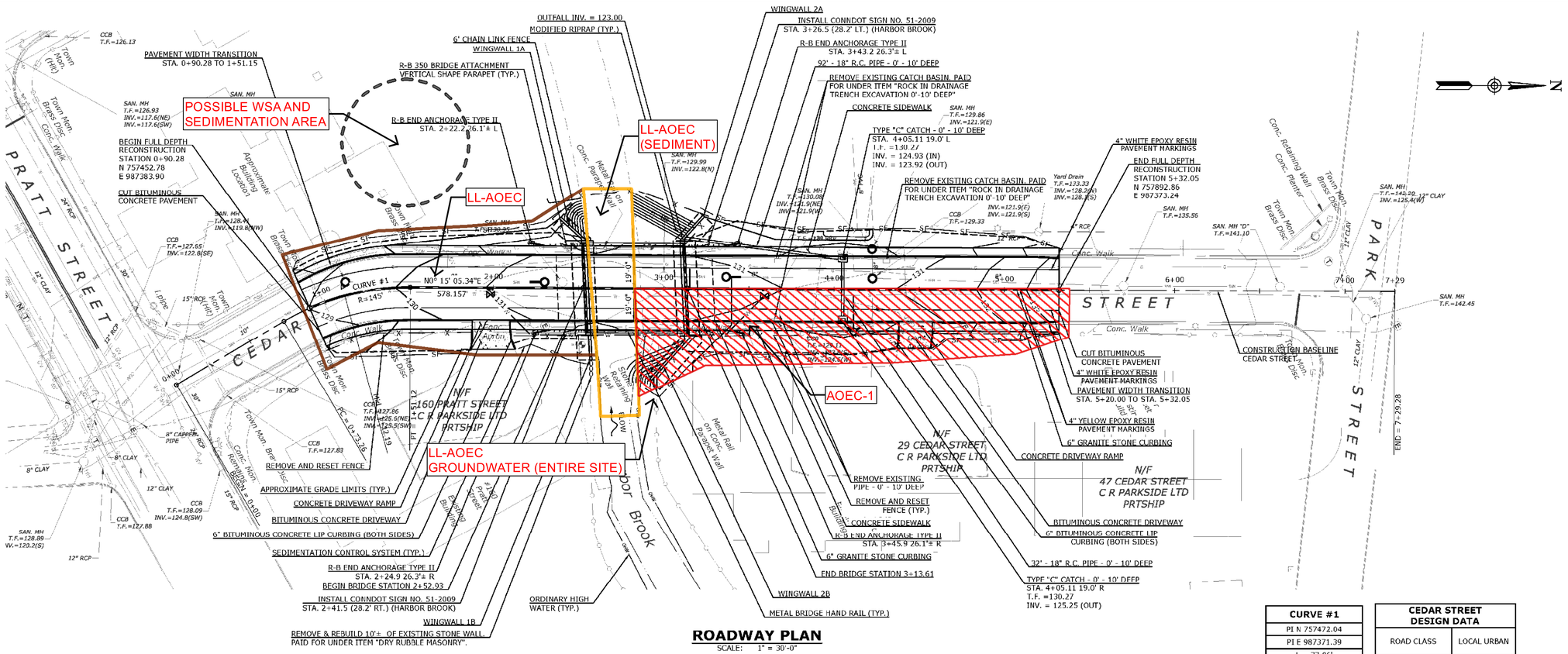
(860) 667

PREPARED FOR

CITY OF MERIDEN
142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
UTILITY RELOCATION PLAN
(EVERSOURCE-GAS)

SIZE	PROJECT	FILE NAME	NUMBER	REV.	SHEET	OF
D –	CEDAR STREET	– F.D. –	17088	–	UTL-1	1



ROADWAY PLAN

SCALE: 1" = 30'-0"

CURVE #1
PI N 757472.04
PI E 987371.39
L = 77.86'
Δ = 39° 51' 43"
R = 145.00'
T = 39.89'

CEDAR STREET DESIGN DATA	
ROAD CLASS	LOCAL URBAN
DESIGN SPEED	25 MPH
ADT (2020)	776 VPD
RADIUS (MIN.)	145 FT.
e	N/A
MAXIMUM GRADE	3.75%
CROSS SLOPE	2.00%
K (SAG MIN.)	26
K (CREST MIN.)	12

NOTES:

1. TOPOGRAPHIC AND BOUNDARY SURVEY INFORMATION & BASE MAPPING PROVIDED BY MILONE & MACBROOM, INC., 99 REALTY DRIVE, CHESHIRE, CT 06410, DATED: 5/7/18, REVISED 6/5/18 AND HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300B-1 THRU 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPT. 26, 1996. IT IS A TOPOGRAPHIC SURVEY CONFORMING TO TOPOGRAPHIC ACCURACY CLASS T-2, AND IS INTENDED TO DEPICT THE EXISTING CONDITIONS OF THE SITE.
2. HORIZONTAL CONTROL BASED ON N.A.D. 1983.
3. VERTICAL DATUM BASED ON N.G.V.D. 1929.
4. CONTOURS PROVIDED BY THE CITY OF MERIDEN.
5. STREET LINES FOR ALL ROADWAYS SHOWN ARE BASED UPON CITY OF MERIDEN TAX ASSESSORS MAPS.
6. PROPERTY LINES ARE BASED UPON CITY OF MERIDEN TAX ASSESSORS MAPS AND LIMITED RESEARCH. PROPERTY LINES ARE NOT TO BE CONSIDERED AS ACCURATE UNTIL SUCH TIME AS AN ACCURATE SURVEY IS PERFORMED.
7. ALL DIMENSIONS ARE SHOWN IN FEET UNLESS NOTED OTHERWISE. ALL ELEVATIONS ARE GIVEN IN FEET. WHEN THE ELEVATIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS.
8. UTILITY LOCATIONS AS SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD. CALL BEFORE YOU DIG 1-800-922-4455. IN ADDITION THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES NEAR UTILITY LOCATION WITH RESPECTIVE UTILITY REPRESENTATIVES. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR DISRUPTION AND REPAIRS OF EXISTING INDIVIDUAL UTILITY SERVICE CONNECTION.
9. LIMIT OF INLAND WETLANDS DELINEATED BY MMI IN 2011.
10. UNCONFINED IN-STREAM ACTIVITIES MUST BE LIMITED TO THE TIME PERIOD JUNE 1 THROUGH SEPTEMBER 30.
11. THE PROJECT SHOULD NOT BE CONDUCTED IN A MANNER WHICH IMPEDES STREAM FLOW.
12. EFFLUENT FROM DEWATERED WORK AREA(S) SHOULD NOT BE DISCHARGED DIRECTLY TO THE STREAM BUT MUST BE PROCESSED THROUGH TREATMENT STRUCTURE(S). SUCH STRUCTURES SHOULD NOT BE LOCATED WITHIN THE STREAM CHANNEL OR ADJACENT WETLANDS.
13. ALL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE ESTABLISHED PRIOR TO AND MAINTAINED THROUGHOUT ALL CONSTRUCTION PHASES. SEE SEPARATE PLAN SHEET FOR EROSION & SEDIMENTATION DETAILS.
14. ALL CUT OR FILL SLOPES GREATER THAN 2H:1V SHALL BE COVERED WITH JUTE NETTING UNTIL PERMANENT GROUND COVER IS ESTABLISHED AS MAY BE DIRECTED BY THE ENGINEER.
15. ANY ACTIVITIES OTHER THAN THOSE SHOWN ON THE PLANS OR DETAILED IN THE WETLANDS PERMIT THAT OCCUR IN THE REGULATED WETLANDS AREA SHALL BE SUBJECT TO APPROVAL BY THE LOCAL INLAND/WETLANDS AUTHORITY OR ITS DESIGNATED REPRESENTATIVE.
16. UTILITY RELOCATIONS: OVERHEAD OR UNDERGROUND UTILITY LINES MAY BE IN CONFLICT WITH DRIVING SHEET PILING, THE SETTING OF PRECAST BOX CULVERT SECTIONS AND OTHER CONSTRUCTION. DEPENDING UPON THE CONTRACTOR'S CONSTRUCTION OPERATIONS, THESE UTILITIES MAY NEED TO BE TEMPORARILY RELOCATED FOR PORTIONS OF THE CONSTRUCTION OPERATIONS AND THEN MOVED BACK TO PERMANENT LOCATIONS WHICH MAY BE OTHER THAN CURRENT LOCATIONS. EXCEPT FOR UTILITY WORK SPECIFICALLY INCLUDED IN THIS CONTRACT THE ACTUAL UTILITY RELOCATIONS (PERMANENT OR TEMPORARY) WILL BE THE RESPONSIBILITY OF THE INDIVIDUAL UTILITY OWNER, HOWEVER THE CONTRACTOR WILL BE REQUIRED TO COORDINATE ALL UTILITY RELOCATIONS WITH EACH UTILITY OWNER AND TO PHASE HIS WORK AS REQUIRED TO ACCOMMODATE TEMPORARY AND PERMANENT UTILITY RELOCATION WORK.
17. THERE IS NO FEMA FLOODWAY FOR THIS REACH OF HARBOR BROOK. DEPICTED FLOOD LIMITS EXTEND BEYOND LIMITS OF PLAN.

PAVEMENT MARKING NOTES:

1. FINAL PAVEMENT MARKING SHALL BE EPOXY RESIN AND SHALL MATCH EXISTING MARKINGS AT CONSTRUCTION LIMITS.
2. PAVEMENT MARKINGS SHALL BE INSTALLED PER TRAFFIC STANDARD SHEET TR-1210_04 "PAVEMENT MARKING LINES AND SYMBOLS" AND TR-1210_08 "PAVEMENT MARKINGS FOR NON FREEWAYS".

SIGNING NOTES:

1. ALL EXISTING SIGNS WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED AND RESET UNLESS OTHERWISE NOTED ON THE PLAN OR DIRECTED BY THE ENGINEER. REMOVING AND RESETTING SIGNS SHALL BE PAID FOR IN "CLEARING AND GRUBBING".
2. SIGNS TO BE INSTALLED PER TRAFFIC STANDARD SHEETS TR-1208_01 "SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS" AND TR-1208_02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS", EXCEPT AS NOTED.
3. EXACT SIGN LOCATIONS TO BE VERIFIED BY THE ENGINEER.
4. SIGNS SHALL BE PLACED NO CLOSER THAN 10 FEET FROM UTILITY POLES.

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DESIGN	E.D.
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DATE	6/30/2021

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142 E MAIN STREET
MERIDEN, CT 06450

REPLACEMENT OF CEDAR STREET BRIDGE OVER HARBOR BROOK
ROADWAY PLAN

D – CEDAR STREET – F.D. – 17088 – (SIZE / PROJECT / FILE NAME / NUMBER / REV.)

SHEET 5 OF 32

SLR
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773

ENVIRONMENTAL PLAN
TASK 310 PLANS, SPECIFICATIONS AND ESTIMATES
REPLACEMENT OF CEDAR STREET BRIDGE
CEDAR STREET
MERIDEN, CONNECTICUT

SCALE: N.T.S

DATE: 8/25/21

PROJECT NO.: 141.11261.00072

ENV.1

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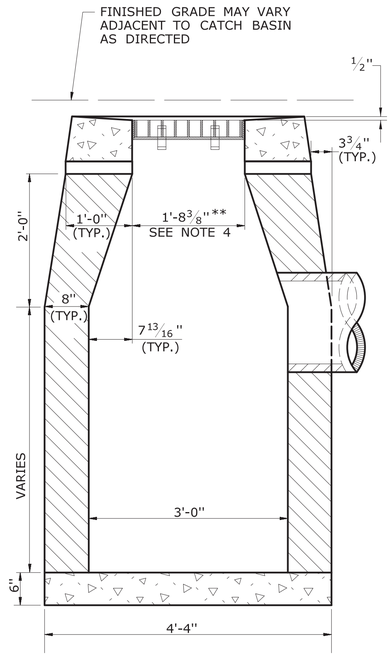
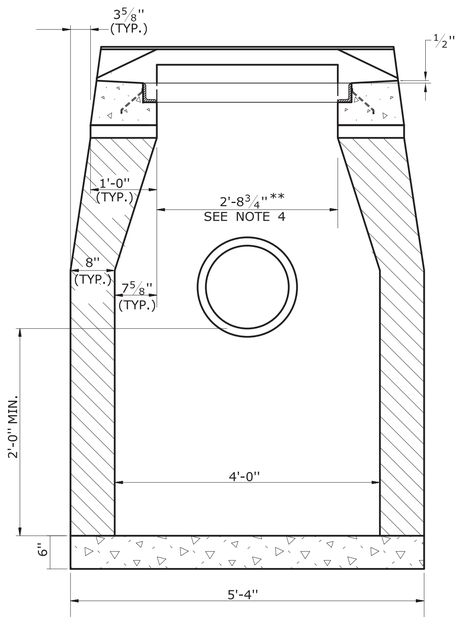


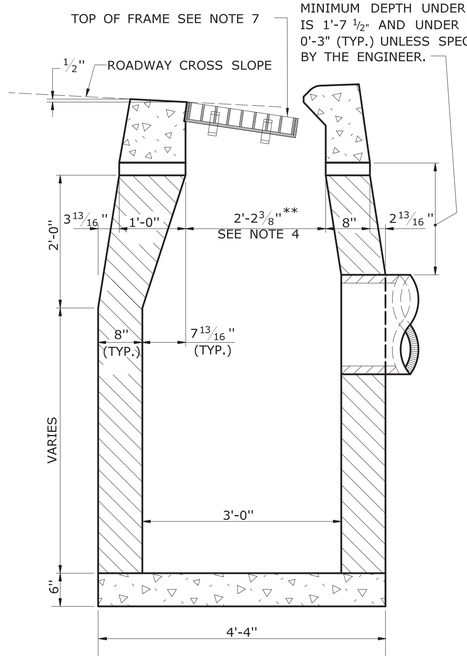
SECTION B

TYPE "C-L" CATCH BASIN



SECTION A

TYPE "C" & "C-L" CATCH BASIN (TYPE "C" TOP SHOWN)

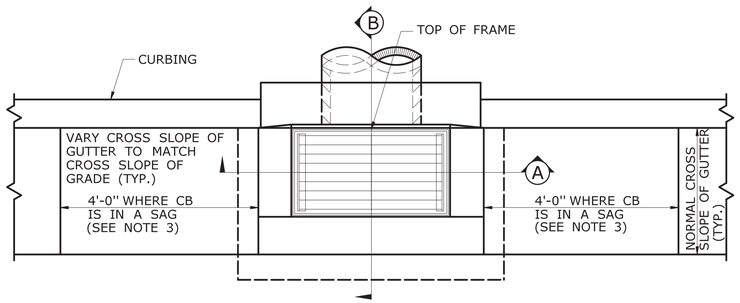


SECTION B

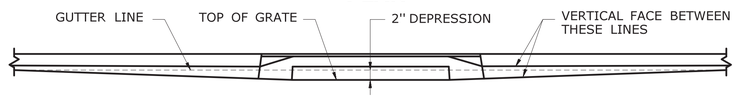
TYPE "C" CATCH BASIN

GENERAL NOTES:

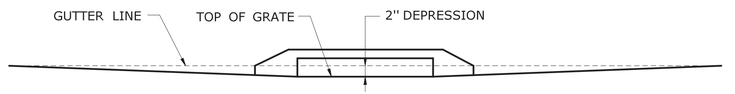
1. FOR CATCH BASIN TOPS, SEE SHEET NO. HW-586_07.
2. ALL FACES OF STRUCTURES IN CONTACT WITH CONCRETE PAVEMENT SHALL BE COVERED WITH A LAYER OF TAR PAPER OR APPROVED EQUAL.
3. USE 6'-0" ON UPGRADE SIDE (SEE PLAN VIEW) OF CONTINUOUS GRADE AND 1'-0" ON DOWNGRADE SIDE OF CONTINUOUS GRADE OR AS DIRECTED 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. SPACERS CAN BE EITHER CONCRETE MASONRY UNIT OR PRECAST WITH THE REQUIRED REINFORCING (RECOMMENDED BY THE MANUFACTURER) AS NEEDED TO PROVIDE THE PROPER GRADE SHOWN ON THE PLANS.
7. TOP OF FRAME ELEVATION SHALL BE MEASURED IN THE CENTER OF GRATE AT GUTTER LINE.



