CONTRACT BIDDING DOCUMENTS

FOR

TOWN OF WEST HARTFORD

NORTH MAIN STREET

BRIDGE REHABILITATION

BID # 6436F

TOWN OF WEST HARTFORD

INFORMATION

TOWN OF WEST HARTFORD
NORTH MAIN STREET BRIDGE REHABILITATION
BID# 6436F

ENGINEER

JEFFREY SCALA, PE
TECTONIC
1344 SILAS DEANE HWY
ROCKY HILL, CT 06067

PROJECT MANAGER

DUANE MARTIN
TOWN ENGINEER

ALL QUESTIONS TO

PURCHASING SERVICES
TAMMY BRADLEY
SENIOR BUYER

All questions must be submitted in writing and mailed to the Purchasing Office, emailed to TammyB@westhartfordCT.gov, or faxed to (860) 561-7507 at least seven calendar days prior to the date established for the opening of bids. Do not call the Engineer/Architect, Project Manager or Purchasing Office with questions.

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1.05 PROJECT NARRATIVE

DESIGN REPORT

REHABILITATION OF BRIDGE NO. 03651, NORTH MAIN STREET OVER WEST BRANCH TROUT BROOK

TOWN: West Hartford

ROUTE: North Main Street

DISTRICT NO: 1

DESCRIPTION OF PROJECT:

The existing Bridge No. 03651, carries North Main Street over West Branch Trout Brook and consists of triple concrete masonry arches. The bridge built in 1901.

Issues with the project include:

- Hydraulic Modeling and analysis comparison to the FEMA-FIS and the ACOE Flood Control Studies,
- Stage construction for the traffic and in-water work,

The following work items will be included in the rehabilitation:

- Remove the existing roadway surface and fill to expose the top of the archs
- Repair cracks and deterioration of the archs, abutments and piers
- Install 7 inch concrete roadway slabs with membrane waterproofing and new hot mix asphalt pavement structure
- Removal and replacement of each spandrel wall
- Replace existing concrete parapet with concrete piers and open rail system
- Remove and replace a section of a stone masonry wall on the north east corner of the bridge.
- Provide a reventment scour counter measures across channel bottom to protect center pier, abutments and wingwalls
- Replace the existing water main within the project limits.

FINAL MAINTENANCE RESPONSIBLILITY: To be maintained by the Town

PUBLIC UTILITIES:

- Comcast of Connecticut, Inc dba: Comcast/Hartford
- AT&T Connecticut (The Southern New England Telephone Company)
- AT&T Local Network Services, dba, TCG Connecticut
- Fiber Technologies Networks, LLC
- Level 3 Communications, LLC

- Northeast Utilities Service Company
- Connecticut Natural Gas Corporation
- Metropolitan District Commission (Sewer and Water)

SALVAGE: None

PERMITS: Local Inland and Wetland and Watercourse Permit

RIGHT-OF-WAY: The project acquired easements on the northwest corner and east side of the bridge. A temporary access agreement has been acquired for the property on the southwest corner.

MAINTENANCE AND PROTECTION OF TRAFFIC:

The Contractor shall maintain and protect at least one lane of traffic in each on a paved travel path as shown on the plans. A temporary traffic signal is required as shown on the plans.

2.00 INFORMATION FOR BIDDERS

2.01 Invitation to Bid
2.02 Instructions to Bidders
2.03 Bid Forms

2.01 INVITATION TO BID

2.01.01 Sealed bids marked **" NORTH MAIN STREET BRIDGE REHABILITATION" Bid# 6436F** will be received at the office of the Division of Purchasing Services, Room 223, Town Hall, 50 South Main Street, West Hartford, Connecticut until **2:30 PM** on **April 8, 2015** at which time they will be publicly opened and read.

Plans and specifications are available for downloading at www.westhartfordct.gov/bids

Any questions concerning this request for bid shall be addressed to the Purchasing Agent at the address above.

2.01.02 A pre-bid conference will be held on **March 25, 2015** at **10:00 AM, Room 217** at Town Hall in West Hartford, CT at which time questions concerning the project will be answered.

2.01.03 All bidders must file with their bid, a Certified Check, Treasurer's Check or Bid Bond made payable to the Town of West Hartford in the amount of 10% of the total base bid price.

2.01.04 Performance, Labor and Materials Payment Bonds in the amount of the contract price shall be required of the successful bidder, if the contract pursuant to this request for bids exceeds $50,000.00.

2.01.05 No bid may be withdrawn for a period of 90 days after the opening of bids without the approval and written consent of the Town of West Hartford.

2.01.06 The right is reserved to reject any and all bids, to waive any informalities in the bidding and to make awards in any manner that is the most beneficial to the Town. Deviation from the "Contract Bidding Documents" may render such bids voidable at the Town's sole option.

2.01.07 The work described herein shall be completed as required. Unless otherwise stated, time is of the essence.

2.01.08 Substantial completion must be achieved by **November 15, 2015** and final completion must be achieved by **November 30, 2015**. The Contractor shall pay the Owner liquidated damages in the amount of Fifty Dollars ($50.00) per calendar day, which sum is hereby agreed upon, and shall be assessed not as a penalty, but as liquidated damages which the Owner shall suffer by reason of such default. The Owner and Contractor shall acknowledge that failure to effect substantial completion as noted above will precipitate inconvenience and disruption. The Owner and Contractor shall acknowledge that such damages are uncertain or difficult to prove and that the amounts established herein are reasonable assessment of these damages.

2.01.09 All prospective bidders are hereby notified that in order to obtain a permit to blast within West Hartford, they must present evidence of adequate insurance protection by filing a properly executed copy of the attached Public Liability Endorsement with the West Hartford Fire Department.

2.01.10 Overtime Engineering Inspection Fees - N/A
The charge payable to the Town by the Contractor for engineering and inspection services performed by Town personnel on holidays and when Town employees are required to work in excess of 37.5 hours per week as a result of the Contractor's work schedule will be:

Between 37.5 and 40 hours - the then actual hourly rate of the inspector.
Over 40 hours - 1.5 times the then actual hourly rate of the inspector.
Holidays - 1.5 times the then actual hourly rate of the inspector.

Reference Information for Bidders Section 2.02.24.

2.01.11 Refuse Disposal Fees
The Town of West Hartford's transfer station shall only accept yard waste for an established fee. All construction waste and demolition materials shall be transported and legally disposed of at the Connecticut Resource Recovery Authority or other legal site selected by the contractor.

2.01.12 Disposal of Excavated Material
The Contractor shall not dispose of his excavated material on private or public property in West Hartford without the permission of the Director of Community Services.

BID RESULTS

Bidders are encouraged to attend the Town's bid opening at which time the public is afforded an opportunity to record bid prices received in response to the Town's solicitation. Bidders who would like the results of the bid but are unable to attend the bid opening, may check the Town website www.westhartfordct.gov/gov/departments/purchasing/bid_results a week after the bid opening date. Bidders calling the Purchasing Office for bid results will be referred to the above procedure.

2.02 INSTRUCTIONS TO BIDDERS

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2.02 INSTRUCTIONS TO BIDDERS

2.02.01 TIME FOR OPENING BIDS Sealed bids or proposals for performing the work described herein will be received by the Division of Purchasing Services, Room 223, 50 South Main Street, West Hartford, Connecticut, until the time named on the title page hereof at which time and place they will be publicly opened and read. After the bids are opened and read they will be taken under advisement and the award of the contract, if awarded, will be made as soon thereafter as practicable.

2.02.02 FORM OF BID Each bid must be made in and on the form prepared therefore and attached hereto and the proposal form must be submitted complete and unchanged as furnished, except for the insertion of names, addresses, prices and other required data in the blank spaces provided therefore. All appropriate blanks must be filled out. A duplicate bid form is included and should also be completed and submitted. Any changes to, or material deviations from the form provided, shall render such bid voidable at the Town's sole option.

Bidders shall state, both in writing and in figures, the proposed price for each separate item of the work called for in the annexed proposal form. These prices will be used to compare bids. If any price is omitted, the proposal shall be rejected. In case of discrepancy between the prices in written words and in figures, the former shall govern.

2.02.03 SUBMISSION OF BID Bids shall be sealed in an envelope marked "Sealed Bid" with the bid proposal number and the vendor's name and address. Late bids will not be accepted.

2.02.04 QUANTITIES Bids will be compared on the basis of the Engineer's estimate of quantities as set forth in the Schedule of Bids.

These quantities are given solely as a basis for the comparison of bids. The Town does not expressly, or by implication, agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any item or portion of the work as may be required.

Attention is particularly called to the fact that some items may be largely dependent on soil or foundation conditions and therefore, may vary widely from the estimated quantities or may even be omitted. An increase or decrease in the quantity for any item shall not be regarded as sufficient grounds for an increase or decrease in the unit price.

Bidders must satisfy themselves, by personal examination and by such other means as they may prefer, as to the actual conditions and requirements of the work and the accuracy of the estimate of the Engineer, and shall not, at any time after the submission of a bid, dispute or complain of such statement or

estimate of the Engineer nor assert that there was any misrepresentation or misunderstanding in regard to the nature or amount of work to be done.

The work has been divided into items in order to enable the bidder to bid for the different portions of the work in accordance with his estimate of their costs individually and to provide for payment respective of quantity variations. Bidders are especially cautioned not to submit bids, which are unbalanced. If, in the opinion of the Town, any bid submitted appears unbalanced, this action may be sufficient cause for the rejection of the entire bid or it may result in a monetary loss to the Contractor if certain portions of the work are increased or decreased as provided in the Contract.

2.02.05 DUTIES OF BIDDER The bidder is required to examine carefully the site of the work, the project drawings, if any, the Notice to Contractor, Information for Bidders, General Conditions, General Specifications, Technical Specifications, Wage Rates and Certification and Bid Proposal hereinafter referred to from time to time as the Contract Bidding Documents. He must satisfy himself as to the actual conditions and requirements of the work to be performed and the materials to be furnished and shall make himself familiar with all Federal, State and local laws, ordinances and regulations which in any manner affect the work or its conduct. No plea of misunderstanding or ignorance of such laws, etc., will be considered as an excuse for failure to comply with any of the requirements hereof or as reason for any additional compensation or waiver of any requirements of Contract Bidding Documents.

Every bid submitted must be based upon the Contract Bidding Documents if any, described herein and upon the written, typed or printed texts of the Contract Bidding Documents. Oral statements by any officer or employee of the Town will not be binding. Questions shall be submitted in writing to the Division of Purchasing Services Manager at least seven (7) working days before the established date for receipt of bids. If the question involves the equality or use of products or methods, it must be accompanied by drawings, specifications or other data in sufficient detail to enable the Engineer to determine the equality or suitability of the product or method. In general, the Town will neither approve nor disapprove particular products prior to the opening of the bids; such products will be considered when offered by the Contractor for incorporation into the work.

2.02.06 UNDERGROUND OBJECTS, SOILS, ETC If any Contract Bidding Document or drawing or similar source of information furnished to prospective bidders or to awarded contractors purports to show underground objects or conditions or pipes, ducts or similar structures or observations or indications of soils, rock, ground water, etc., made from borings, test pits or prior excavations, such information must be considered as only advisory and not necessarily correct and complete, having been obtained, made and plotted for the benefit of the Engineer. Bidders and awarded contractors must recognize that, by reason of

the methods commonly used for obtaining and expressing such data, this information and data is limited and subject to error or misunderstanding. The terms used to describe soils, ground water, etc. are subject to local usage and to the individual opinion of the person making the records. Ground water conditions vary from time to time. The locations, sizes, depths, etc. of underground pipes, ducts and structures are usually obtained from records of others and such data, when shown on plans of the Town, are subject to possible errors in the source of the information and also errors in transcription. The Town, together with its agents, does not warrant or represent that the indications on Contract Drawings or other documents of underground conditions, objects, etc., as described above, are either approximately correct or complete, and any party making use of such indications or basing estimates of proposals thereon must agree that they shall have no claim or right of action against either the Town or any person or party acting for or under it for the consequences, delays, expense or losses which may occur or have occurred in event that such indications shall be found to have been incomplete, incorrect or misleading. Bidders must make such investigations as they deem necessary and form their own opinions of the materials, conditions and difficulties or obstacles likely to be encountered.

Contractors, as required by State law, are required to notify the utilities coordinating agency for field locations of existing underground utilities. A town permit is required for each project location. Prior to the issuance of a Town Permit for work within Town rights of way, the awarded Contractor shall secure a "Call Before You Dig" number and this number shall appear on the permit.

2.02.07 BID SURETY Each bid must be accompanied by a Bid Bond, Certified Check or Treasurer's Check in the amount of ten percent (10%) of the total base bid and made payable to the "Town of West Hartford". Failure to provide the bid surety will result in rejection of the bid. All surety checks shall be returned to the respective bidders when the contract is awarded.

2.02.08 PERFORMANCE, LABOR AND MATERIAL BONDS If the amount of the contract to be awarded is Fifty Thousand Dollars ($50,000) or more, the successful Contract Bidder shall furnish and pay for the Surety favoring the Town of West Hartford in the full amount of the estimated total base bid as determined by extending the unit prices by the estimated quantities. This Bond shall provide 100% security for faithful performance and for payment of all persons performing labor or furnishing materials in connection with this Contract and shall be executed by a company authorized to transact business within the State of Connecticut.

The Bidder shall deliver the required bonds to the Town not later than five (5) days from notice of the Town's intent to award the Contract to the bidder and prior to execution of a contract.

2.02.09 REJECTION OF BIDS The Town shall not award this Contract to a bidder who does not furnish evidence satisfactory to the Town that he has ability, equipment and experience in this class of work, that he has satisfactorily completed work of similar character, magnitude and importance, and that he has sufficient capital and capacity to enable him to prosecute the same successfully within the time limit stated herein. Prospective bidders who cannot fully satisfy these requirements are requested not to submit bids. Failure to qualify in this respect may be considered sufficient cause to reject any bid whatsoever.

The Town reserves the right to reject any one or more bids as it may deem to be in the best interests of the Town, and this right to reject is not limited to the specific reasons mentioned herein. A bid may, but does not have to be rejected:

(a) If it is incomplete, conditional or obscure, or if it contains additions not called for, erasures, alterations, obvious errors or irregularities of any kind, or if it does not conform in every respect to the requirements stated in these contract bidding documents, or if it is on sheets removed from this pamphlet;

(b) If the individual unit prices bid are considered by the Town to be unbalanced in a manner likely to be detrimental to the Town;

(c) If the Town shall be of the opinion that it was prepared without adequate care or knowledge of the conditions relative to the work, or under a misunderstanding of the requirements of the Town, or if it is for work other than that shown on applicable Drawings or specified;

(d) For failure to furnish information promptly as required herein.

(e) If the Contractor has failed to satisfactorily complete prior contracts.

(f) If the Contractor has not performed work of a similar size or type in the past.

2.02.10 BIDDER TO FURNISH INFORMATION In order that the Town may have information to guide it in the award of the Contract, the bidders whose bids are being considered shall, on request of the Town, submit the following information within four working (4) days after the receipt of such a request;

(a) A list of previous work of similar character and magnitude which has been performed or furnished by the bidder, or by the principals to the bid, together with information as to each such job, its character, magnitude,

date, location and that it was carried forward and completed in a matter entirely satisfactory to the party under whose supervision it was done.

(b) A statement of the capacity, equipment and forces of the bidder which are or will be available to the bidder together with a statement as to whether things are owned by the bidder, or under lease or contract to the bidder.

(c) A brief statement of the methods and order of work the bidder proposes to perform and the rate of progress on the several parts of the same which the bidder expects to accomplish.

(d) A sworn copy of the latest statement of the financial condition of the bidder together with sworn statements as to any and every important change which may have occurred to alter the said financial condition since the date of the above statement, with supporting evidence if and as requested.

(e) References showing that the bidder undoubtedly has ample capital, credit and other resources to finance the work throughout and without being dependent on release of portions of retained percentage before completion of work, and without having estimates for payment made more often than once each month and at such times as will conform to payment practices of the Town.

2.02.11 AWARD OF CONTRACT It is the intent of the Town to award a Contract to the contractor providing the Best Value and is in accordance with the requirements of the Bidding Documents and does not exceed available funds. The Town shall have the right to waive informalities or irregularities in a Bid received and to accept the Bid which, in the Town's judgement, is in the Town's own best interests.

The Town shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

2.02.12 EXECUTION OF CONTRACT AND BONDS The bidder to whom the Contract is awarded shall execute the Contract and required performance and labor and materials surety within five (5) working days (not including Saturdays, Sundays, or holidays) from the date of notice by the Town to the bidder, that the Contract is ready for signature, and, in case of the bidder's failure or neglect to do so, the Town may determine that the bidder has abandoned the Contract and thereupon the acceptance of the bid and the award shall be null and void and the bid surety accompanying the bid shall be forfeited to the Town.

The Contractor shall increase the principal amount of the performance and labor and materials payment bond(s) in direct proportion to any increase in the value of the Contract resulting from change orders.

2.02.13 TIME See Section 5.13 of the General Conditions.

2.02.14 SALES TAX Under the terms of the regulations referring to contractors and subcontractors, issued by the State Tax Commission in administration of the State Sales and Use Tax, to which the bidder is referred, the Contractor may purchase such materials and supplies as are to be physically incorporated in and become a permanent part of the project being performed under this Contract without payment of tax and shall not include in his bid nor charge any use or sales tax thereon.

2.02.15 OUT-OF-STATE CONTRACTORS The Contractor, if not a resident of the State of Connecticut, or, in the case of a partnership, the partners, if not residents, shall appoint an approved person having permanent local residence as his or their attorney, upon whom all lawful processes, proceedings or notices may be served. The Contractor, if a corporation not organized under the laws of Connecticut, shall comply with the provisions of the General Statutes of Connecticut regarding "Foreign Corporations" before entering upon the performance of the Contract.

Any non-resident Contractor is required to comply with the conditions set forth by the State Tax Commissioner relative to the provisions of Public Act No. 75-740, "An Act Concerning Bond Requirement for Non-resident Contractors for Purposes of Sales and Use Tax".

Public Act No. 75-740 requires a non-resident to deposit a sum equivalent to three percent (3%) of the total amount of the contract or a guarantee bond in the like amount with the State Tax Commissioner to secure payment of the sales and use tax. The Contractor shall obtain a certificate from the State Tax Commissioner that the requirements of Public Act No. 75-740 have been met before entering upon the performance of the Contract.

2.02.16 ADDRESS OF CONTRACTOR Each bidder shall indicate in his bid the address to which all notices, letters or other communications may be sent. This address may be changed only by proper delivery to the Town of written notice of such change, signed by the Contractor. The mailing or delivery by messenger of any notice, letter or communication to such designated address or to the office of the Contractor at or near the site of the work or to any attorneys or attorneys appointed by non-resident principals to a contract or by a "foreign" corporation, at any time including the full period of work under the Contract shall be deemed sufficient for any notice or service on the part of the Town in connection with the Contract or any part thereof.

2.02.17 SCOPE AND TERM OF INSURANCE The Contractor shall procure and maintain insurance coverage for the duration of the Contract, including any maintenance period provided therein, as required and specified in Exhibit A - Insurance Requirements.

2.02.18 INSURANCE CERTIFICATES Certificates of the insurance company or companies carrying the required insurance for the Contractor, on forms furnished by the Town, must be submitted in duplicate to the Town before the Contractor occupies any portion of the Town's property, rights-of-way or of any public highway or starts work on the site.

The insurance policy or policies shall be delivered to the Town, for the Town to examine and rule on acceptability of the policies and of any endorsements. All premiums or other insurance carriers' charges for such policies shall be paid by the Contractor.

Should any insurance described in any such certificate expire or be terminated during any period when the same is required under the Contract, the Purchasing Agent shall be notified immediately and such expired or terminated insurance must be replaced with new insurance and new certificates prior to date of such expiration or termination.

If the Town shall so request, the original policies of insurance or certified copies thereof shall be submitted by the Contractor to the Town for examination.

Failure to provide the required insurance, or to replace expired or terminated insurance, or to provide satisfactory certificates thereof, or to exhibit the policies if required, may, at the option of the Town, be held a willful violation of the Contract.

2.02.19 WITHDRAWAL OF OFFER A bid offer may be withdrawn only prior to the scheduled bid opening time for the particular project, provided the bidder first submits a written request for such withdrawal to the Division of Purchasing Services. Notice of acceptance of a bid shall not constitute rejection of any other bid.

2.02.20 LIMITATIONS ON SURETY BOND No surety bond for proposal guarantee, for performance of the Contract or for payment for labor and materials will be accepted if the amount of the bond exceeds any limit which the laws of Connecticut or the regulations of the Connecticut Insurance Department impose or for which the United States Treasury Department has qualified the surety, unless co-surety for the amount of any such excess is furnished, written by a surety company or companies qualifying hereunder for the respective amounts to be covered thereby.

2.02.21 REFERENCE SPECIFICATIONS Where any materials covered by ASTM, ASI, ACI, ConnDOT, MDC or any other these specifications are used, the product, practice or test procedures shall fully comply with these specifications, including their latest revisions, except where amended.

2.02.22 APPLICABLE PUBLIC ACTS The Contractor shall be responsible for complying with all statutory obligations connected with its operations such as, but not limited to, General Statutes S16-345 through S16-356 regarding operating rear underground utilities. See Section 5.04 "Utilities" of the General Conditions.

2.02.23 EQUAL OPPORTUNITY During the performance of this Contract, the Contractor agrees that he will not discriminate against any employee or applicant for employment because of race, color, religion, age, sex, national origin or disability. The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, age, sex or national origin. Such action shall include, but not be limited to, the following: layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship.

The provisions of the following sub sections below shall not apply where the total cost of all work to be performed by contractors or sub-contractors in connection with this project is less than thirty -five hundred dollars; also this section shall not apply when the contractor has fewer than ten (10) employees.

(a) The Contractor will, in all solicitations or advertisements for employees, placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, age, sex or national origin.

(b) The Contractor will comply with all provisions of the State of Connecticut Executive Order No. Three of June 16, 1971 and the guidelines and rules of State Labor Commissioner implementing Executive Order No. Three, and all amendments thereto.

(c) The Contractor will furnish all information and reports required by Executive Order No. Three of the State of Connecticut of June 16, 1971 and all amendments thereto, and by the rules, regulations and orders of the Labor Commissioner, or pursuant thereto, and will permit access to his books, records and accounts by the Labor Commissioner for purposes of investigation to ascertain compliance with such rules, regulations and orders.

(d) In the event of the Contractor's noncompliance with the Equal Opportunity clause of these bidding documents or with any of the

Contract pursuant to these bidding documents, said rules, regulations or orders, may be canceled, terminated or suspended, in whole or in part, and the Contractor may be declared ineligible for further Town Contracts in accordance with procedures authorized in Executive Order No. Three of the State of Connecticut of June 16, 1971 and the guidelines and rules of State Labor Commissioner implementing Executive Order No. Three and all amendments thereto; and such other sanctions may be imposed and remedies invoked or as otherwise provided by law.

(e) The Contractor will include the provisions of this section and paragraphs (a) through (e) in every subcontract or purchase order, so that such provisions will be binding upon each sub-contractor or vendor. The Contractor will take such action with respect to any sub-contract or purchase order as the Town may direct as a means of enforcing such provisions, including sanctions for noncompliance: provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a sub-contractor or vendor as a result of such direction by the Town, the Contractor may request the United States or the State of Connecticut to enter into such litigation to protect the interests of the United States, the State of Connecticut and the Town of West Hartford.

2.02.24 ENGINEERING AND INSPECTION CHARGES AND OVERTIME FEES The Contractor shall be required to reimburse the Town for engineering and inspection services performed by the Town on holidays (New Year's Day, Lincoln's Birthday, Martin Luther King Day, Washington's Birthday, Good Friday, Veterans Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Thanksgiving Day and Christmas Day) or when employees are required to work in excess of 37.5 hours per week as a result of the Contractor's work schedule. The Contractor shall be charged at rates stated in section 2.01.10 of the Invitation To Bid.

2.03 BID FORMS

2.03.01 INFORMATION

Bid of _____ BIDDER,
(Name of Contractor)

_____
(Address of Contractor)

and _____
(Telephone Number of Contractor)

FOR THE **NORTH MAIN STREET BRIDGE REHABILITATION Bid# 6436F** AT THE TOWN OF WEST HARTFORD, CONNECTICUT.

To: Town of West Hartford
Peter Privitera
Purchasing Agent
Room 223
50 South Main Street
West Hartford, CT 06107

This Contractor proposes to furnish all labor, materials, and equipment, and all else whatsoever required to perform all work described in the contract Bidding Documents for **NORTH MAIN STREET BRIDGE REHABILITATION Bid# 6436F** as amended by the addendum noted below for the amounts shown herein under Schedule of Bids.

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

It is understood and agreed that the Owner has the privilege of rejecting any or all Bids and of waiving informality in any bid.

It is further understood and agreed that this bid shall be irrevocable for ninety (90) calendar days after bid receipt date.

(NOTE: All prices must be clearly written in ink or typed, in words as well as figures, for the entire Bid.)

Item No.	Estimated Quantity	Brief Description and Price Bid in Words	Unit Price In Figures	Total In Figures
201001	1 LS	CLEARING AND GRUBBING _____Dolars And _____Cents	$_____._____	$_____._____
201199A	95 l.f.	REMOVE AND RESET FENCE _____Dolars And _____Cents	$_____._____	$_____._____
202000A	290 c.y.	EARTH EXCAVATION _____Dolars And _____Cents	$_____._____	$_____._____
202491	340 l.f.	REMOVAL OF GRANITE STONE CURBING _____Dolars And _____Cents	$_____._____	$_____._____
202513	232 s.y.	REMOVAL OF CONCRETE SIDEWALK _____Dolars And _____Cents	$_____._____	$_____._____
202529	86 l.f.	CUT BITUMINOUS CONCRETE PAVEMENT _____Dolars And _____Cents	$_____._____	$_____._____
203202A	55 c.y.	STRUCTURE EXCAVATION-EARTH (EXCLUDING COFFERDAM AND DEWATERING) _____Dolars And _____Cents	$_____._____	$_____._____
204001A	225 l.f.	COFFERDAM AND DEWATERING _____Dolars And _____Cents	$_____._____	$_____._____
209001	486 s.y.	FORMATION OF SUBGRADE _____Dolars And _____Cents	$_____._____	$_____._____
210306A	70 l.f.	TURBIDITY CONTROL CURTAINS _____Dolars And _____Cents	$_____._____	$_____._____

Item No.	Estimated Quantity	Brief Description and Price Bid in Words	Unit Price In Figures	Total In Figures
213501A	170 c.y.	NATIVE STREAM BED MATERIAL _____Dolars And _____Cents	$_____ .	$_____ .
216000	70 c.y.	PERVIOUS STRUCTURE BACKFILL _____Dolars And _____Cents	$_____ .	$_____ .
219001	430 l.f.	SEDIMENTATION CONTROL SYSTEM _____Dolars And _____Cents	$_____ .	$_____ .
304002	115 c.y.	PROCESSED AGGREGATE BASE _____Dolars And _____Cents	$_____ .	$_____ .
401000	86 c.y.	CONCRETE FOR PAVEMENT _____Dolars And _____Cents	$_____ .	$_____ .
401101	520 s.y.	MAT REINFORCEMENT FOR CONCRETE PAVEMENT _____Dolars And _____Cents	$_____ .	$_____ .
406002	55 s.y.	TEMPORARY PAVEMENT _____Dolars And _____Cents	$_____ .	$_____ .
406236	75 gal	MATERIAL FOR TACK COAT _____Dolars And _____Cents	$_____ .	$_____ .
406441	18 ton	SUPERPAVE 0.375" _____Dolars And _____Cents	$_____ .	$_____ .
406442	52 ton	SUPERPAVE 0.500" _____Dolars And _____Cents	$_____ .	$_____ .
406444	30 ton	SUPERPAVE 1.0 INCH _____Dolars And _____Cents	$_____ .	$_____ .
601091A	39 s.y.	SIMULATED STONE MASONRY _____Dolars And _____Cents	$_____ .	$_____ .

Item No.	Estimated Quantity	Brief Description and Price Bid in Words	Unit Price In Figures	Total In Figures
601192	480 s.f.	SURFACE PATCH _____Dolars And _____Cents	$_____.____	$_____.____
601195	2 c.y.	FULL DEPTH PATCH _____Dolars And _____Cents	$_____.____	$_____.____
601196	40 c.f.	VARIABLE DEPTH PATCH _____Dolars And _____Cents	$_____.____	$_____.____
601201	60 c.y.	CLASS "F" CONCRETE _____Dolars And _____Cents	$_____.____	$_____.____
601954A	60 l.f.	EPOXY INJECTION CRACK REPAIR _____Dolars And _____Cents	$_____.____	$_____.____
602006	9640 lb.	DEFORMED STEEL BARS - EPOXY COATED _____Dolars And _____Cents	$_____.____	$_____.____
607002A	3 c.y.	RESET DRY RUBBLE MASONRY _____Dolars And _____Cents	$_____.____	$_____.____
707001	520 s.y.	MEMBRANE WATERPROOFING (WOVEN GLASS FABRIC) _____Dolars And _____Cents	$_____.____	$_____.____
708001	56 s.y.	DAMPPROOFING _____Dolars And _____Cents	$_____.____	$_____.____
751710	140 l.f.	4" UNDERDRAIN _____Dolars And _____Cents	$_____.____	$_____.____
803015A	4550 s.f.	PRECAST CONCRETE BLOCK REVETMENT _____Dolars And _____Cents	$_____.____	$_____.____
814002A	180 l.f.	RESET GRANITE STONE CURBING _____Dolars And _____Cents	$_____.____	$_____.____

Item No.	Estimated Quantity	Brief Description and Price Bid in Words	Unit Price In Figures	Total In Figures
814005A	10 l.f.	RESET GRANITE CURVED STONE CURBING _____Dolars And _____Cents	$_____.____	$_____.____
822001	480 l.f.	TEMPORARY PRECAST CONCRETE BARRIER CURB _____Dolars And _____Cents	$_____.____	$_____.____
822002	310 l.f.	RELOCATED TEMPORARY PRECAST CONCRETE BARRIER CURB _____Dolars And _____Cents	$_____.____	$_____.____
904303	130 l.f.	METAL BRIDGE RAIL - THREE RAIL (TRAFFIC) _____Dolars And _____Cents	$_____.____	$_____.____
906203A	340 l.f.	SPLIT RAIL FENCE _____Dolars And _____Cents	$_____.____	$_____.____
910615A	105 l.f.	6" X 6" BOX BEAM GUIDE RAIL _____Dolars And _____Cents	$_____.____	$_____.____
910616A	2 ea.	6" X 6" BOX BEAM GUIDE RAIL END ASSEMBLY TYPE I _____Dolars And _____Cents	$_____.____	$_____.____
910617A	2 ea.	6" X 6" BOX BEAM TRANSITION _____Dolars And _____Cents	$_____.____	$_____.____
913850	150 l.f.	HIGH VISIBILITY SAFETY FENCE _____Dolars And _____Cents	$_____.____	$_____.____
921001A	2100 s.f.	CONCRETE SIDEWALK _____Dolars And _____Cents	$_____.____	$_____.____
944000	630 s.y.	FURNISHING AND PLACING TOPSOIL _____Dolars And _____Cents	$_____.____	$_____.____

Item No.	Estimated Quantity	Brief Description and Price Bid in Words	Unit Price In Figures	Total In Figures
945060A	350 s.y.	PINE BARK MULCH _____Dolars And _____Cents	$_____.___	$_____.___
949010	3 ea.	FAGUS SYLVATICA 'RIVER'S PURPLE BEECH' AKA COPPER BEECH - 2"-2.5"CAL. B.B. _____Dolars And _____Cents	$_____.___	$_____.___
949025	46 ea	HEMEROCALLIS "STELLA D'ORO" STELLA D'ORO DAYLILY 1 GAL. CONTAINER _____Dolars And _____Cents	$_____.___	$_____.___
949030	14 ea	HOSTA SPP. (PLANTAIN LILLY) 1 GAL. CONTAINER _____Dolars And _____Cents	$_____.___	$_____.___
949035	4 ea	JUNIPERUS VIRGINIANA EASTERN RED CEDAR 6'-8' HT. B.B. _____Dolars And _____Cents	$_____.___	$_____.___
949040	15 ea	KALMIA LATIFOLIA 'RASPBERRY GLOW' RASPBERRY GLOW MOUNTAIN LAUREL 3'-0"- 4'-0" HT. B.B. _____Dolars And _____Cents	$_____.___	$_____.___
949050	53 ea	ROSA VAR. NOA83100B 'FLOWER CARPET® SCARLET' 1'-3" HT. B.B. _____Dolars And _____Cents	$_____.___	$_____.___
949055	8 ea	SAVE AND RESET THUJA OCCIDENTALIS ARBORVITAE _____Dolars And _____Cents	$_____.___	$_____.___
949060	2 ea	SYRINGA RETICULATA JAPANESE TREE LILAC 15'-0" TO 25'0" HT. B.B. _____Dolars And _____Cents	$_____.___	$_____.___

Item No.	Estimated Quantity	Brief Description and Price Bid in Words	Unit Price In Figures	Total In Figures
949065	8 ea	THUJA OCCIDENTALIS ARBORVITAE RESET EXISTING _____Dolars And _____Cents	$_____.___	$_____.___
949068	12 ea.	HEMEROCALLIS "STELLA D'ORO" STELLA D'ORO DAYLILY 1 GAL CONT _____Dolars And _____Cents	$_____.___	$_____.___
949070	4 ea	THUJA OCCIDENTALIS ARBORVITAE _____Dolars And _____Cents	$_____.___	$_____.___
949075	22 ea	VACCINIUM CORYMBOSUM HIGHBUSH BLUEBERRY 3'-0"- 4'-0" HT. B.B. _____Dolars And _____Cents	$_____.___	$_____.___
949321	12 ea.	HOSTA SPP. (PLANTAIN LILLY) 1 GALLON CONTAINER _____Dolars And _____Cents	$_____.___	$_____.___
949602	6 ea.	JUNIPERUS VIRGINIANA EASTERN REDCEDAR 6'-8' HT. B.B. _____Dolars And _____Cents	$_____.___	$_____.___
949766	22 ea.	VACCINIUM CORYMBOSUM HIGHBUSH BLUEBERRY - 3'-0" - 4'-0" HT. B.B _____Dolars And _____Cents	$_____.___	$_____.___
950005A	423 sy	TURF ESTABLISHMENT - LAWN _____Dolars And _____Cents	$_____.___	$_____.___
971001A	1 LS	MAINTENANCE AND PROTECTION OF TRAFFIC _____Dolars And _____Cents	$_____.___	$_____.___

Item No.	Estimated Quantity	Brief Description and Price Bid in Words	Unit Price In Figures	Total In Figures
974001	60 c.y.	REMOVAL OF EXISTING MASONRY _____Dolars And _____Cents	$_____._____	$_____._____
975002	1 LS	MOBILIZATION _____Dolars And _____Cents	$_____._____	$_____._____
977001	35 ea.	TRAFFIC CONE _____Dolars And _____Cents	$_____._____	$_____._____
978002	25 ea.	TRAFFIC DRUM _____Dolars And _____Cents	$_____._____	$_____._____
979003	7 ea.	CONSTRUCTION BARRICADE TYPE III _____Dolars And _____Cents	$_____._____	$_____._____
980001A	1 LS	CONSTRUCTION STAKING _____Dolars And _____Cents	$_____._____	$_____._____
1118051A	1 ea.	TEMPORARY SIGNALIZATION (SITE NO. 1) _____Dolars And _____Cents	$_____._____	$_____._____
1205209	6 ea.	TYPE DE-9 DELINEATOR _____Dolars And _____Cents	$_____._____	$_____._____
1206036	3 ea.	REMOVE AND RELOCATE SIGN _____Dolars And _____Cents	$_____._____	$_____._____
1210101	1200 l.f.	4" WHITE EPOXY RESIN PAVEMENT MARKINGS _____Dolars And _____Cents	$_____._____	$_____._____
1210102	1200 l.f.	4" YELLOW EPOXY RESIN PAVEMENT MARKINGS _____Dolars And _____Cents	$_____._____	$_____._____
1211001	800 s.f.	REMOVAL OF PAVEMENT MARKINGS _____Dolars And	$_____._____	$_____._____

Item No.	Estimated Quantity	Brief Description and Price Bid in Words	Unit Price In Figures	Total In Figures
		_____Cents		
1212001	2450 l.f.	TEMPORARY PLASTIC PAVEMENT MARKING TAPE - 4" YELLOW _____Dolars And _____Cents	$_____.	$_____.
1212002	940 l.f.	TEMPORARY PLASTIC PAVEMENT MARKING TAPE - 4" WHITE _____Dolars And _____Cents	$_____.	$_____.
1220011	160 s.f.	CONSTRUCTION SIGNS - TYPE III REFLECTIVE SHEETING _____Dolars And _____Cents	$_____.	$_____.
1301083A	155 l.f.	10" DUCTILE IRON PIPE (WATER MAIN) _____Dolars And _____Cents	$_____.	$_____.
1302931A	100 l.f.	PIPE INSULATION (WATER MAIN) _____Dolars And _____Cents	$_____.	$_____.
1507001A	1 ea	PROTECTION AND SUPPORT OF EXISTING UTILITIES _____Dolars And _____Cents	$_____.	$_____.
1507002A	1 ea	PROTECTION AND SUPPORT OF EXISTING UTILITIES _____Dolars And _____Cents	$_____.	$_____.
1507003A	1 ea	PROTECTION AND SUPPORT OF EXISTING UTILITIES _____Dolars And _____Cents	$_____.	$_____.
1507004A	1 ea	PROTECTION AND SUPPORT OF EXISTING UTILITIES _____Dolars And _____Cents	$_____.	$_____.

Item No.	Estimated Quantity	Brief Description and Price Bid in Words	Unit Price In Figures	Total In Figures
1807011	4 ea.	TEMPORARY IMPACT ATTENUATION SYSTEM TYPE A MODULE 400 LB _____Dolars And _____Cents	$_____._____	$_____._____
1807012	6 ea.	TEMPORARY IMPACT ATTENUATION SYSTEM TYPE A MODULE 700 LB _____Dolars And _____Cents	$_____._____	$_____._____
1807013	22 ea.	TEMPORARY IMPACT ATTENUATION SYSTEM TYPE A MODULE 1400 LB _____Dolars And _____Cents	$_____._____	$_____._____
1807014	8 ea.	TEMPORARY IMPACT ATTENUATION SYSTEM TYPE A MODULE 2100 LB _____Dolars And _____Cents	$_____._____	$_____._____
1807101	4 ea.	RELOCATION OF TEMPORARY IMPACT ATTENUATION SYSTEM TYPE A _____Dolars And _____Cents	$_____._____	$_____._____

(NOTE: All prices must be clearly written in ink or typed, in words as well as figures, for the entire Bid.)

NOTE: All quantities are indeterminate; quantity assumed for comparison of bids.

TOTAL OF BID ITEMS **1** THROUGH **89** INCLUSIVE OF THIS PROPOSAL, AS COMPUTED BY BIDDER USING THE ESTIMATED QUANTITIES INDICATED ABOVE: _____ _____ $.

But it is understood that the various unit prices bid will control in any contract which may be awarded arising from this Bid; that the estimate quantities above are approximate only and used only for the comparison of bids; that the products obtained by multiplication of the above unit prices by estimated quantities, and the total thereof, have been inserted only for the convenience of the Bidder and to facilitate consideration of this and other Bids.

2.03.02 CONTRACT TIME

The Contract shall remain in effect from date of contract signing through Substantial Completion November 15, 2015 Final Completion by November 30, 2015. Individual projects within the scope of the Contract shall be assigned to the Contractor by addendum to this Contract and shall set forth start and completion dates for the individual project assigned. Such start and completion dates shall be strictly enforced.

2.03.03 BIDDER QUALIFICATIONS

If the Bidder is a Corporation, fill out:

The Bidder is a Corporation, organized under the laws of

_____, having its principal office at _____.

The Principal officers of said Corporation, with their titles and addresses, are as follows:

_____

_____

_____

Bid must be accompanied by either a Certified Check or a Bid Bond, as provided in the Invitation to Bid. If a check is deposited herein, fill out the following:

_____
(Name of Bank)

_____ _____
(Address of Bank) (Amount of Check)

Attached hereto is a form entitled "Summary of Work History". Sections 2.03.12 and 2.03.13.

1. The Bidder is required to state that he has done work of a similar character to that included in the proposed Contract, and give references that will enable the Owner to judge his experience, ability to meet completion date, skill and business standing.

2. The Bidder is further required to complete the attached "Summary of Work History" for all jobs for which he has signed a construction contract within the past 36 months, providing the name and address of the Project, name and address of the Project Owner, name and address of the Project Architect, Contract amount, and time required for completion.

2.03.04 CERTIFICATE OF INSURANCE The Bidder is required to submit a Certificate of Insurance in amounts and types specified in Article 8.01A of the Exhibit section or provide a letter (see example located after bid signature page) from the Bidder's insurance agent or broker that such insurance is obtainable at the time of execution of the Agreement and that a Certificate of Insurance shall be provided to that effect not later than the date of Contract signing.

2.03.05 CONTRACT FORM The parties shall enter into a contract in substantially the same form as the attached subject to technical and other modifications as the parties mutually agree.

2.03.06 ANTI-COLLUSION No person or persons other than those named herein are interested in this Bid or in the Contract proposed to be taken. Said contract is made without any connection with any other person or persons making any bid for the same work and is in all respects fair and without collusion or fraud. No person acting for or employed by the Town of West Hartford may be directly or indirectly interested therein or in the supplies or works to which it relates, or will receive any part of the profit or any commission therefrom in any manner which is unethical or contrary to the best interest of the Town.

2.03.07 ANTI DISCRIMINATION The Contractor agrees and warrants that in the performance of this Contract he will not discriminate or permit discrimination against any person or group of persons on the grounds of sex, race, color, religion, physical impairment or national origin in any manner prohibited by the law of the United States, the State of Connecticut, or the Town of West Hartford.

2.03.08 SUPERVISION The Contractor shall employ full time on-the-job Project Superintendent as his representative.

2.03.09 ANTI TRUST ASSIGNMENT The Contractor and/or Subcontractor offers and agrees to assign to the Town of West Hartford and/or the West Hartford Board of Education all right, title and interest in all causes of action it may have under Section 4 of the Clayton Act, 15 U.S.C. Section 15, or under Connecticut General Statutes 35-24 et. seq., as amended, arising out of the purchase of services, property, or intangibles of any kind pursuant to this Contract, or Subcontracts thereunder. This assignment shall be made and become effective at the time the Town/Board awards or accepts such Contract, without further acknowledgment by the parties. In the alternative, at the option of the Town, the Contractor and/or Subcontractor agrees to pay to the Town its proportionate share of recoveries for anti-trust violations which relate to purchases pursuant to this Contract, or Subcontracts hereunder. The Contractor and/or Subcontractor agrees promptly to notify the purchasing Agent of the Town of West Hartford of suspected anti-trust violations and claims.

2.03.10 INDEMNIFICATION The Bidder is aware of and agrees that, if awarded this Contract, he is bound by the following indemnification language:

To the fullest extent permitted by law, the Contractor shall release, defend, indemnify, and hold harmless the Town of West Hartford, the West Hartford Board of Education, their respective boards, commissions, officers, officials, employees, agents, representatives, and servants from any and all suits, claims, losses, damages, costs (including without limitation reasonable attorneys' fees), compensation, penalties, fines, liabilities or judgments of any name or nature for:

.1 Bodily injury, sickness, disease, or death; and/or

.2 Damage to or destruction of real and/or personal property; and/or

.3 Financial losses (including, without limitation, those caused by loss of use)

sustained by any person or concern, including officers, employees, agents, subcontractors, materialmen, or servants of the Town, the Board of Education, or the Contractor, or by the public, which is caused or alleged to have been caused in whole or in part by the negligent act(s) or omission(s) of the Contractor, or any Subcontractor, or materialmen, or anyone directly or indirectly employed by them in the performance of this Contract or from the inaccuracy of any representation or warranty contained in the Contract Documents. This indemnity shall not be affected by other portions of the Contract relating to insurance requirements.

To the fullest extent permitted by law, the Contractor shall release, defend, indemnify, and hold harmless the West Hartford Board of Education, the Town of West Hartford, their respective boards and commissions, officials, officers, employees, agents, representatives, and servants from any and all suits, claims, losses, damages, costs, (including without limitation reasonable attorneys' fees), compensation, penalties, fines, liabilities or judgments that may arise out of the failure of the Contractor, its officers, agents, Subcontractors, materialmen or anyone directly or indirectly employed by them to comply with any laws, statutes, ordinances, building codes, and rules and regulations of the United States of America, the State of Connecticut, the Town of West Hartford, the West Hartford Board of Education or their respective agencies. This undertaking shall not be affected by other portions of the contract relating to insurance requirements.

BIDDER:

_____
COMPANY

Bidder must sign. Failure to provide an original signature will result in rejection of the bid.

®

_____
SIGNATURE BY DULY AUTHORIZED
(SEAL)

_____
PRINT OR TYPE NAME

The bidder agrees that by affixing their signature to this request for bids, the authorized signatory grants approval to the Town of West Hartford to obtain third party credit reports for the purpose of assessing the financial capacity of the business entity tendering such bid to the Town.

_____
TITLE

_____
DATE

_____
ADDRESS

_____
TELEPHONE

_____
FAX #

_____
E-MAIL

_____
VENDOR FEIN #

BID FORMS TO BE SUBMITTED IN DUPLICATE

If you are not registered with the Town of West Hartford, please go to www.westhartfordct.gov/gov/departments/purchasing/vendor_registration.asp and select register. Only registered vendors can be awarded the contract.

2.03-14

2.03.11 INSURANCE AGENT CERTIFICATION OF INSURANCE COMPLIANCE

TO: Town of West Hartford
Peter Privitera
Purchasing Agent

FROM:

CLIENT:

DATE:

Dear Mr. Privitera:

In accordance with Section 2.03.04 of the "Bid Form", please be advised that my client currently has or will have by the date of the execution of the Agreement for this project, a Certificate of Insurance in amounts and types as specified in Article 8.01A of the Exhibit section and Exhibit "B" of the Contract Documents.

_____
Signature
Authorized Broker or Agent

SUMMARY OF WORK HISTORY

1. The bidder is required to state in the spaces provided below work that the bidder has performed of a similar character to the work described in the Contract Bidding Documents.

Project Name	Project Description	Contract Award Amount	Client	Contract Person	Telephone #

SUMMARY OF WORK HISTORY

2. The bidder is further required to furnish a complete list of all projects for which he has signed a construction contract within the past 36 months.

Project Name	Project Description	Contract Award Amount	Client	Contract Person	Telephone #

3.00 LABOR REQUIREMENTS

3.01 Prevailing Wage Rates

3.01 PREVAILING WAGE RATES

3.01.01 The Contractor shall certify in writing and under oath to the Labor Commissioner the pay scale to be used by the Contractor and any Subcontractors. The provisions of this section shall not apply where the total cost of all work to be performed by ALL Contractors and Subcontractors in connection with new construction of any public works project is less than FOUR HUNDRED thousand dollars or where the total cost of all work to be performed by ALL Contractors and Subcontractors in connection with any remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project is less than ONE HUNDRED thousand dollars. The Contractor shall fully comply with all provisions of Connecticut General Statutes (CGS) 31-53 and shall be subject to such sanctions mandated for violations of said Public Act.

3.01.02 The wages paid on an hourly basis to any mechanic, laborer or workman employed upon the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such employee to any employee welfare fund, as defined in CGS 31-53 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 employees to any such employee welfare fund shall pay to each employee as part of his wages the amount of payment or contribution for his classification on each pay day.

3.01.03 The contractor shall not be paid in accordance with the payment provisions of these Contract Bidding Documents unless the contractor is in full compliance with the mandates of CGS 31-53.

3.01.04 Bidders are further advised that if the initial consideration due and payable pursuant to the Contract exceeds the mandatory limits at which prevailing wages rates are required, then the contractor and any subcontractors shall pay the appropriate prevailing wages retroactive to the date of commencement of work on the project. The contractor shall not receive any additional compensation from the Owner as a result of an occurrence of the aforementioned event.

Opportunity • Guidance • Support

CONNECTICUT DEPARTMENT OF LABOR

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.

Project: North Main Street Bridge Rehabilitation

Minimum Rates and Classifications
for Heavy/Highway Construction

ID#: H 20295

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:

Project Town: West Hartford

FAP Number:

State Number:

Project: North Main Street Bridge Rehabilitation

CLASSIFICATION	Hourly Rate	Benefits
01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 5 and 7**		
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	32.50	28.34
2) Carpenters, Piledrivermen	31.00	22.50

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

2a) Diver Tenders	31.00	22.50
3) Divers	39.46	22.50
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	45.10	18.55
4a) Painters: Brush and Roller	31.02	18.55
4b) Painters: Spray Only	34.02	18.55
4c) Painters: Steel Only	33.02	18.55
4d) Painters: Blast and Spray	34.02	18.55

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

4e) Painters: Tanks, Tower and Swing	33.02	18.55
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)	38.10	22.72 + 3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	34.47	29.74 + 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)	40.31	26.82
---LABORERS---- -		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	27.05	17.80
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen, air tool operator	27.30	17.80

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

10) Group 3: Pipelayers	27.55	17.80
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block pavers and curb setters	27.55	17.80
12) Group 5: Toxic waste removal (non-mechanical systems)	29.05	17.80
13) Group 6: Blasters	28.80	17.80
Group 7: Asbestos Removal, non-mechanical systems (does not include leaded joint pipe)	28.05	17.80
Group 8: Traffic control signalmen	16.00	17.80

---LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	31.28	17.80 + a
13b) Brakemen, Trackmen	30.37	17.80 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		
14) Concrete Workers, Form Movers, and Strippers	30.37	17.80 + a
15) Form Erectors	30.68	17.80 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	30.37	17.80 + a

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

17) Laborers Topside, Cage Tenders, Bellman	30.26	17.80 + a
18) Miners	31.28	17.80 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	37.41	17.80 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	37.22	17.80 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	35.35	17.80 + a
21) Mucking Machine Operator	37.97	17.80 + a

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

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

Two axle trucks	28.33	19.14 + a
Three axle trucks; two axle ready mix	28.43	19.14 + a
Three axle ready mix	28.48	19.14 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	28.53	19.14 + a
Four axle ready-mix	28.58	19.14 + a
Heavy duty trailer (40 tons and over)	28.78	19.14 + a

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	28.58	19.14 + a
---POWER EQUIPMENT OPERATORS---		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over. (Trade License Required)	36.80	22.30 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	36.48	22.30 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	35.74	22.30 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	35.35	22.30 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	34.76	22.30 + a

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	34.76	22.30 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	34.45	22.30 + 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).	34.11	22.30 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	33.71	22.30 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	33.28	22.30 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	31.24	22.30 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	31.24	22.30 + a

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

Group 12: Wellpoint Operator.	31.18	22.30 + a
Group 13: Compressor Battery Operator.	30.60	22.30 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	29.46	22.30 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	29.05	22.30 + a
Group 16: Maintenance Engineer/Oiler	28.40	22.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	32.71	22.30 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	30.29	22.30 + a

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----		
20) Lineman, Cable Splicer, Technician	45.43	6.25%+19.20
21) Heavy Equipment Operator	40.89	6.25%+17.18
22) Equipment Operator, Tractor Trailer Driver, Material Men	38.62	6.25%+16.68
23) Driver Groundmen	24.99	6.25%+10.87
23a) Truck Driver	34.07	6.25%+15.41

As of: Wednesday, March 11, 2015

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----LINE CONSTRUCTION----

24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.10	6.5% + 10.70
27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20
28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

Welders: Rate for craft to which welding is incidental.

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

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

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $1.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

3) Cranes (under 100 ton rated capacity)

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

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

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

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

As of: Wednesday, March 11, 2015

Project: North Main Street Bridge Rehabilitation

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: Wednesday, March 11, 2015

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/otc/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.

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.

4.01 Contract

TOWN OF WEST HARTFORD STANDARD CONTRACT FOR PUBLIC WORKS

CONSTRUCTION OF: **NORTH MAIN STREET BRIDGE REHABILITATION Bid# 6436F**

made as of the _____ day of _____ in the year

of Two Thousand and Fifteen.

BETWEEN the Owner: Town of West Hartford (Town)
50 South Main Street
West Hartford, CT 06107

and the Contractor:

The Town and the Contractor agree as set forth below.

ARTICLE 1
THE CONTRACT DOCUMENTS

The Contract Documents consist of this Contract, those documents enumerated in the Table of Contents, and any drawings referred to therein, and all Addenda issued prior to and all Modifications issued after the execution of this Contract. An enumeration of the Contract Documents appears in Article 8.

ARTICLE 2
THE WORK

The Contractor shall perform all the Work required by the Contract Documents for

NORTH MAIN STREET BRIDGE REHABILITATION , reference Bid no. **6436F**.

ARTICLE 3
TIME OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

The Town and the Contractor shall mutually agree to written schedule(s) pursuant to Section 2.01.08 of the Invitation to Bid, Section 5.13 of the General Conditions and Section 6.13 of the General Specifications pertaining to schedules and liquidated damages for failure to comply with such schedules establishing respective dates for the start and completion of various parts of the work. Each schedule shall be subject to review and may change from time to time as required during the progress of the work.

ARTICLE 4
CONTRACT SUM

The Town shall pay the Contractor in current funds for the performance of the Work, subject to additions and deductions by Change Order as provided in the Contract Documents, the Contract Sum of $_____.

The Contract Sum is determined as follows:
(State here the base bid or other lump sum amount, accepted alternates and unit prices as applicable)

ARTICLE 5
PROGRESS PAYMENTS

Based upon Applications for Payments submitted to the Engineer by the Contractor covering the prior calendar month, the Town shall make progress payments to the Contractor as provided in the Contract Bidding Documents, on account of the Contract Sum, in the following manner:

Not later than the tenth day of each month, the Contractor shall submit an Application for Payment to the Town. Otherwise valid Applications for Payment submitted after the tenth day of any month shall be paid together with the next timely-filed Application for Payment. In accordance with General Statutes 49-41b., ninety five percent (95%) of the amount of all labor, materials and equipment incorporated into the Work, and ninety five percent (95%) of the amount of all materials and equipment suitable stored at the site or at some other location agreed upon in writing shall be paid to the Contractor, subject to a reduction in amount for any payments previously made to the Contractor by the Town. Timely submitted Applications for Payment shall be paid on the first Friday following the fifteenth day of the month in which the Application is received by the Town.

The remaining five percent (5%) of the value of all labor, materials and equipment incorporated into the Work, or suitably stored at the site or at some other suitable agreeable location, (the retainage) shall be retained by the Town as security until the warranty period specified in the Contract Bidding Documents is completed. Any portion of

the retainage may be released to the Contractor prior to the completion of the warranty period if, in the sole discretion of the Town Engineer, such release is appropriate.

ARTICLE 6
FINAL PAYMENT

Final payment, constituting the entire unpaid balance of the Contract Sum, shall be paid by the Owner to the Contractor when the work has been completed and the Contract fully performed.

ARTICLE 7
WARRANTY

In recognition of the need to determine that the work performed hereunder has been performed in such a manner which will permit the project to function correctly in all seasons, the Contractor warrants to the Town that for fifteen months from the date of completion, the work shall be free from defects not inherent in the quality required or permitted. All materials and equipment furnished under the Contract will conform to the requirements of the Contract Bidding Documents, be of good quality and new unless otherwise required or specified by the Contract Bidding Documents. Any work, materials and/or equipment which fails during the warranty period shall be repaired or replaced at the expense of the Contractor, unless such failure was caused by abuse beyond the control of the Contractor.

ARTICLE 8
MISCELLANEOUS PROVISIONS

Terms used in this Contract which are defined in the Conditions of the Contract shall have the same meanings designated in those Conditions.

The Contract Documents, which constitute the entire agreement between the Owner and the Contractor, are listed in Article 1 and except for Modifications, change orders or work directives issued after execution of this Contract, are enumerated as follows: Introductory Information, Information For Bidders, Labor Requirements, General Conditions, General Specifications, Technical Specifications, Exhibits A and B and the bid of **NORTH MAIN STREET BRIDGE REHABILITATION Bid# 6436F**.