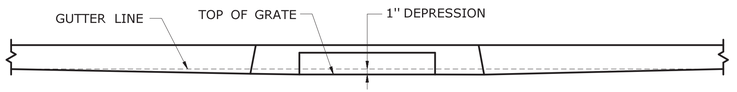
PLAN



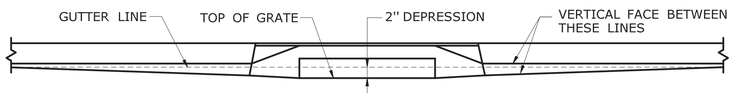
CATCH BASINS IN A LINE WITH 4" CONCRETE PARK CURBING OR 4" BITUMINOUS CONCRETE PARK CURBING



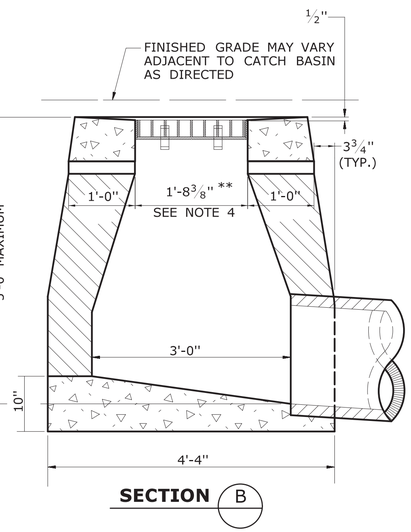
CATCH BASINS WHERE NO CURBING OF ANY TYPE EXISTS OR IS PROPOSED



CATCH BASINS IN A LINE WITH 6" CONCRETE CURBING OR 6" STONE CURBING

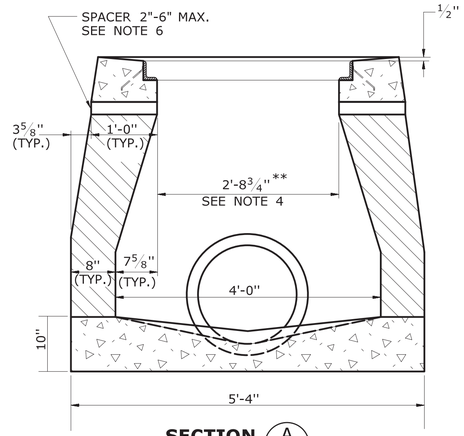


CATCH BASINS IN A LINE WITH 6" BITUMINOUS CONCRETE LIP CURBING (MACHINE FORMED)



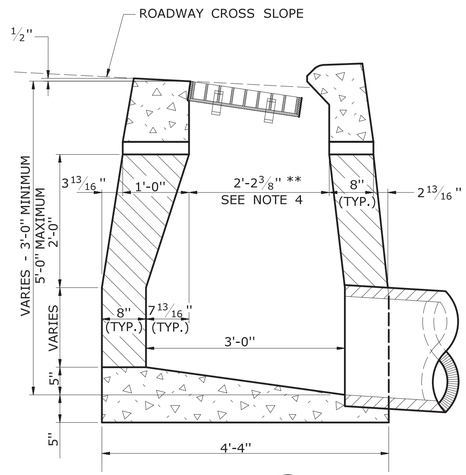
SECTION B

TYPE "C-L" DROP INLET



SECTION A

TYPE "C" & "C-L" DROP INLET (TYPE "C-L" TOP SHOWN)



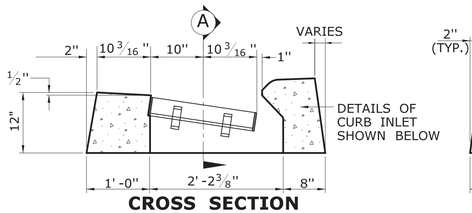
SECTION B

TYPE "C" DROP INLET

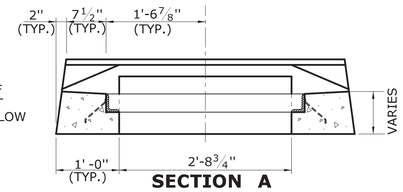
DETAILS OF DEPRESSED GUTTER STRIP FOR TYPE "C" CATCH BASIN

	NOT TO SCALE ###	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Leo Fontaine, P.E. 2020.07.08 09:22:22-04'00'	APPROVED BY: James Fallon, P.E. Digitally signed by James Fallon, P.E. DN: C=, James.Fallon@ct.gov, O=Connecticut Department of Transportation, OU=Manager of Facilities & Transit, Commissioner of Engineering and Traffic, CN=James Fallon, P.E., Connecticut, S=Connecticut, C=US Date: 2020.07.14 08:38:53-04'00'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: CATCH BASIN AND DROP INLET TYPES "C" AND "C-L"	STANDARD SHEET NO.: HW-586_01

PLOTTED DATE: 7/7/2020

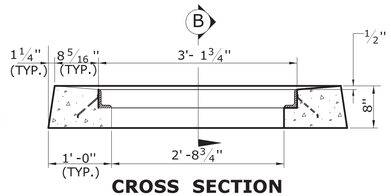


CROSS SECTION



SECTION A

TYPE "C" CATCH BASIN TOP



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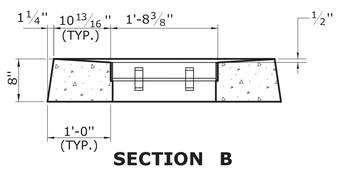
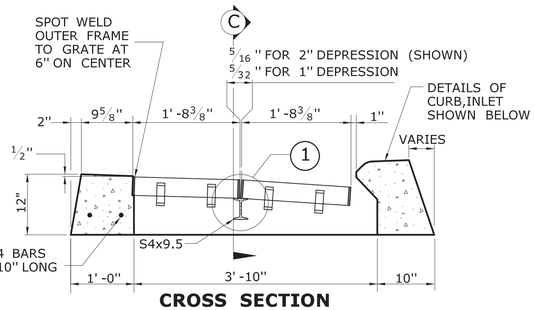


SECTION B

TYPE "C-L" CATCH BASIN TOP

GENERAL NOTES:

1. FOR DETAILS OF FRAMES AND GRATES, SEE SHEET NO. HW-586_08.
2. ALL BARS SHALL HAVE A MINIMUM 2" COVER.



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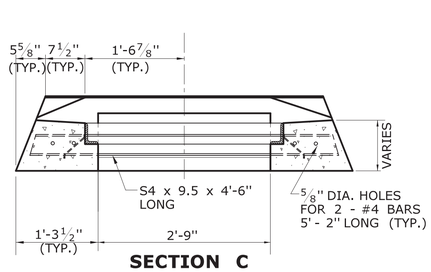
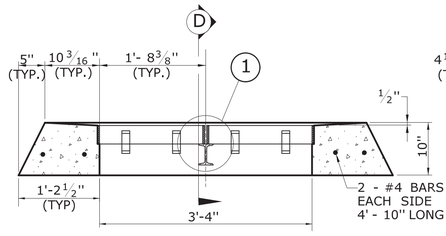


SECTION C

TYPE "C" CATCH BASIN DOUBLE GRATE - TYPE I TOP



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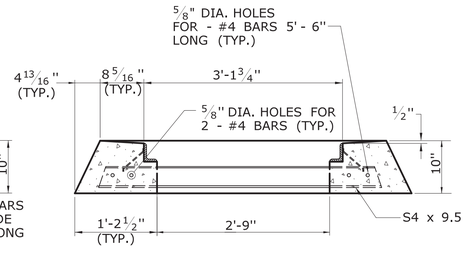
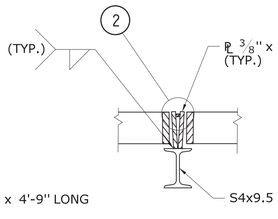
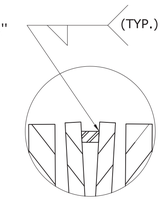


SECTION D

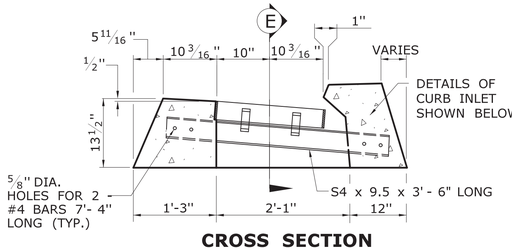


DETAIL "1"



DETAIL "2"

TYPE "C-L" CATCH BASIN DOUBLE GRATE - TYPE I TOP



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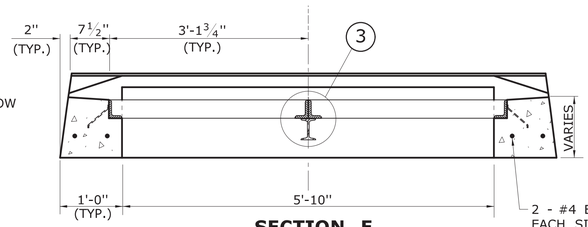
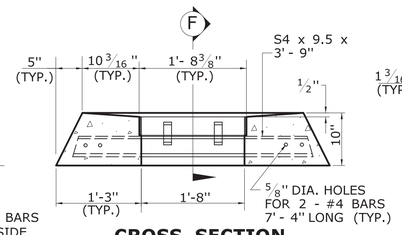


SECTION E

TYPE "C" CATCH BASIN DOUBLE GRATE - TYPE II TOP



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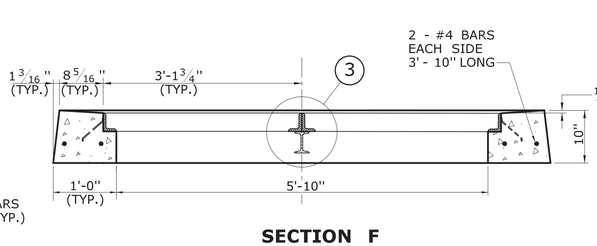
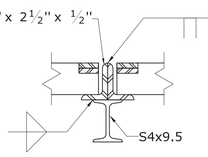
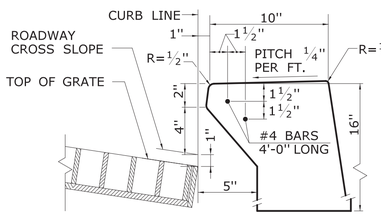


SECTION F

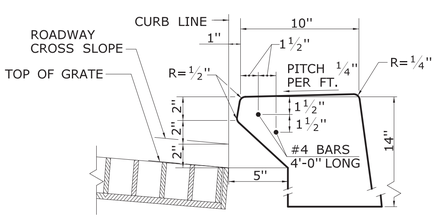
TYPE "C-L" CATCH BASIN DOUBLE GRATE - TYPE II TOP



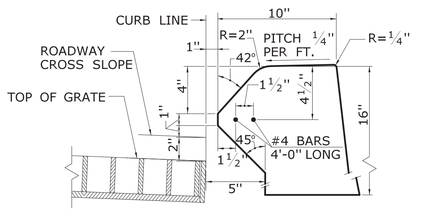
DETAIL "3"



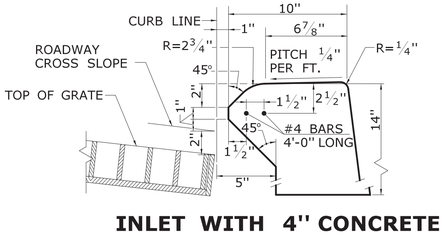
INLET WITH 6" CONCRETE OR STONE CURBING FOR TYPE "C" CB



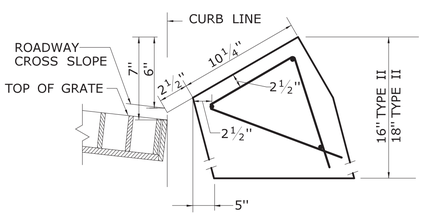
INLET WITH NO CURBING (PLAIN TYPE) FOR TYPE "C" CB



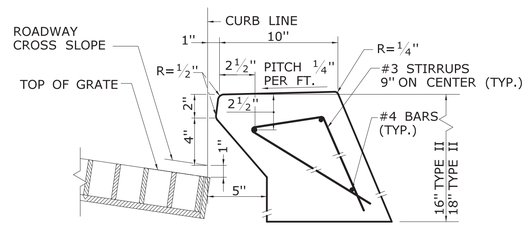
INLET WITH 6" BITUMINOUS CONCRETE LIP CURBING FOR TYPE "C" CB



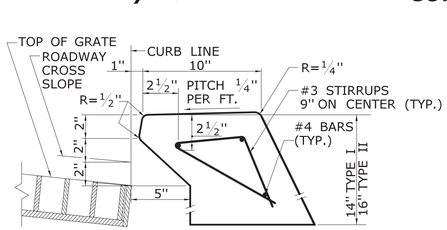
INLET WITH 4" CONCRETE PARK CURBING FOR TYPE "C" CB



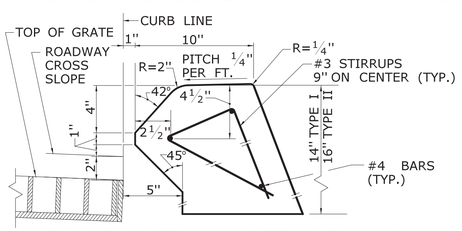
INLET WITH GRANITE SLOPE CURB FOR TYPE "C" CB



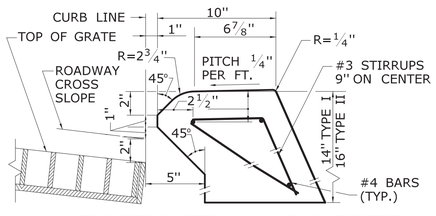
INLET WITH 6" CONCRETE OR STONE CURBING FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



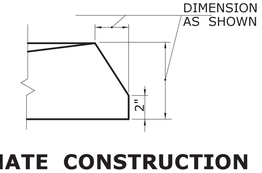
INLET WITH NO CURBING (PLAIN TYPE) FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



INLET WITH 6" BITUMINOUS CONCRETE LIP CURBING FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



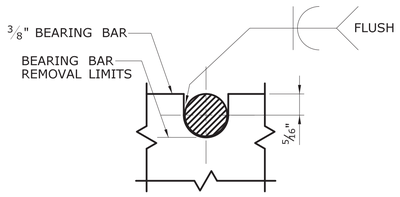
INLET WITH 4" CONCRETE PARK CURBING FOR TYPE "C" CB DOUBLE GRATE TYPE I & II



ALTERNATE CONSTRUCTION OF TYPE II TOP

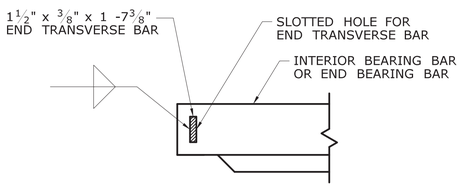
	NOT TO SCALE #####	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Leo Fontaine, P.E. 2020.07.08 09:24:52-04'00'	APPROVED BY: James Fallon, P.E. Digitally signed by James Fallon, P.E. DN: cn=James Fallon, P.E., o=Connecticut Department of Transportation, ou=Bureau of Engineering and Construction, ou=Office of Engineering and Construction, email=James.Fallon@ct.gov, c=US Date: 2018.07.14 08:45:28-04'00'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: CATCH BASIN TOPS TYPE "C" AND "C-L"	STANDARD SHEET NO.: HW-586_07

PLOTTED DATE: 6/30/2020

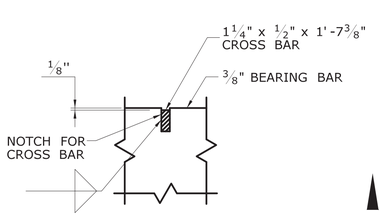


NOTE:
5/8" DIA. ROUND BAR SHALL CONTACT BEARING BAR AT BOTTOM AND BE FLUSH AT TOP.