This Contract entered into as of the day and year first written above.

OWNER

Town of West Hartford

_____

Peter Privitera, Purchasing Agent

CONTRACTOR

_____

5.00 GENERAL CONDITIONS

5.01 TOWN OF WEST HARTFORD INFRASTRUCTURE RULES & SPECIFICATIONS All work, materials and services will be performed and furnished in accordance with requirements described in Section 5.03 below and as supplemented by a separate pamphlet issued by the Town of West Hartford entitled, "Town of West Hartford, Rules and Specifications Regulating Curb and Walk Layers, Street Excavation, Street Construction and Sewer Installation 1995", as amended from time to time, plus the following additional provisions:

5.02 PAYMENTS Monthly payments up to 95% of the value of work to date will be made as described in Article 5 of the Standard Contract For Public Works.

After completion of all construction, except permanent repair of pavements, which it is not feasible to repair at that time, and any other work specifically exempted for the particular Contract, and except for maintenance of sewer, backfilled trenches, pavements, etc., as provided in Specifications, a final estimate will be prepared by the Engineer. From the total sum or sums due or to become due the Contractor, as computed in that final estimate, all deductions, withholdings or retainages provided elsewhere will be deducted including any sum or sums held to secure performance of work or delivery of material not yet completed, or to secure claims for which the Town may become liable.

The Town will retain 5% of the total of the Contract as computed in final estimates, as above, to secure the performance of all maintenance as required by Contract and Specifications. However, upon application by the Contractor and with permission of Surety, the Town may at any time retain less than 5% if it deems it advisable to do so. The sum or sums thus retained by the Town to secure performance of provisions will be paid after the period has expired and after all requirements of the and other provisions of the Contract and Specifications have been fully satisfied.

5.03 STATE OF CONNECTICUT STANDARD SPECIFICATIONS The following specifications will apply:

"State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 816" as amended and as supplemented by the Town of West Hartford Infrastructure Rules & Specifications.

When installing sewers in any one street or right-of-way, the main sewer and laterals shall be completed, leakage-tested, inspected, cleaned, and defects corrected where necessary, ready for use, and the backfilling, puddling, paving repair and cleanup work shall be done before work is started on any other street or section, unless otherwise approved by the Engineer.

5.04 UTILITIES

Protection of Other Utilities and Property Near Line of Sewer is amplified for this Project by the following:

The Contractor shall be responsible to make certain of the exact location of the mains, ducts, poles and services prior to excavation.

The utility mains, ducts, poles and services in the construction area where shown on the Project plans are at the approximate locations furnished by various utilities concerned. These locations are subject to possible errors in the source of the information and also errors in transcription.

Sections 16-345 thru 16-356 Connecticut General Statutes as amended makes it mandatory to notify utilities before digging with power equipment. The Contractor shall call 1-800-922-4455 (toll free), 7:00 a.m. to 6:00 p.m., Monday through Friday, at least forty-eight hours prior to beginning the excavation. This "one-call" service is provided by the utility companies.

Once the call is made, it is the Utilities' responsibility to analyze the site and identify and mark their underground facilities.

The following more commonly used utility numbers are listed for the Contractor's convenience in case additional specific information is needed:

Comcast of Connecticut, Inc. d/b/a Comcast/Hartford
Telephone 617-279-7485

Fiber Technologies Networks, LLC
Telephone 585-697-5107

Level 3 Communications, LLC
Telephone 720-888-6461

The Southern New England Telephone Company d/b/a AT&T Connecticut
Telephone 203-238-7407

Northeast Utilities Service Company
Telephone 860-665-2473

Connecticut Natural Gas Corporation
Telephone 860–727-3114

Tennessee Gas Pipeline Company
Telephone 860-763-6028

The Metropolitan District Commission (Water & Sanitary Sewer)
Telephone 860-278-7850 Ext. 3443

Town of West Hartford (Storm Sewers)
Telephone 860-561-8000

5.05 OBLIGATIONS OF CONTRACTOR The Contractor shall, at his own expense, do and perform all the work and furnish all services, tools, equipment, appliances, materials, plant labor and all that is necessary or proper for performing and completing the work described herein in the manner and within the time specified. All work to be performed and all materials to be furnished under this contract shall be performed, furnished and complete pursuant to and strictly in conformance with the Information for Bidders, the Project Drawings, sometimes referred to herein as the "plans", and the Contract Bidding Documents for this work, all of which are made a part hereof as if fully set forth herein.

5.05.01 The Contractor shall coordinate his operations with those of any other Contractors who may, under permit by the Town be working with properties controlled by the Municipality, shall avoid interference therewith, and shall cooperate in the arrangements for storage of materials.

5.05.02 The Contractor shall conduct his work so as to interfere as little as possible with private business and public travel. Wherever necessary or required, and at his own expense, (except as provided herein in the General Specifications Section 6.08.2 in regard to traffic officers), he shall maintain fences, furnish watchmen, maintain lights and take such other precautions as may be necessary to protect life and property.

5.05.03 The Contractor shall take all responsibility for the work done under this Contract for the protection of the work and for preventing injuries to persons and damage to property and utilities on or about the work. He shall in no way be relieved of his responsibility by any right of the Engineer to give permission or issue orders relating to any part of the work, by any such permission given or orders issued, or by failure of the Engineer to give such permission or issue such orders. The Contractor shall bear all losses resulting to him or to the Town on account of the quantity or character of the work, because the nature of the land in or on which the work is done is different from what was estimated, or expected, or on account of the weather, elements or other causes.

5.05.04 The Contractor shall conduct his operations so as not to damage existing structures or work installed either by him or by other contractors. In case of any such damage resulting from his own operations, he shall repair and make good the damaged portions at his own expense with the consent of the damaged party. In the event that consent is not given, the Contractor shall not be relieved thereby of liability for the damage caused.

5.05.05 The Contractor shall employ only competent employees to do the work, and, whenever the Engineer notifies the Contractor in writing that in his opinion any employee on the work is incompetent, unfaithful, disorderly or otherwise unsatisfactory, or not employed in accordance with the provisions of this Contract, such employee shall be discharged from the work and shall not again be employed on it except with the consent of the Engineer.

5.05.06 If, in the opinion of the Engineer, the Contractor is not employing sufficient labor or equipment to complete the work described herein within the time specified, said Engineer may, after giving written notice, require said Contractor to employ such additional labor and equipment as may be necessary to enable said work to progress properly.

5.05.07 The Contractor shall not sell and shall neither permit nor suffer the introduction or use of substances which may impair an employee's ability to perform upon or about the work under this Project.

5.05.08 The Contractor shall keep himself fully informed of all state and national laws and municipal ordinances and regulations in any manner affecting those engaged or employed in the work, the materials used in the work or the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy for inconsistency is discovered in the project, and Contract Bidding Documents for this work in relation to any such law, ordinance, regulation, order or decree, he shall forthwith report the same to the Engineer in writing.

5.05.09 The Contractor shall take all precautions to prevent damage to the work by adverse climatic conditions or by water entering the work site over, across, or through the ground directly. In case of damage by storm or water, the Contractor shall make such repairs or replacements or rebuild such parts of the work as the Engineer may require in order that the finished work may be completed as required by the drawings and specifications.

5.05.10 The Contractor shall, at his own expense, take out all necessary permits from the state, municipal or other public authorities; shall give all notices required by law or ordinances; and shall post all bonds and pay all fees and charges incident to the due and lawful prosecution of the work covered by this Contract.

5.05.11 The Contractor recognizes that in the course of preparing plans and specifications, that unknown underground utilities will not be shown on the plans. In the event the Contractor encounters underground utilities which are not incorporated into the Contract Bidding Documents, it shall be the Contractor's responsibility to assure the utility is left as it was discovered.

5.05.12 The Contractor, working with its surety, shall use all reasonable efforts to provide safe passage through the site for the public, including both pedestrians and vehicles. The cost associated with such efforts shall be borne by the Contractor.

5.05.13 The Contractor shall provide a telephone number through which he/she may be contacted at any time.

5.06 DUTIES AND RESPONSIBILITIES OF THE ENGINEER All work done under the Contract and all materials furnished shall be to the satisfaction of and in accordance with the directions of the Town Engineer. All work shall conform to the detailed plans and the lines and grades furnished by or approved by the Engineer from time to time as the work proceeds.

5.06.01 The Engineer shall in all cases determine the amount, quality, acceptability and fitness of the several kinds of work and materials which are to be paid for under this Contract and shall decide all questions which may arise as to the fulfillment of this Contract and on the part of the Contractor. The determination and decision of the Engineer thereon shall be final and conclusive upon said Contractor, and such determination and decision, in case any question shall arise between the parties hereto touching this Contract, shall be a condition precedent to the right of the Contractor to receive any money under this Contract.

5.06.02 The Engineer shall make all necessary interpretations as to the meaning and intention of the Project Drawings, Technical and Contract Bidding Documents. He shall give all orders and directions contemplated therein or thereby, and in every case in which a difficult or unforeseen condition shall arise in the performance of the work required by the Contract.

5.06.03 If the Contractor considers any work demanded of him to be outside the requirements of the Contract, or if he considers any decision or determination of the Engineer to be unfair, he shall immediately, upon such work being demanded or such decision or determination being made, ask in writing for a work directive issued pursuant to paragraph 5.18.04, decision or determination. Such directive, decision or determination shall be given by the Engineer in writing, within two working days after the request therefore. Upon receipt of such written instruction, decision or determination, the Contractor shall proceed without delay to perform the work or conform to the instructions, decision or determination. Within ten (10) working days after receipt of the written instructions, decision or determination, the Contractor may file a written with the Town stating clearly and in detail his objections, the reasons therefore and the nature and amount of damages which the Engineer's decision will cause him. A copy of such protest shall be filed with the Engineer at the same time as it is filed with the Division of Purchasing Services Manager. Unless the Contractor shall file such written protest within such 10-day working period, he shall be deemed to have waived all grounds for such protest and such damages and to have accepted the instruction, decision or determination of the Engineer as just and reasonable and as being within the scope of the Contractor's obligations under the Contract. On or before the 15th day of the month following performance of disputed work pursuant to this provision, the Contractor shall file with the Engineer, an itemized statement of all costs incurred in connection therewith. A response to the written protest shall be rendered by the Town within thirty calendar days of receipt of said protest.

5.06.04 For purposes already specified and for any other purpose, the Town, the Engineer and their agents and employees may enter upon the work and the premises used by the Contractor and the Contractor shall provide safe and proper facilities therefore.

5.06.05 The Engineer shall be furnished with every reasonable facility for ascertaining that the work is in accordance with the requirements and intention of the Contract, even to the extent of uncovering or taking down portions of finished work. The Engineer shall be offered a reasonable opportunity to inspect the work above and below the ground before it is covered.

5.06.06 If the Engineer orders work to be uncovered and should the work thus exposed or examined prove satisfactory, the uncovering or taking down and the replacement of material and rebuilding of the work shall be considered as extra work unless the original work was done in the absence of the Engineer or his inspector without his written authorization, in which case that section of the General Specifications titled, "Work to Conform" shall govern. Should the work exposed or examined prove unsatisfactory, the uncovering, taking down, replacing and making good shall be at the expense of the Contractor.

5.06.07 The Engineer shall make all necessary explanations as to the meaning and intention of the drawings and specifications and shall give all necessary orders and directions.

5.06.08 The order or sequence of execution of the work and the general conduct of the work shall be subject to the approval of the Engineer who shall have authority to direct the order or sequence where public necessity or welfare shall require, which approval or direction shall, however, in no way affect the responsibility of the Contractor in the conduct of the work.

5.07 ASSIGNMENT The Contractor shall not assign, transfer, convey, sublet or otherwise dispose of or part with the control of this Contract or any part thereof, without the previous consent, in writing, of the Town. He shall not assign, by power of attorney or otherwise, any of the money to become due and payable under this Contract unless by and with the like consent in writing. Any such attempted assignment or subletting shall, at the option of said Town, forthwith work an avoidance of this Contract, or may be treated by said Town as null and void. The Contractor, may with prior consent of and subject to the approval in writing of the Engineer in each separate case, employ qualified subcontractors to supply material and perform parts of the work required herein. The employment of subcontractors shall not in any way relieve the Contractor of full responsibility for the performance of all parts of the work or the obligations and liabilities related thereto.

5.08.1 LIABILITY/INDEMNITY To the fullest extent permitted by law, the Contractor shall release, defend, indemnify, and hold harmless the Town of West Hartford

and the West Hartford Board of Education, their respective boards, commissions, officers, officials, employees, agents, representatives, and servants from any and all suits, claims, losses, damages, costs (including without limitation reasonable attorneys' fees), compensation, penalties, fines, liabilities or judgments of any name or nature for:

.1 Bodily injury, sickness, disease, or death; and/or

.2 Damage to or destruction of real and/or personal property; and/or

.3 Financial losses (including, without limitation, those caused by loss of use)

sustained by any such person or concern, including officers, employees agents, subcontractors, materialmen, or servants of the Town of West Hartford and the Board of Education, or the Contractor, or by the public, which is caused or alleged to have been caused in whole or in part by the negligent act(s) or omission(s) of the Contractor, or any Subcontractor, or materialmen, or anyone directly or indirectly employed by them arising from or related to the performance of this Contract or from the inaccuracy of any representation or warranty contained in the Contract Documents. This indemnity shall not be affected by other portions of the Contract relating to insurance requirements.

5.08.2 To the fullest extent permitted by law, the Contractor shall release, defend, indemnify, and hold harmless the Town of West Hartford and the West Hartford Board of Education and the, their respective boards and commissions, officials, officers, employees, agents, representatives, and servants from any and all suits, claims, losses, damages, costs, (including without limitation reasonable attorneys' fees), compensation, penalties, fines, liabilities or judgments that may arise out of the failure of the Contractor, its officers, agents, Subcontractors, materialmen or anyone directly or indirectly employed by them to comply with any laws, statutes, ordinances, building codes, and rules and regulations of the United States of America, the State of Connecticut, the Town of West Hartford, or their respective agencies. This undertaking shall not be affected by other portions of the contract relating to insurance requirements.

5.08.3 <u>Environmental Indemnification</u>

To the fullest extent permitted by law, the Contractor agrees to defend, indemnify and hold harmless the Town of West Hartford, the West Hartford Board of Education, their respective boards and commissions, officers, agents, officials, employees, servants, volunteers, contractors and representatives from any and all suits, claims, losses, damages, costs (including, without limitation, reasonable attorney's fees), compensations, penalties, fines, liabilities or judgments, on account of or in connection with any death of person or injury, loss or damage to

any person, property, or to the environment, arising out of the activity of the type contemplated by this Agreement, whether or not said activity complies strictly with the requirements of this Agreement and arises out of or in connection with;

1. the violation or breach, by any employee or person acting on behalf of the Contractor of any federal, state, or local environmental statute, rule, regulation, ordinance, or other law or any provision or requirement of the Agreement dealing with hazardous substances or protection of the environment; or
2. the release or discharge, onto any public or private property, of any hazardous substances, regardless of the source of such hazardous substances, by any employee or person acting on behalf of the Contractor while present on, within, or in the vicinity of Town owned property; or
3. the subsequent storage, processing or other handling of such hazardous substances by any person or entity after they have been removed by the Contractor or persons acting on the Contractor's behalf from Town owned property.

This indemnification shall not be affected by the limits of the Contractor's insurance coverage.

5.09 BLASTING REQUIREMENTS Prior to blasting by the Contractor, necessary approvals and insurance and documents specified by the Fire Marshall shall be obtained and filed with the Fire Marshall. Seismograph readings may be required by the Fire Marshall. Any expenses related to blasting, etc., shall be included in the fixed or unit price for rock removal. No additional claim for compensation shall be considered.

5.10 AVOIDANCE OR ABANDONMENT If the work to be done under the Contract shall be abandoned or suspended for any period of time without reasonable cause, and/or if the Contract, or any part thereof, shall be sublet or assigned without the previous written consent of the Town, or if at any time the Engineer shall be of opinion that the conditions herein specified as to the rate of progress are not fulfilled, or that the work or any part thereof is unnecessarily or unreasonably delayed, or that the Contractor has willfully violated or is willfully violating any of the provisions of the Contract, the Town may notify the Contractor to discontinue all work or any part thereof under the Contract, by a written notice to be served upon the Contractor or upon his duly appointed agent. Thereupon the Contractor shall discontinue such work, or such part thereof as the Town may designate, and the Town may thereupon, by separate contract or otherwise as it may determine, take such steps as the Engineer may deem necessary to protect completed portions of the work, or to protect persons or the property of others, or to continue and complete the work or such part thereof, and charge the entire expense of such protection or completion of the work, or part thereof, to the Contractor.

All expenses charged under this article shall be deducted and paid by the Town out of any moneys then due or to become due the Contractor under the Contract, or any part thereof, as if the same had been completed by him; and in such accounting the Town shall not be held to obtain the lowest figures for the work of completing the Contract, or any part thereof, or for insuring its proper completion, but all sums actually paid therefore shall be charged to the Contractor. In case the expenses so charged shall exceed the unpaid balance of the sum which would have been payable under this Contract, if the same had been completed by the Contractor, the Contractor shall pay the amount of the excess to the Town.

5.11 DELAY OF WORK Delay of work by Town, and work by others when any particular part of the work is being carried on by the Town, by other contractors to the Town or otherwise, under the provisions of this article, the Contractor shall continue the remainder of the work in conformity with the terms of the Contract and in such manner as in no way to hinder or interfere with the persons or workmen employed, as above provided, by the Town, by other contractors or otherwise. Neither notice to the Contractor to discontinue work on any part of the Contract, nor the discontinuance thereof by the Contractor, nor the failure of the Engineer to take steps as permitted above for protection of the work or persons or the property of others shall in any way diminish the liability of the Contractor to indemnify and save harmless the Town or others named therewith, as provided hereinbefore, unless and until the Town shall have contracted with other parties to complete the work or part thereof and then only with respect to such work or parts thereof as the Town may have so contracted.

5.12 DEFECTIVE WORK The inspection of the work shall not relieve the Contractor of his contractual obligations as herein prescribed, and defective work shall be made good and unsuitable materials may be rejected not withstanding that such defects in work or materials may have been previously overlooked by the Engineer and such work or materials accepted or estimated for payment. If the work, or any part thereof, shall be found defective at any time before the final acceptance of the whole work, the Contractor forthwith shall make good such defect in a manner satisfactory to the Engineer, and if any materials brought upon the site for use in the work or selected for the same, shall be condemned by the Engineer as unsuitable or not in conformity with the Specifications, the Contractor shall forthwith remove such materials from the vicinity of the work. If the Contractor shall fail to replace any defective work after reasonable notice, the Engineer may cause such defective work to be replaced and the expense thereof shall be deducted from the amount to be paid the Contractor. In case the nature of the defects is such that it is not expedient to have them corrected, or if there have been omissions in the work, the Contractor shall pay the Town

and the Engineer shall have the right to deduct from the amount due the Contractor on the final settlement of the accounts, such sums of money as the Engineer considers a proper equivalent for the difference between the value of the materials or work specified and those furnished, or a proper equivalent for the damage.

5.13 TIME The Contractor shall commence the work within ten (10) days of the executing of the Contract, unless some other definite time for beginning work shall have been stated in the Invitation to Bid.

5.13.01 Such time of starting may be postponed by written agreement between the Town and the Contractor because of unexpected delays in receipt of materials and equipment, if the season is unsuitable for commencement of the work, or because of any other contingency clearly beyond the control or responsibility of the Contractor.

5.13.02 The Contractor further agrees that he will prosecute the work diligently and in accordance with any progress schedules which may be required in the Specifications and will complete all work within the time stipulated in the Invitation to Bid or elsewhere.

5.13.03 No work shall be done at night, before 7:00 a.m., after one hour after sundown, or on Sundays except (1) usual protective work, such as pumping and tending of lights and fires, (2) work done in case of emergency threatening injury to persons or to property.

5.13.04 The rate of progress shall be such that the whole work shall be performed in accordance with the terms of the Contract before the expiration of the time limit stipulated in the Invitation to Bid, unless and except as any part may be delayed under the provisions of the Contract.

5.13.05 It is agreed that the rate of progress herein required has intentionally been made slow enough to allow for the ordinary delays incident to construction work of this character. No extension of time will be made for ordinary delays, inclement ordinary weather and accidents, and the occurrence of such will not relieve the Contractor from the necessity of maintaining this rate of progress.

5.13.06 If delays are caused by acts of God, acts of government or state, strikes, extra work or other contingencies clearly beyond the control or responsibility of the Contractor, the Contractor shall be entitled to so much additional time wherein to perform and complete the Contract on his part as the Engineer shall certify in writing to be just.

5.13.07 The Town may delay the beginning of the work or any part thereof if the necessary lands or rights-of-way for such work shall not have been obtained. The Contractor shall have no claim for damages on account of such delay but

shall be entitled to so much additional time wherein to perform and complete the Contract on his part as the Engineer shall certify in writing to be just.

5.13.08 When extra work is ordered at any time during the progress of the work which requires, in the opinion of the Engineer, an unavoidable increase of time for the completion of the Contract, a suitable extension of the time for completion shall be made.

5.13.09 No extension of time shall be granted unless, in the opinion of the Engineer, the Contractor was delayed by reasons clearly beyond his control and has taken every reasonable step to obviate or minimize such delay.

5.14 DAMAGES TO BE PAID TOWN AND EXTENSION OF TIME The Contractor shall pay to the Town for each and every day, including Sundays and legal holidays, that he shall be in default in completing the entire work to be done under this Contract, or any essential part thereof for which there may be provided a separate time limit, the sum named on the Invitation to Bid or elsewhere in the Contract Bidding Documents, which sum is hereby agreed upon, not as a penalty, but as liquidated damages which the Town will daily suffer by reason of such default.

5.14.01 The Town shall have the right to deduct the amount of such damages from any moneys due or to become due the Contractor under the Contract. The Town, however, shall have the discretionary right to extend the time for the completion of the amount of work as aforesaid. In each such case, the Town shall be fully authorized and empowered to deduct from any estimate of the amount due the Contractor under the provisions of the Contract the amount of any damages determined as hereinbefore stipulated. The Contractor shall be in default in the completion of the work beyond the date to which the time for said completion shall have been extended by the Town. Permitting the Contractor to continue and finish the work or any part of it, after the time fixed for its completion, or after the date to which the time for completion may have been extended, shall in no way operate as a waiver on the part of the Town of any of its rights under this Contract. The Contractor shall obtain the written consent of the surety for extension of time, if any is required for the completion of the work. No claim for an extension of time for any reason shall be allowed unless, within three calendar days after such delays occurs, notice in writing of the fact of said delay, its causes and the extension claimed shall have been given by the Contractor to the Engineer.

5.15 QUANTITIES The quantities named in the Bid Form for the various items of work to be done and materials to be furnished under the Contract are given only for the purpose of comparing, on a uniform basis, the bids offered for the work under this Contract. The Town is not to be held responsible if it is found, in the performance of the work, that any or all of the said estimated quantities are not even approximately correct. The Contractor shall have no claim for anticipated profits, or for loss of profits, or for increase in prices bid because of a difference

between the quantities of the various items of work actually done or materials actually delivered and the estimated quantities stated in the Bid Form.

5.16 PRICES The Town shall pay, and the Contractor shall receive, as full compensation for everything furnished and done by the Contractor under the Contract, including all work required but not including the items hereinafter mentioned. The bid price shall include all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen obstruction of difficulty encountered in the prosecution of the work, and all risk of every description connected with the work, and all expenses incurred by or in consequence of the suspension or discontinuance of the work as herein specified, and assuming all duties and liabilities required herein, and well and faithfully completing the work, and the whole thereof, as provided in the Contract. The sum or sums named in the Bid for this work, referred to hereinbefore and made a part hereof, are subject to such retainages, deductions or other provisions affecting payment as may be provided for herein, and in accordance with, and limited by any interpretative clauses or specific lists of inclusions or exclusions which may appear in the Bidding Documents or shown on the Project Drawings.

5.17 ALTERATIONS AND ADDITIONAL WORK It is distinctly agreed and understood that any changes made in the Bidding Document for this work, whether such changes increase or decrease the amount thereof, or any change in the manner, time or amount of payments made by the Town to the Contractor, shall in no way annul, release or in any way affect the liability and surety on surety bonds given by the Contractor.

5.17.01 The Engineer may, without notice or surety, order any additional work not otherwise provided for herein or may order any work eliminated, in a manner not inconsistent with the general features of the work, or may make alterations in the line, grade, plan, form, position, dimensions or materials of the work, or any part thereof, either before or after the commencement of construction. Any such modification to the contract shall be evidenced by the execution of a change order form signed by the Engineer and Contractor. In addition, where the change affects the contract price it shall be approved by the Division of Purchasing Services Manager. If such alterations diminish the quantity of work to be done, the contract amount shall be adjusted in accordance with the quantity of work stipulated and the unit price bid. Such decrease in the amount of work shall not warrant any claim for damages or for anticipated profits on the work that may be dispensed with. If they increase the amount of work, such increase shall be paid for according to the quantity actually done and at the unit price stipulated for such work under this Contract or where there is no unit price at a price that is mutually agreeable to the Town and the Contractor.

5.18 ADDITIONAL PAYMENTS If, in the opinion of the Engineer, such alterations result in increased or decreased cost to the Contractor, a fair and equitable sum

therefore, to be agreed upon in writing by the Contractor, the Engineer and Division of Purchasing Services Manager before such alteration is made, shall be added to or deducted from the contract price as the case may be. One of the following methods shall be used to adjust the contract price:

At the unit prices stated in the Bid or in absence the change shall be computed as follow:

.0.1 A mutually acceptable lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation; or

.0.2 Unit prices stated in the Contract Documents or subsequently agreed upon; or

.0.3 Cost, to be determined as follows:

.01 The cost of labor performed and material used by the Contractor with his own forces.

.02 The cost of Workmen's Compensation, Federal Social Security, and Connecticut Unemployment Compensation in established rates, actual additional cost of payment and performance bonds.

.03 Actual cost of rental rates for equipment employed and used directly on the work.

.04 Fifteen percent (15%) of the total cost of the three items enumerated in Sections 5.l8.03.0l-.03 above, for overhead, superintendence and profit, however, if the work to be performed results in a credit to the Owner, no percentage of overhead and profit will apply.

.05 On work to be performed by a sub-contractor, the Contractor's allowance is to be ten percent (l0%) applied to total cost of sub-contractor's work, including his allowance as per paragraph 5.l8.03.07.

.06 On any changes involving the Contractor, sub-contractor or any contractor of theirs, their total cost and/or omissions shall be combined as one before the application of the percentage allowed for the Contractor's overhead profit in accordance with paragraph 5.l8.03.04.05.

.07 On work to be performed by a sub-contractor, the sub-contractor's allowance is to be fifteen (15%) for his overhead and profit applied to paragraphs 5.l8.03.0l.03 above, as with the principal contractor.

.08 The Contractor, when performing work under paragraphs 5.18.03 shall, when requested, 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.

.0.4 If the Contractor claims compensation for additional work, for any alleged damage sustained as a result of the Engineer's order to proceed with such work, or if the Contractor and Engineer disagree as to any term otherwise necessary to prepare a change order, the Engineer shall prepare a work change directive to permit the project to continue. The Contractor shall, within ten (l0) working days after receipt of a work directive change, make a written statement to the Engineer justifying the claim. A response to the Contractor shall be provided by the Engineer within 30 days thereafter. On or before the fifteenth (15th) day of the month succeeding that in which any such additional work shall have been done, or any such damage shall have been sustained, the Contractor shall file with the Engineer an itemized statement of the details and amount of such work or damage. Unless the Contractor complies strictly with the items of this provision, his claim for compensation shall be forfeited and invalid, and he shall not be entitled to payment on account of any such work or damage. In the event that a change in price is agreed upon, the change shall be calculated using one of the methods set forth in Paragraphs 5.l8.0l.03.

.0.5 Upon receipt of a work change directive, the Contractor shall promptly proceed with the change in the work involved and advise the method, if any, provided in the work change directive for determining the proposed adjustment in the Contract price or Contract time.

.0.6 A work change directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in the Contract price or the Contract time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a change order.

.0.7 If the Contractor disagrees with the method for adjustment of the Contract price used by the Engineer, the method provided in Paragraph 2.18.3 shall be used.

.0.8 Pending final determination of cost, amounts not in dispute may be included in applications for payment. The amount of credit to be allowed by the Contractor to the Town for a deletion or change which results in a net decrease in the Contract price shall be actual net cost as confirmed by the Engineer. When both additions and credits covering related work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

.0.9 If the Town and Contractor do not agree with the adjustment in contract time or the method for determining it, the Engineer's determination of the adjustment shall be final.

.10 When the Town and the Contractor agree concerning adjustments in contract price or contract time, or otherwise reach agreement upon adjustments to the contract, such agreement shall be effective immediately and shall be recorded by preparation of an appropriate change order.

.11 The Engineer has the authority to order minor changes in the work not involving adjustments to the contract price or contract time. Such changes shall be effected by written change order and shall be binding on the Town and the Contractor. The Contractor shall carry out such written orders promptly.

5.19 PARTIAL ESTIMATES AND PAYMENTS The Contractor shall, once in each calendar month, make an estimate in writing of the total amount of work done and the materials delivered and accepted to the time of such estimate, and the value thereof. The Town shall retain five (5%) percent of such estimated value as part security for the fulfillment of this Contract and shall pay monthly to the Contractor while carrying on the work, except as provided below, the balance not retained as aforesaid, after deducting from all previous payments and all sums to be deducted, kept or retained under the provisions of this Contract. It is agreed that such periodic estimates with respect to quantities are approximate only and are subject to adjustment on the final estimate. No such estimate or payment shall be required to be made when, in the judgment of the Engineer, the total value of work done since the preceding estimate amounts to less than five (5%) percent of the total bid price. Payment may at any time be withheld if the work is not proceeding in accordance with the Contract. The Town may, if it deems it expedient to do so, cause estimates and payments to be made more frequently than once in each month, but in no circumstance shall the Town be required to do so.

5.19.01 The Town may, if it deems it desirable and expedient to do so, retain temporarily or for the duration of this Contract a smaller amount than as aforesaid. In case such payments are made, the Town may, at any time cause further payments to be withheld until the full five (5%) percent reserve is re-established. No portion of the retained percentage will be released until there has been filed with the Town, a certificate signed by a responsible and authorized officer of the surety company, which has furnished the surety bonds, that said company approves of such release and that such payment will in no way annul, release or in any affect the liability and surety on the bond given by the Contractor. The Town may pay the Contractor from time to time during any maintenance period, which may be specified, such portion of any reserve therefore, which it deems prudent or desirable to pay.

5.19.02 If the Contractor does not concur with and consent to the estimates of quantities, the classifications, the sums due or any other elements of the estimates prepared by the Engineer or does not agree with the interpretations of the meaning or requirements of the Contract with accompanying plans and documents as made evident to him either in estimates by the Engineer of the value of work or otherwise, then the Contractor shall at once, notify the Engineer in writing in accordance with Paragraph 5.06.03 of this section of any such disagreement or of any alleged error or omission and of any claim resulting from and of the amount and details thereof. Prompt delivery of such written notice or notices to the Engineer as provided herein shall be a condition precedent to the right of the Contractor, or any party claiming for or under him, to any additional compensation over and above that estimated by the Engineer as due the Contractor and set forth in the Engineer's periodic estimates for payment. Unless and except as notice was given to the Engineer as aforesaid, the Contractor shall have no cause of action against the Town for such claim.

5.19.03 It is further agreed that the contract pursuant to these Bidding Documents is an entire contract for one whole and complete project and that no partial payments on account by the Town nor the presence of the Engineer or inspectors or their superintendence or inspections of work or material shall constitute an acceptance of any part of the work before its entire completion and final acceptance. However, nothing in the Contract shall be construed to vest in the Contractor any right or property interest in materials used. After they shall have been attached or affixed to the work or the soil or estimated for payment, but all such materials shall, upon being so attached, affixed or estimated for payment, become the property of the Town.

5.20 FINAL ESTIMATE The Engineer shall, as soon as practicable after the completion of all work under the Contract, except for any maintenance period and any permanent repairs and replacement of paving cuts which may be specified to be done at a later date, make a final estimate of the amount of work done under the Contract and the value of such work. The Town shall retain 5% of the sum or sums specified as the estimated value thereof as part security for the fulfillment by the Contractor of any maintenance and other similar provisions of the Bidding Documents together with any other sum or sums to be retained as provided elsewhere herein.

5.20.01 The Contractor shall warranty the whole of the work in good repair for a period of not less than fifteen (15) months from the date of completion of the entire work. The Contractor shall repair promptly all failure in the construction and operation of such work and appurtenances which may occur before the expiration of such period and all defects, settlements and irregularities of the work and appurtenances, sewers and drains, pipes, mains or conduits, curbs, gutters, sidewalks, street surfacing, land turfing or of any structures, occurring

before the expiration of such period and caused or affected by work under the Contract. Within thirty (30) days after the expiration of the period for any maintenance work which may be specified, the Town shall pay any retainage made for such work, provided that the whole of the work executed by the Contractor is at that time in conformity with the requirements of this Contract; if not, then as soon thereafter as the work shall be made to conform thereto, and also provided all claims for which the Town may become liable, and the Contractor liable to reimburse the Town therefore, have been paid or adequate security therefore has been furnished to the Town. The work hereunder shall not be considered as completed and finally accepted unless and until evidenced by final certificate of the Engineer and release of retainage.

5.20.02 No persons or corporations other than the Contractor shall have any interest hereunder and no claim shall be made or be valid and neither the Town nor any member or agent thereof shall be liable for, or be held to the last payment made as aforesaid or as provided elsewhere herein shall operate as and shall be a release to the Town, and every agent thereof, from all claim and liability to the Contractor for anything done or furnished for or relating to the work or for any act of neglect of the Town or of any person relating to or affecting the work, except the claim against the Town for the remainder, should there be amounts kept or retained as provided elsewhere herein.

5.21 WITHHOLDING PAYMENT The Town may, at its discretion, withhold any monies which would otherwise be payable at any time hereunder and apply the same, or so much as may be necessary therefor, to the payment of any expenses, losses or damages incurred by the Town and determined as herein provided and may retain related to the Contract or with thereunder so much of such moneys as the Town shall be required to settle all claims against the Town and its officers and agents arising due to the Contract and included in the duties and liabilities assumed hereunder by the Contractor; and all claims for labor on the work; and also all claims for materials used in the work.

The Town may make such settlements and apply thereto any moneys retained under the Contract. If the monies withheld under this Contract are insufficient to pay the sums found by the Town to be due under the claims for labor and materials, the Town may, at its discretion, pay the same and the Contractor or his surety shall repay to the Town all sums so paid out.

5.22 WAIVER Neither the inspection by the Town, nor of the Engineer, nor their employees, nor any order, measurement or certificate by the Engineer, nor any order by the Town for the payment of money, nor any payment for nonacceptance of the whole or possession taken by the Town or its employees, shall operate as a waiver of any provision of the Contract, or of any power herein reserved to the Town, or any right to damages herein provided, nor shall any waiver of any breach of the Contract be held to be a waiver of any other or

subsequent breach. Any remedy provided in the Contract shall be taken and construed as cumulative; that is, in addition to each and every other remedy herein provided.

5.22.01 In the event of any unavoidable cause beyond the control of the parties, whether natural or man-made, which renders the performance of this contract impossible, the contract shall be terminated. Such occurrences shall include, without limitation, death of the Contractor (in the event that the Contractor is a sole proprietor); destruction of all, or a major portion of the Contractor's equipment; legal order by a court of competent jurisdiction, or referendum barring performance of the contract; war, famine, flood, plague, pestilence or act of God. Any amounts due to either prior to the occurrence which renders performance impossible shall be paid, but no further sums shall be due from either party to the other, by way of damages for the termination of the contract.

5.23 CONNECTICUT OCCUPATIONAL SAFETY AND HEALTH ACT The Contractor shall keep himself fully informed and currently up to date regarding all laws, rules, standards and regulations in any manner affecting the safety of any employees relative to the Contract under the Connecticut Occupational Safety and Health Act (Public Act 73-379 as may be amended).

5.23.01 The Engineer or his authorized representatives may order any violations of the standards promulgated by the Connecticut Occupational Safety and Health Act corrected immediately as they pertain to the safety and health of Town employees in the performance of their duties relative to the Contract. Failure of the Contractor to correct the violation(s) shall be cause to order all work under the Contract to be suspended. Such an order shall not be cause for a claim by the Contractor for lost time and or other damage or for extension of time of completion of the Contract. Furthermore, failure of the Contractor to correct the violations(s) after a reasonable time shall be grounds for the Town to terminate the Contract and in this event the Contractor shall be liable for all damages which arise as a result of said termination.

5.23.02 Nothing in this section shall be construed to relieve the Contractor of his responsibilities as an employer under the act. Any fines or penalties imposed on the Town resulting from violations of the standards promulgated by the act shall be paid by the Contractor and may be deducted from moneys due the Contractor under the Contract.

The failure of the Engineer to order a violation of the standards to be corrected shall not constitute a waiver of such violation and the Contractor may be ordered to correct violations subsequently at any time.

5.23.03 The Contractor shall comply with Section 12-43 of the Connecticut General Statutes as may be amended.

Sec. 12-43. Property of nonresidents. All owners of real estate, or of tangible personal property located in any town for three months or more during the assessment year immediately preceding any assessment day, who are nonresidents of such town, shall file lists of such real estate and personal property with the assessors of the town in which the same is located on such assessment day, if located in such town for three months or more in such year, otherwise, in the town in which such property is located for the three months or more in such year nearest to such assessment day, under the same provisions as apply to residents, and such personal property shall not be liable to taxation in any other town in this state. The list of each assessors shall mail to each nonresident, or to his attorney or agent having custody of his taxable property, at least fifteen days before the expiration of the time for filing lists, blank forms for filing lists of such property. The lists of taxable property of nonresidents shall be arranged in alphabetical order and separate from the lists of residents, provided no such separation shall be necessary in any town the board of assessors of which, upon the request of its property tax collector, has made rules and regulations approved by the secretary of the office of policy and management setting up an alternative method of arrangement.

5.24 PROVISIONS REQUIRED BY LAW DEEMED INSERTED Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though they were included herein. If through mistake or otherwise, any such provision is not inserted or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically amended to make such insertion.

5.25 TERMINATION OR SUSPENSION OF THE CONTRACT The Contractor may terminate the Contract if the Work is stopped for a period of 60 days through no act or fault of the Contractor or a Subcontractor, Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor, for any of the following reasons:

5.25.01 Issuance of an order of a court or other public authority having jurisdiction which directs the Contractor to stop the Work, or terminate the Contract;

5.25.02 An act of government, such as a declaration of national emergency, which renders performance impossible by making material or properly skilled workers unavailable;

5.25.03 Failure of the Engineer to issue a Certificate for Payment in a timely fashion when the Contractor has not been notified of the reason for withholding certification;

5.25.04 Failure of the Town to make payment within the time stated in the contract Documents; or

5.25.05 Repeated suspensions, delays or interruptions by the Town occur constituting, in the aggregate, more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365 day period, whichever is less.

5.25.06 If one of the above reasons exists, the Contractor may, upon seven days written notice to the Town, terminate the Contract and recover from the Town payment for work executed.

5.25.07 If the work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the work under contract with the Contractor because the Town has persistently failed to fulfill its obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven days written notice to the Town, terminate the contract and recover from the Town as provided in subparagraph 1B above.

5.25.08 The Town may terminate the Contract for any of the following causes:

5.25.09 If the Contractor shall institute or consent to proceedings requesting relief or arrangement under the Federal Bankruptcy Act or any similar or applicable federal or state law, or if a petition under any federal or state bankruptcy or insolvency law is filed against the Contractor and such petition is not dismissed within sixty (60) days from the date of said filing, or if the Contractor admits in writing his inability to pay his debts generally as they become due, or if he makes a general assignment for the benefit of his creditors, or if a receiver, liquidator, trustee or assignee is appointed on account of his bankruptcy or insolvency; or

5.25.10 If a receiver of all or any substantial portion of the Contractor's properties is appointed; or

5.25.11 If the Contractor abandons the Work by failing to report to the site of the Work without prior approval of the Engineer for a period of 3 consecutive work days at any time after the scheduled commencement date for the Work and before the Work is completed; or

5.25.12 If the Contractor fails to prosecute the Work promptly and diligently, except in cases for which extension of time is provided; or

5.25.13 If the Contractor fails or refuses to supply enough properly skilled workers or proper materials for the Work; or

5.25.14 If the Contractor submits an Application for Payment, sworn statement, waiver of lien, affidavit or document or any nature whatsoever which is intentionally falsified; or

5.25.15 If the Contractor fails to make prompt payment to subcontractors or for materials or labor or otherwise breaches his obligations under any Subcontract with a Subcontractor; or

5.25.16 If a mechanic's or materialman's lien or notice of lien is filed against any part of the Work or the site of the Project and is not promptly bonded or insured over by the Contractor in a manner satisfactory to the Owner; or

5.25.17 If the Contractor disregards any law, statute, ordinance, rule, regulation or order of any governmental body or public or quasi-public authority having jurisdiction of the Work or the site of the Project; or

5.25.18 If the Contractor otherwise substantively violates any provision of the Contract Documents.

5.25.19 When any of the above reasons exist, the Town, upon certification by the Engineer that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies which it may have, and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate the Contract and may, subject to any prior rights of the surety;

5.25.20 take possession of the site and all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor and may request that the Contractor remove any part or all of his equipment, machinery, and supplies from the site of the Project within seven (7) days from the date of such request, and in the event of Contractor's failure to do so, may remove or store such equipment, machinery and supplies at the Contractor's expense.

5.25.21 accept assignment of subcontracts; and

5.25.22 finish the Work by whatever reasonable method the Town may deem expedient, including, without limitation, the use of Town employees and equipment.

5.25.23 When the Town terminates the Contract for one of the reasons stated in subsection 2, the Contractor shall not be entitled to receive further payment until the Work is finished

5.25.24 If the unpaid balance of the Contract Sum exceeds all costs to the Town of completing the Work, then the Contractor shall be paid for all Work performed

by the Contractor to the date of termination. If the costs to the Town of completing the Work exceed such unpaid balance, the Contractor shall pay the difference to the Town immediately upon the Town's demand. The costs to the Town of completing the Work shall include (but not be limited to) the cost of any additional architectural, managerial and administrative services required thereby; any costs incurred in retaining another contractor or other subcontractors; the cost using Town employees to complete the work, including the costs of any workers' compensation claims which may result from the completion of the work; any additional interest or fees which the Owner must pay by reason of delay in completion of the Work; attorney's fees and expenses which the Town may incur by reason of completing the Work or any delay thereof. The amount, if any, to be paid to the Contractor shall be certified by the Engineer, upon application, and this obligation shall survive the termination of the Contract.

6.00 GENERAL SPECIFICATIONS

6.01 Handling and Distribution
6.02 Materials - Samples - Inspection - Approval
6.03 Shop and Working Drawings
6.04 Occupying Private Land
6.05 Interference With and Protection of Streets
6.06 Storage of Materials and Equipment
6.07 Insufficiency of Safety Precautions
6.08 Traffic Control
6.09 Sanitary Regulations
6.10 Lines, Grades and Measurements
6.11 Work to Conform
6.12 Computation of Quantities
6.13 Planning and Progress Schedules
6.14 Precautions Against Adverse Weather
6.15 Definitions
6.16 Abbreviations

6.01 HANDLING AND DISTRIBUTION The Contractor shall, at his own expense handle, haul and distribute all materials and all surplus materials on the different portions of the work, as necessary. He shall provide suitable and adequate storage area for materials during the progress of the work and be responsible for loss of, or damage to, materials furnished or accepted by him, until the final acceptance of the work.

Storage charges and demurrage charges by transportation companies and vendors which result from delays in handling shall be borne by the Contractor.

6.02 MATERIALS -SAMPLES -INSPECTION -APPROVAL Unless otherwise indicated on the drawings or specified, only new materials shall be incorporated in the work. All materials furnished by the Contractor to be incorporated in the work shall be subject to the inspection and approval of the Engineer and the or their duly appointed representative.

6.02.01 As soon as possible after the formal execution of the Contract, the Contractor shall submit to the Engineer and the Engineer's duly appointed representative, the names and addresses of the manufacturers and suppliers of all materials he proposes to incorporate into the work. When shop and working drawings are required as specified below, such information shall be submitted prior to the submittal of the drawings so that the Engineer and the Engineer's duly appointed representative may consider and approve or disapprove the manufacturer and/or the supplier as to their ability to furnish a product meeting the specifications, subject to final approval of the particular material. As requested, the Contractor shall also submit data relating to the materials he proposed to incorporate into the work, in sufficient detail to enable the Engineer the Engineer's duly appointed representative to identify the particular product in question and to form an opinion as to its conformity to the Contract requirements. Such data shall be submitted in the manner similar to that specified for shop and working drawings.

6.02.02 Facilities and labor for the handling and inspection of all materials shall be furnished by the Contractor. Defective materials shall be removed immediately from the site of the work.

6.02.03 If the Engineer or the Engineer's duly appointed representative so requires, either prior to beginning or during the progress of the work the Contractor shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed and shipped as directed at the expense of the Contractor. The Contractor shall, at his expense, furnish approved molds for making test cylinders. All samples shall be packed so as to reach their destination in good condition and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor

shall notify the Engineer the Engineer's duly appointed representative by letter that the samples have been shipped and shall properly describe the samples. The Contractor shall submit data and samples or place his orders sufficiently early to permit consideration, inspection, testing and approval before the materials are needed for incorporation into the work. Delay resulting from his failure to do so shall not be used as the basis of a claim against the Town, the Engineer, or their duly appointed representative.

6.02.04 When required, the Contractor shall furnish to the Engineer Engineer's or their duly appointed representative, triplicate, sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials and concrete data. After approval of the samples, data, etc., the materials used on the work shall correspond therewith.

6.03 SHOP AND WORKING DRAWINGS The Contractor shall submit for approval, shop and/or working drawings of concrete reinforcement, structural details, piping layout, materials fabricated especially for this project and material specifications for which drawings are specifically requested. The shop drawings for items of work that require design by a professional engineer or architect, as defined by the General Statutes of the State of Connecticut shall bear the seal and signature of said professional engineer or architect licensed and registered in the State of Connecticut and qualified to design such items.

6.03.01 Such drawings shall show the principal dimensions and construction details. When it is customary to do so, or when the dimensions are of particular importance, the drawings shall be certified by the manufacturer as correct for this project.

6.03.02 No material shall be purchased or fabricated until the Engineer or the Engineer's duly appointed representative has certified that the shop or working drawings conform to the contract requirements. All materials and work involved in the construction shall then be as represented by said drawings.

6.03.03 No work shall be done upon any part of a structure, the design or construction of which is dependent upon the features for which approval is required, until such approval has been given.

6.03.04 All shop or working drawings shall be submitted in triplicate to the Engineer or the Engineer's duly appointed representative through the Contractor. Only drawings which have been checked and corrected by the material fabricator should be submitted. The Contractor shall be responsible for the prompt submission of all shop or working drawings so that there shall be no delay to the work due to the absence of such drawings. Additional prints of approved drawings shall be furnished as required.

6.03.05 Two copies of approved shop drawings shall be returned to the Contractor.

6.03.06 The approval of shop and working drawings, etc. will be general and shall not relieve the Contractor from the responsibility for details of design, dimensions, etc., necessary for proper fitting and construction of the work required by the Contract.

6.04 OCCUPYING PRIVATE LAND The Contractor shall not (except after written consent from the proper parties) enter or occupy with men, tools, materials any land outside the rights-of-way or property of the Town.

6.05 INTERFERENCE WITH AND PROTECTION OF STREETS The Contractor shall not close or obstruct any portion of a street, road or private way without obtaining permits therefor from the Director of Community Services. If any street or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the Town or owners of the private way.

Streets, roads, private ways and walks not closed shall be maintained passable by the Contractor at his expense and the Contractor shall assume full responsibility for the adequacy and safety of provisions made.

The Contractor shall, 24 hours in advance, notify the Police and Fire Departments in writing with a copy to the Engineer, if the closing of a street is necessary. He shall cooperate with the Police Department in the establishment of alternate routes and, at his own expense, shall provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

6.06 STORAGE OF MATERIALS AND EQUIPMENT All excavated materials, construction equipment and materials to be incorporated in the work shall be placed so as not to injure the work and so that free access can be had at all times to all parts of the work and to all public utility installations in the vicinity of the work. Excavated materials and any other materials shall be kept neatly piled and compactly stored in such location as will cause a minimum of inconvenience to public travel and adjoining tenants. There shall be no stockpiling of materials within the street lines during non working hours. There shall not be stockpiling or placement of excavated or other materials on private or personal property without prior written permission of the owner thereof.

6.07 INSUFFICIENCY OF SAFETY PRECAUTIONS If at any time, in the opinion of the Engineer, or his duly authorized representative, the work is not properly lighted, barricaded and in all respects safe in regard to public travel, persons on or about the work or public or private property, the Engineer or his duly authorized representative shall have the right to order such safeguards to be

erected and such precautions to be taken as he deems advisable and the Contractor does not or cannot immediately put the work and the safeguards into proper and approved condition or if the Contractor or his representative is not upon the ground so that he can be notified immediately of the insufficiency of safety precautions, the Engineer or his duly authorized representative may put the work into such a condition that it shall be, in his opinion, in all respects safe. The Contractor shall pay all expenses of such labor and materials as may have been used for this purpose by him or by the Engineer. Such action of the Engineer or his duly authorized representative, or his failure to take such action, shall in no way relieve the Contractor of the entire responsibility for any cost, loss or damage sustained on account of the insufficiency of the safety precautions taken by him or his duly authorized representative acting under authority of this section.

6.08 TRAFFIC CONTROL All conditions of current policies and procedures as promulgated by the Traffic Authority, through the Engineering Division, shall be a part of these bidding documents and the Contractor shall conform to these standards. Those policies and procedures are incorporated herein by reference as Exhibit C.

6.08.01 The Contractor shall be paid by the Town for the expense of Traffic Control Personnel. The Contractor shall specifically include traffic control personnel in the classification of workmen eligible for Workmen's Compensation.

6.09 SANITARY REGULATIONS The Contractor shall provide adequate sanitary conveniences for the use of those employed on the work. Such conveniences shall be made available when the first employees arrive on the work, shall be properly secluded from public observation and shall be constructed and maintained in suitable numbers and at such points and in such manner as may be required or approved.

6.09.01 The Engineer shall have the right to inspect any building or other facility erected, maintained or used by the Contractor to determine whether or not the sanitary regulations have been complied with.

6.10 LINES, GRADES AND MEASUREMENTS The controlling lines and grades shall be given to the Contractor who shall provide, at his own expense, such specialized equipment, forms, materials and labor as may be required. Additional specialized equipment, lines, grades and forms shall be furnished and set by the Contractor as directed. If the Contractor, through willfulness or carelessness, removes or permits to be removed any reference marks establishing said controlling lines and grades before the prosecution of the work requires such removal, the replacement of such reference marks shall be at the Contractor`s expense.

6.10.01 The Contractor shall make all measurements and check all dimensions necessary for the proper construction of the work called for by the drawings and specifications. During the prosecution of the work he shall make all

necessary measurements to prevent misfitting in said work and he shall be responsible therefore and for the accurate construction of the entire work.

6.11 WORK TO CONFORM During its progress and on its completion, all work shall conform truly to the lines, levels and grades indicated on the drawings or given by the Engineer and shall be built in a thoroughly substantial and workmanlike manner in accordance with the Contract Bidding Documents, and the directions given from time to time by the Engineer. In no case shall any work in excess of the requirements of the drawings and specifications be paid for unless ordered in writing by the Engineer.

6.12 COMPUTATIONS OF QUANTITIES For estimating quantities in which the computation of area by geometric methods would be comparatively laborious, it is stipulated and agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such areas.

6.12.01 It is further stipulated and agreed that the computation of the volume of prismoids shall be by the method of average end areas.

6.13 PLANNING AND PROGRESS SCHEDULES Before starting the work, and from time to time during its progress, as the Engineer may request, the Contractor shall submit to the Engineer, a written description of the methods he plans to use in doing the work and the various steps he intends to take. The Contractor and Town will agree to such progress schedules in writing which shall be incorporated as a provision of the contract. Failure to adhere to such progress schedules shall be subject to sanctions in accordance with Section 2.01.08 of the Invitation To Bid and Section 5.13 of the General Conditions.

6.13.01 If requested by the Engineer, within 15 days after the date of starting work, the Contractor shall prepare and submit to the Engineer (a) a written schedule fixing the dates at which additional drawings, if any, will be required and (b) a written schedule fixing the respective dates for the start and completion of various parts of the work. Each such schedule shall be subject to review and change from time to time during the progress of the work.

6.14 PRECAUTIONS AGAINST ADVERSE WEATHER During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the work may be properly and satisfactorily done in all respects. When required, protection shall be provided by the use of tarpaulins, wood and building-paper shelters or other approved means.

6.14.01 During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging or drying will result. Protected spaces shall be artificially heated by approved means which will result in a moist or a dry

atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated in accordance with applicable ASTM, ASA and/or AC specifications so that the mixture will be warm throughout when used.

6.14.02 The Engineer may suspend construction operations at any time when, in his judgement, the conditions are unsuitable or the proper precautions are not being taken, whatever the weather may be in any season.

6.15 DEFINITIONS Whenever the words defined in this section or pronouns used in their stead occur in the specifications, they shall have the meanings herein given:

6.15.01 AS DIRECTED, AS REQUIRED, ETC. Wherever in the specifications or on the Drawings, the words, "if requested", "as directed", "as required", "as permitted", or words of like importance, it shall be understood that the direction, requirement or permission of the Engineer is intended. Similarly, the words "approved", "acceptable", "satisfactory" and words of like import shall mean approved by, acceptable to or satisfactory to the Engineer.

6.15.02 ELEVATION The figures given in the contract bidding documents after the word "elevation" or abbreviation of it shall mean the distance in feet above the datum adopted by the Engineer.

6.15.03 ROCK The word "rock" wherever used as the name of an excavated material or material to be excavated, shall mean boulders and pieces of concrete or masonry exceeding 1/2 cubic yards in volume; or solid ledge rock, which, in the opinion of the Engineer, requires for its removal any of the following: drilling and blasting, wedging, sledging, barring or breaking up with a power-operated tool. No soft or disintegrated rock which can be removed with a hand pick or power-operated excavator or shovel, no loose, shaken or previously blasted rock or broken stone in rock fillings or elsewhere; and no rock exterior to the maximum limits of measurements allowed, which may fall into the excavation, will be measured or allowed.

6.15.04 EARTH The word "earth" wherever used as the name of an excavated material or material to be excavated, shall mean all kinds of material except rock as above defined.

6.16 ABBREVIATIONS In referring to Standard Specifications, abbreviations are used as follows:

MDC	Metropolitan District Commission
ASTM	American Society of Testing Materials
ConnDOT	Connecticut Department of Transportation
AWWA	American Water Works Association

ASA	American Standards Association Federal GSA
Specifications	Federal Specifications issued by the Federal Supply Service of the General Services Administration, Washington, D.C.
ACI	American Concrete Institute
AASHTO	American Association of State Highway Officials

7.00 TECHNICAL SPECIFICATIONS

Copies of the "Town of West Hartford Infrastructure Rules and Specifications 1995" are available at a cost of $10 in the Division of Engineering and are hereby made part of these specifications. In addition Divisions II and II only of the "State of Connecticut Department of Transportation standard Specifications for Roads, Bridges and Incidental Construction Form 816" are hereby made a part of these specifications.

8.00 EXHIBITS

8.01 Exhibit A - Insurance
8.02 Exhibit B - Traffic Control

EXHIBIT A - INSURANCE

8.01.1 The Contractor shall procure insurance coverage against claims that may arise from, or in connection with the performance of the Contractor, his agents, representatives, employees, or subcontractors pursuant to this contract. The insurance coverage shall remain in full force for the duration of the contract term including any and all extensions. The Contractor shall pay the cost of such insurance.