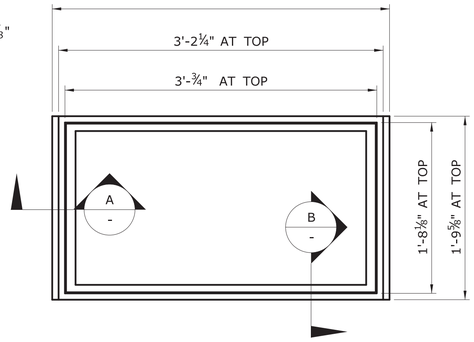
ROUND BAR ATTACHMENT
CATCH BASIN GRATE TYPE A



END TRANSVERSE BAR ATTACHMENT
CATCH BASIN GRATE TYPE A AND B



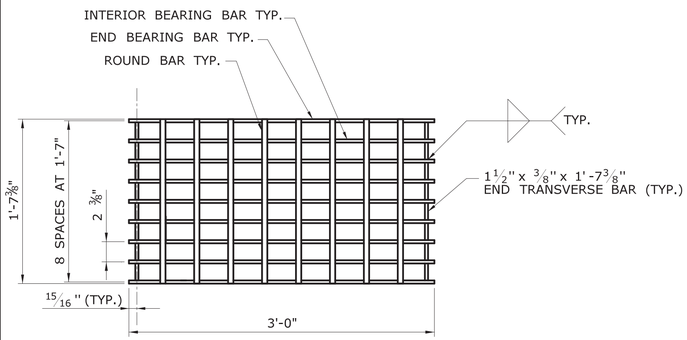
CROSS BAR ATTACHMENT
CATCH BASIN GRATE TYPE B



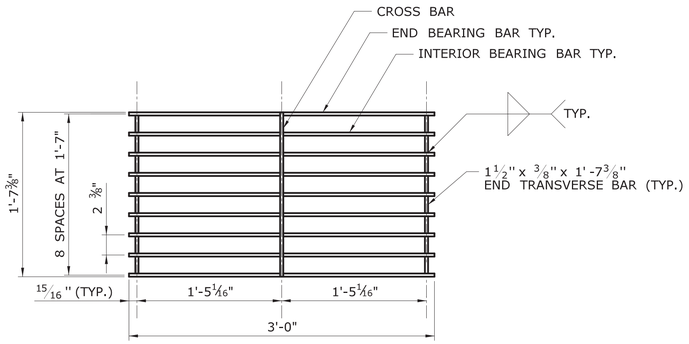
PLAN

GENERAL NOTES:

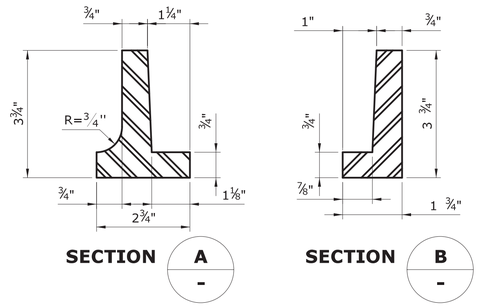
1. STEEL OR CAST IRON SHALL BE USED FOR FRAMES. STEEL SHALL BE USED FOR TYPE "A" AND "B" GRATES.
2. TYPE "A" GRATES SHALL BE USED ON ALL ROADWAYS WHERE BICYCLE TRAFFIC IS ALLOWED OR ON HEAVY DUTY LOCK DOWN TOPS AS DIRECTED BY THE ENGINEER.
3. TYPE "B" GRATES SHALL BE USED ON ALL LIMITED ACCESS HIGHWAYS, 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 ± 1/16 INCH.
6. ALL STEEL BARS SHALL BE WELDED AT ALL INTERSECTIONS.



PLAN

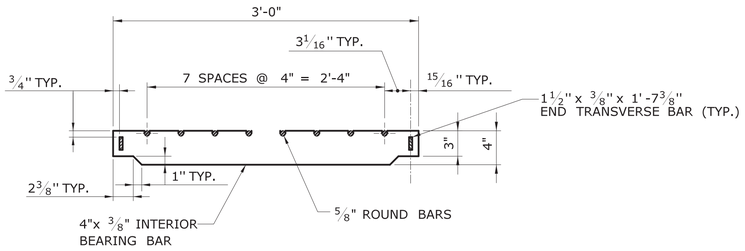


PLAN

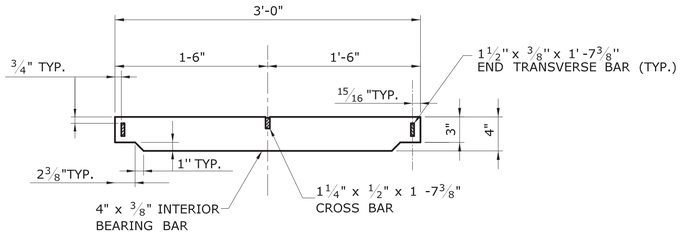


SECTION A - SECTION B -

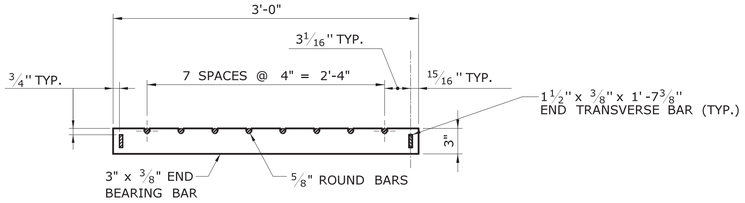
CAST IRON FRAME ALTERNATE



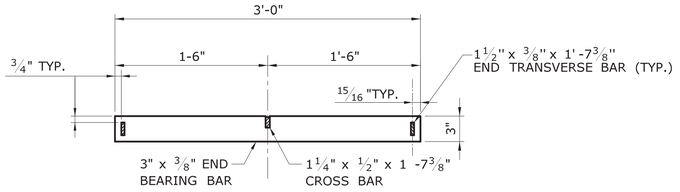
ELEVATION- INTERIOR BEARING BAR



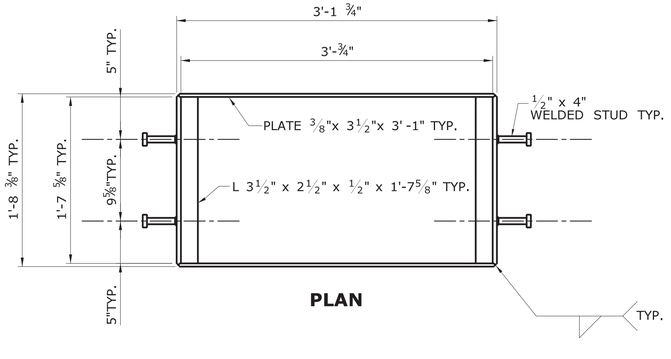
ELEVATION- INTERIOR BEARING BAR



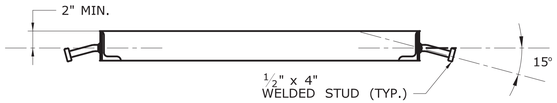
ELEVATION- END BEARING BAR
CATCH BASIN GRATE TYPE A



ELEVATION- END BEARING BAR
CATCH BASIN GRATE TYPE B



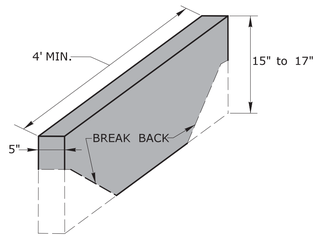
PLAN



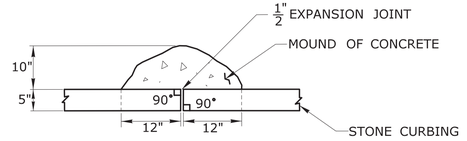
WELDED STUD ANCHOR DETAILS
STEEL FRAME

	NOT TO SCALE #####	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Leo Fontaine, P.E. 2020.07.08 09:25:23-04'00'	APPROVED BY: James Fallon, P.E.	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: CATCH BASIN FRAMES AND GRATES	STANDARD SHEET NO.: HW-586_08

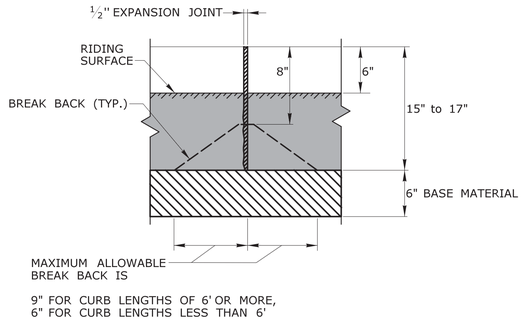
PLOTTED DATE: 6/30/2020



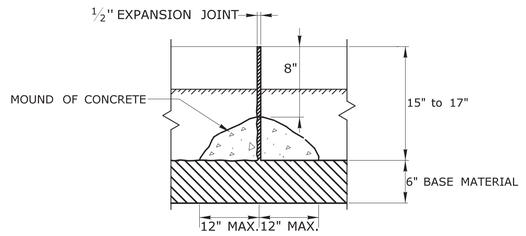
STONE CURBING



PLAN

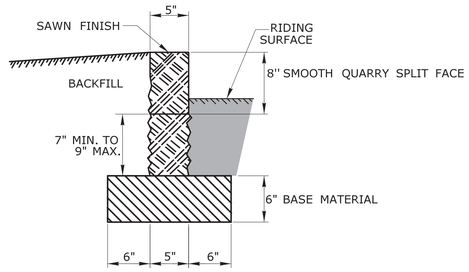


FRONT ELEVATION



BACK ELEVATION

MOUND OF CONCRETE AT ALL JOINTS FOR STONE CURBING



SECTION

NOT TO SCALE

####

SIGNATURE BLOCK:

OFFICE OF ENGINEERING
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

SUBMITTED BY:

Leo Fontaine, P.E.
2020.07.08
09:33:33-04'00'

APPROVED BY:

James Fallon, P.E.

Digitally signed by James Fallon, P.E.
DN: E=James.Fallon@ct.gov, CN=James Fallon, P.E., O=Bureau of Engineering and Construction, OU=Manager of Facilities & Transit, L=Hartford, S=Connecticut, C=US
Location: In Connecticut Chrome
Date: 2020.07.14 08:54:59-04'00'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CTDOT
STANDARD SHEET

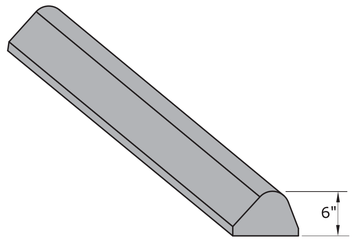
STANDARD SHEET TITLE:

STONE CURBING

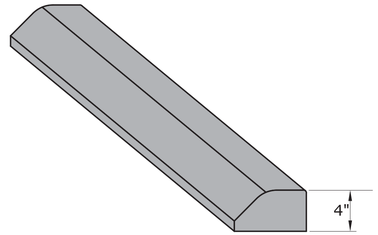
STANDARD SHEET NO.:

HW-813_02

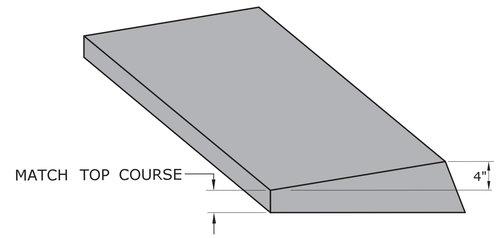
PLOTTED DATE: 7/1/2020



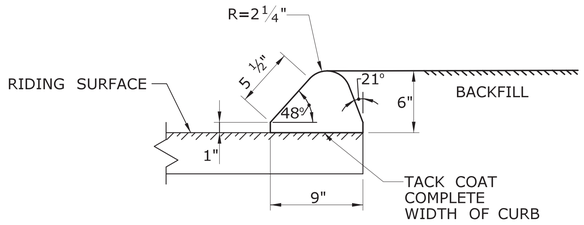
BITUMINOUS CONCRETE LIP CURBING
(6" HIGH)



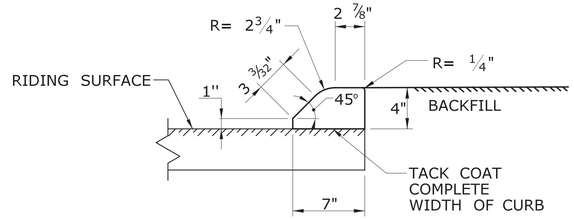
BITUMINOUS CONCRETE PARK CURBING
(4" HIGH)



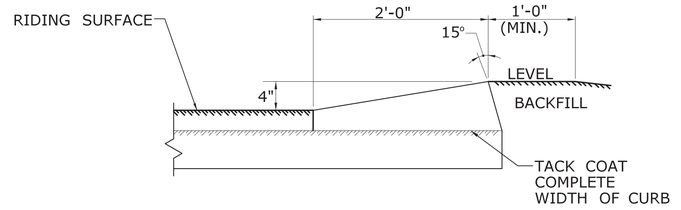
BITUMINOUS CONCRETE BERM CURBING
(4" HIGH)



SECTION



SECTION



SECTION

NOT TO SCALE

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SIGNATURE BLOCK:

OFFICE OF ENGINEERING
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

SUBMITTED BY:

Leo Fontaine, P.E.
2020.07.08
09:34:54-04'00'

APPROVED BY:

James Fallon, P.E.

Digitally signed by James Fallon, P.E.
DN: c=US, st=CT, l=Berlin, o=The CDM Lenfest Fallon, P.E., ou=Department of Transportation, ou=Bureau of Engineering and Construction, ou=Office of Engineering and Construction, ou=State of Connecticut, cn=James Fallon, P.E., email=jfallon@ct.gov
Date: 2020.07.14 08:45:11-04'00'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CTDOT STANDARD SHEET

STANDARD SHEET TITLE:

BITUMINOUS CONCRETE CURBING

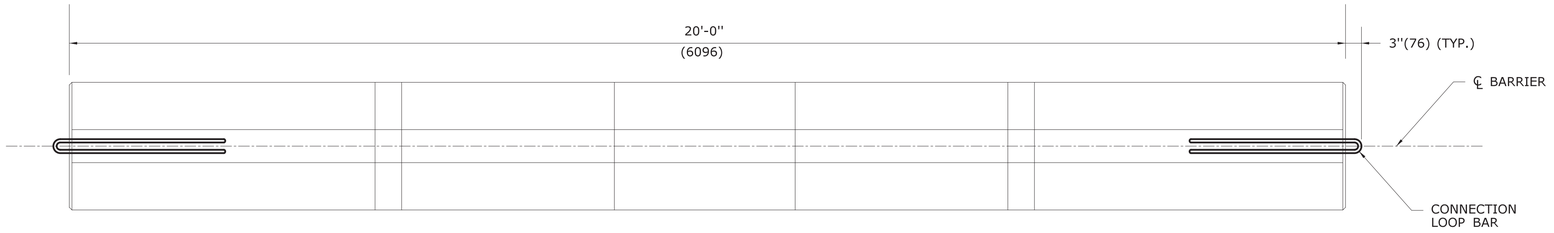
STANDARD SHEET NO.:

HW-815_01

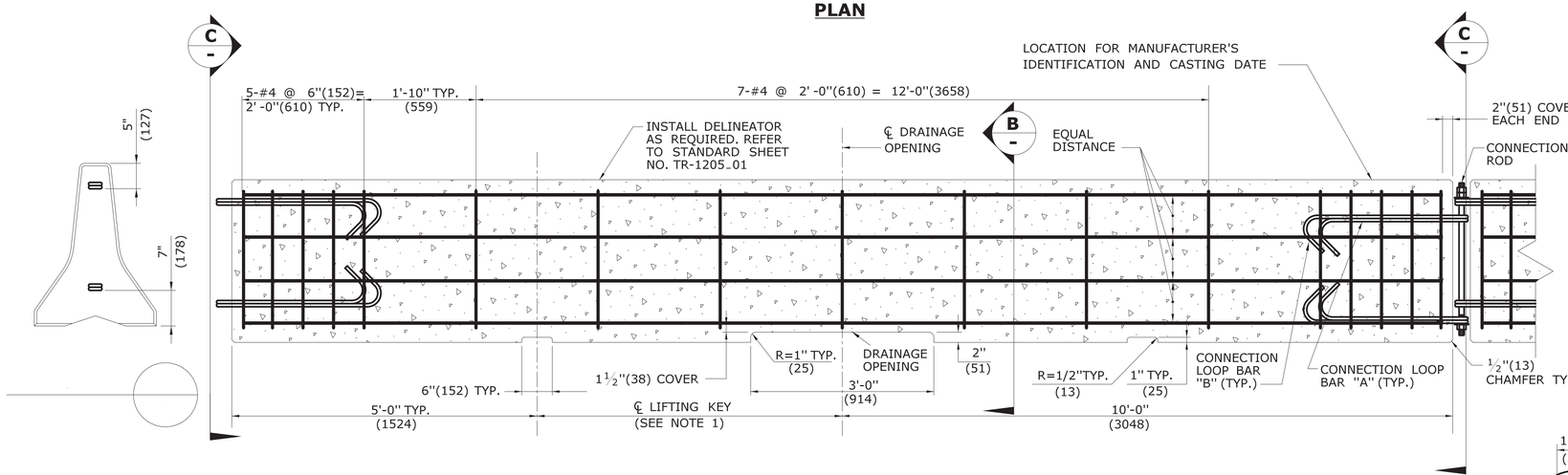
PLOTTED DATE: 7/7/2020

GENERAL NOTES:

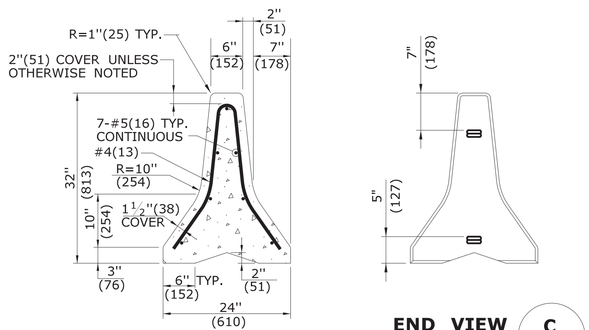
1. ALTERNATE DESIGNS FOR LIFTING KEYS, HOLES OR OTHER HANDLING DEVICES MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
2. EXPECTED PERMANENT DYNAMIC DEFLECTION IS 3'-6" (1148) BASED ON TL-3 CRASH TESTS WITH 240' (73152) OF TPCBC.



PLAN

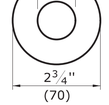


ELEVATION

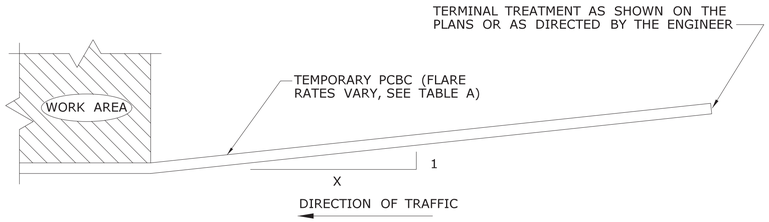


SECTION B -

END VIEW C -



WASHER DETAIL

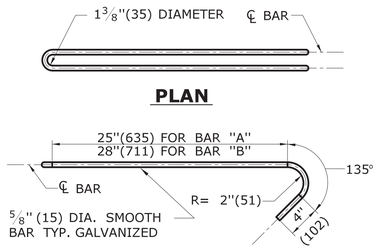


PLAN - TYPICAL INSTALLATION

TABLE A

* SPEED	FLARE RATE (X : 1)
FLARE RATES	
≤ 30MPH(48KPH)	4 : 1
> 30MPH(48KPH) <45MPH(72KPH)	6 : 1
≥ 45MPH(72KPH) NON-LIMITED ACCESS HIGHWAYS	8 : 1
ALL LIMITED ACCESS HIGHWAYS	10 : 1

* DESIGN SPEED THROUGH THE WORK AREA.

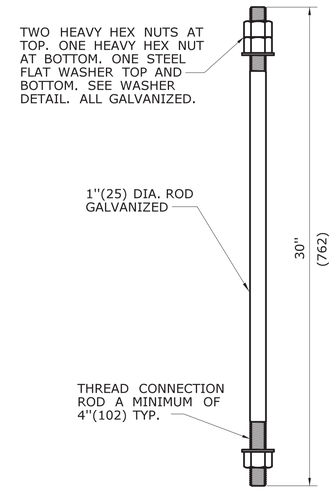


PLAN

ELEVATION

BAR "A" = 6'-0"(1829) TOTAL
BAR "B" = 6'-6"(1981) TOTAL

CONNECTION LOOP BAR

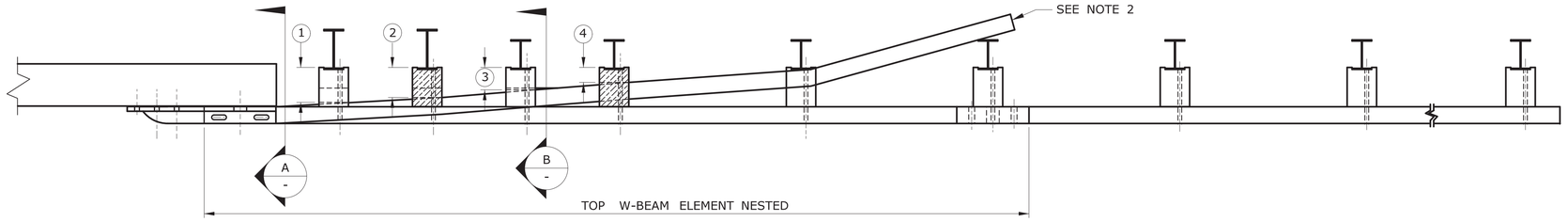


CONNECTION ROD

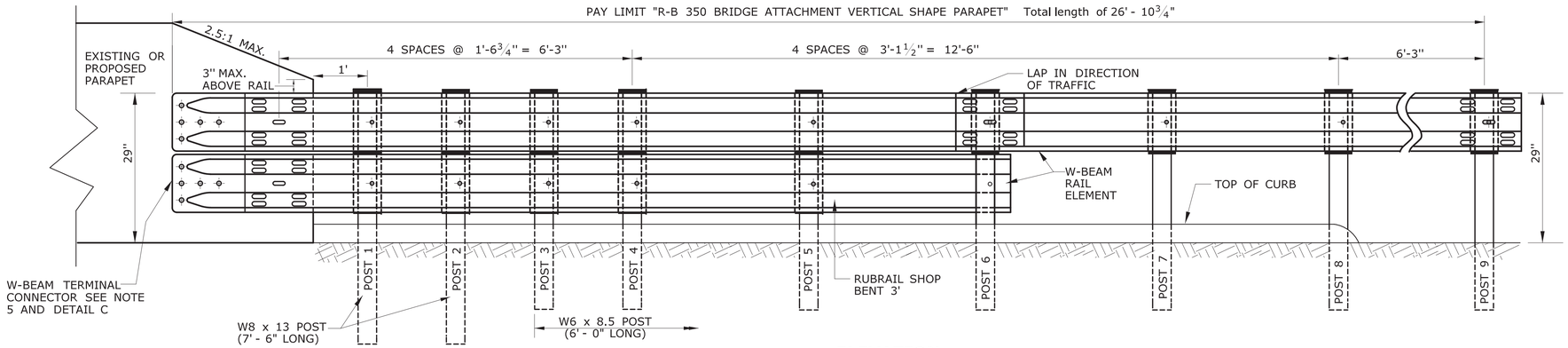
ALL METRIC DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

	NOT TO SCALE #####	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Leo Fontaine, P.E. 2020.07.08 09:56:23-04'00'	APPROVED BY: James Fallon, P.E. 2020.07.15 09:55:49-04'00'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: TEMPORARY PRECAST CONCRETE BARRIER CURB	STANDARD SHEET NO.: HW-822_01

PLOTTED DATE: 7/7/2020



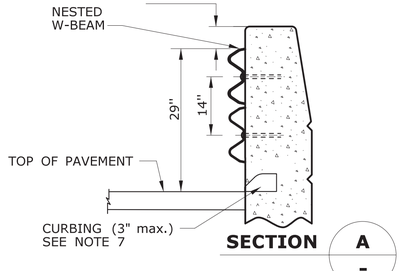
PLAN



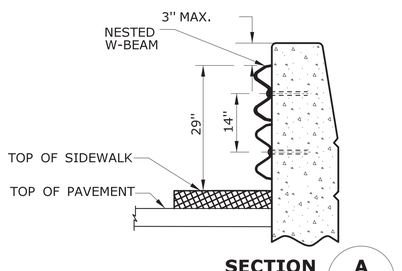
ELEVATION

GENERAL NOTES:

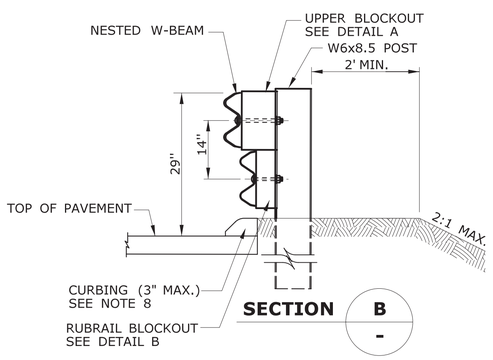
1. RUBRAIL BLOCKOUTS FOR POSTS 1 THROUGH 4 ARE ATTACHED TO POST AND RAIL WITH A 5/8" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTH). RUBRAIL ONLY IS ATTACHED TO POST 5 WITH A 5/8" x 1 1/4" BUTTONHEAD BOLT.
2. THE RUBRAIL SHALL BE SHOP BENT IN THE LAST 3' TO FACILITATE INSTALLATION. DO NOT ATTACH RUBRAIL TO BACK OF POST 6.
3. ANCHORAGE:
   (A) AT EXISTING PARAPETS EACH W-BEAM TERMINAL CONNECTOR SHALL BE ANCHORED USING FOUR 7/8" x 12" CHEMICALLY ANCHORED BOLTS WITH WASHERS OR AS DETAILED ON STRUCTURE SHEETS. MAXIMUM BOLT PROJECTION BEYOND THE NUT SHALL BE 1/2". THE 12" MINIMUM LENGTH OF CHEMICALLY ANCHORED BOLTS SHALL INCLUDE A MINIMUM EMBEDMENT DEPTH OF 10" INTO SUITABLY REINFORCED CONCRETE OR AS RECOMMENDED BY THE MANUFACTURER OF BONDING MATERIAL.
   (B) FOR NEW PARAPETS OR BARRIERS, THE W-BEAM TERMINAL CONNECTORS SHALL BE ANCHORED AS DETAILED ON THE STRUCTURE SHEETS.
4. ADDITIONAL BLOCKOUTS WITH POSTS 1 THROUGH 6 SHOULD BE AVOIDED.
5. FOR SINGLE DIRECTION ROADWAY:
   INSTALL W-BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDE RAIL ELEMENTS.
   FOR DUAL DIRECTION ROADWAY FOR APPROACHING TRAFFIC:
   INSTALL W-BEAM TERMINAL CONNECTOR BETWEEN NESTED GUIDE RAIL ELEMENTS.
   FOR TRAILING END:
   INSTALL W-BEAM TERMINAL CONNECTOR OUTSIDE OF THE NESTED GUIDE RAIL ELEMENTS.
6. MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29" +/- 1".
7. USE MODIFIED 4" BITUMINOUS CONCRETE PARK CURBING REDUCED TO A 3 INCH REVEAL BENEATH THE RUBRAIL IF CURBING IS REQUIRED.



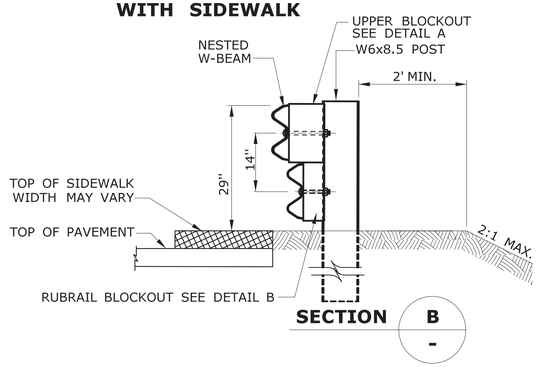
SECTION A - WITH CURBING



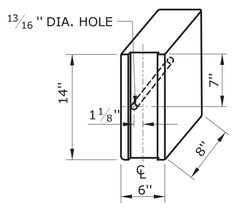
SECTION A - WITH SIDEWALK



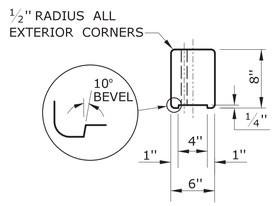
SECTION B - WITH CURBING



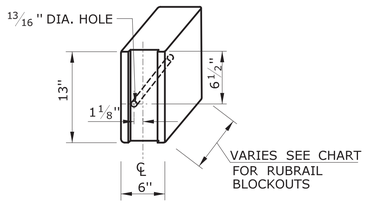
SECTION B - WITH SIDEWALK



DETAIL A
UPPER BLOCKOUT

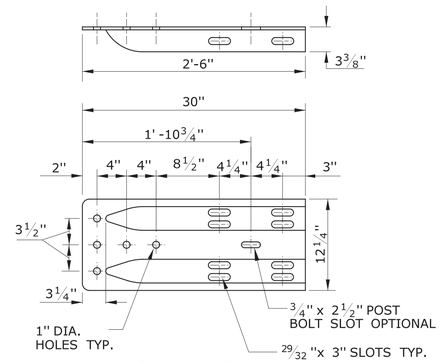


TOP



DETAIL B
RUBRAIL BLOCKOUT

RUBRAIL BLOCKOUTS 13" HIGH x 6" WIDE		
POST	THICKNESS	BOLT LENGTH
(1)	7"	9"
(2)	6"	8"
(3)	4 1/2"	6"
(4)	3"	5"



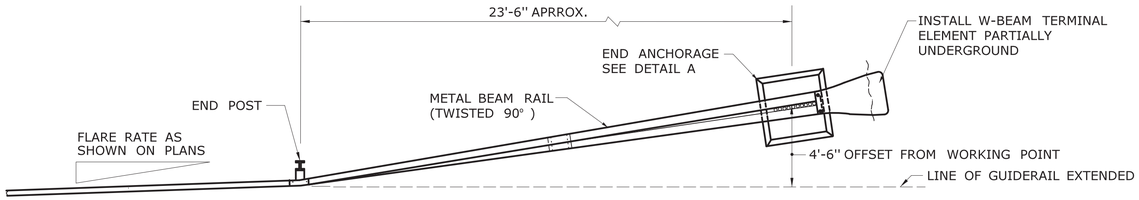
DETAIL C
W-BEAM TERMINAL CONNECTOR
CLASS B TYPE II
SEE NOTE 5

	NOT TO SCALE #####	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Leo Fontaine, P.E. 2020.07.08 10:00:15-04'00'	APPROVED BY: James Fallon, P.E. 2020.07.15 09:58:42-04'00'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: R-B 350 BRIDGE ATTACHMENT TO VERTICAL SAFETY SHAPE PARAPET	STANDARD SHEET NO.: HW-910_07

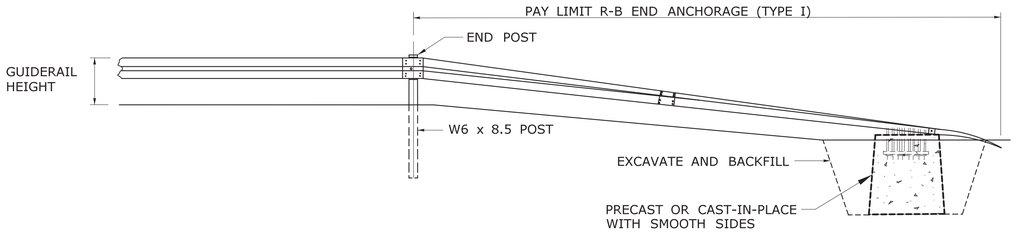
PLOTTED DATE: 7/1/2020

GENERAL NOTES:

1. J-HOOK BOLTS MAY BE SUBSTITUTED FOR BOTTOM PLATE ANCHORAGE IN CONCRETE END ANCHORS USING THE SAME SIZE, STRENGTH, AND LENGTH AS NOTED ON THE PLANS.
2. INSTALLATION OF RADII DIFFERENT THAN WHAT IS SHOWN IN DETAIL "C" FOR R-B END ANCHORAGE TYPE II MUST BE APPROVED BY THE ENGINEER.