8.01.2 For the purpose of Article 8.01: the term "Contractor" shall also include their respective agents, representatives, employees or subcontractors; and the term "Town of West Hartford and West Hartford Board of Education" (hereinafter called the "Owner") shall include their respective boards, commissions, officials, officers, agents, consultants, volunteers and employees.

8.01.3 The insurance required by Section 8.01 shall be written for not less than the scope and limits of insurance specified by Subparagraph 8.01.4, or required by applicable federal, state and/or municipal law, regulation or requirement, whichever coverage is greater. It is agreed that the scope and limits of insurance coverage specified by Subparagraph 8.01.4 are minimum requirements and shall in no way limit or exclude the Owner from additional limits and coverage provided under the Contractor's policies. Coverage, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment.

8.01.4 Minimum Scope and Limits of Insurance:

.1 **Comprehensive General Liability:**
$1,000,000 combined single limit per occurrence for bodily injury, personal injury, property damage, contractual liability and products /completed operations. Contractor shall continue to provide products/completed operations coverage (including blasting operations, if applicable) for two (2) years after completion of the work.

.2 **Automobile Liability and Physical Damage Coverage:**
$1,000,000 combined single limit per occurrence for any auto, including statutory uninsured/underinsured motorists coverage and $1,000 medical payments. Policy shall be endorsed to include collision and comprehensive coverage for any auto used for the purpose of this contract.

.3 **Umbrella Liability:**
$1,000,000 per occurrence, $2,000,000 aggregate, following form.

.4 **Workers' Compensation:**
Coverage A / Workers' Compensation: statutory limits as required by the Labor Code of the State of Connecticut. Coverage B / Employer's Liability: limits of $100,000 each accident, $500,000 disease/policy limit, $100,000

disease/each employee. If the Contractor decides not to procure workers' compensation in accordance with Connecticut law, the Contractor agrees to comply with the Connecticut Workers' Compensation Act's (Act) requirements for withdrawing from the provisions of the Act, including, but not limited to, filing the appropriate notice of withdrawal with the commissioner. In lieu of procuring workers' compensation insurance and providing the Owner with proof thereof, the Contractor agrees to hold the Owner harmless from any and all suits, claims, and actions arising from personal injuries sustained by the Contractor or Contractor's employees during the course of the performance of this contract, however caused.

.5 **Personal Property:**
"All risk" property insurance on a replacement cost basis to cover the value of portions of the Work stored on and off the site, or in transit. The insurance shall cover personal property belonging to the Contractor and others (including but not limited to the personal property of subcontractors) located on Owner's property or work-site, while in use or in storage for the duration of the contract. In lieu of providing this coverage the Contractor agrees to hold the Owner harmless for any loss or damage to personal property however caused.

8.01.5 Additional Insured Endorsement:

All liability policies (with the exception of Worker's Compensation) shall include the Town of West Hartford, the West Hartford Board of Education, and their respective officers, agents, officials, employees, volunteers, boards and commissions as an Additional Insured with respect to liability arising out of or in connection with the activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, leased, or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the Owner.

8.01.6 Acceptability of Insurers:

Contractor's policies shall be written by insurance companies licensed to do business in the State of Connecticut, with a Best's rating of no less than A:VII, or otherwise deemed acceptable by the Town's Risk Manager.

8.01.7 Subcontractors:

Contractor's policies shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

8.01.8 Waiver of Subrogation:

Contractor shall provide that all insurance policies include a waiver of subrogation clause that states that it is agreed that in no event shall the insurance company have any right of recovery against the Owner. When the Contractor is self-insured, it is agreed that in no event shall the Contractor have any right of recovery against the Owner.

8.01.9 Claims-Made Form:

If the insurance coverage is underwritten on a claims-made basis, the retroactive date shall be prior to or coincident with the date of the contract. The certificate of insurance shall state the retroactive date and that the coverage is claims-made. The Contractor shall maintain coverage for the duration of the contract and for the two (2) years following the completion of the contract. Evidence of such coverage shall be provided to the Owner thirty (30) days prior to each policy expiration.

8.01.10 Aggregate Limits::

If a general aggregate is used, the general aggregate limit shall apply separately to the project or shall be twice the occurrence limit. All aggregate limits must be declared to the Owner. If the aggregate limit is eroded, the Contractor agrees to reinstate or purchase additional limits to meet the minimum limit requirements stated herein. The Contractor shall pay the premium.

8.01.11 Deductibles and Self-Insured Retentions:

Contractor must declare any deductibles or self-insured retentions to the Owner. All deductibles or self-insured retentions are the sole responsibility of the Contractor to pay and/or to indemnify.

8.01.12 Notice of Cancellation or Nonrenewal:

For other than non-payment of premium, each insurance policy required by this exhibit shall be endorsed to state that coverage shall not be suspended, voided, cancelled, or reduced in coverage or in limits except after thirty (30) days prior written notice has been given to the Owner. Ten (10) days prior written notice shall be given for non-payment of premium

8.01.13 Liability (General, Automobile, Umbrella/Excess coverage are to contain the following provisions:

.1 The Contractor's insurance coverage shall be primary insurance with respect to the Owner. Any insurance or self-insurance maintained by the Owner shall be excess of the Contractor's insurance and shall not contribute with it.

.2 Coverage shall state that the Contractor's insurance shall apply separately to each insured against whom a claim is made or suit is brought.

.3 Any failure to comply with the claim reporting provisions of the policy shall not affect coverage provided to the Owner.

8.01.14 Verification of Coverage::

The Contractor shall provide the Owner with certificates of insurance, declaration pages, policy endorsements or provisions confirming compliance with this exhibit before work commences. The certificates and endorsements for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf. Renewal of expiring certificates shall be filed thirty (30) days prior to expiration. The Owner reserves the right to require complete, certified copies of all required policies, at any time.

All insurance documents required by this exhibit should be mailed to: Town of West Hartford, Risk Management Division, 50 South Main Street, West Hartford, Connecticut 06107.

8.01.15 Failure to Purchase or Maintain Insurance:

If the Owner or the Contractor is damaged by failure of the Contractor to purchase or maintain insurance required by this exhibit, the Contractor shall bear all reasonable costs including, but not limited to, attorney's fees and costs of litigation, properly attributable thereto.

8.01.16 Subrogation::

The Owner does not agree to waive any rights of subrogation, nor any rights of action against the Contractor, in connection with or arising out of any claims or damages which may arise from the operations under the contract.

8.02 EXHIBIT B - TRAFFIC CONTROL

A POLICY REGARDING THE MAINTENANCE AND PROTECTION OF TRAFFIC AND PEDESTRIANS DURING CONSTRUCTION WITHIN STREET RIGHTS OF WAY (REVISED MARCH 2010)

I. GENERAL

A. The Town of West Hartford shall control all traffic at construction and non-construction work sites within street rights of way located in Town, **including State roads other than Interstate 84 and its ramps.** This shall include work by permit (State or local) and non-construction work (i.e. manhole, overhead line and cable work).

B. Permits shall be issued by the Division of Engineering, Department of Community Services, or District One of the State of Connecticut Department of Transportation. All permits are subject to review by the Police Department.

C. All work in the roadway or affecting pedestrian travel shall require placement and/or modification of appropriate traffic control devices as per the most current edition of the Federal Highway Administration's Manual on Uniform Traffic Control Devices or the Connecticut Department of Transportation's Standard Traffic Control Plans. **The use of Police Officers or other personnel does not eliminate this requirement.**

D. Detours, stoppages of traffic, and/or alternating traffic patterns require the approval of the Director of Community Services (through the Division of Engineering), at least one week in advance, except in the event of emergency. This is necessary to allow time for review and possible public notification.

E. Existing signs and pavement markings shall not be removed without prior approval of the Engineering Division.

II. TRAFFIC CONTROL PERSONNEL

A. West Hartford Police shall control all traffic for construction and non-construction projects on the following arterial and collector streets:

Town Streets
Asylum Avenue
Boulevard
Brace Road (Arundel Ave - North Main St.)
Avenue (I-84 ramp to Prospect Ave.)
Dale Street
Farmington Avenue
Fern Street
Flagg Road
Flatbush Avenue
Isham Road
Kane Street

LaSalle Road
Mayflower Street
Memorial Road
Mountain Road
New Park Avenue
North Main Street
North Quaker Lane
Oakwood Avenue
Park Road
Prospect Avenue (New Park Avenue thru Park Road)
Quaker Lane South
Raymond Road
Ridgewood Road
Sedgwick Road
Shield Street
South Road
South Street
South Main Street
Trout Brook Drive
Tunxis Road

State Highways
Albany Avenue Rt. 44
Bloomfield Avenue Rt. 189
Farmington Avenue Rt. 4 (West of Caya Old Mill Lane)
New Britain Avenue Rt. 71, 173, 529
Newington Road Rt. 173
North Main Rt. 218 (North of Albany Avenue)
Ridgewood Road Rt. 535 (South of I-84 Westbound ramp)
Simsbury Road Rt. 185

South Main Street Rt. 173 (New Britain Avenue to Beechwood Road)

B. Exceptions to Above

1. All non-construction projects (i.e. manhole and overhead linework, but not limited to) four (4) hours or less that does not jeopardize public safety.

2. The Town shall have the authority to require Police on streets not listed above, in the vicinity of schools, or where parking or geometric conditions (e.g. narrowed lanes or visibility restrictions) may otherwise jeopardize safety. Examples of such streets include, but are not limited to: Buena Vista Rd., Highland St., Hunter Dr., King Philip Dr., Loomis Dr., Still Rd., Webster Hill Blvd., Whiting Ln., and other local neighborhood streets adjacent to schools.

3. The contractor may petition for due cause, the elimination of Police requirement, and approval shall rest with the Engineering Division, in consultation with the Police Department.

C. Procedural and other issues

1. Where Police officers are required by Section IIA or IIB.2, officers shall be requested no later than 48 hours before mobilization. Late requests may result in delayed permission to start work, rather than elimination of the Police requirement. When there are not enough officers available to cover all requests, priority locations will be determined by the Engineering Division, in conjunction with the Police Department.

2. When Police Officers are not available for streets listed in Section IIA or IIB.2, the contractor shall designate certified personnel, not engaged in construction activity, charged with the responsibility to maintain traffic and pedestrian safety, including traffic control devices (per Section I.C. of this policy) and passage of traffic.

The following is a list of streets with restricted work hours, assuming maintenance of two-way traffic. The Town reserves the right to modify these hours or require special provisions as necessary, particularly near schools and other significant traffic generators. Streets not listed are subject to Noise Ordinance hours, which are 7:00AM until one hour after sunset. Contractor may petition for extended hours, subject to conditions, and where applicable, availability of Police Officer(s).

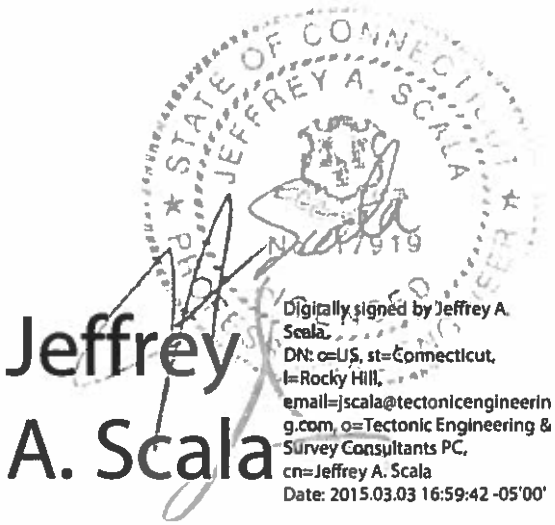
Albany Ave.	8:30AM - 4:00PM	Oakwood Ave.	8:30AM - 4:00PM
Asylum Ave. (east of North Main St.)	8:30AM - 4:00PM	Park Rd. (Raymond - T B Dr.	8:30AM-4:00PM 9:00AM-3:30PM)
Bloomfield Ave.	8:30AM - 4:00PM	Prospect Ave.	8:30AM - 4:00PM
Boulevard	8:30AM - 4:00PM	Quaker Lane So.	8:30AM - 4:00PM
Caya Ave.(east end)	8:30AM - 4:00PM	Raymond Road	8:30AM - 4:00PM
Farmington Ave.	8:30AM - 4:00PM (7:00AM in Center)	Ridgewood Rd.	8:30AM - 4:00PM
		Sedgwick Rd.	8:30AM - 4:00PM
Fern St.	8:30AM - 4:00PM		
		Simsbury Rd.	8:30AM - 4:00PM
Flatbush Ave.	8:30AM - 3:30PM		
		South St.	8:30AM - 4:00PM
Kane St.	8:30AM - 4:00PM		
		South Main St.	9:00AM - 3:30PM
King Philip Dr.	8:30AM - 4:00PM		(7:00AM in Center)
Mountain Rd.	8:30AM - 3:30PM	Steele Rd.	8:30AM - 4:00PM
New Britain Ave.	8:30AM - 3:30PM	Trout Brook Dr.	9:00AM - 3:30PM
Newington Rd.	8:30AM - 4:00PM	Tumblebrook Ln. (west of King Philip Dr.)	8:30AM - 4:00PM
New Park Ave.	8:30AM - 3:30PM		
North Main St.	9:00AM - 3:30PM		

NORTH MAIN STREET OVER WEST BRANCH TROUT BROOK (BIN 03651)

WEST HARTFORD, CT

FINAL DESIGN SPECIAL PROVISIONS

March 2, 2015



TECTONIC
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SPECIAL PROVISIONS

NORTH MAIN STREET OVER
WEST BRANCH TROUT BROOK
BRIDGE NO. 03651

MARCH 3, 2015

Prepared for:

Town of West Hartford
Mr. Duane J. Martin, PE, Town Engineer
50 South Main Street
West Hartford, CT 06107

Prepared by:

Tectonic Engineering and Surveying Consultants, P.C.
1344 Silas Deane Highway
Suite 500
Rocky Hill, CT 06067
(860) 563-2341

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DESIGN REPORT

REHABILITATION OF BRIDGE NO. 03651, NORTH MAIN STREET OVER WEST BRANCH TROUT BROOK

TOWN: West Hartford

ROUTE: North Main Street

DISTRICT NO: 1

DESCRIPTION OF PROJECT:

The existing Bridge No. 03651, carries North Main Street over West Branch Trout Brook and consists of triple concrete masonry arches. The bridge built in 1901.

Issues with the project include:

- Hydraulic Modeling and analysis comparison to the FEMA-FIS and the ACOE Flood Control Studies,
- Stage construction for the traffic and in-water work,

The following work items will be included in the rehabilitation:

- Remove the existing roadway surface and fill to expose the top of the archs
- Repair cracks and deterioration of the archs, abutments and piers
- Install 7 inch concrete roadway slabs with membrane waterproofing and new hot mix asphalt pavement structure
- Removal and replacement of each spandrel wall
- Replace existing concrete parapet with concrete piers and open rail system
- Remove and replace a section of a stone masonry wall on the north east corner of the bridge.
- Provide a reventment scour counter measures across channel bottom to protect center pier, abutments and wingwalls
- Replace the existing water main within the project limits.

FINAL MAINTENANCE RESPONSIBLILITY: To be maintained by the Town

PUBLIC UTILITIES:

- Comcast of Connecticut, Inc dba: Comcast/Hartford
- AT&T Connecticut (The Southern New England Telephone Company)
- AT&T Local Network Services, dba, TCG Connecticut
- Fiber Technologies Networks, LLC
- Level 3 Communications, LLC
- Northeast Utilities Service Company
- Connecticut Natural Gas Corporation
- Metropolitan District Commission (Sewer and Water)

SALVAGE: None

PERMITS: Local Inland and Wetland and Watercourse Permit

RIGHT-OF-WAY: The project acquired easements on the northwest corner and east side of the bridge. A temporary access agreement has been acquired for the property on the southwest corner.

MAINTENANCE AND PROTECTION OF TRAFFIC:

The Contractor shall maintain and protect at least one lane of traffic in each on a paved travel path as shown on the plans. A temporary traffic signal is required as shown on the plans.

SECTION 1.08 – PROSECUTION AND PROGRESS

Article 1.08.04--Limitation of Operations: Add the following:

TIME RESTRICTIONS

In order to provide for traffic operations the Contractor will not be permitted to perform any work that will interfere with traffic operations on all project roadways as follows:

On the following State observed Legal Holidays:

New Year's Day
Good Friday
Easter*
Memorial Day
Independence Day
Labor Day
Columbus Day
Thanksgiving Day**
Christmas Day
The following restrictions also apply:

On the day before and after any of the above Legal Holidays.

On the Friday, Saturday and Sunday immediately preceding any of the above Holidays celebrated on a Monday.

On the Saturday, Sunday and Monday immediately following any of the above Holidays celebrated on a Friday.

* From 6:00 a.m. the Thursday before the Holiday to 8:00 p.m. the Monday after the Holiday.

** From 6:00 a.m. the Wednesday before the Holiday to 8:00 p.m. the Monday after the Holiday.

During all other times

The Contractor shall maintain and protect traffic as shown on the plans, which dictate the minimum number of lanes that must remain open for each day of the week.

The Contractor will be allowed to stop traffic for short periods of time to facilitate construction. The duration of stoppages shall not exceed 5 minutes, and shall not take place during a Holiday week.

NOTICE TO CONTRACTOR – PROTECTION OF EXISTING UTILITIES

Existing utilities shall be maintained during construction. The Contractor shall verify the location of underground, structure mounted and overhead utilities. Construction work within the vicinity of utilities shall be performed in accordance with current safety regulations.

Representatives of the various utility companies shall be allowed access to the work.

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

In order to notify utility companies the number 1-800-922-4455 (Call Before You Dig), in accordance with Section 16-345 of the Regulations of the Department of Utility Control, must be called at least forty-eight (48) hours prior to the start of excavation. This notification will enable the utility companies to mark out their facilities in the field. No work shall be performed until all underground utilities have been marked out. The Contractor shall verify that the mark out have been completed.

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

During the excavation for the proposed improvements, the cover over the existing underground Utilities will be reduced. Therefore, the Contractor shall have the location of the underground Utilities marked out prior to and following the excavation. The Contractor's attention is directed to the requirements of Article 1.07.13-Contractor's Responsibility for Adjacent Property and Services. The Contractor shall provide a minimum 0.9 meter nominal cover, and equipment wheel loads shall not exceed 10,886 kilograms where construction equipment traverses water mains and sewer main unless so approved by the Metropolitan District Commission. Plating over the sewer main may be required as directed by the Engineer in coordination with the Metropolitan District Commission. Any protection measures required shall be incidental to all work unless specifically specified otherwise.

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

The Contractor shall perform all work in such a manner that will protect each Utility Company's facilities from damage. This may include excavation by hand methods as well as

modified compaction methods when working close to underground Utilities. The Contractor will also be responsible for temporary support of existing Utility poles when installing the new storm drainage or sanitary sewer systems.

The Contractor shall use care when excavating in the vicinity of catch basins and pipes, which are to remain to avoid damage to these structures.

The Contractor shall notify the utilities representatives as soon as the contract is awarded, so as not to delay the work. It is recommended that the contractor notify in advance the utilities representatives of the project construction progress meetings. The Contractor shall notify the Utilities representative of any scheduled excavation ahead of time, as agreed, so as not to cause any delay to his anticipated progress.

Cable TV
Comcast of Connecticut, Inc dba: Comcast/Hartford
Mr. Dean Muratori,
Construction Manager
80 Great Hill Road
Seymour, CT 06483
PHONE: (203) 732-0146 EXT: 73802 FAX:
E-MAIL: Dean_Muratori@cable.comcast.com

Communication
AT&T Connecticut (The Southern New England Telephone Company)
AT&T Corp. (Long Lines)
Mr. Mark P. Burkhart,
Manager Technical Analysis Senior Cable Engineer
139 Bacon Pond Road
Woodbury, CT 06798
PHONE: (203) 266-4372 EXT: FAX: (203) 266-4487
E-MAIL: markburkhart@att.com

AT&T Local Network Services, dba, TCG Connecticut
Mr. Michael J. Byrne,
Senior Project Manager
153 Market Street, 5th Floor
Hartford, CT 06103
PHONE: (860) 739-9099 EXT: FAX:
E-MAIL: mb2878@att.com

Fiber Technologies Networks, LLC
Ms. Beth Bannister,
Construction Manager - CT
1781 Highland Avenue, Suite 102
Cheshire, CT 06410

PHONE: (860) 432-4240 EXT: FAX:
E-MAIL: bbannister@fibertech.com

Level 3 Communications, LLC
Mr. Rick Miller,
Project Manager, OSP Relocations
1025 Eldorado Boulevard - 43C-405
Broomfield, CO 80021
PHONE: (720) 888-7568 EXT: FAX:
E-MAIL: Rick.Miller@Level3.com

Electric Distribution
Northeast Utilities Service Company
Mr. Wayne D. Gagnon,
Engineering Manager - System Projects
107 Selden Street
Berlin, CT 06037
PHONE: (860) 665-2473 EXT: FAX: (860) 665-2002
E-MAIL: gagnowd@nu.com

Gas
Connecticut Natural Gas Corporation
Mr. Vasant C. Patel,
Manager - Utility Coordination
76 Meadow Street, 1st Floor
East Hartford, CT 06108
PHONE: (860) 727-3114 EXT: FAX:
E-MAIL: vpatel@ctgcorp.comKinder Morgan, Inc. (Tennessee Gas Pipeline)

Water
Metropolitan District Commission
Mr. Richard Norris,, P.E.
Project Engineer / Utility Liaison
555 Main Street, P.O. Box 800
Hartford, CT 06142-0800
PHONE: (860) 278-7850 EXT: 3450 FAX: (860) 251-7287
E-MAIL: rnorris@themdc.com

The Contractor shall consider in his bid any inconvenience and work required to meet these conditions. Any damage to any existing utility shall be repaired including all materials, labor, etc., to the Engineer's satisfaction at no cost to the State.

The Contractor shall consider in his bid that coordination with the utility companies will be necessary prior to and during each stage of construction. The contractor shall also consider

that his operations during the various stages will be affected by the relocation of utilities. Failure to properly consider and coordinate the work necessary shall not be grounds for a claim.

REHABILITATION OF BRIDGE NO. 03651, NORTH MAIN STREET OVER WEST BRANCH TROUT BROOK

Town of West Hartford

The State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges and Incidental Construction, Form 816, 2004, as revised by the Supplemental Specifications dated January/July 2014 (otherwise referred to collectively as "ConnDOT Form 816") is hereby made part of this contract, as modified by the Special Provisions contained herein.

http://www.ct.gov/dot/lib/dot/documents/dpublications/816/newver/_july14_form_816.pdf

Any reference to the Connecticut Department of Transportation, or the Department shall be construed to mean the Town of West Hartford.

CONTRACT TIME AND LIQUIDATED DAMAGES

_____ ( ) calendar days will be allowed for completion of the work on this project and the liquidated damages charge to apply will be _____ Dollars ($) per calendar day.

In addition, starting on _____, _____ ( ) calendar days will be allowed for the completion of the planting and the liquidated damages charge to apply will be _____ Dollars ($) per calendar day that the planting work remains incomplete.

NOTICE TO CONTRACTOR - UTILITY SPECIFICATIONS

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

SECTION 1.02 – PROPOSAL REQUIREMENTS AND CONDITIONS

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

Replace the third sentence of the last paragraph with:

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

NOTICE TO CONTRACTOR – CONTRACTOR TRAINING REQUIREMENT FOR 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

In accordance with Connecticut General Statute 31-53b and Public Act No. 08-83, the Contractor is required to furnish proof that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53, 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.

Proof of compliance with the provisions of the statute shall consist of a student course completion card issued by the federal Occupational Safety and Health Administration, or other such proof as deemed appropriate by the Commissioner of the Connecticut Department of Labor, dated no earlier than five years prior to the commencement of the project. Each employer shall affix a copy of the construction safety course completion card for each applicable employee to the first certified payroll submitted to the Department of Transportation on which the employee's name first appears.

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.

This section does not apply to employees of public service companies, as defined in section 16-1 of the 2008 supplement to the General Statutes, 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.

The internet website for the federal Occupational Safety and Health Training Institute is http://www.osha.gov/fso/ote/training/edcenters.

Additional information regarding this statute can be found at the Connecticut Department of Labor website, http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm.

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".

SECTION 1.06 - CONTROL OF MATERIALS

Article 1.06.07 - Certified Test Reports and Materials Certificates:

1) For the materials in the following items, a Certified Test Report will be required confirming their conformance to the requirements set forth in these plans or specifications or both. Should the consignee noted on a Certified Test Report be other than the Prime Contractor, then Materials Certificates shall be required to identify the shipment.

2) For the materials in the following items, a Materials Certificate will be required confirming their conformance to the requirements set forth in these plans or specifications or both.

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.07 - Determination of Contract Time:

Delete the second, third and fourth paragraphs and replace them with the following:

When the contract time is on a calendar day basis, it shall be the number of consecutive calendar days stated in the contract, INCLUDING the time period from December 1 through March 31 of each year. The contract time will begin on the effective date of the Engineer's order to commence work, and it will be computed on a consecutive day basis, including all Saturdays, Sundays, Holidays, and non-work days.

1.08.08 - Extension of Time:

Delete the last paragraph, "If an approved extension of time.... the following April 1".

Article 1.08.09 - Failure to Complete Work on Time:

Delete the second paragraph, "If the last day...the project is substantially completed" *and replace it with* "Liquidated damages as specified in the Contract shall be assessed against the Contractor per calendar day from that day until the date on which the project is substantially completed.".

NOTICE TO CONTRACTOR – INFORMATION DISCLAIMER

Town of West Hartford 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 Town.

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 Town.

Persons and/or entities which reproduce and/or make such information available by any means are not authorized by the Town to do so and may be liable for claims resulting from the dissemination of unofficial, incomplete and/or inaccurate information.

NOTICE TO CONTRACTOR - REQUIREMENTS OF TITLE 49, CODE OF FEDERAL REGULATIONS PART 26

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

Rev. Date 07/05/00

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 Contractor shall assume in his schedule that review time for each submission may take up to 2 weeks. Incomplete submission may require multiple rounds of reviews.

All submission shall be submitted in electronic form (PDF) via email. PDF files shall be created from printing versus scanned if possible.

NOTICE TO CONTRACTOR – CONSTRUCTION SEQUENCE

The Contractor is hereby notified that the protection of the environment is paramount to the success of this project. The contractor shall adhere to the permit(s) and to the following sequencing unless specifically authorized by the Engineer:

1. The Contractor shall attend the preconstruction meeting as directed by the Engineer. The meeting will be held within two weeks of award. The Contractor shall provide a detailed construction schedule (Microsoft Project or equal) at least 3 business days before the meeting. Limited Liability Construction signs (series 16) shall be erected prior to the meeting.
2. The Contractor shall arrange and attend a field meeting with the immediate abutters prior to any work beyond the outside edge of sidewalk. The Town Engineer and Design Engineer shall be notified of the meeting time(s) at least 3 business days in advance.
3. Prior to any tree cutting, the Contractor shall schedule and attend a tree cutting meeting with Town Staff and the Engineer and Design Engineer. Prior to this meeting the Contractor shall mark each tree to be removed or trimmed. In addition, the slope limits shall be identified. The meeting shall be held at the project site.
4. Install sedimentation control fencing and at the slope limits as shown on the plans or as directed by the Engineer. Install other controls as necessary.
5. Establish staging areas and protective fences as approved and directed.
6. Clear and Grub the entire project site as shown on the plans. Dispose of stumps and debris in accordance with applicable regulations. Strip and stockpile topsoil from all disturbed areas for future reuse shall be performed as appropriate during each stage of construction.
7. Install debris containment measures to prevent bridge demolition materials from falling into the River and wetland areas. The debris containment measures shall be designed by the Contractor based on his demolition methods. The proposed containment measures shall be approved by the Engineer. The Engineer may require modifications, repairs and/or additional measures.
8. Install turbidity curtains as shown on the plans.
9. Construct temporary sedimentation basins and/or other water handling features. These features shall be designed and located to accommodate the Contractor operations and activities. The Contractor shall size the features to handle the anticipated operations. The Engineer shall have the authority to direct changes to correct deficiencies.
10. Install Cofferdams and temporary shoring as needed to isolate the work areas and protect the excavation.
11. Perform in water work as shown on the plans and as directed. Natural streambed material shall be stockpiled for reuse.
12. Construct the in stream work in the dry.
13. Remove cofferdams then turbidity curtains.
14. Place topsoil and establish grass and install plantings.
15. Inspect and clean drainage system and outlets.