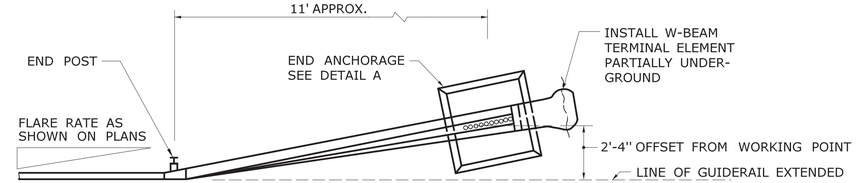


PLAN

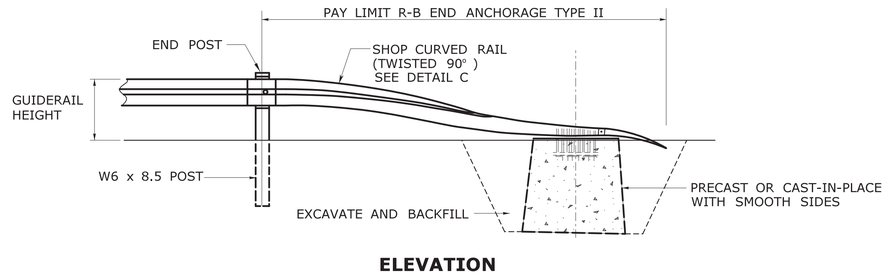


ELEVATION

R-B END ANCHORAGE TYPE I

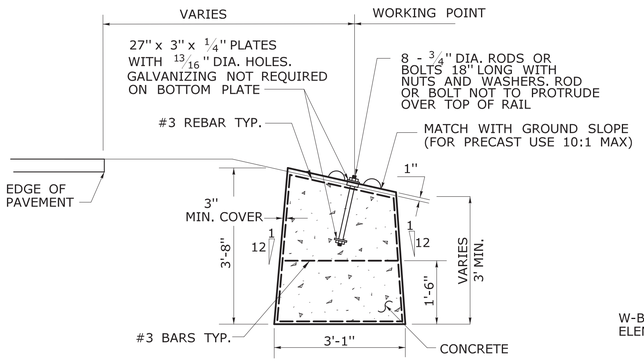


PLAN

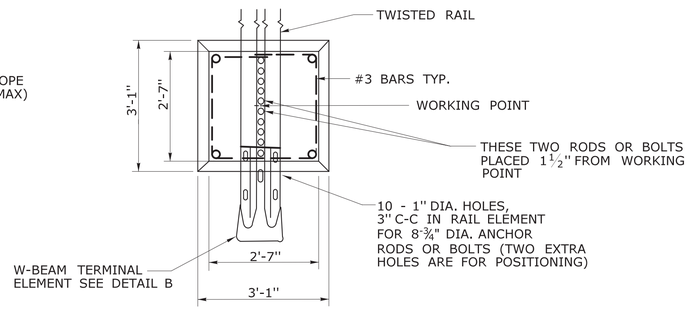


ELEVATION

R-B END ANCHORAGE TYPE II

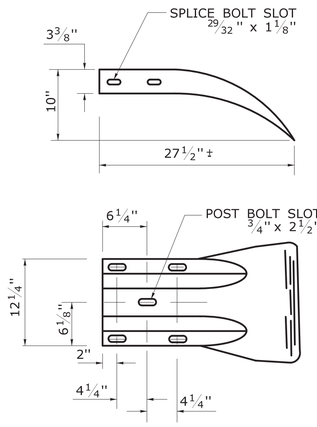


ELEVATION

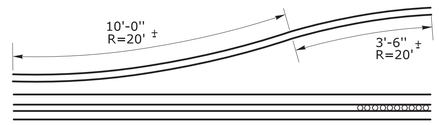


PLAN

DETAIL A
ROADSIDE CONCRETE END ANCHOR
SEE NOTE 2



DETAIL B
W-BEAM TERMINAL ELEMENT



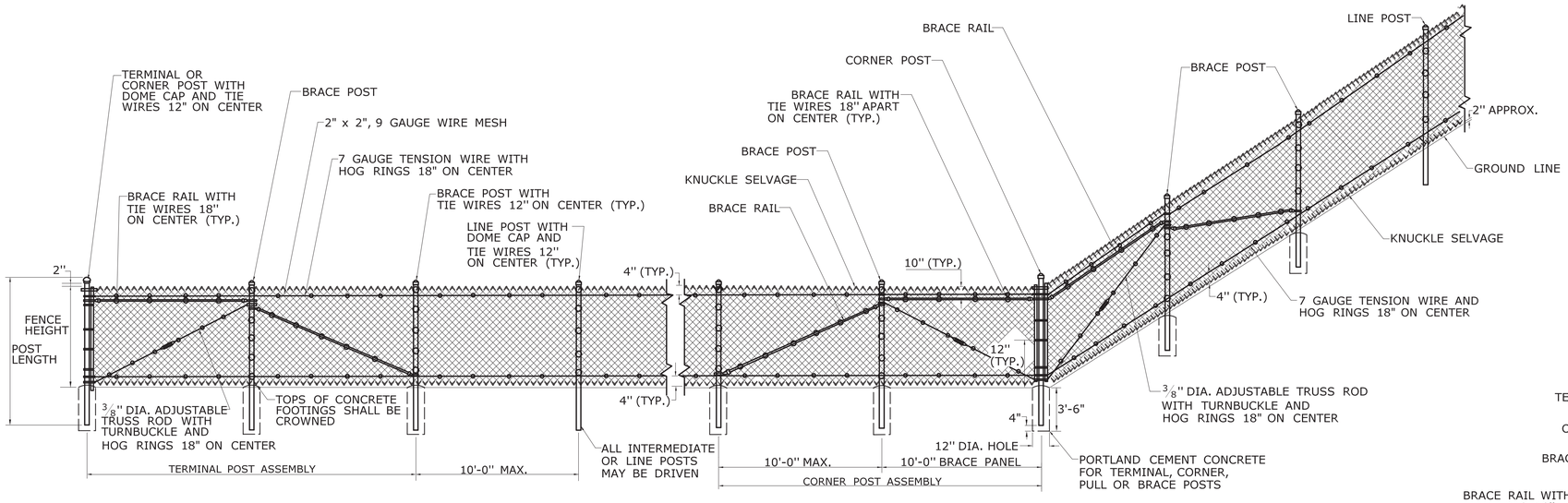
DETAIL C
SHOP CURVED RAIL
SEE NOTE 2

	NOT TO SCALE #####	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Leo Fontaine, P.E. 2020.07.08 10:28:15-04'00'	APPROVED BY: James Fallon, P.E. 2020.07.15 10:19:27-04'00'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: R-B END ANCHORAGE TYPE I AND II	STANDARD SHEET NO.: HW-911_01

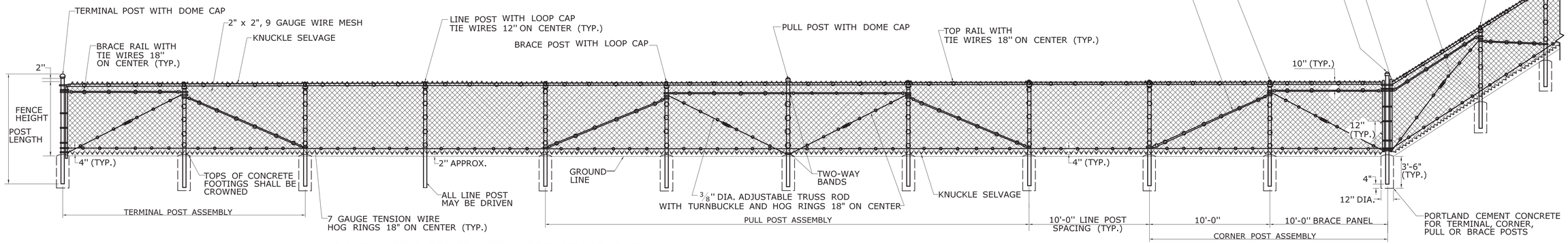
PLOTTED DATE: 7/1/2020

GENERAL NOTES:

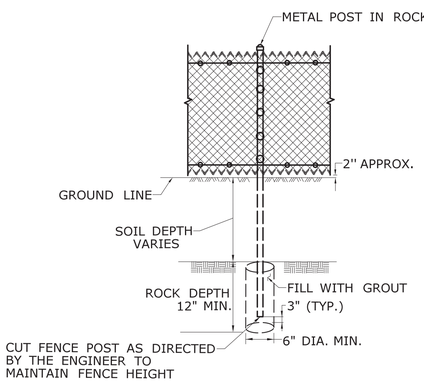
1. INSTALL PULL POST ASSEMBLIES AT ALL CHANGES IN VERTICAL TO HORIZONTAL OF 10 DEGREES OR MORE.
2. ALL POSTS WILL BE CAPPED.
3. WHERE ROCK IS ENCOUNTERED, IT SHALL BE DRILLED AND THE POSTS SET IN MORTAR.
4. FENCE SHALL BE PLACED WITH FABRIC FACING OUTSIDE HIGHWAY RIGHT OF WAY OR AS DIRECTED BY THE ENGINEER.
5. SEE HW-913_01b FOR CHAIN LINK FENCE HARDWARE.



CHAIN LINK FENCE WITH TOP TENSION WIRE



CHAIN LINK FENCE WITH TOP BRACE RAIL AND INTERMEDIATE OR BOTTOM TENSION WIRE



METAL POST IN ROCK

FENCE FABRIC HEIGHT	GROUP 1A ASTM F1083 SCH. 40 PIPE 50,000 PSI DIAMETER	GROUP 1C ASTM F1043 ELEC. RESISTANCE WELDED PIPE 50,000 PSI DIAMETER
LINE OR INTERMEDIATE POST		
UP TO 5'-0"	1 7/8"	1 7/8"
6'-0" TO 7'-0"	2 3/8"	2 3/8"
8'-0" TO 9'-0"	2 7/8"	2 7/8"
10'-0"	3 1/2"	3 1/2"
12'-0" OR HIGHER	4"	4"
TERMINAL, CORNER OR PULL POST		
UP TO 5'-0"	2 3/8"	2 3/8"
6'-0" TO 7'-0"	2 7/8"	2 7/8"
8'-0" TO 9'-0"	3 1/2"	3 1/2"
10'-0" OR HIGHER	4"	4"
TOP OR BRACE RAIL POSTS UP TO 6'-0"	1 5/8"	1 5/8"
POSTS HIGHER THAN 6'-0"	1 7/8"	1 7/8"

NOT TO SCALE

####

SIGNATURE BLOCK:
OFFICE OF ENGINEERING
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

SUBMITTED BY:
Leo Fontaine, P.E.
2020.07.08 10:29:52-04'00'

APPROVED BY:
James Fallon, P.E.
2020.07.15 10:20:40-04'00'

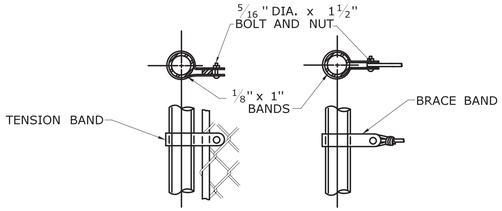
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CTDOT STANDARD SHEET

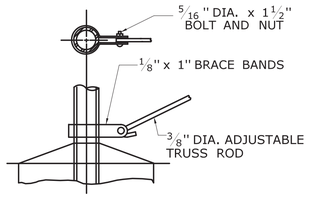
STANDARD SHEET TITLE:
CHAIN LINK FENCE

STANDARD SHEET NO.:
HW-913_01a

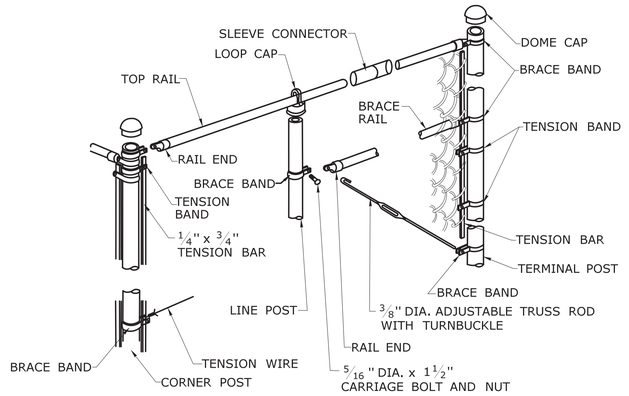
PLOTTED DATE: 7/1/2020



TENSION BAR **TENSION WIRE**

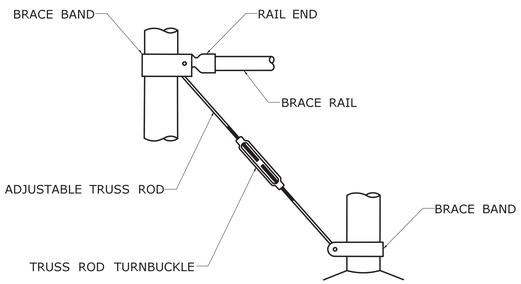


ADJUSTABLE TRUSS ROD

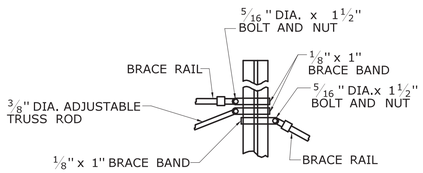


TOP RAIL / TRUSSED BRACE RAIL WITH BOTTOM TENSION WIRE

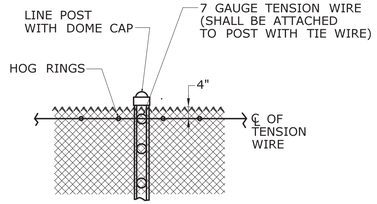
TIE WIRE



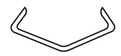
BRACE & TRUSS CONNECTIONS



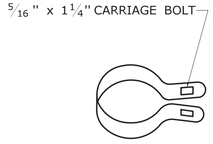
BRACE RAILS ATTACHMENT TO LINE POSTS



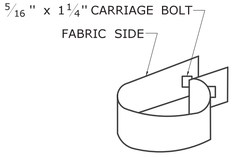
TENSION WIRE



HOG RING

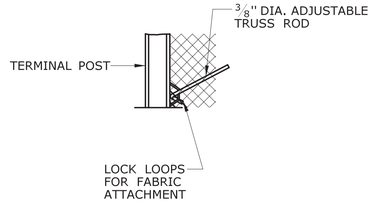


1/8" x 1" BRACE BAND

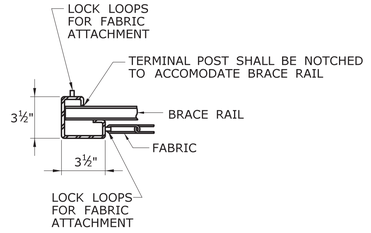


1/8" x 1" TENSION BAND

KNUCKLE SELVAGE



TRUSS ROD ATTACHMENT



FABRIC AND BRACE RAIL ATTACHMENT

NOT TO SCALE

####

SIGNATURE BLOCK:

OFFICE OF ENGINEERING
2800 BERLIN TURNPIKE
NEWINGTON, CT 06111

SUBMITTED BY:

Leo Fontaine, P.E.
2020.07.08
10:30:09-04'00'

APPROVED BY:

James Fallon, P.E.
2020.07.15
10:20:57-04'00'

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CTDOT STANDARD SHEET

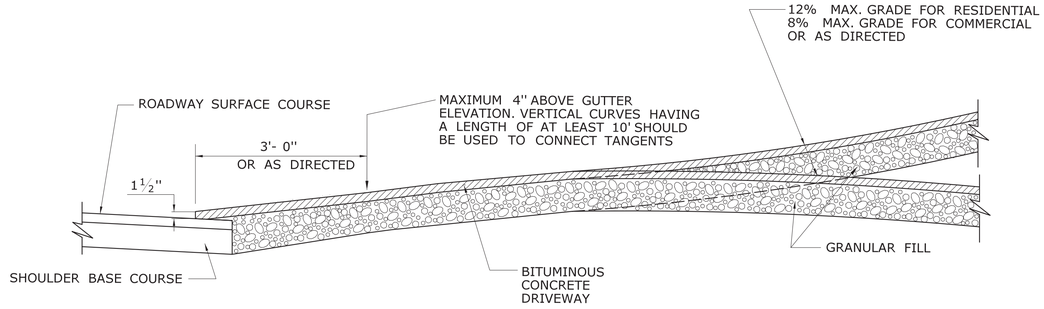
STANDARD SHEET TITLE:

CHAIN LINK FENCE HARDWARE

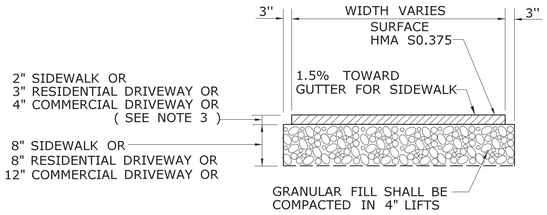
STANDARD SHEET NO.:

HW-913_01b

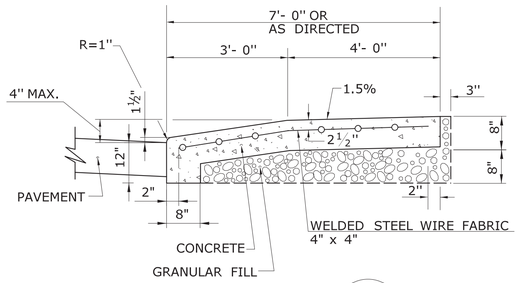
PLOTTED DATE: 7/1/2020



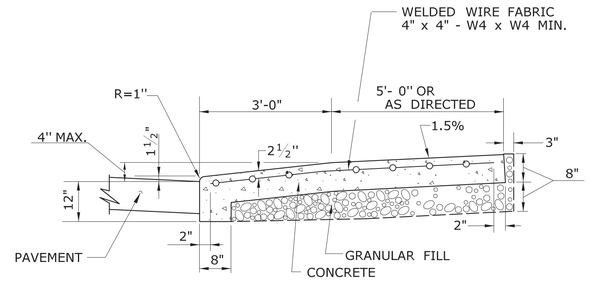
SECTION A



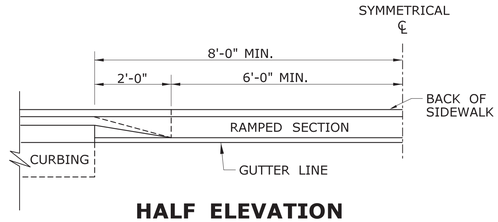
TYPICAL SECTION BITUMINOUS CONCRETE SIDEWALK AND DRIVEWAY



SECTION B



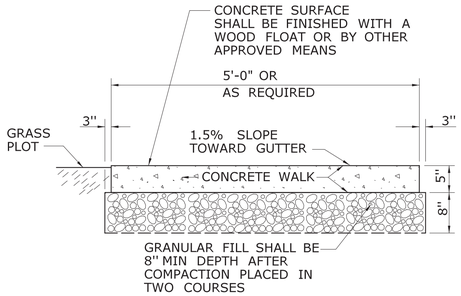
SECTION C



HALF ELEVATION

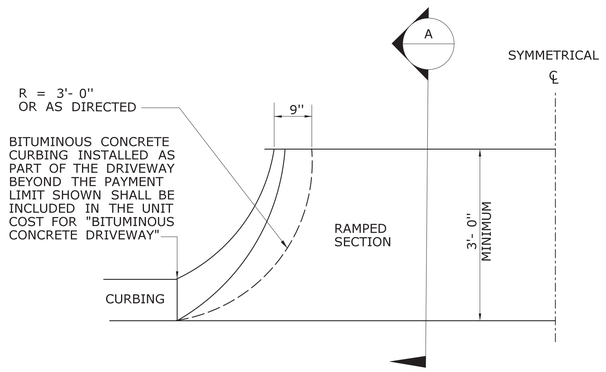
GENERAL NOTES:

1. DRIVEWAY ENTRANCE SHALL BE A MINIMUM OF 12' WIDE, EXCLUDING CURBING WHEN PRESENT.
2. WELDED WIRE FABRIC MATS WITH REINFORCING AT CLOSER SPACING MAY BE USED.
3. SURFACE HMA S0.375 TO BE PLACED IN TWO EQUAL LIFTS FOR BOTH RESIDENTIAL AND COMMERCIAL DRIVEWAYS.

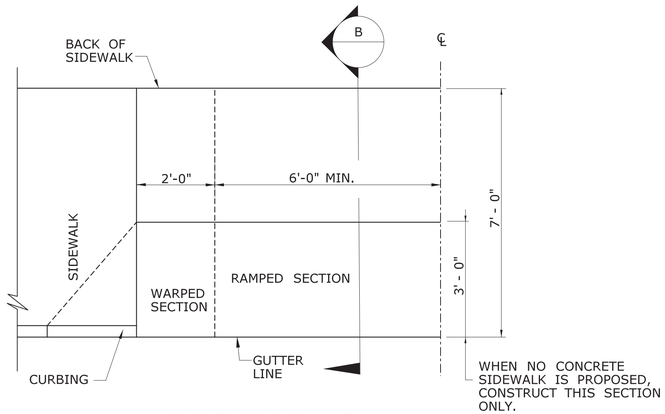


SECTION D

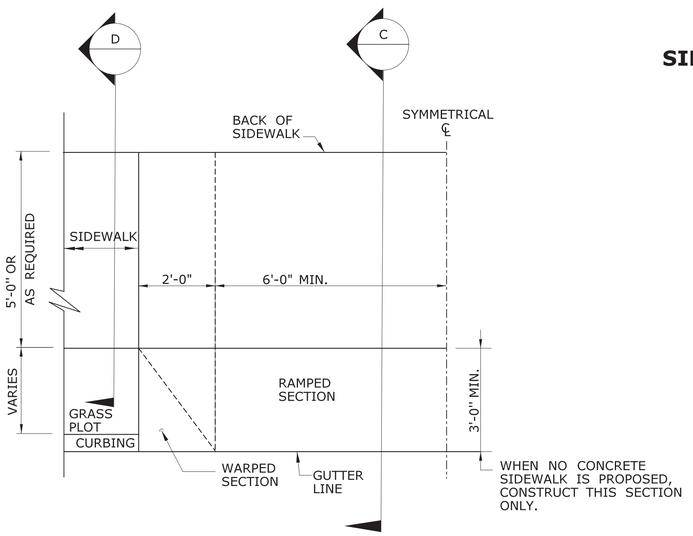
5' WIDE CONCRETE SIDEWALK WITH GRASS PLOT



HALF BITUMINOUS CONCRETE DRIVEWAY PLAN



HALF PLAN OF CONCRETE DRIVEWAY RAMP WHERE SIDEWALK ADJOINS CURBING



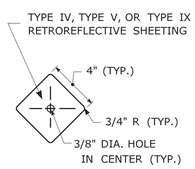
HALF PLAN OF CONCRETE DRIVEWAY RAMP WHERE CURB IS SEPARATED FROM SIDEWALK BY GRASS PLOT

	NOT TO SCALE ###	SIGNATURE BLOCK: OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111	SUBMITTED BY: Leo Fontaine, P.E. 2020.07.08 10:32:47-04'00'	APPROVED BY: James Fallon, P.E. 2020.07.15 12:16:04-04'00'	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	CTDOT STANDARD SHEET	STANDARD SHEET TITLE: DRIVEWAY RAMPS AND SIDEWALKS	STANDARD SHEET NO.: HW-921_01

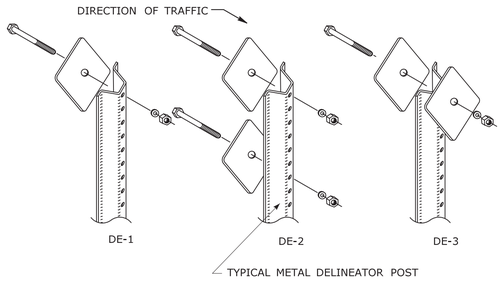
PLOTTED DATE: 7/1/2020

DELINEATORS DE-1, DE-2, DE-3

INSTALLATION ON DELINEATOR POSTS



SIGN #51-5028 WHITE
SIGN #51-5029 YELLOW



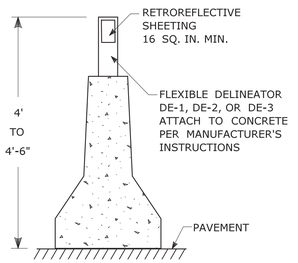
COLORS: - YELLOW OR WHITE.

DELINEATORS - .0625" THK. ALUMINUM ALLOY.

FACE SHALL BE PRESSURE SENSITIVE, SELF ADHERING, TYPE IV, TYPE V, OR TYPE IX RETROREFLECTIVE SHEETING.

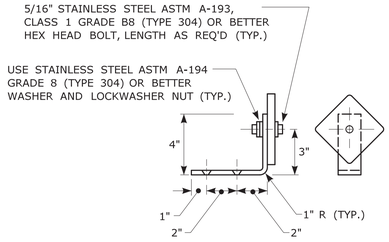
DELINEATORS SHALL BE FASTENED WITH 5/16" STAINLESS STEEL ASTM A-193 CLASS 1, GRADE B8 (TYPE 304) OR BETTER HEX HEAD BOLT (LENGTH AS REQUIRED), WASHER AND FIBER INSERT SELF LOCKING NUT, ON STANDARD METAL DELINEATOR POST.

INSTALLATION ON PERMANENT CONCRETE BARRIER, BRIDGE PARAPETS AND RETAINING WALLS

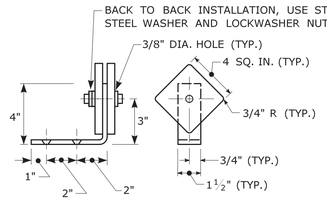


DELINEATORS DE-1, DE-2, DE-3 TO BE PAID FOR UNDER SECTION 12.05 DELINEATORS.

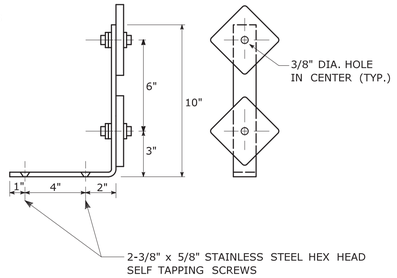
DELINEATORS DE-4, DE-4A, DE-5 FOR INSTALLATION ON METAL BRIDGE RAIL



DE-4



DE-4A

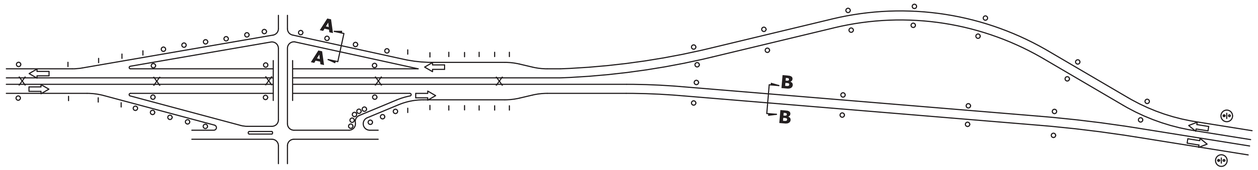


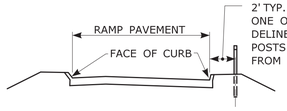
DE-5

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.

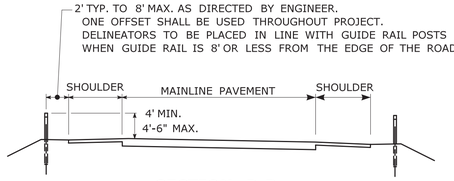
TYPICAL MAINLINE & INTERCHANGE DELINEATION





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
- (11) 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

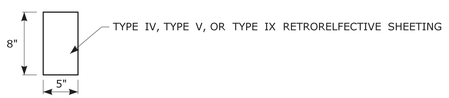
MUTCD TABLE 3F-1 APPROXIMATE SPACING FOR DELINEATORS ON HORIZONTAL CURVES

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)



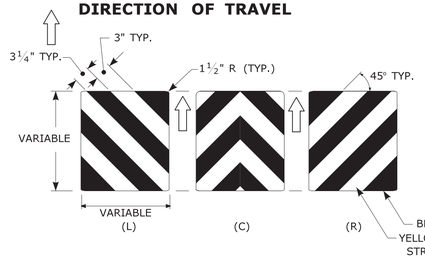
DE-7 ONE WAY WHITE
DE-7A ONE WAY YELLOW
DE-7B TWO WAY YELLOW
DE-7D TWO WAY WHITE
TEMPORARY PRECAST CONCRETE BARRIER DELINEATORS ARE TO BE FABRICATED OF ALUMINUM, STEEL, PLASTIC, OR OF A MATERIAL APPROVED BY THE ENGINEER AND MOUNTED IN THE CENTER OF EACH SECTION OF TEMPORARY BARRIER AS REQUIRED AND PER 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.

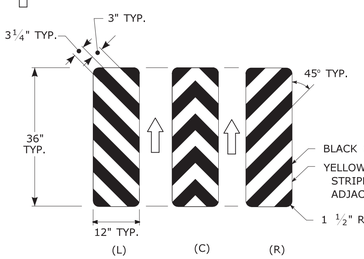
ATTENUATOR REFLECTORS SIGN #40-4266



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



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

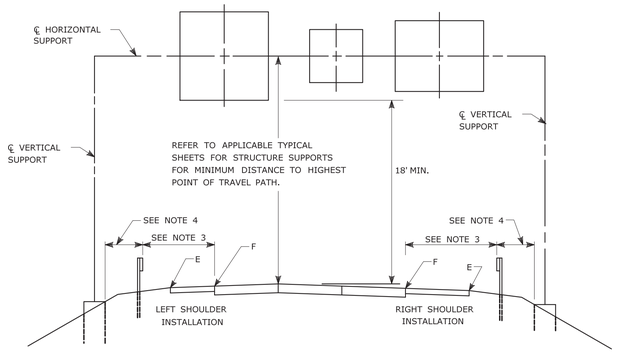
OFFICE OF ENGINEERING

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.

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.

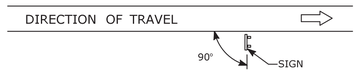


DIAGRAM "A"

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.

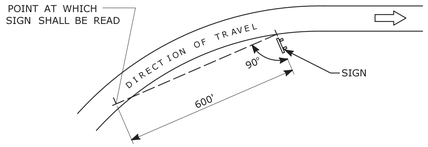
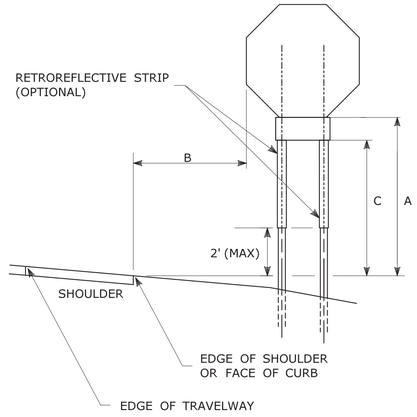
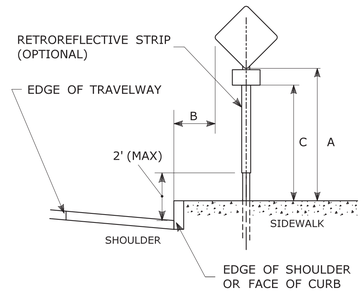
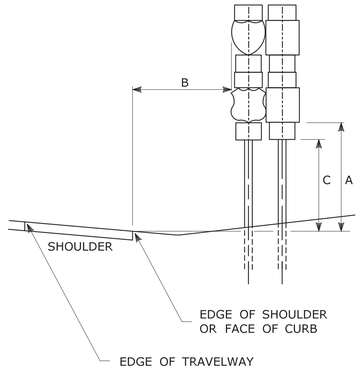


DIAGRAM "B"

SIGN ORIENTATION DETAILS FOR SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS







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)

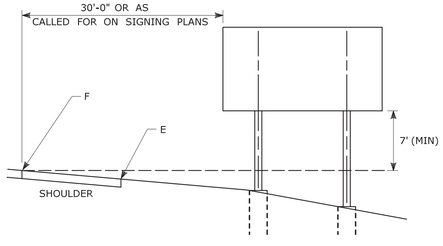
(1) OR AS DIRECTED BY THE ENGINEER

(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.



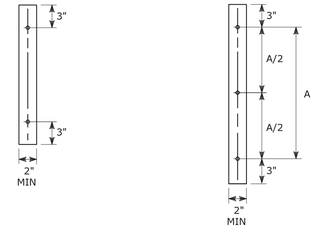
TYPICAL PLACEMENT OF SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS

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.

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.

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

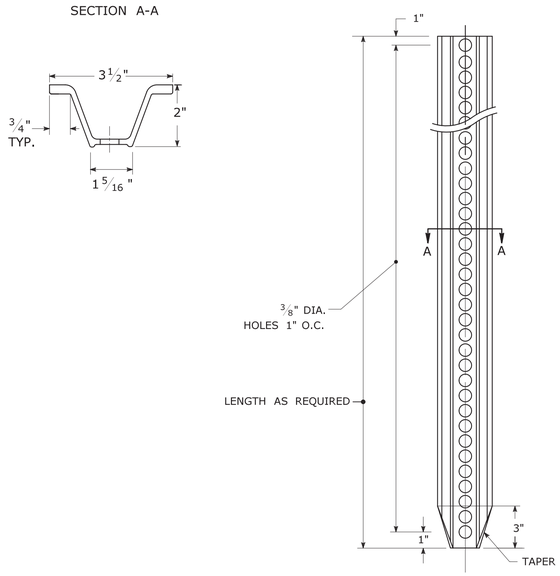
STANDARD SHEET TITLE:

SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS

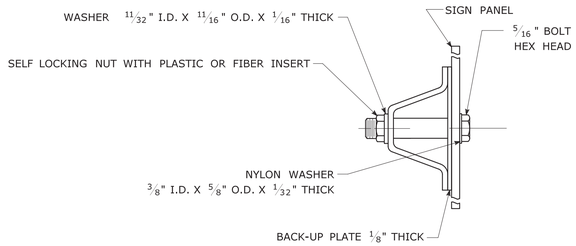
STANDARD SHEET NO.:

TR-1208_01

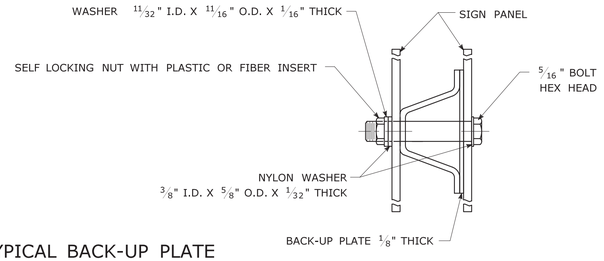
TYPICAL METAL SIGN POSTS



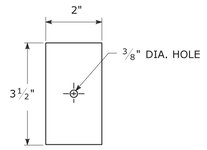
TYPICAL SIGN PANEL ATTACHMENT



TYPICAL BACK TO BACK SIGN PANEL ATTACHMENT



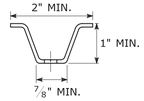
TYPICAL BACK-UP PLATE



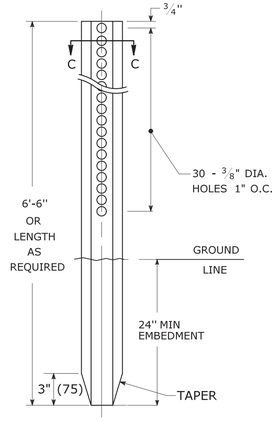
BOLTS - STAINLESS STEEL CONFORMING TO ASTM F593, ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
SELF LOCKING NUTS - STAINLESS STEEL CONFORMING TO ASTM F594, ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
WASHERS - STAINLESS STEEL CONFORMING TO ASTM A240, (ALLOY TYPES 304 OR 316).

METAL DELINEATOR POST

WT./FT. = 1.12 LBS./FT. MIN.



SECTION C-C

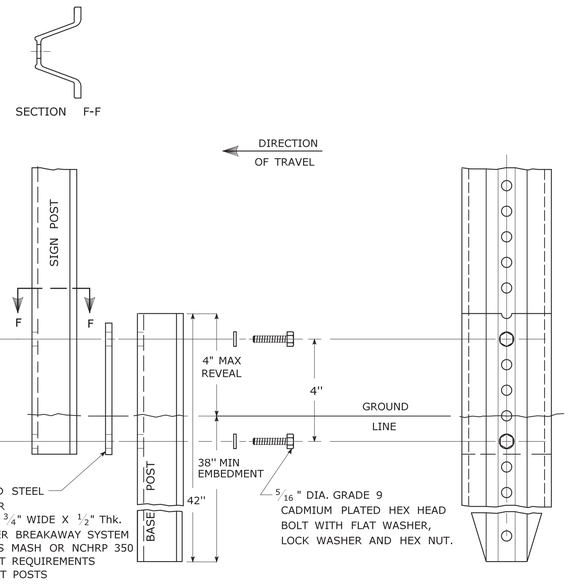


GENERAL NOTES:

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

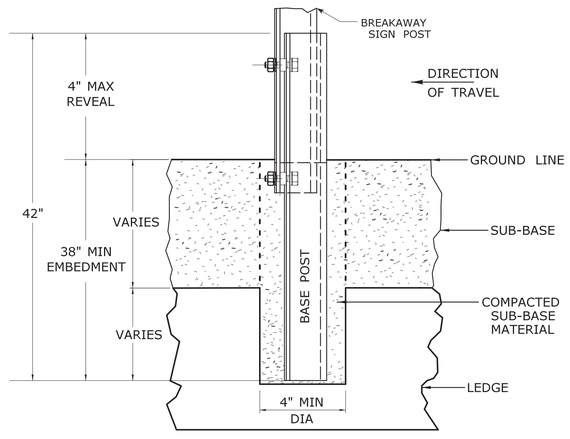
FOR 4 LBS./FT. POSTS



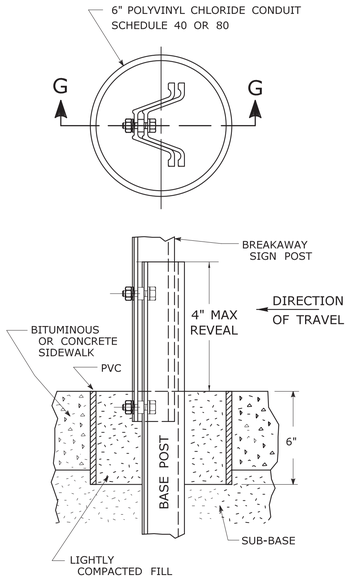
TYPICAL SIGN POST INSTALLATION IN LEDGE

LEDGE SHALL BE REMOVED TO DRIVE THE BASE POST TO A DEPTH OF 38".

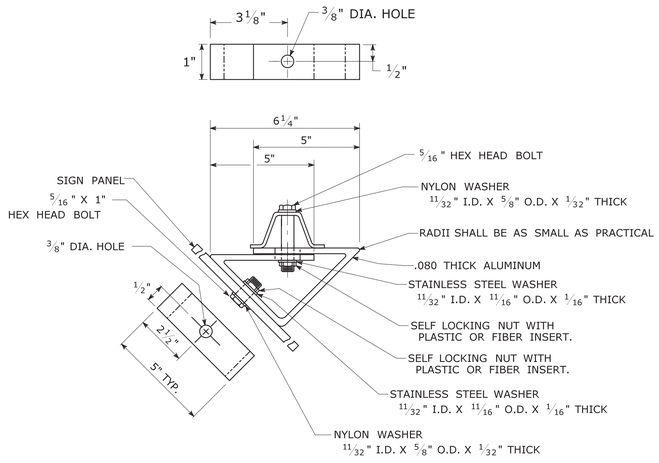
HOLE SHALL BE FILLED WITH SUB-BASE MATERIAL AND COMPACTED WITH A TAMPING BAR, OR TECHNIQUE APPROVED BY THE ENGINEER, PRIOR TO BASE POST INSTALLATION.



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.

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: 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

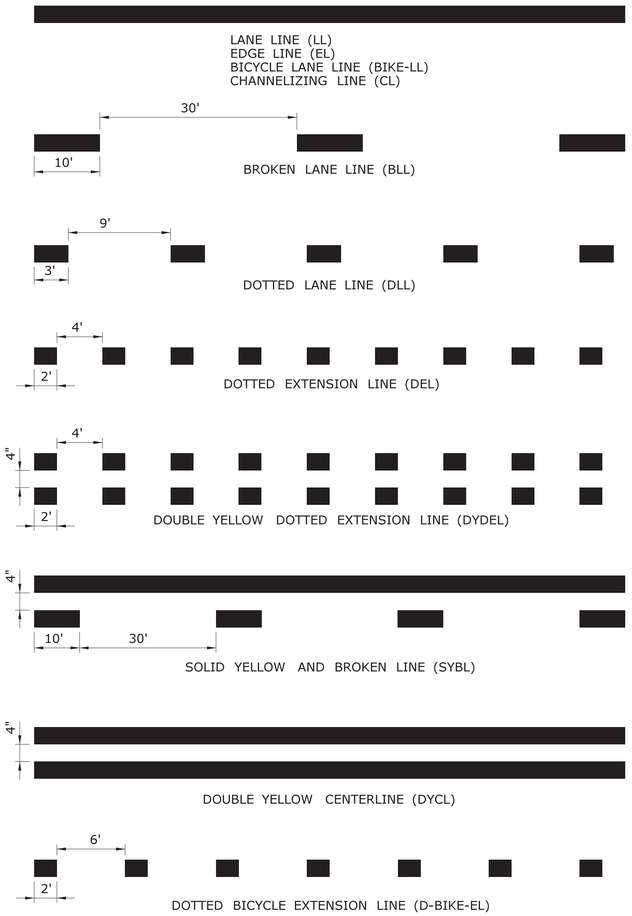
OFFICE OF ENGINEERING

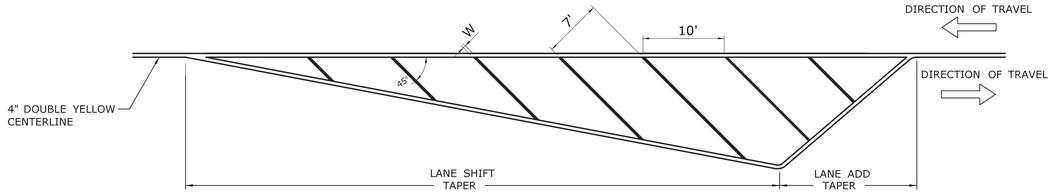
STANDARD SHEET TITLE:

METAL SIGN POSTS AND SIGN MOUNTING DETAILS

GUIDE SHEET NO.:

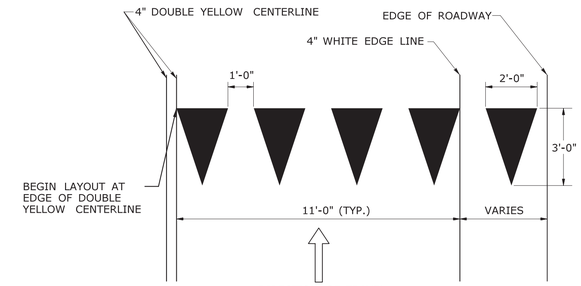
TR-1208_02



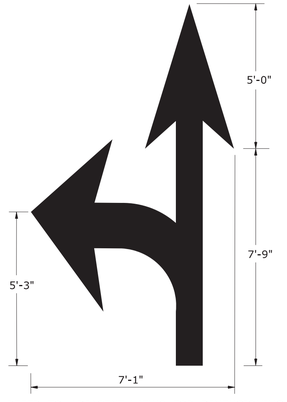


CROSS HATCHED ISLAND DETAIL
(YELLOW)

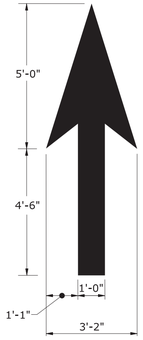
W IS TO BE 6" WHEN POSTED SPEED ≤ 45 MPH
W IS TO BE 12" WHEN POSTED SPEED > 45 MPH
CROSS HATCHED ISLANDS ARE TO BE INSTALLED WHERE CALLED FOR ON THE PLANS



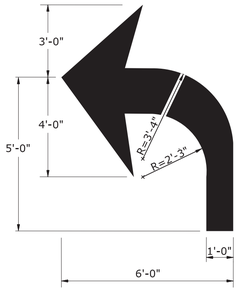
YIELD LINE DETAIL
(WHITE)



REFER TO ADJACENT VIEWS FOR DIMENSIONING
27.0 S.F.



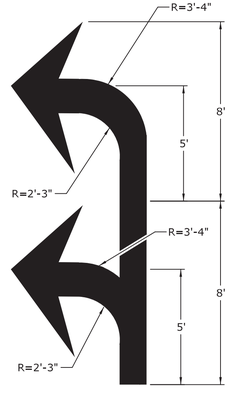
12.5 S.F.



15.5 S.F.

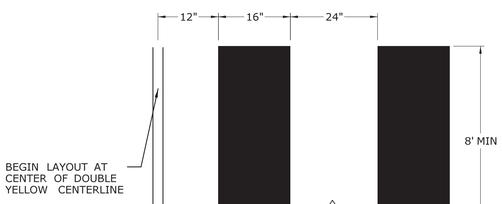
27.0 S.F.
LEFT & RIGHT
ARROW COMBO

38.5 S.F.
3 WAY ARROW
COMBO



35 S.F.
DOUBLE LEFT
ARROW

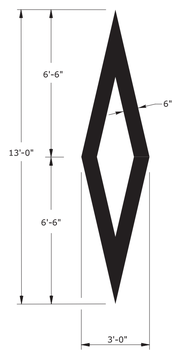
PAVEMENT ARROW DETAILS
(WHITE)
ARROWS SHALL BE CENTERED IN TRAVEL LANE



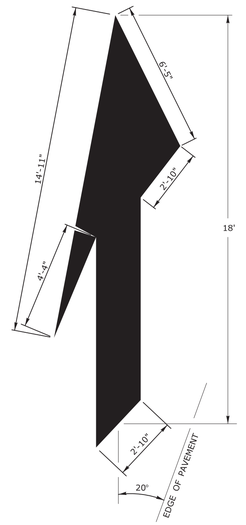
CROSSWALK DETAIL
(WHITE)

NOTES :

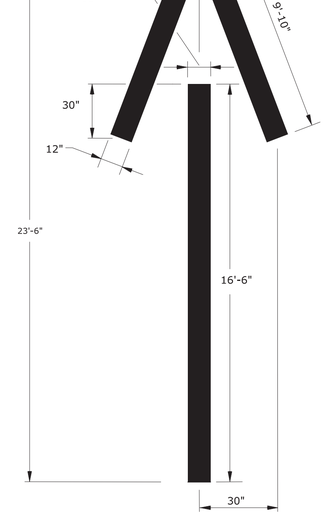
1. AREA OF PAVEMENT MARKINGS AS INDICATED IS APPROXIMATE.
2. RIGHT TURN PAVEMENT MARKING ARROWS ARE MIRROR IMAGE OF LEFT TURN PAVEMENT MARKING ARROWS.



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

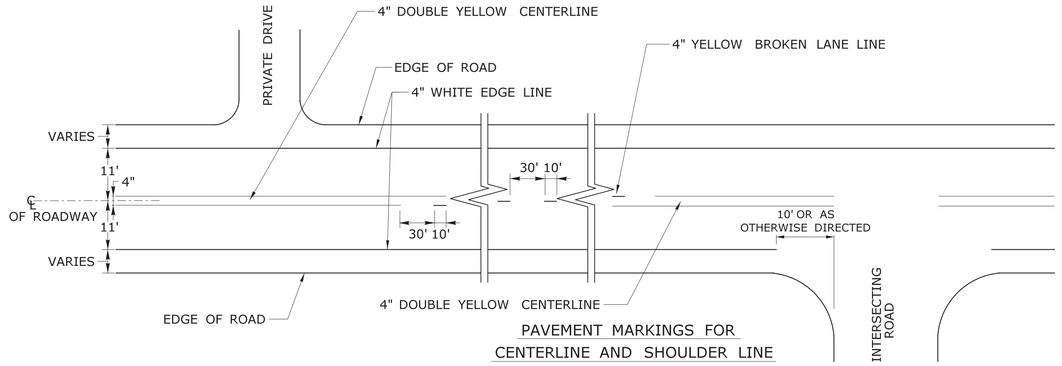
OFFICE OF ENGINEERING

STANDARD SHEET TITLE:

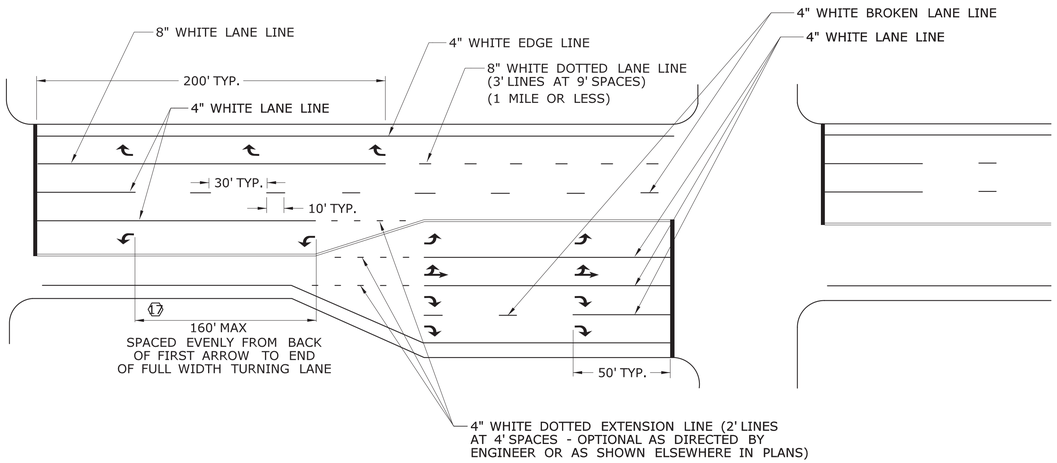
PAVEMENT MARKING LINES AND SYMBOLS

STANDARD SHEET NO.:

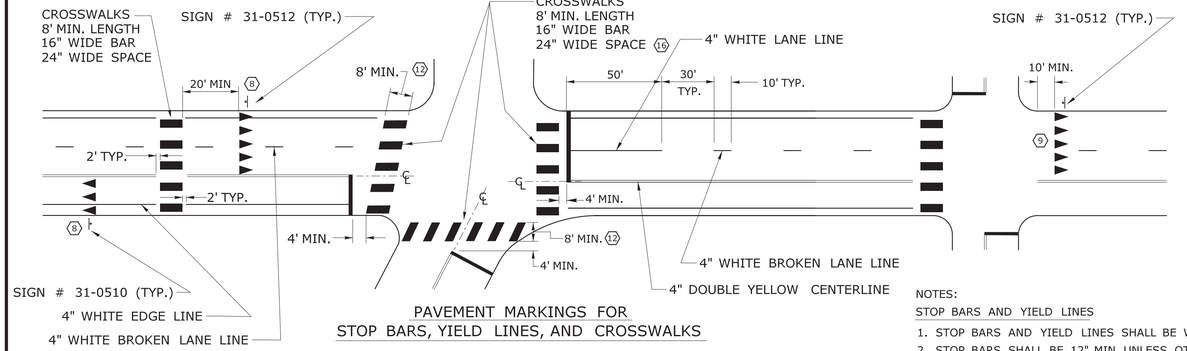
TR-1210_04



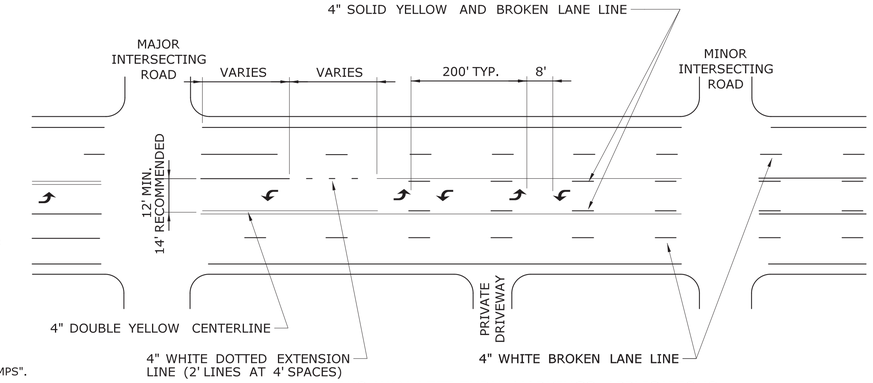
PAVEMENT MARKINGS FOR
CENTERLINE AND SHOULDER LINE



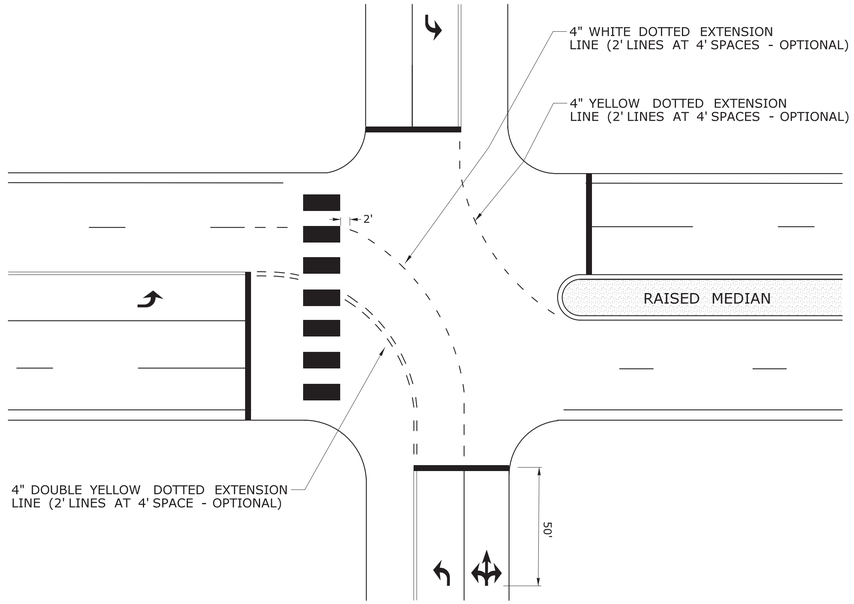
PAVEMENT MARKINGS FOR TURNING LANES
AND ROAD LANE-DROP



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.

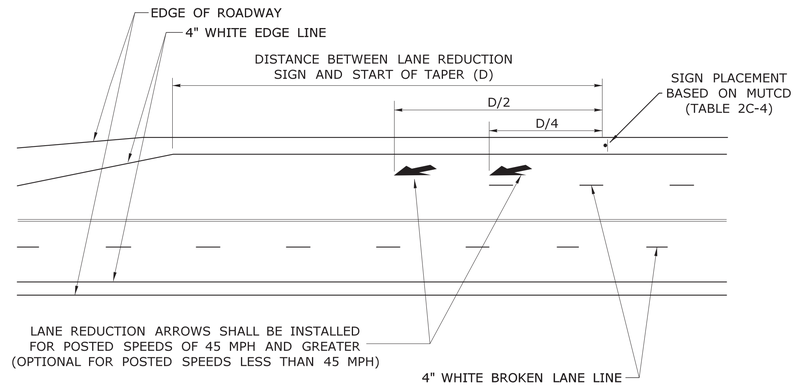
(12) AT LOCATIONS WHERE THE CROSSWALK IS SKEWED, BARS TO BE PARALLEL TO ℄ AND ENDS OF BARS TO BE PARALLEL. THE LENGTH OF THE BARS WILL VARY DEPENDING ON THE ANGLE OF SKEW.

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.

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-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

COPY & BORDER - WHITE
BACKGROUND - GREEN

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
16.0	48	51-6147	2

16 - SERIES

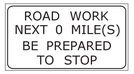
	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
16-M	5.0	30X24	80-1613	1
16-H	17.5	60X42	80-1608	2
16-E	35.0	84X60	80-1605	2

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
16-S	10.0	48X30	80-1619	2

G20 - SERIES

G20-2a

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
8.0	48X24	80-9612	2



VARIABLE MILEAGE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
90.0	120X108	80-9728	

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
9.0	36	80-9711	1
16.0	48	80-9712	2

VARIABLE MILEAGE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
7.0	72X14	80-9720	

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

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
2.0	24X12	80-9707	1

M4-9b

VARIABLE ARROW

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
5.0	30X24	80-9703	1

M4-8a

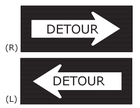
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
3.0	24X18	80-9708	1

M4-9b

VARIABLE ARROW

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
6.25	30X30	80-9706	1

M4-10



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
6.0	48X18	80-9701R	2
6.0	48X18	80-9702L	2

VARIABLE ARROW

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
5.0	30X24	80-9710	1

R1 - SERIES

R1-1

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

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

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

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

R9 & R11 - SERIES

R9-9

COPY & BORDER - BLACK
BACKGROUND - WHITE

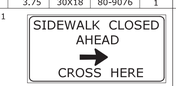
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
3.75	30X18	80-9076	1

R11-3a

VARIABLE MILEAGE
COPY & BORDER - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
12.5	60X30	80-9077	2

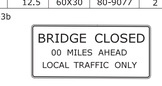
R9-11



VARIABLE ARROW
COPY & BORDER - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
3.0	24X18	80-9074	1

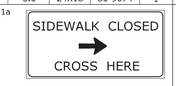
R11-3b



VARIABLE MILEAGE
COPY & BORDER - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
12.5	60X30	80-9078	2

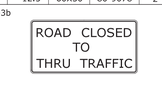
R9-11a



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



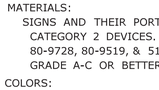
COPY & BORDER - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
12.5	60X30	80-9081	2

R11-2

COPY & BORDER - BLACK
BACKGROUND - WHITE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
10.0	48X30	80-9080	2



COPY & BORDER - BLACK
BACKGROUND - WHITE

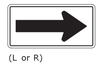
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
22.5	60X54	31-1907	2

W1 - SERIES

W1-4

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

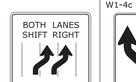


AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
8.0	48X24	80-9424	2
12.5	60X30	80-9423	2

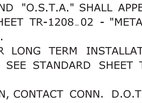
W1-8

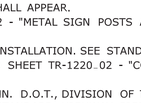
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
3.0	18X24	80-9401	1
5.0	24X30	80-9403	1
7.5	30X36	80-9404	1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
16.0	48	80-9433L	2
16.0	48	80-9435R	2



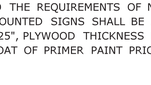
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
16.0	48	80-9434L	2
16.0	48	80-9436R	2

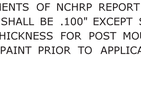




AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
25.0	60	80-9443L	2
25.0	60	80-9445R	2

W1-4b

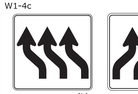




AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
25.0	60	80-9444L	2
25.0	60	80-9446R	2

W1-4c

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
25.0	60	80-9483L	2
25.0	60	80-9485R	2



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

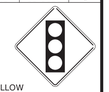
AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
9.0	36	80-9050	1
16.0	48	80-9051	2

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

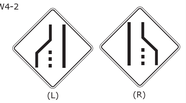


TOP CIRCLE - RED
MIDDLE CIRCLE - YELLOW
BOTTOM CIRCLE - GREEN
COPY & BORDER - BLACK
BACKGROUND - FLUORESCENT ORANGE

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



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

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
9.0	36	80-9901	1
16.0	48	80-9902	2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
9.0	36	80-9801	1
16.0	48	80-9802	2

W9-2

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

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

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

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

COPY & BORDER - BLACK
BACKGROUND - ORANGE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
2.0	24X12	80-9049	

W20 - SERIES

W20-1

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

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
(L)	16.0	48	80-9836	2
(R)	16.0	48	80-9839	2

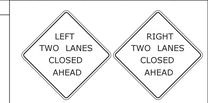
W20-7a

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
9.0	36	80-9803	1
16.0	48	80-9804	2

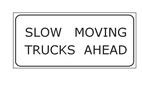
W20-1

VARIABLE DISTANCE

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
9.0	36	80-9614	1
16.0	48	80-9615	2



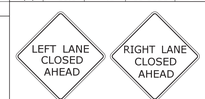
	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
(L)	16.0	48	80-9837	2
(R)	16.0	48	80-9838	2



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
32.0	96X48	80-9815	2

W20-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
9.0	36	80-9805	1
16.0	48	80-9806	2



	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
(L)	16.0	48	80-9847	2
(R)	16.0	48	80-9848	2

W16-9P

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
2.0	24X12	80-9870	
3.75	30X18	80-9871	

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
9.0	36	80-9834	1
16.0	48	80-9835	2

	AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
(L)	16.0	48	80-9846	2
(R)	16.0	48	80-9849	2

W16-3aP

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

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
9.0	36	80-9607	1

W22 - SERIES

W22-1

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
9.0	36	80-9620	1
16.0	48	80-9625	2

W22-2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
10.5	42X36	80-9623	2

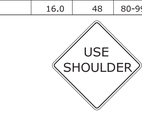
W22-3

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
10.5	42X36	80-9621	2

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



AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
16.0	48	80-9956	2

AREA (SQ. FT)	SIZE (INCHES)	CONN. D.O.T. #	POSTS
12.5	60X30	80-9928	2
24.0	72X48	80-9929	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
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'

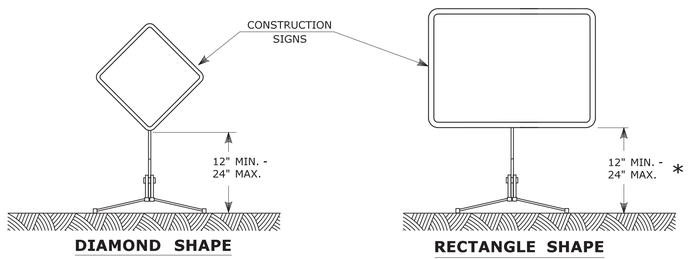
APPROVED BY: NAME/DATE/TIME:
Mark F. Carlino, P.E.
2018.08.21 07:49:34-04'00'

CTDOT STANDARD SHEET

OFFICE OF ENGINEERING

STANDARD SHEET TITLE:
SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS

STANDARD SHEET NO.:
TR-1220_01

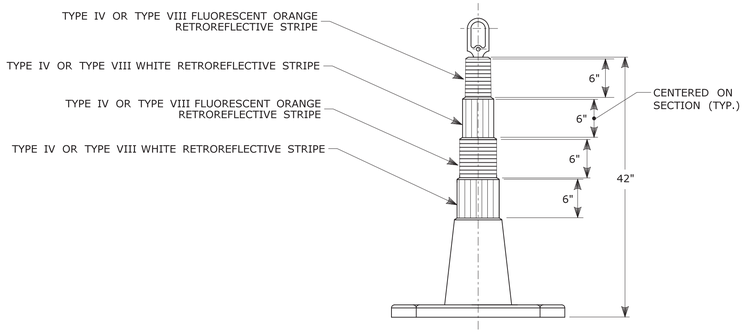


PORTABLE CONSTRUCTION SIGNS

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.

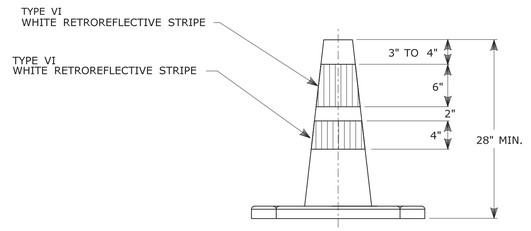
* FOR E5-1 (EXIT SIGNS) USE MIN 48".



42" TRAFFIC CONE

NOTES:

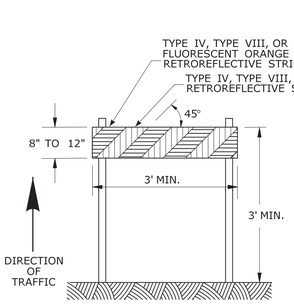
1. TRAFFIC CONES SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 1 DEVICES AND THE LATEST EDITION OF THE MUTCD.
2. IF RUBBER CONES ARE USED, THEY SHALL HAVE INTERIOR RIBS FOR RIGIDITY.
3. IF PLASTIC CONES ARE USED, THEY SHALL BE COLOR IMPREGNATED.
4. THE ENGINEER 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.



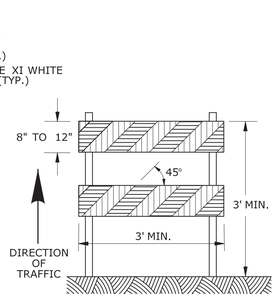
TRAFFIC CONE

NOTES:

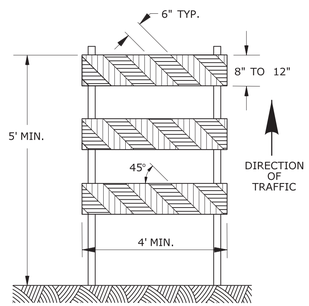
1. TRAFFIC CONES SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 1 DEVICES AND THE LATEST EDITION OF THE MUTCD.
2. IF RUBBER CONES ARE USED, THEY SHALL HAVE INTERIOR RIBS FOR RIGIDITY.
3. IF PLASTIC CONES ARE USED, THEY SHALL BE COLOR IMPREGNATED.
4. THE ENGINEER 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

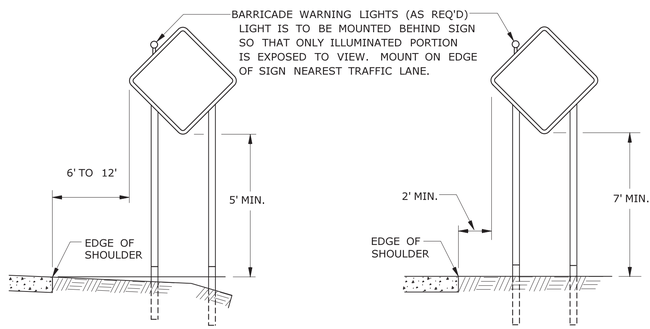


TYPE III BARRICADE

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

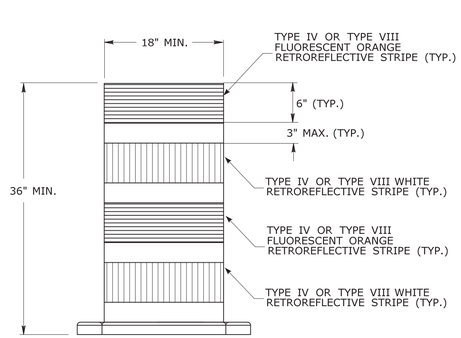
URBAN AREA

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