16. Remove temporary sedimentation control fences and other measures once all disturbed areas are stabilized.

The Contractor shall maintain and adjustment the temporary controls to ensure proper performance to protect the environment. The sediment controls shall be carefully inspected prior to any storm event. For large events, periodic inspection during the event may be required as directed by the Engineer. The Contractor shall repair, modify or supplement the systems as necessary and directed.

NOTICE TO CONTRACTOR - VEHICLE EMISSIONS

All motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent State and Federal regulations relative to exhaust emission controls and safety.

The contractor shall establish staging zones for vehicles that are waiting to load or unload at the contract area. Such zones shall be located where the emissions from the vehicles will have minimum impact on abutters and the general public.

Idling of delivery and/or dump trucks, or other equipment shall not be permitted during periods of non-active use, and it should be limited to three minutes in accordance with the Regulations of Connecticut State Agencies Section 22a-174-18(b)(3)(c):

No mobile source engine shall be allowed "to operate for more than three (3) consecutive minutes when the mobile source is not in motion, except as follows:

(i) When a mobile source is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,

(ii) When it is necessary to operate defrosting, heating or cooling equipment to ensure the safety or health of the driver or passengers,

(iii) When it is necessary to operate auxiliary equipment that is located in or on the mobile source to accomplish the intended use of the mobile source,

(iv) To bring the mobile source to the manufacturer's recommended operating temperature,

(v) When the outdoor temperature is below twenty degrees Fahrenheit (20 degrees F),

(vi) When the mobile source is undergoing maintenance that requires such mobile source be operated for more than three (3) consecutive minutes, or

(vii) When a mobile source is in queue to be inspected by U.S. military personnel prior to gaining access to a U.S. military installation."

All work shall be conducted to ensure that no harmful effects are caused to adjacent sensitive receptors. Sensitive receptors include but are not limited to hospitals, schools, daycare facilities, elderly housing and convalescent facilities. Engine exhaust shall be located away from fresh air intakes, air conditioners, and windows.

A Vehicle Emissions Mitigation plan will be required for areas where extensive work will be performed in close proximity (less than 50 feet (15 meters)) to sensitive receptors. No work will proceed until a sequence of construction and a Vehicle Emissions Mitigation plan is submitted in writing to the Engineer for review and all comments are addressed prior to the commencement of any extensive construction work in close proximity (less than 50 feet (15 meters)) to sensitive receptors. The mitigation plan must address the control of vehicle emissions from all vehicles and construction equipment.

If any equipment is found to be in non-compliance with this specification, the contractor will be issued a Notice of Non-Compliance and given a 24 hour period in which to bring the equipment into compliance or remove it from the project. If the contractor then does not comply, the Engineer shall withhold all payments for the work performed on any item(s) on which the non-conforming equipment was utilized for the time period in which the equipment was out of compliance.

Any costs associated with this "Vehicle Emissions" 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".

NOTICE TO CONTRACTOR – STAGING AREAS

The Contractor is hereby notified that areas available for staging, storage and stockpiling of materials, tools and equipment are limited. For the purposes of this specification "Staging Area" shall include any area used to store materials, stockpiling, construction field trailer and equipment for longer than 3 calendar days. The Contractor shall adhere to the following in utilizing the available areas:

1. No staging areas shall be permitted within the limits of the floodplain as identified on Flood Insurance Rate Mapping of the Town unless all materials, equipment, tools and debris are easily removable. The Contractor shall clear the floodplain in the event of an anticipated flood.
2. Stockpiles of earth materials shall be temporarily stabilized and contained within sedimentation control fence or covered to prevent erosion and sediment transport from rain and surface flow.
3. No staging areas shall be within any wetland limits.
4. Concrete washout shall not occur within 50 feet of a regulated area or within the 200 foot buffer area without written approval from the Engineer. Generally, concrete washout shall be positively controlled and contained to prevent contamination from entering any regulated area.
5. The Contractor shall provide a protective construction fence and access gates to prevent unauthorized access.
6. The Contractor may elect to have a field trailer for his purposes. The location shall be approved by the Engineer. All disturbed areas shall be fully restored to its original condition.
7. The worksite shall be kept clean at all times to prevent litter and other debris from entering the regulated wetlands and floodplain areas. Ttrash receptacles shall be provided and periodically emptied.
8. Access to private properties shall be maintained unless authorized in writing.
9. Any Staging Area used shall be returned to the original condition unless specifically directed or authorized in writing.
10. The Contractor shall have a Spill Kit available on site for immediate use. The Spill Kit shall contain the following minimum items:
    - NS® Spill Control, 55 Gallon Universal Sorbent Wheeled Overpack Spill Kit, 50 Gal. Capacity or approved Equal
        - (10)–3" x 48" socks
        - (4)–3" x 10' socks
        - (50)–15" x 17" pads
        - (4)–pillows
        - (50)–wipers
        - (5)–disposal bags and ties
        - (5)–tamperproof seals
        - (2)–pair nitrile gloves
        - (1)–emergency response guidebook

11. The Contractor shall conform to the 2002 CT E&S Guidelines or as directed by the Engineer.

The cost of adhering to these requirements shall not be measured for payment but shall be included in the general cost of the project.

NOTICE TO CONTRACTOR – DUST AND NOISE CONTROL

The Contractor is hereby notified that the dust and noise controls are necessary during all operations in accordance with Section 1.20. In addition, the Contractor shall conform to the following:

Noise

Noise shall be defined by any sound or vibration. For the purposes of this project the Contractor shall adhere to the Residential Noise District requirements as indicated in the West Hartford, Ct Noise Ordinance. For this project the Contractor shall be considered an Industrial Emitter.

An exception to the Town Ordinance is in effect for concrete removal using jackhammers. Jackhammers shall be equipped with mufflers. The Contractor shall conform to section 1.10.05. Use of jackhammers shall be limited to the hours of 7:00 am to 1hour after sunset Monday thru Saturday unless directed otherwise.

The Contractor shall have a measuring devise to ascertain compliance with the ordinance. The Engineer, Town Representatives or other Officials shall have the authority to stop work until the Contractor can demonstrate he can comply with the requirements. No time extensions will be granted due to work stoppage associated with noise violations.

Dust

The Contractor shall, contain, control and minimize dust from his operations, in accordance with section 1.10.04

The Contractor is hereby advised that there are residential properties located very close to the project site.

The following operations are prohibited:

- Dry cutting of concrete with power saws
- Use of an air lance or similar to clean surfaces

The Contractor shall have a water source available to mist, dampen or pre-water surfaces.

The Engineer, Town Representatives or other Officials shall have the authority to stop work until the Contractor can demonstrate he can comply with the requirements. No time extensions will be granted due to work stoppage associated with dust violations. Dust associated with the Contractor's operations shall be cleaned to the satisfaction of the Engineer.

The cost of adhering to Dust and Noise Control requirements shall not be measured for payment but shall be included in the general cost of the project.

NOTICE TO CONTRACTOR – DEBRIS CONTAINMENT

The Contractor is hereby notified that the containment of debris from the contractors operations is necessary during all operations in accordance with Section 1.10. In addition, the Contractor shall conform to the following:

Debris including but not limited to trash, wet or hardened concrete, demolition refuse, rubble, fragments or other objects or liquids shall not be permitted in the watercourse or wetlands. Any debris that falls into the watercourse or wetlands shall be reported to the engineer immediately. Any debris that falls into waterway or wetlands shall be retrieved at no cost to the Town. The Contractor shall erect shielding or make provisions to prevent debris from entering the watercourse or wetlands. Any shielding, containment systems or similar shall be designed, erected and maintained by the Contractor. The Contractor for review and approval by the Engineer shall prepare working drawings. Approval by the Engineer does not relieve the Contractors duty and obligation to conform to this requirement.

The Engineer, Town Representatives or other Officials shall have the authority to stop work until the Contractor can demonstrate he can comply with the requirements. No time extensions will be granted due to work stoppage associated with debris containment violations. Debris associated with the Contractor's operations shall be cleaned to the satisfaction of the Engineer.

The cost of adhering to the Debris Containment requirements shall not be measured for payment but shall be included in the general cost of the project.

NOTICE TO CONTRACTOR – MUNICIPAL POLICE

The Contractor is hereby notified that the Town of West Hartford shall provide officer as necessary to assist with traffic control. The Contractor shall request the services at least 5 business days in advance. The request shall include a description of the need, starting and ending times and any other necessary information.

The Contractor is hereby advised that the Town may not be able to supply Officers due to scheduling conflicts or for any other reason. If the Town cannot provide the necessary Officer the Contractor may utilize a traffic control person(s) at no additional cost to the Town.

The Engineer reserves the right to deny the use of Town officers for any reason.

NOTICE TO CONTRACTOR - SECTION 4.06 AND M.04 MIX DESIGNATION EQUIVALENCY

Sections 4.06 and M.04 have been replaced in their entirety with the Special Provisions included as part of this contract. These Special Provisions reflect changes in mix designations for various types of hot-mix asphalt (HMA). The following table is to be used to associate mix designations noted on the plans with that in the contract specifications and related documents. Mix designations on each row are equivalent and refer to a single mix, which shall be subject to the requirements of the Special Provisions replacing Sections 4.06 and M.04.

Mix Designation Equivalency Table

Official Mix Designation	Equivalent Mix Designation (a)	Equivalent Mix Designation (b)
(c)	Superpave 1.5 inch	Superpave 37.5 mm
HMA S1	Superpave 1.0 inch	Superpave 25.0 mm
HMA S0.5	Superpave 0.5 inch	Superpave 12.5 mm
HMA S0.375	Superpave 0.375 inch	Superpave 9.5 mm
HMA S0.25	Superpave 0.25 inch	Superpave 6.25 mm
(d)	Superpave #4	Superpave #4
Bituminous Concrete Class 1	N/A*	N/A*
Bituminous Concrete Class 2	N/A*	N/A*
Bituminous Concrete Class 3	N/A*	N/A*
Bituminous Concrete Class 4	N/A*	N/A*
Bituminous Concrete Class 12	N/A*	N/A*

(a) This mix designation is generally included with projects where the English measurement system is used. The mix designation may contain both the English measurement system designation and the SI (metric) measurement system designation, one of which would be in parenthesis.

(b) This mix designation is generally included with projects where the SI (metric) measurement system is used. The mix designation may contain both the English measurement system designation and the SI measurement system designation, one of which would be in parenthesis.

(c) This mix is no longer in use except by contract-specific Special Provision; if this mix is called for in the Plans but no such Special Provision is included for this contract a suitable substitute must be approved by the Engineer.

(d) This mix is no longer in use except by contract-specific Special Provision; if this mix is called for in the Plans but no such Special Provision is included for this contract a suitable substitute must be approved by the Engineer.

* N/A = Not applicable; mix designation has not changed.

SECTION 1.03 - AWARD AND EXECUTION OF CONTRACT

Article 1.03.07 – Insurance:

Add the following after the second paragraph:

The Contractor shall produce, within five (5) business days, a copy or copies of all applicable insurance policies when requested by the Town. In providing said policies, the Contractor may redact provisions of the policy that are proprietary. This provision shall survive the suspension, expiration or termination of this Contract.

NOTICE TO CONTRACTOR - SUPERPAVE DESIGN LEVEL INFORMATION

Hot-Mix Asphalt (HMA) constructed according to the Superpave mix-design system is required to attain a Superpave Design Level and is required to use a Performance Graded (PG) binder. The Superpave Design Levels required for this project are listed in Table 1. The required PG binder is indicated for each mix with an "X" in the appropriate box in Table 1.

TABLE 1 – Superpave Design Level and Performance Graded (PG) Binder

This project will require the following Superpave Design Level(s):				
Mix Designation	**PG Binder**	**Route __All roads_**	**Route _____**	**Route _____**
	PG64-22	**Design Level**	**Design Level**	**Design Level**
HMA S0.25	-	-	-	-
HMA S0.375	-	-	-	-
HMA S0.5	X	2	-	-
HMA S1*	X	2	-	-

(*) HMA S1 is a substitute for Superpave mix with nominal maximum aggregate size of 37.5 mm for use in bituminous-concrete base courses and is to be used wherever Superpave mix with nominal aggregate size of 37.5 mm is specified. HMA S1 is to be placed in lifts no less than 3.0 inches or more than 5.0 inches.

SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.01 – Transfer of Work or Contract: *Add the following after the last paragraph:*

The Contractor shall pay the subcontractor for work performed within thirty (30) days after the Contractor receives payment for the work performed by the subcontractor. Also, any retained monies on a subcontractor's work shall be paid to the subcontractor within thirty (30) days after satisfactory completion of all the subcontractor's work.

For the purpose of this Item, satisfactory completion shall have been accomplished when:

(1) The subcontractor has fulfilled the contract requirements of both the Department and the subcontract for the subcontracted work, including the completion of any specified material and equipment testing requirement or plant establishment period and the submission of all submittals (i.e.: certified payrolls, material samples and certifications, required state and federal submissions, etc.) required by the specifications and the Department, and
(2) The work done by the subcontractor has been inspected and approved by the Department and the final quantities of the subcontractor's work have been determined and agreed upon.

If the Contractor determines that a subcontractor's work is not complete, the Contractor shall notify the subcontractor and the Engineer, in writing, of the reasons why the subcontractor's work is not complete. This written notification shall be provided to the subcontractor and the Engineer within twenty-one (21) days of the subcontractor's request for release of retainage.

The Engineer will institute administrative procedures to expedite the determination of final quantities for the subcontractor's satisfactorily completed work.

The inspection and approval of a subcontractor's work does not eliminate the Contractor's responsibilities for all the work as defined in Article 1.07.12, "Contractor's Responsibility for Work."

The inspection and approval of the subcontractor's work does not release the subcontractor from its responsibility for maintenance and other periods of subcontractor responsibility specified for the subcontractor's items of work. Failure of a subcontractor to meet its maintenance, warranty and/or defective work responsibilities may result in a finding that the subcontractor is non-responsible on future subcontract assignments.

For any dispute regarding prompt payment or release of retainage, the alternate dispute resolution provisions of this article shall apply.

The above requirements are also applicable to all sub-tier subcontractors and the above provisions shall be made a part of all subcontract agreements.

Failure of the Contractor to comply with the provisions of this section may result in a finding that the Contractor is non-responsible on future projects.

Rev. Date 04/19/05

NOTICE TO CONTRACTOR - NCHRP 350 REQ. FOR WORK ZONE TRAFFIC CONTROL DEVICES

CATEGORY 1 DEVICES (traffic cones, traffic drums, tubular markers, flexible delineator posts)

Prior to using the Category 1 Devices on the project, the Contractor shall submit to the Engineer a copy of the manufacturer's self-certification that the devices conform to NCHRP Report 350.

CATEGORY 2 DEVICES (construction barricades, construction signs and portable sign supports)

Prior to using Category 2 Devices on the project, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices (both sign and portable support tested together) conform to NCHRP Report 350 (TL-3).

Specific requirements for these devices are included in the Special Provisions.

Information regarding NCHRP Report 350 devices may be found at the following web sites:

FHWA: http://safety.fhwa.dot.gov/roadway_dept/road_hardware/index.htm

ATSSA: http://www.atssa.com/resources/NCHRP350Crashtesting.asp

NOTE: The portable wooden sign supports that have been traditionally used by most contractors in the State of Connecticut do NOT meet NCHRP Report 350 criteria and shall not be utilized on any project advertised after October 01, 2000.

CATEGORY 3 DEVICES (Truck-Mounted Attenuators & Work Zone Crash Cushions)

Prior to using Category 3 Devices on the project, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices conform to NCHRP Report 350.

NOTICE TO CONTRACTOR – PROTECTION OF FENCES AND WALLS

Several walls and fences within the project limits are to remain in place. The proposed work to be performed by the Contractor is very close. The Contractor is hereby notified that all fences and walls that are not specifically identified for removal shall remain in place.

Any damage to the aforementioned walls and fences shall be repaired by the Contractor at no additional cost to the State, Town or property owners.

NOTICE TO CONTRACTOR – MOBILIZATION

The bid price for Mobilization shall not exceed 10 percent of the total contract. Any bid higher than 10 % may be grounds for rejection of the bid..

ITEM #201199A REMOVE AND RESET FENCE

Description: The work covered by this Section consists of furnishing all labor, equipment, and materials, and performing all operations in connection with the removal and reinstallation of an existing metal fence in accordance with the lines, grades, design, and dimensions shown on the drawings and as specified herein.

Materials: The materials shall be match the existing fence. Replacement of damaged materials for this work shall conform as follows:

Echelon "Majestic" 3 Rail Fence
Color Black
Manufactured By Ameristar
4' High X 6' Wide Section
2" X 2" Posts With Flat Caps
All Posts Are In Concrete Footings
http://www.ameristarfence.com/residential-ornamental-wrought-iron-aluminum-fence-echelon

Construction.
Construction shall be in accordance with the manufactures recommendations.
Method of Measurement.
Remove and Reset Fence will be measured by the foot of fence removed, installed, repaired, or replaced, measured along the bottom of the lower rail from centerline of post to centerline of post.

Basis of Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Method of Measurement" will be paid for at the unit price bid for Remove and Reset Fence. Price shall include all excavation, grout, materials, work and tools as necessary.

Pay Item	Pay Unit
Split Rail Fence	LF

ITEM #202000A - EARTH EXCAVATION

The work under this item shall conform to the requirements of Section 2.02, supplemented and amended as follows.

Description: *Add the following to section 2.02.01*: Earth excavation shall also include the removal and the satisfactory disposal of all the excavated material from the top of the existing arch. The limits shall be as shown on the plans.

Construction Methods: *Add the following to section 2.02.03*: The Contractor shall exercise caution when excavating the top of the existing arch and along the spandrel walls. Smaller equipment and hand excavation may be required to safely remove the fill off of the arch for the purpose of exposing its top (extrados). It is the contractor responsibility to safely excavate and backfill within the arch. The excavation and backfill of the arch shall proceed in a balanced way along the 3 spans. In no time shall the excavation or backfill elevation difference be more than 6 inches between span 1, 2 and 3

.

Add the following to section 2.02.06: The contractor shall exercise caution when excavating, backfilling and compacting on top of the existing archs, and along the spandrel walls. Smaller tamping equipment may be required to properly compact the backfill material without disturbing or dislodging the arch.

Method of Measurement: The work will be measured for payment according to Section 2.02.04, specifically by the number of cubic yards of material excavated from the approaches, the arch structure and the channel.

Basis of Payment: *Replace the first sentence with the following*: Roadway approaches and arch excavation and channel excavation will be paid for at the contract unit price per cubic yard for "Earth Excavation"

Pay Item	Pay Unit
Earth Excavation	CY

ITEM #202001A - STRUCTURE EXCAVATION-EARTH (EXCLUDING COFFERDAM AND DEWATERING)

The work under this item shall conform to the requirements of Section 2.03, supplemented and amended as follows.

Description: *Add the following to section 2.03.01*: Structure E excavation shall also include the removal and the satisfactory disposal of all the excavated material from the top of the existing arch. The limits shall be as shown on the plans.

Construction Methods: *Add the following to section 2.03.03*: The Contractor shall exercise caution when excavating the top of the existing arch and along the spandrel walls. Smaller equipment and hand excavation may be required to safely remove the fill off of the arch for the purpose of exposing its top (extrados). It is the contractor responsibility to safely excavate and backfill within the arch. The excavation and backfill of the arch shall proceed in a balanced way along the 3 spans. In no time shall the excavation or backfill elevation difference be more than 6 inches between span 1, 2 and 3

.

Method of Measurement: The work will be measured for payment according to Section 2.03.05(b), specifically by the number of cubic yards of material excavated from the approaches, the arch structure and the channel.

Basis of Payment: *Replace the first sentence with the following*: Roadway approaches and arch excavation and channel excavation will be paid for at the contract unit price per cubic yard for "Earth Excavation"

Pay Item	Pay Unit
Structure Excavation-Earth (Excluding Cofferdam and Dewatering)	CY

ITEM #204001A COFFERDAM AND DEWATERING

Description:

Add the following to the description in section 2.04:
This item shall include the construction and maintenance of temporary facilities to treat waters removed from within the cofferdam, including but not limited to, turbidity controls, sediment basin(s), frac tanks, well points, and any other means necessary.

Construction Methods:

Add the following:
The Contractor shall investigate and verify existing flow conditions, and evaluate the type of protection and facilities required on a regular basis.

The temporary cofferdams, temporary sheeting, barriers or any flow diversions system elected by the Contractor shall provide reasonable protection from flooding. All such temporary structures or facilities shall be safely designed, extended to sufficient depth and be of such dimensions and water-tightness as to assure construction of the permanent work in the dry. They shall not interfere with proper performance of the work. Construction shall be such as to permit excavation for the placement of the proposed channel scour protections and repairs to the bridge substructure. Movements or failures of the temporary protection facilities, or any portion thereof, which prevents proper completion of the permanent work, shall be corrected at the sole expense of the Contractor.

Any pumped water must be discharged in accordance with the requirements of Section 1.10 of the standard specifications.

Unless otherwise provided, or directed, all such temporary protection shall be removed and disposed of in an approved manner when no longer required.

The Contractor shall be responsible for the scheduling of work under this item so as not to interfere with any sequence of operations developed for this project. Delays as a result of work required under this item shall not constitute a claim for an extension of contract time.

In addition to the requirements set forth in these specifications, this work shall conform to the applicable requirements described in the approved environmental permit(s).

ITEM #210306A – TURBIDITY CONTROL CURTAINS

Description:

A flexible, impenetrable barrier used to trap sediment in water bodies. This curtain is weighted at the bottom to achieve closure while supported at the top through a flotation system. The Purpose is to prevent the migration of silt from a work site in a water environment into the larger body of water.

The turbidity curtain shall be located beyond the lateral limits of the construction site and firmly anchored in place. The alignment should be set as close to the work area as possible but not so close as to be disturbed by applicable construction equipment. The height of the curtain shall be 20 percent greater than the depth of the water to allow for water level fluctuations.

Materials:

The curtain fabric must meet the minimum requirements noted in Table 3.27-A.

TABLE 3.27-A

PHYSICAL PROPERTIES OF TURBIDITY CURTAIN FABRIC

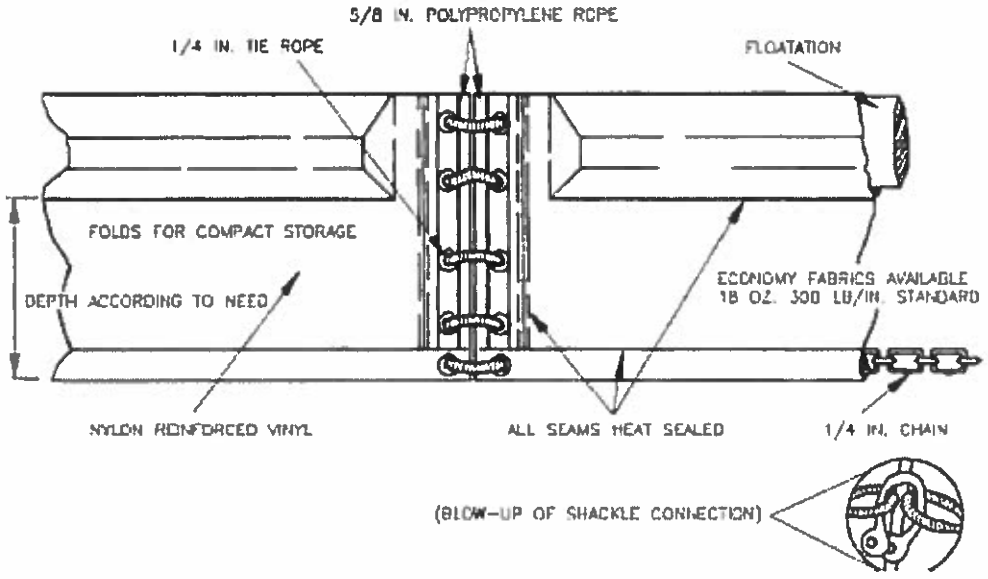
Physical Property	Requirement
Thickness, mils	45
Weight/oz./sq. yd.:	
Type I	18
Type II	18 or 22
Type III	22
Grab Tensile Strength, lbs.	300
UV Inhibitor	Must be included

Source: Adapted from The Ralph Lemon Company product literature

Seams in the fabric shall be either vulcanized welded or sewn, and shall develop the full strength of the fabric.

Floatation devices shall be flexible, buoyant units contained in an individual floatation sleeve or collar attached to the curtain. Buoyancy provided by the floatation units shall be sufficient to support the weight of the curtain and maintain a freeboard of at least 3 inches above the water surface level.

Load lines must be fabricated into the bottom of all floating turbidity curtains.



The bottom loadline shall consist of a chain incorporated into the bottom hem of the curtain of sufficient weight to serve as ballast to hold the curtain in a vertical position. Additional anchorage shall be provided as necessary. The load lines shall have suitable connecting devices which develop the full breaking strength for connecting to load lines in adjacent sections.

External anchors may consist of wooden or metal stakes (2- x 4-inch or 2%-inch minimum diameter wood or 1.33 pounds/linear foot steel)

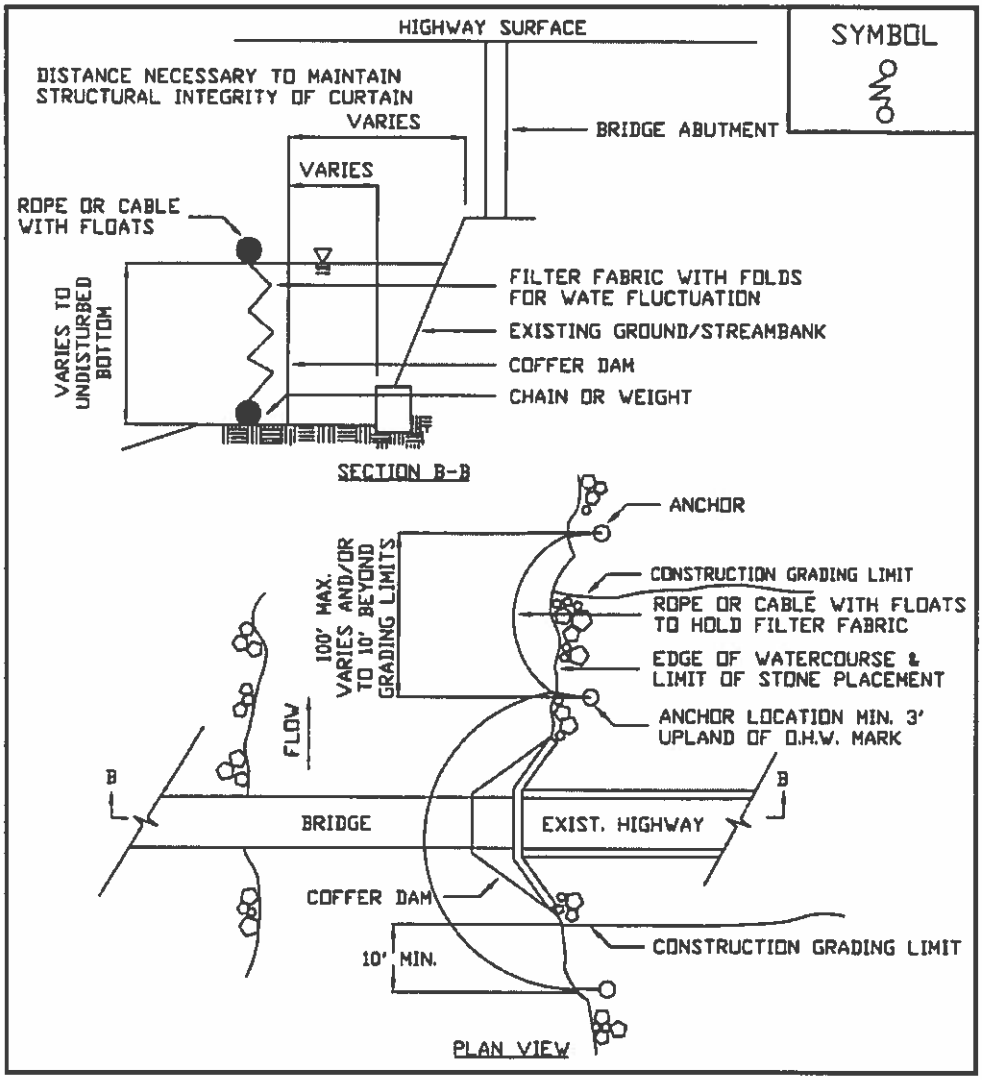
Bottom anchors must be sufficient to hold the curtain in the same position relative to the bottom of the watercourse without interfering with the action of the curtain.

Construction Methods:

The area of proposed installation of the curtain shall be inspected for obstacles and impediments that could damage the curtain or impair its effectiveness to retain sediment. All materials shall be removed so they cannot enter the waterbody. Shallow installations can be made by securing the curtain by staking rather than using a flotation system. Supplemental anchors of the turbidity curtain toe shall be used, as needed, depending on water surface disturbances such as boats and wave action by winds.

The turbidity curtain shall be inspected daily and repaired or replaced immediately. It is not normally necessary to remove sediment deposited behind the curtain; but, when necessary, removal is usually done by hand prior to removal of the barrier. All removed silt is stabilized away from the waterbody. The barrier shall be removed by carefully pulling it toward the construction site to minimize the release of attached sediment. Any floating construction or natural debris shall be immediately removed to prevent damage to the curtain. If the curtain is

oriented in a manner that faces the prevailing winds, frequent checks of the anchorage shall be made.



Method of Measurement:

The item shall be measured by the linera feet of curtain installed, accepted and removed for the project. The item shall be measured only one time per each stage of the inwater work regardless of the number of times moved, removed or replaced. For this project there has been three phases of inwater work planned.

Basis of Payment:

This work will be paid for at the contract unit price per linear foot for "Turbidity Control Curtains", complete in place, which price shall include all materials, equipment, and all other tools and labor incidental thereto.

ITEM 213501 A - NATIVE STREAMBED MATERIAL

DESCRIPTION
This work shall consist of removing, stock piling and placing native stream bed material on top of the proposed channel's revetment, within the limits indicated on the plans and as directed by the Engineer. The work shall be completed in conformity with the lines, grades, thicknesses as shown on the plans or as established by the Engineer.

MATERIALS
Native material shall be excavated from existing streambed during the excavation for the proposed riprap channel revetment. If the material is not viable for reuse, then the contractor shall furnish a soil that is similar in gradation to that of the native, for approval and usage. New streambed material shall be composed of well-graded naturally occurring rounded stone and gravel. It shall be substantially free of excess dirt, soil or organic matter. Crushed material is not acceptable.

CONSTRUCTION DETAILS
Native streambed material shall be removed from only designated areas shown on the plans and stockpiled at a location approved by the Engineer for reuse. The Contractor shall place native or new streambed material over the newly placed Cellular Concrete Mattresses For Erosion Control on the channel. The material shall be placed in a manner that will produce a non-uniform surface with larger stones protruding above the smaller ones.

METHOD OF MEASUREMENT
Work under this item will be measured for payment by the number of cubic yard, placed and accepted.

BASIS OF PAYMENT
Payment for this work will be made at the contract unit price per cubic yard for "Native Streambed Material", complete in place, including all materials, equipment, tools and labor incidental thereto. Stockpiling, testing and furnishing new material as necessary will also be included under this item.

Item	Units
Native Streambed Material	CY

ITEM #0601070A – CLASS 'S' CONCRETE

SECTION 6.01 – CONCRETE FOR STRUCTURES is supplemented to provide for a Class "S" super-plasticized concrete:

Article 6.01 -Description: Class "S" concrete is to be used to fill and repair voids in horizontal and vertical surfaces of concrete areas less than than four (3) square feet and (exclusive of deck slabs) as detailed on the plans or as directed by the Engineer.

Work under this item shall consist of removing loose concrete, deteriorated concrete, and concrete overlaying hollow areas, and patching these areas as well as spalled and scaled areas with Class "S" Concrete formed to the original contour. Work under this item shall also consist of removing sound concrete beneath stirrups in order to properly anchor the Class "S" repair material in place. The work shall also include any saw cutting or chiselling, sandblasting and cleaning of all areas. Work under this item shall also include sandblasting and cleaning any exposed reinforcing steel, and coating the exposed reinforcing steel with zinc-rich primer prior to placing concrete.

The Contractor shall not perform any repair work without prior approval by the Engineer for location and limits.

Article 6.01.02-Materials: Materials shall conform to Section M.03 as modified herein below:

M.03.01 -General Composition of Concrete Mixes is supplemented to include Class "S" Superplasticized concrete.

TYPE	28 DAY MIN. COMPR. STR	PROPORT. BY WT. APPROX.	WATER PER BAG MAX.	CEM. FACTOR
Class "S"	4000 PSI	1:2.16:2.20	5.7 (Gals.)	7.0 (Bags/C.Y.)

1 -Coarse Aggregate:

(c) Grading: Coarse Aggregate for the Class "S" concrete shall meet the following gradation requirements:

For Class "S": The required grading shall be obtained by using 100 percent 3/8" coarse aggregate.

3 -Cement: Add the following

Type I or II Portland Cement shall be used for Class "S" Concrete.

9 -Admixtures:

(c) Delete in its entirety and substitute the following:

(c) Superplasticizing Admixtures: The superplasticizer admixture shall be a high-range water reducer (HRWR) capable of increasing the slump of the mix from approximately 2.5" to 6.5" upon the addition of the amount recommended by the respective manufacturer. The HRWR shall conform to ASTM C494 Type F or Type G and shall be approved by the Engineer. The use of this material shall be in strict accordance with the respective manufacturer's written instructions and procedures.

10 -Curing Materials:

(c) Liquid Membrane Forming Compound: Add the following: No liquid membrane forming compound shall be used for Class "S" concrete.

16-Zinc Primer: (New) Add the following:

The single component zinc primer shall conform to Federal Specification TT-P-641,

Type 1 and shall be brush applied in two successive coats.

Article 6.01.03 -Construction Methods:

Article 6.01.03 is supplemented by adding the following test. Where this specification deviates from the Standard Specifications for Roads, Bridges and incidental Construction, Form 816, the intent of this special provision shall govern.

5-Composition: Add the following:

Class "S" concrete shall conform to the requirements as specified in M.03.01 as amended herein. Class "S" concrete shall contain not less than 6.5 percent and not more than 8.5 percent entrained air at the time of placement.

6-Consistency: Add the following:

Class "S" concrete shall have a slump range of 2 inches to 4 inches prior to the addition of the HRWR and from 6 inches to 8 inches slump after the addition of the HRWR. The addition rates of the air-entraining admixture (A.E.A.) and the HRWR will vary. Frequent field testing of the air content and slump prior to and after addition of the HRWR will be the determining factor of actual addition rates for each admixture.

7-Mixing Concrete: Add the following:

For hand mixing of Class "S" concrete, the Contractor shall provide scale(s) approved by the Engineer in which cement and aggregate can be accurately weighed for the required mix proportions.

Note: The Contractor shall also have measuring graduates marked for the proportioning of the A.E.A. and the HRWR. Do not mix the A.E.A. and the HRWR together before adding to the mix; the resultant solution will not work. DO NOT add the A.E.A. and the HRWR at the mixer simultaneously; these admixtures must be added separately in the mixing cycle. All manufactured materials shall be stored, mixed and used in strict accordance with the written recommendations of the respective manufacturers.

19-Curing Concrete: Add the following:
Concrete shall be cured by leaving forms on for seven (7) days and wetting them frequently.

25-Material Storage: (New) Add the following:
The Contractor shall store and maintain the A.E.A. and the HRWR materials in clean original containers as delivered by the manufacturer.

26-Work Procedure: (New) Add the following:
Before any concrete is removed, the Contractor shall determine, in the presence of the inspector, the exact limits and locations of all areas to be worked on under this item. The Contractor shall provide all scaffolding necessary to perform the required work. The limits of each area shall be suitably marked.

The perimeter of each patch shall be saw cut 1 inch deep. Care shall be taken not to cut existing reinforcing.

Loose and deteriorated concrete shall be chipped away back to sound concrete and at least 1" beneath the stirrups (typically #4 bars).

All surfaces of exposed concrete and reinforcing steel shall be thoroughly sandblasted and vacuumed immediately prior to forming. Following sandblasting, all surfaces shall be free of oil, solvent, grease, dirt, dust, bitumen, rust, loose particles and foreign matter.

Extreme care shall be taken, where reinforcing steel is uncovered, not to damage the steel. Pneumatic tools shall not be placed in direct contact with reinforcing steel. Maximum 30lb. size hammers shall be used for general chipping and removal while maximum 15 lb. size shall be used behind reinforcing steel. Exposed reinforcing shall remain in place except where specifically indicated for removal by direction of the Engineer. Exposed reinforcing steel shall be sandblasted in accordance with SSPC-SP-6, Commercial Blast Cleaning, to remove all contaminants, rust and rust scale.

Where the existing reinforcing steel is severely corroded or damaged, new reinforcing steel shall be installed in accordance with the plans. Where existing steel is determined by the Engineer to have insufficient cover, the cover shall be increased to a minimum of 2 inches. New steel shall be attached to existing steel as directed by the Engineer.

When using sandblasting equipment, all work shall be shielded for the protection of the public.

All compressed air equipment used in cleaning shall have properly sized and designed oil separators, attached and functional, to assure the delivery of oil-free air at the nozzle.

Adequate measures shall be taken by the Contractor to prevent concrete chips, tools and/or materials from entering into adjacent roadway lanes or dropping to areas below the structure. All debris shall be promptly swept up and removed from the site. All materials removed shall be satisfactorily disposed of by the Contractor.

Forms and support systems shall be properly designed in accordance with M6.01.03-03. Forms shall be so designed that placement access shall be allowed at the top of the formwork assembly.

No bonding compounds shall be used before or during the placement of this concrete material. Concrete surfaces against which this material is to be placed shall be sound, tight, and thoroughly roughened by the removal and sandblasting procedures specified above. The exposed concrete surfaces shall be dampened with fresh water immediately prior to placement of the fresh concrete by "hosing" down the areas behind the forms as thoroughly as possible. Light rust formations on sandblasted reinforcing steel prior to concrete placement is normal and acceptable.

The minimum ambient and patch area surface temperature shall be 45 deg. Fahrenheit and rising at the time of concrete installation.

Prior to forming up vertical surfaces, reinforcing steel welded wire fabric conforming to the requirements of M.06.01-3 shall be installed at the proper depth to those areas greater than 4 square feet and 1" deep as approved by the Engineer. The fabric shall be tied to any exposed reinforcing steel or anchored to sound concrete with powder actuated anchors as approved by the Engineer.

Placement of the fresh concrete shall be in the maximum height lifts possible under the circumstances and all freshly placed concrete shall be consolidated during placement with adequately sized and effective vibrators.

Following curing and stripping, the exposed faces of new concrete shall be finished off with the use of the appropriate tools to blend in the physical appearance to the surrounding areas as much as possible.

Cured patches areas shall be sounded by the Engineer to detect the presence of any hollow spots. Such spots shall be removed and replaced by the Contractor at his own expense until a patch acceptable to the Engineer is in place.

Article 6.01.04 – Method of Measurement: Add the following:

Class "S" Concrete shall be measured for payment by the actual volume in cubic yards of concrete placed, and accepted by the Engineer. Welded wire fabric and reinforcing steel will not be measured for payment.

Article 6.01.05 – Basis of Payment: Add the following:

Class "S" Concrete will be paid for at the contract unit price per cubic yard, complete in place, which price shall locating and removing unsound material, saw cutting or chiseling, sandblasting, cleaning, application of zinc primer on the existing reinforcing steel, welded wire fabric, forming, placing, curing, stripping and finishing new concrete, and all materials, equipment, tools, labor and clean-up incidental thereto.

ITEM # 0601091A – SIMULATED STONE MASONRY

Description:

This item shall consist of furnishing and installing textured an colored formed concrete surfaces using simulated stone molds (form liners) and a color straining system designed to duplicate closely the appearance of natural stone as described herein of the type and size called for on the plans, including accessories and hardware and in accordance with these specifications. The architectural form liner simulated stone masonry shall be monolithically formed with the concrete substructure.

This item also includes providing the concrete used for creating the architectural treatment.

Materials:

1. The design and pattern of form lined concrete surfaces shall follow the layout shown on the contract plans and the manufacturer's standard drawing. Final coloration of cast stone concrete surfaces shall accurately simulate the appearance of real stone. It shall also demonstrate the colors that may be apparent from aging, such as staining from oxidation, rusting and/or organic staining from soil and/or vegetation.

2. Protection: The contractor is solely responsible for construction methods, means, techniques, and for construction site safety precautions. The contractor shall conduct all construction operations in conformance with all applicable local, state and federal safety laws, rules, regulations and codes. All Material Safety Data Sheets (MSDS) shall be available for inspection.

3. Manufacturer: Subject to compliance with the design and specification requirements, the contractor shall provide simulated stone masonry and color staining system as manufactured by Custom Rock International, Inc., St. Paul, Minnesota, or approved equivalent.

4. Materials:

    a. Simulated Stone Molds (form liners) shall be made of reusable elastomeric form liners, made of high-strength urethane and cutable form liners, made of lower grade urethane, easily attachable to forms. Form liners shall leave crisp, sharp definition of the architectural surface. Recurring textural configurations exhibited by repeating, recognizable shadow patterns shall be prevented by proper casting of form liner patterns. Form liners shall not compress more than ¼ inch when concrete is poured at a rate of 10 vertical feet per hour. Form lines shall be removable without causing deterioration of surface or underlying concrete. No substitutions will be permitted.

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b. The form liner shall conform to the pattern and vertical wall joint spacing shown on the plans, including texture and color staining system and shall be as manufactured by Custom Rock International, St. Paul, Minnesota, Pattern CRS 12979 – Adirondack Dry Stack, or approved equivalent.

c. The form liner shall be designed to permit 180 degree rotation and interconnection with itself or another pattern liner of differing horizontal dimension. Maximum relief of pattern and the average relief shall be as shown on the contract plans. The simulated stone pattern shall vary in a random manner in the coursing parameters to prevent noticeable multiple duplicate pattern repetition and avoid stacked joints.

d. In addition to orthogonal surfaces, the form liner shall be capable of forming curved and/or battered surfaces, if shown on the plans, while maintaining the dimensioned coursing and plumb vertical joints without distortion.

5. Release Agent: The release agent shall be compatible with simulated stone masonry and with color staining system to be applied to surface, as recommended by the manufacturer.

6. Form Ties: Form ties shall be designed to separate at least one inch back from finished surface, leaving only a neat hole that can be plugged with compatible patching material.

7. Color Stain: The color stain shall be a penetrating stain mix as provided by the manufacturer, shall achieve color variations present in the natural stone being simulated for the project, as approved by the Engineer and in accordance with the Construction Methods below. The stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight or weathering. The stain mix shall be a water borne, low V.O.C. material, less than 180 grams/liter, and shall meet requirements for weathering resistance of 2000 hours accelerated exposure measured by weather-o-meter in accordance with ASTM G23 with 3-bulb. Scrub test 1000 revolutions. Abrasive resistance (Tabor-CT-10) 500 cycles. Adhesion ASTM D3359 1.OOMM cross cuts on glass pass 3 or higher on a scale of 1 to 5. The contractor shall supply information pertaining to chemical resistance in accordance with ASTM D1308.

Construction Methods:

1. Quality Of Work: The process of form lining, texturing and color staining of the hardened concrete shall be performed in strict accordance with the manufacturer's written recommendations and as approved by the Engineer.

2. Quality Assurance:

a. Manufacturer of Simulated Stone Molds and Custom Coloring Systems shall have five years experience making custom simulated stone molds and color stains to create formed concrete surfaces to match natural stone shapes, surface textures and colors.

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b. Contractor/Subcontractor (installer) shall have five years experience pouring vertically formed architectural concrete. The installer shall be trained in the manufacturer's special techniques in order to achieve realistic surfaces.

c. Color Stain System Application shall be performed by the manufacturer or manufacturer's authorized representative. The stain shall be applied by an applicator who has experience with similar projects.

d. A Pre-installation Meeting shall be scheduled with the manufacturer's representative, installer, and Department inspection personnel to assure understanding of simulated stone masonry use, color staining application, and to coordinate the work.

3. Shop Drawings and Submittals: Before fabricating any materials, the contractor shall submit shop drawings, product data sheets and samples to the Engineer for approval in accordance with Article 1.05.02 for the materials listed in Item 5 below. These drawings and submittals shall include, but not limited to, the following information: manufacturer's name, listing of product compliance with referenced specification standards, complete details of the assemblies, material designations, nominal hardness of appropriate materials, design loads, quantities and locations.

4. Field Measurements: Prior to ordering or fabricating any materials, the contractor shall take complete and accurate field measurements.

5. Submittals:

   a. Catalog cuts, manufacturer's literature, and technical data for the materials specified herein, including but not limited to simulated stone mold pattern, form liner, release agent, concrete patching material and color charts for staining of hardened concrete.

   b. Photographs: Color photographs of three (3) similar past projects of the manufacturer. Include project names, locations and a telephone number of the previous projects Owner's representatives.

   c. Samples: Form ties, sample and description, showing method of separation when forms are removed.

   d. Plan, elevation and details to show overall pattern, joint locations, form tie locations, and end, edge and other special conditions.

6. Scheduling: Schedule color stain application after adjacent earthwork is completed, to avoid contaminating or damaging the surface. Place topsoil and establish turf after staining application is completed. Coordinate the work to prevent interference with other trades.

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7. Test Panels: At least 30 days prior to construction of the first textured and colored concrete surfaces, the Contractor shall prepare a test panel with a full scale field mock-up of the formed concrete surface (4' x 4') showing the proposed color, pattern, joint treatment and layout as shown on the plans or in the Manufacturer's catalog. If the resulting appearance is not acceptable to the Engineer, adjustments shall be made to the color, pattern, finished texture and/or joint treatment and another test panel shall be prepared for inspection. The accepted mock-up shall provide the standard for the work.

8. Installation:

    e. Contractor's responsibilities:

        1. Install liners.
        2. Apply manufacturer release agent.
        3. Install concrete as specified elsewhere in the Specifications.
        4. Remove form liner.
        5. Patching, grinding and bush hammering of form liner seams as required.
        6. Provide scaffolding and heat as required and clean water for power washing of the hardened concrete prior to the staining process.
        7. Power washing and patching of form liners.
        8. Return of form liners to manufacturer.

    f. Manufacturer's responsibilities:

        1. Ship and supply form liners and release agent.
        2. Technical information.
        3. Power wash wall.
        4. Apply the color staining process.

9. Liner to Form Attachment System: Securely attach form liners to forms with wood or sheet metal screws; threaded inserts added to the back of the form liner for bolts to fasten the form liner through the forms, or; bolted through the face of the form liner with flat head bolts inserted in a pattern joint and through the form liner and forming system. Construction adhesives may be used, but not on reusable forms. Place adjacent form liners with less than ¼ inch separation between form liners.

10. Release of Form Liners From Hardened Concrete: Only manufacturer recommended form release agents (Lark V or Orna Con) shall be utilized and shall be applied to the form liners before the concrete is poured. Release agents shall be applied in strict accordance with release agent manufacturer recommendations. Hand-charged sprayers will only be allowed if a thin uniform coating of release agent is obtained on the form liner.

11. Remove the form liner from the wall within 4 hours of pouring the concrete. The form liners may be detached from the forms and then removed 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

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may be accomplished with form liners and forms placed back against the wall after initial detachment. Other means of curing can also be used including curing blankets and/or plastic. Curing compounds shall not be used.

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

13. Wall Patching and Preparation: After form liners are removed from the hardened concrete, the textured uncolored surface shall be prepared for color staining. All holes larger than 1/2" in greatest principal dimension shall be filled with concrete patching material such as Tamms Speed-crete or equal mixed with latex or acrylic bonder, as approved by the manufacturer and Engineer. All honeycombed areas shall be filled and textured to match surrounding areas. Seam lines and other unnatural protrusions shall be ground down to match adjacent areas with a hand-held power grinder using discs made for concrete. Grinding of seams shall be performed immediately after removal of the form liners. Perform final bush hammering to blend defects and ground areas into the final rock texture. In particular, the process of wall patching and preparation shall be subject to approval of the manufacturer and Engineer.

14. Color Staining (by manufacturer): The hardened concrete shall be a minimum of 30 days old before color staining is applied. Power wash the wall to free if from latence, dirt, oil and other objectionable materials. After the wall has dried, the color staining process is applied using colors approved by the Engineer. Color staining shall be applied in such a way that the stones shall have individual colorations from one to the other. Water-based stains shall be used in air temperatures between 50 degrees F and 100 degrees F. Solvent-based stains shall be used in air temperatures of 50 degrees F and below, but in no case when the temperature of the hardened concrete is 40 degrees and falling. During color staining operations the Contractor shall protect property, pedestrians, vehicular and other traffic upon, underneath or in the vicinity of the walls against damage or disfigurement from errant stain materials. Comply with all environmental regulations regarding surface cleaning, stain application, ground and watercourse protection and disposal protection of waste materials. Refer to Section 1.10 of the Specifications.

    Color: Color shall conform to that shown in the Concrete Rock Surfaces catalog dated January 2, 2007, page 30, (or current catalog) in the photograph showing the pattern for Adirondack Dry Stack. Any areas lacking a uniform appearance (consistent with the approved sample) shall be recoated to the satisfaction of the Engineer at no additional cost to the State.

15. Simulated Stone Molds Preparation: Clean and make free of buildup prior to each pour. Inspect for blemishes and tears. Repair if needed following manufacturer's

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recommendations.

Method of Measurement:

This work shall be measured for payment by the actual number of square feet of the face area of accepted architectural form liner, poured in place simulated stone masonry, completed within the neat lines as shown on the plans, or as ordered by the Engineer.

Concrete used for creating the architectural treatment will not be measured for payment under this item.

Basis of Payment:

This work will be paid for at the contract unit price per square yard for "Simulated Stone Masonry", complete in place, which price shall include all equipment, formwork molds, test panels, and all other tools and labor incidental thereto.

This work shall also include the cost of furnishing and application of the color stain system to the simulated stone masonry surface.

Concrete that is used for creating the architectural treatment will not be paid for directly under any pay items; the cost of said concrete shall be considered included within item "Simulated Stone Masonry"

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ITEM #601097A - VARIABLE DEPTH PATCH

Description: Work under this item shall consist of removing loose, deteriorated concrete, and concrete overlaying hollow areas and applying a cementitious mortar to these areas as well as spalled and scaled areas as shown on the plans, as directed by the Engineer, and in accordance with these specifications.

Materials: The cementitious mortar shall be one of the following:

5 Star Structural Concrete V/O
Manufactured by: Five Star Products, Inc.
750 Commerce Drive
Fairfield, Connecticut 06825

Re-crete 20 Minute Set
Manufactured by: Dayton Superior Specialty Chemical Corp.
4226 Kansas Avenue
Kansas City, KS 66016

Emaco S88 CI
Manufactured by: BASF Building Systems
889 Valley Park Drive
Shakopee, MN 55379

The single component zinc primer shall conform to Federal Specification TT-P-641, Type 1, and shall be brush applied in two coats.

Certification: A Materials Certificate shall be required for the cementitious mortar and the zinc primer in accordance with Article 1.06.07, certifying the conformance of this material to the requirements stated herein.

Construction Methods: The brook shall be protected from all debris at all times. Before any concrete is removed, the Engineer shall perform an inspection to determine the exact limits and locations of all areas to be repaired. A working platform shall be erected prior to commencing any work.

The perimeter of each deteriorated area shall be squared up a minimum of 1/2" deep by chiseling or sawcutting. Care shall be taken not to cut existing reinforcing.

Loose and deteriorated concrete and hollow areas shall be chipped away back to sound concrete. The exposed concrete surfaces shall be thoroughly sandblasted and vacuumed immediately prior to applying the mortar.

All surfaces of exposed concrete and reinforced steel shall be free of oil, solvent, grease, dirt, dust, bitumen, rust, loose particles and foreign matter. Prior to sandblasting of concrete and steel

surfaces, all petroleum contamination on these surfaces shall be removed by an appropriate solvent or detergent cleaning operation.

All compressed air equipment used in cleaning shall have properly sized and designated oil separators, attached and functional, to assure the delivery oil-free air at the nozzle.

Extreme care shall be taken, where reinforcing steel is uncovered, not to damage the steel or its bond in the surrounding concrete. Pneumatic tools shall not be placed in direct contact with reinforcing steel. Maximum 15 lb. pneumatic hammers shall be used for general chipping and removal. Exposed reinforced steel shall be sandblasted in accordance with SSPC-SP-6, Commercial Blast Cleaning, to remove all contaminants, rust and rust scale.

All exposed blast-cleaned reinforced steel shall be coated with two coats of the single component zinc-rich primer, brush applied (note - - the second coat shall only be applied after the first has dried). Applications of the zinc primer shall be in accordance with the manufacturer's printed instructions.

If the existing reinforcing steel is severely corroded or damaged, the Engineer shall be notified immediately.

Adequate measures shall be taken by the Contractor to prevent concrete and other debris from dropping into the brook below. When using sandblasting equipment, all work shall be shielded for the protection of the public water body. All debris shall be promptly swept up, removed and satisfactorily disposed of by the Contractor from the site.

All mixing and application of the mortar shall be done in strict accordance with the printed instructions supplied by the manufacturer and as directed by the Engineer.

At the time of mortar application, the concrete surfaces against which this material is to be placed shall be sound, tight, and thoroughly roughened by the removal and sandblasting procedures as specified above. The exposed concrete surfaces shall be dampened with fresh water immediately prior to placement of the mortar. The minimum ambient and patched area surface temperatures shall be 45 degrees F and rising at the time of mortar application or as directed by the manufacturer of the cementitious material.

The mortar shall be packed into the substrate, filling all pores and voids, then forced against the edges of the repair, working toward the center. After filling the voids, the mortar shall be compacted and the surfaces struck off with a steel trowel to match the original contour of the existing concrete.

Forming is recommended on large deep areas as directed by the engineer. Spray pump for the mortar, such as the Emaco S88 CI, shall be as recommended by the manufacturer.

A fine spray mist of water shall be used to aid the cure of the patches by preventing the surface from drying for a minimum of two hours.

Cured patches shall be sounded by the Engineer to detect the presence of any hollow areas. Such areas shall be removed and replaced by the Contractor at his own expense until an acceptable patch is in place.

Method of Measurement: This work will be measured for payment by the number of cubic feet of cementitious mortar incorporated into the completed and accepted work.

Basis of Payment: This work will be paid for at the contract unit price per cubic foot for "Variable Depth Patch", complete in place, which price shall include removal of loose and deteriorated concrete, saw cutting or chiseling, sandblasting, forming, disposal of removed concrete and preparation materials, reinforcing steel, zinc primer on the reinforcing steel, working platform, and all materials, equipment, tools, and labor incidental thereto.

ITEM #0601270A -FULL DEPTH PATCH (HIGH EARLY STRENGTH CONCRETE)

Description: This item shall consist of the saw cutting concrete, removal of all deteriorated concrete for the full depth of the arch slab, furnishing and installing deformed steel bars, and reconstructing the slab with new concrete, where directed by the Engineer and as hereinafter specified.

Under this item the Contractor shall provide steel deck plates to be used as directed by the Engineer for "Maintenance and Protection of Traffic" over areas where the concrete has been removed full depth but cannot be replaced in time to allow full roadway traffic operations when required by the special provisions. Steel deck plates shall not be used when the posted speed limit exceeds 25 mph. The plates shall remain the property of the Contractor.

Work under this item shall also include the submission of working drawings, detailing the temporary steel deck plates to be utilized, and the method of anchorage.

Materials: The materials shall conform to the following requirements:

1. High Early Strength Concrete – The high early strength concrete shall conform to one of the following:

   A. The Contractor shall design and submit to the Engineer for approval a high early strength concrete mix. This mix shall be air-entrained, and shall be composed of Portland cement, fine and coarse aggregates, approved admixtures and additives, and water. The mix shall contain between 4 and 7 percent-entrained air, and shall attain a 6-hour compressive strength of 2,500 psi. Additionally, the mix shall contain shrinkage compensating additives such that there will be no separation of the patched area from the parent concrete. This shrinkage-compensating additive shall be utilized so as to produce expansion in the high early strength concrete of no more than 3 percent.

   B. In lieu of the above high early strength concrete mix, the Contractor may propose the use of a proprietary type mix that will meet the same physical requirements as those stated above. A mix design shall be submitted for this material, stating the percentage of each component to be utilized.

2. Regardless of the type of high early strength concrete proposed by the Contractor, substantive data that demonstrates the ability of the material to meet the specification requirements shall be submitted with the proposed mix design at least two weeks prior to its use.

3. Deformed Steel Bars: Section 6.02.

Construction Methods: Construction methods shall conform to the following requirements:

1. Working Drawings and Calculations: Prior to the removal of any concrete, the Contractor shall submit detailed working drawings and design calculations for temporary steel deck plates. These drawings shall include complete details of materials, dimensions, and anchorage methods. Working drawing and calculations shall be prepared by and sealed by a Professional Engineer registered in the state of Connecticut. Work shall not be started until approval from the Engineer has been obtained and required materials and equipment are available at the site.

2. Inspection of the Structural Arch: Before any existing concrete is removed from the structural arch, the Contractor will provide the Engineer clear access to the bridge. During this time, the Engineer will perform an inspection of the structural and designate areas where concrete removal will be required. If required, remarking of the designated areas are to be performed by the contractor. The contractor shall notified the engineer if the structure is required to be remarked. Due to the nature of the operations, the inspection can be performed only after some existing materials, notably overlays and waterproofing systems, have first been removed from the structural slab. It shall be the responsibility of the Contractor to arrange the construction schedule so that the required operations may be performed without causing delay to the work.

   No operations will be performed by the Engineer until after the following construction work has been completed:

   a) The existing bituminous overlay or concrete wearing course, if present, has been removed.

   b) The existing waterproofing system, if present, has been removed.

   The removal of this material will be paid for under other applicable items.

   It shall be the responsibility of the Contractor to inform the Engineer, in writing, of the date that a structure will be available for inspection operations. Notification shall be given to the Engineer at least seven (7) days prior to the date that the area in question will be in a condition acceptable to the Engineer.

   The Contractor is hereby informed that the following time period will be necessary to perform the required inspection operations:

   > One working day with suitable weather conditions per each six thousand square feet, or portion thereof, of structural arch area.

   The Contractor will not be allowed to do any further work to the structural arch, until all necessary inspection operations have been performed, unless given permission by the Engineer. The Contractor will include any costs related to the allowance for this inspection in the general cost of the work.

3. Removal of Deteriorated Concrete: All deteriorated concrete shall be removed within the limits shown on the plans and where ordered by the Engineer. The lateral limits of each area to be repaired will be delineated by the Engineer and suitably marked. Where several areas to be repaired are very close together, the Engineer may combine these individual patches into a large area. The outlines of each such area shall first be cut to a depth of one-half (1/2) inch with an approved power-saw capable of making straight cuts. In the event that reinforcing steel is encountered within the upper 1/2 inch depth during sawing operations, the depth of saw-cut shall immediately be adjusted to a shallower depth so as not to damage the steel bars. If so directed by the Engineer, saw cutting shall again be carried down to the 1/2 inch depth at other locations of repair provided reinforcing steel is not again encountered. Where over-breakage occurs resulting in a featheredge, the featheredge be squared up to a vertical edge in an approved manner. Where sawing is impractical, the areas shall be outlined by chisel or other approved means.

   The removal of concrete shall be by hydro-demolition or pneumatic hammer methods and shall be governed by the requirements set forth in the special provision Item "Partial Depth Patch" and as directed by the Engineer.

   The Contractor shall take adequate measures to prevent concrete debris from falling to any area below the structure and onto adjacent roadway lanes. All debris shall be promptly cleaned up and removed from the site. All material removed shall be satisfactorily disposed of by the Contractor.

   Where existing reinforcing steel is damaged or has insufficient cover as determined by the Engineer, it shall be cut out and replaced with new reinforcing steel the same size, with a minimum length for lap splices as indicated on the plans or as directed by the Engineer.

4. Surface Preparation: Sound reinforcing steel which is in the proper position in the slab shall be left in place and cleaned of all concrete. The smaller fragments shall be removed with hand tools or by water blast cleaning.

   The newly exposed reinforcing steel and concrete faces shall be cleaned of loose or powder-like rust, oil solvent, grease, dirt, dust, bitumen, loose particles, and foreign matter just prior to patching.

   Existing concrete surfaces against which the new patch will be placed shall be dampened. All free water shall be removed from the surface.

   Forms shall conform to the pertinent requirements of Article 6.01.03-3.

   The cleaned concrete surface area to receive patching material shall be wetted for a one hour period immediately prior to placement of the concrete patch. Any standing water shall be blown out with compressed air prior to application of binding grout and patch material.

After wetting of the deck patch area to receive patching, and removal of the standing water, cement binding grout shall be scrubbed into the concrete patch bonding surface with stiff bristled brushes. All bonding surfaces in the patch area shall receive a coating of bonding grout within a time period not to exceed five (5) minutes prior to placement of the concrete patch material.

5. Mixing, Placing, and Finishing: Mixing and placing concrete shall be done in accordance with the applicable portions of Article 6.01.03. Mixing and placing shall not be executed unless the ambient temperature is above 40 degrees F. and rising.

   The concrete mix shall be properly placed to insure complete contact around all reinforcing steel and against existing concrete at patch edges and compacted to a level slightly above the surrounding deck surface. Vibrators of the appropriate size shall be used for all consolidation of the concrete, regardless of the size of the patch area, with no hand tamping or rodding allowed. Concrete may be moved horizontally with the aid of hand tools, but not with the use of vibrators (excessive vibration shall be avoided).

   Vibrating plates or vibrating screed shall be used on the surface of all patches for strike off and consolidation. After the concrete has been spread evenly and compacted to a level slightly above the adjacent concrete surface, the vibrating plate or screed shall be drawn over the surface at a uniform speed without stopping, in order to finish the surface smooth and even with adjacent concrete. The surface shall be float finished. Finishing operations shall be completed before initial set takes place.

6. Curing: Immediately after finishing of the patch area, a sheet of 4 mil polyethylene shall be placed over the repair area, in conjunction with insulating curing material. This material shall be a minimum of 2-inch thick closed cell extruded polystyrene insulation board that conforms with the requirements of ASTM C578. It shall have a minimum certified R-value of ten (10). The insulating material shall extend a minimum of 12 inches beyond the limits of the patch area, and shall be kept in intimate contact with the surrounding payment surface to prevent lifting of the material. It shall be weighted down with sandbags that weight at least 15 pounds each. The sandbags shall be placed a minimum of two (2) feet on center around the patch area.

   Cured patches, having a hollow sound when chain dragged or tapped (indicating delamination), shall be replaced by the Contractor at his expense until a patch acceptable to the Engineer is in place.

7. Tolerances in Finished Patch Surfaces: The surface profile of the patched area shall not vary more than one-eighth inch in a distance of 10 feet, when a 10 foot long straightedge is placed on the surface at any angle relative to the centerline of the bridge. Humps in the patch that exceed the one-eighth inch tolerance shall be ground down by approved machinery. Sags or depressions in the surface of the patch area that exceed one-eighth inch tolerance as determined by the Engineer shall be repaired by removal of the concrete in the depression to a depth of one inch and repaired in the previously described manner.

8. Testing: The Contractor shall form, cure and test all concrete test cylinders under supervision of a representative of the Department. The dimensions, type of cylinder mold, number of cylinders, and method of curing shall be as directed by the Engineer.

The Contractor shall provide a portable compressive testing machine, on site, for the purpose of testing all compressive strength cylinders. All testing shall be in accordance with the requirements of ASTM C39. NOTE: This compressive testing machine must be calibrated in accordance with the provisions of Section 5, ASTM C39.

9. Time Schedule: Traffic will not be allowed on any areas where the Contractor has placed and finished concrete until the material has properly cured as specified, and has developed the required strength of 2,500 psi as determined by the compressive strength test, or until the Engineer authorizes its opening to traffic.

   All work shall proceed as required by the "Maintenance and Protection of Traffic" and "Prosecution and Progress" specifications elsewhere within the contract documents.

   If, in certain areas, the Contractor cannot complete replacement operations in time, he shall provide and install steel deck plates to allow full traffic operations over the unpatched areas. The plates shall be secured to the deck to prevent movement. The plates shall be removed and work completed on the area during the next schedule work period. Installation and removal shall be done in accordance with approved working drawings for temporary steel deck plates. Steel plates shall not be used when the posted speed limit exceeds 25 mph.

Method of Measurement: This work will be measured for payment by the actual volume in cubic yards of replacement concrete, complete and accepted. No deduction will be made for the volume of reinforcing steel. Removal of concrete will not be measured for payment.

Basis of Payment: This work will be paid for at the contract unit price per cubic yard for "Full Depth Patch (High Early Strength Concrete)" complete in place, which price shall include sawcutting and removal of concrete, surface preparation installation and removal of steel deck plates, furnishing and installing deformed steel bars, concrete replacement, all equipment, tools, labor and work incidental thereto.

Pay Item	Pay Unit
Full Depth Patch (High Early Strength Concrete)	CY

ITEM # 0601954A - EPOXY INJECTION CRACK REPAIR

Description:

This work shall consist of injecting the cracks in the stones of the arch, including overhead, with a micro injection grout under pressure using continuous positive displacement metering and or gravity feed, in accordance with the manufacturer specifications.

Materials:

Depending on the width of the crack, JAHN M30, JAHN M40, Mineral-Based Injection Grouts distributed by Cathedral Stone Products Inc., or equal.

Submittals:

Submit the following items in time to prevent a delay in work and to allow adequate time for review and resubmittals, if needed:

1. Samples of all specified materials, product information and data, and Material Safety Data Sheets (MSDS).

2. Certificates of Compliance as furnished by the Manufacturer, stating that all supplied materials are in conformance with the Manufacturer's published literature, and will meet or exceed the current specifications.

3. *Written verification that all specified materials will be used. Provide purchase orders, shipping tickets, receipts, etc. to prove that the specified materials were ordered and received.*

B. Materials shall not be ordered or work started before receiving written approval.

QUALITY ASSURANCE

A. *Applicator Qualifications:* Each applicator must have a record of successful historic masonry repair for at least five years.

Construction Methods:

All work shall proceed in accordance with the following and as directed by the manufacturer of the product.

A. All areas involved in the work shall be inspected by the Contractor to establish extent of work, access, and need for protection of surrounding area.

B. Grout workmanship should comply with all applicable recommendations of the Manufacturer's written specifications and requirements.

C. Do not add any bonding agents, accelerators, or retarders to the grout.

D. Discard all grout that has hardened or exceeded its allowable pot life after mixing. Provide separate, clearly labeled containers for discarded grout and remove material from the staging area as soon as practical.

Preparation

A. *Transverse Cracks:* For cracks across the face of the masonry unit, drill a series of injection ports in the center of the crack. These ports should be drilled in a downward direction. Between the ports, the crack should be sealed with removable, non-staining clay or repaired with the appropriate Jahn Mortar.

B. *Lateral Cracks (Delaminating Layers) or Voids:* Drill a series of injection ports in a square configuration (90° angles) on the face of the substrate to create a "drill frame". Ports should be drilled in a downward direction.

C. Wash the surface and interior of the crack using clean water to remove all dust, loose or deleterious material, which could prevent proper flow and/or adhesion, compromising the integrity of the cured injection grout.

Mixing

A. It is recommended that safety goggles, gloves, and a dust mask be worn for protection. Do not mix more material than can be used within approximately 30 minutes. Discard any mixed material that has been unused for 30 minutes or more.

B. *Jahn M30:*

1. The mixing ratio is approximately 2 to 5 parts powder to 1 part water by volume.

2. Mix mechanically using a high-speed drill (3,000 RPM or higher) equipped with a Jiffler typemixing paddle. After mixing, the mortar should be poured into another clean container using a sieve. Continued agitation is necessary if the mortar is allowed to sit prior to use.

C. *Jahn M40:*

1. The mixing ratio is approximately 2 – 2 1/2 parts powder to 1 part water by volume.

2. Mix manually or mechanically, using a slow speed drill (400-600 RPM) equipped with a Jiffler type-mixing paddle. The material should be mixed for a minimum of three minutes, with continued agitation should the product be allowed to sit prior to use.

Injection procedure

A. Wash the interior of the crack immediately before injection by flushing with clean water. If the crack is allowed to dry out before grout is injected, this step must be repeated.

B. *Treatment of Transverse Cracks:* Inject grout into lowest port and continue until it flows freely from this port and other ports at the same level. Seal ports using non-staining clay, sealant, or caulk and proceed in identical fashion until the crack is filled. Clean up overflow immediately.

C. *Treatment of Lateral Cracks (Delaminating Layers) or Voids:* Inject grout into lower left port and proceed until it flows freely from this port and other ports at the same level. Where necessary, insert threaded stainless steel dowels after some grout has been injected, agitate or tap several times to remove any voids or air pockets, and inject the remainder of the grout until port is full and grout flows freely from other ports at the same level. Seal ports using non-staining clay, sealant, or caulk. Inject grout into lower right port and proceed in identical fashion. The order of injection is lower left, lower right, upper left, then upper right. Clean up overflow immediately.

Finishing

Remove plugs after 24 to 48 hours and repair the ports and the crack surface, if not previously performed, using an appropriate Jahn Mortar to match color and type of existing masonry.

Clean up

A. Remove uncured mortar from substrate before it dries using clean water and a rubber sponge. Cured mortar may only be removed chemically or mechanically.

B. Remove uncured mortar from tools and equipment with water as soon as possible. Cured material may only be removed chemically or mechanically.

Method of Measurement:

This work will be measured for payment by the number of linear feet of cracks, which had been designated by the Engineer to be injected and which were subsequently filled with epoxy, complete and accepted.

Where cracks are designated for injection on opposite sides of a stone component and the epoxy adhesive injected on one side penetrates through the members to completely fill the crack on the opposite side, payment will be made for cracks on both sides as though injection had been performed on both sides, except that no payment will be made for such cracks on the opposite side that were not designated by the Engineer for injection.

Where a crack designated for injection extends around a corner of a stone, the length of crack on both faces will be measured for payment.

Basis of Payment:

This work will be paid for at the contract unit price per linear feet for "Epoxy Injection Crack Repair", complete in place, which price shall include all preparation, Technical advisor as required; and all materials, equipment, tools, labor and clean-up incidental thereto.

Pay Item	Pay Unit
Epoxy Injection Crack Repair	L.F.

ITEM 0607002 A - RESET DRY RUBBLE MASONRY

DESCRIPTION
This work shall consist of removing, stock piling and rebuilding a portion of an existing Rubble Masonry Wall as directed by the Engineer. The work shall be completed in conformity with the lines, grades, thicknesses as is the existing wall or as established by the Engineer.

MATERIALS
Esiting material shall be carefully removed for reuse. If the material is not viable for reuse, then the contractor shall furnish stone that is similar in size, quality and color.

CONSTRUCTION DETAILS
The existing wall shall be removed from only designated areas shown on the plans and as is necessary to perform work on the bridge and in the streambed. The existing materials shall be stockpiled and protected for reuse. When the bridge and streambed work have been completed the Contractor shall rebuild the wall similarly to the original configuration.

METHOD OF MEASUREMENT
Work under this item will be measured for payment by the number of cubic yard, reset and accepted.

BASIS OF PAYMENT
Payment for this work will be made at the contract unit price per cubic yard for "Reset Dry Rubble Masonry", complete in place, including all materials, equipment, tools and labor incidental thereto. Stockpiling, excavation and furnishing new material as necessary will also be included under this item.

Item	Units
Reset Dry Rubble Masonry	CY

ITEM NO. 0803015A – PRECAST CONCRETE BLOCK REVETMENT

Description: The work covered by this Section consists of furnishing all plant, labor, equipment, and materials, and performing all operations in connection with the installation of cellular concrete mattresses in accordance with the lines, grades, design, and dimensions shown on the drawings and as specified herein.

Materials: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

American Society for Testing and Materials (ASTM) Publications.

ASTM C 33-93	Concrete Aggregates
ASTM C 140-96B	Sampling and Testing Concrete Masonry Units
ASTM C 476-95	Grout for Masonry
ASTM D 698-78	Moisture Density Relationship of Soils

U.S. Federal Highway Administration (FHWA) and U.S. Bureau of Reclamation (USBR) Report.

FHWA-RD-89-199 Hydraulic Stability of Articulated Concrete Block Revetment Systems During Over-topping Flow.

Materials for Cellular Concrete Blocks.

1. Concrete shall conform to ACI requirements for normal weight concrete and shall have a minimum compressive strength of 4,000 psi at 28 days when tested in accordance with ASTM C 140-96B.

2. Aggregate shall meet the requirements of ASTM C 33 except for grading. Aggregate grading shall be reasonably consistent and shall be well graded from the maximum size, which can be conveniently handled with available equipment.

Cellular Concrete Blocks shall be either wet cast using concrete as specified herein, or formed by a vibratory block forming machine. Cellular concrete blocks shall be interlocking; and penetrations shall be included for revetment cables as necessary to bind the individual blocks into mattresses. Cable penetrations shall prevent any exposure of cables to potential UV degradation within the dimensions of the individual blocks (i.e., cables shall not pass through open areas within the dimensions of individual blocks). The blocks shall be open or closed cell, as shown in the plans, and capable of articulation when formed into mattresses.

1. Design Requirements. The weight of the block shall have the following minimum requirements:

Cellular Concrete Mattresses shall be ***SHOREBLOCK® SD*** or approved equal.
Cellular concrete mattresses shall be pre-manufactured as an assembly of concrete blocks when connected into mattresses by the use of revetment cables. The assembled mattresses shall be open or closed cell as shown in the drawings. Proposed equals must be approved by the engineer. The engineer reserves the right to accept or reject any proposed equal cellular concrete mattress system for reasons including but not limited to previous performance record, appropriate and applicable testing, hydraulic performance characteristics, and qualified technical support. The following information must be included in the submittal to be considered for approval:

1. Test results documenting that the revetment system has been tested under controlled flow conditions for hydraulic performance characteristics in accordance with FHWA-RD-89-199, utilizing a 2:1 slope in the direction of flow.

2. Manufacturer's certification that the revetment system design and components meet all of the requirements of this specification.

a. Size of Cellular Concrete Mattresses. The Cellular concrete blocks and cables and fittings shall be fabricated at the manufacturer's plant or another approved location into mattresses with a width of up to 8 feet and a length that is capable of being transported without special permitting.

Revetment Cable. The concrete blocks shall be bound into mats by the use of polyester revetment cable and fittings.

1. Polyester Revetment Cable shall be constructed of high tenacity, low elongating, and continuous filament polyester fibers. Cable shall consist of a core construction comprised of parallel fibers contained within an outer jacket or cover. The weight of the parallel core shall be between 65 to 70 percent of the total weight of the cable. Longitudinal cables shall be sized to provide a minimum cable strength to mat weight ratio of 5:1 for safe material lifting/handling. Additionally, all revetment cable shall have the following <u>minimum</u> physical characteristics:

Direction	**Nominal Cable Diameter**	**Approximate Avg. Strength Lb.**	**Weight/100 Ft. (Lb.)**
Longitudinal & Transverse	¼"	3,700	2.47

2. Elongation Requirements specified below are based upon stabilized new, dry cable. Stabilization refers to a process in which the cable is cycled fifty (50) times between a load corresponding to 200D^2 and a load equal to 10, 20, or 30 percent of the cable's approximate average breaking strength. Relevant elongation values are as shown on the table below. The tolerance of these values is ± 5 percent.

	% Breaking Strength		
	10%	20%	30%
Permanent Elongation (while working)	0.7	1.8	2.6
Elastic Elongation	0.6	1.4	2.2
Total Stretch	1.3	3.2	4.8

3. Revetment Cable shall exhibit good to excellent resistance to most concentrated acids, alkalis and solvents. Cable shall be impervious to rot, mildew and degradation associated with marine organisms. The materials used in the construction of the cable shall not be affected by continuous immersion in fresh or salt water.

4. Cable and Fittings. Selection of cable and fittings shall be made in a manner that ensures a minimum of 5:1 design safety factor for mattresses being lifted from both ends, thereby forming a catenary. Fittings such as sleeves, stops, and washers shall be in accordance with the manufacturer's recommendations unless otherwise shown on the plans.

Hardware. All hardware, including anchors, bolts, fittings and other devises shall be as required by the manufacturer. At the minimum, anchors shall be designed to accommodate at least 125% of the breaking strength required for the purpose of the hardware.

Structural Grouting shall be required where gaps in the concrete mats occur. Any surface where the clear span between mats is 3 inches or greater shall be grouted. All cable ties and anchoring shall be completed prior to placing grout. The grout shall be coarse and proportioned in accordance with ASTM C 476. The quantity of the mixing water shall be the minimum necessary to obtain a uniform mixture and to permit placing. Grout shall be thoroughly compacted in place and struck off to adjacent surface.

Construction Methods:
Delivery, Storage, and Handling of Materials.

1. Delivery and Storage. Materials delivered to the site shall be inspected for damage, unloaded and stored with the minimum of handling. Materials shall be kept free of dirt and debris.

2. Handling. Materials shall be handled in such a manner as to ensure delivery to the site in sound, undamaged condition. Synthetic geotextiles that are not to be installed immediately shall be protected from the direct sunlight and in accordance with manufactures recommendations.

Submittals.

1. Shop Drawings. At least 30 days prior to the start of installation, the Contractor shall submit to the Engineer shop drawings for the layout and details of the cellular concrete mats. The cellular concrete mats layout shall be to the lines and grades shown on the drawings. The shop drawings shall include layout, layout sequence, anchor details, mat junction details, anchor to mat connection details, and details for grade change.

2. Representative Samples. The sources from which the Contractor proposes to obtain materials shall be selected well in advance of the time when the materials will be required in the work. Product literature and suitable samples of the cellular concrete mattresses, cable, fittings, anchors and filter fabric shall be submitted to the owner for approval, prior to delivery of any such material to the site of the work. All samples shall be obtained by the Contractor and delivered at his expense to a point designated by the owner at least 10 days in advance of the time when the placing of the concrete mattresses is expected to begin. The contractor shall submit the cellular concrete block revetment system Manufacturer's certification that the revetment system and components meet the requirements of this specification.

3. Documentation of Testing. The contractor shall provide to the owner test results documenting that the revetment system has been tested under controlled flow conditions for hydraulic performance characteristics in accordance with FHWA-RD-89-199, utilizing a 2:1 slope in the direction of flow.

Foundation Preparation.

1. Construction Methods. Areas on which filter fabric and cellular concrete mattresses are to be placed shall be constructed to the lines and grades shown on the drawings. The subgrade for the cellular concrete mats shall be free of voids, pits, or depressions and shall be proof-rolled to a minimum of 90% of the ASTM D 698 density. Voids, pits or depressions shall be brought to grade by backfilling in accordance with the

applicable portions of the project specifications. All obstructions, such as roots and projecting stones larger than 1 inch remaining on the surface, shall be removed and all of the soft or low density pockets of material removed must be filled with selected material and compacted to a minimum of 90% of the ASTM D 698 density. Special consideration for buried obstructions (i.e. stumps, debris, etc.) will be as shown on the drawings.

2. Excavation and Preparation for anchor trenches, side trenches, and toe trenches or aprons shall be done in accordance to the lines, grades and dimensions shown on the drawings.

3. Inspection and Approval. Immediately prior to placing the filter fabric and cellular concrete mattresses, the prepared area shall be inspected by the owner's representative and approval obtained before any fabric or mattresses are placed thereon.

Installation of Cellular Concrete Mattresses.

1. General. Cellular Concrete Mattresses shall be placed within the limits shown on the drawings. The cellular concrete mats or blocks shall be placed on the filter fabric in such a manner as to produce a relatively planar surface. No more than 200 linear feet of filter fabric shall be laid before being covered with concrete mattresses, and any fabric installed more than 2 days shall be lifted and the surface of the slope inspected for any slope defects. The owner may require any uncovered fabric to be lifted after heavy rainfall to inspect for slope damage. Final acceptance and approval of the installation will be made by the owner. The Contractor shall hold the owner harmless from liability of any kind arising from the use of any patented or non-patented invention used in the performance of this work.

2. Placement of Prefabricated Mattresses shall be done with mats attached to a spreader bar or other approved device to aid in the lifting and placing of the mats in their proper position by the use of a crane or other approved equipment. The mats shall be placed side-by-side and/or end-to-end so that the mats abut each other. The maximum space or gap between mattresses shall be 3 inches, except that local wider gaps may be accepted if the length of the gap is less than 3 feet and the entire gap is grouted. No overlapping of mats will be accepted and no blocks shall project vertically more than 1 inch beyond the adjacent blocks. All placements of mats shall be in accordance with the manufacturer's recommendations and the Contractor's approved shop drawings.

3. Individual Concrete Blocks that are hand placed shall be subject to the spacing and level parameters specified in Subparagraph: Placement of Prefabricated Mattresses above. Revetment cables shall be threaded into the blocks as the placement proceeds and fastened with approved sleeves, fittings or fasteners.

4. Prior to installation of earth anchors, as shown on the plans, the geotextile filter fabric shall be cut to allow for the penetration of the anchor.

5. Filter Fabric for the cellular concrete mattresses shall be installed in accordance with the plans and applicable specifications. Adjacent layers of filter fabric shall have a minimum of two feet of overlap. Fabric shall be secured with 6" x 1" x 6" steel pins prior to placement of cellular concrete mattresses.

Finishing.

1. Surface Treatment. If required on the plans, the voids of the cellular concrete mats for the limits shown on the drawings shall be filled with native streambed material to the depth shown on the plans.

2. Inspection and Approval. Immediately prior to the placement of any required surface treatment the owner shall inspect the installed cellular concrete mattresses for defects and/or damage. Individual blocks which are cracked and the weight reduced below 1/3 of the original individual block weight shall be replaced or grouted prior to the placement of any required surface treatment.

Contractor Quality Control.

1. The Contractor shall inspect for compliance with contract requirements and record the inspection of all operations including but not limited to the following, as applicable:

    a. Preparation of surface to receive cellular concrete mattresses.
    b. Individual concrete blocks and filter fabric soundness and free of defects.
    c. Cables and fittings - breaking strength.
    d. Assembly of cellular concrete blocks bound by cables to form cellular concrete mattresses.
    e. Placement of mattresses and filter fabric on the prepared subgrade.
    f. Embedment of cables in the connection pours, anchor trenches, side trenches, and toe trenches.

Method of Measurement: The unit of measurement for the cellular concrete mattresses shall be by the square foot of Precast Concrete Block Revetment placed.

Basis of Payment: for acceptable Precast Concrete Block Revetment placed will be made at the contract unit price per square foot for "Precast Concrete Block Revetment," which prices shall include all costs for furnishing, hauling, and placing the cellular concrete mattresses as specified herein and as shown on the drawings.

Pay Item	Pay Unit
Precast Concrete Block Revetment	S.F.

Rev. Date 01/29/15

ITEM # 0814002A RESET GRANITE STONE CURBING

ITEM #0814005A RESET GRANITE CURVED STONE CURBING

These items shall conform to the Town of West Hartford's Section B-2 Technical Specification for Granite Curbing.

ITEM #0906203A SPLIT RAIL FENCE

Description: The work covered by this Section consists of furnishing all labor, equipment, and materials, and performing all operations in connection with the removal and installation of Split Rail Fence in accordance with the lines, grades, design, and dimensions shown on the drawings and as specified herein. The intent is to match the general look of the existing fence and install a driveway gate

Materials: The materials for this work shall conform as follows:

All wood materials shall be pressure treated wood, or wood of a natural resistance to decay. Materials shall be free from loose knots, cracks, and other imperfections

Posts: Posts shall be southern yellow pine or douglas fir and treated after fabrication with preservatives to the requirements for a Ground Contact/Freshwater, General Use service condition (UC4A) in accordance with AWPA Standard Ul or ICC-ES Evaluation Reports.

Bury posts 30-in. into the ground and fill with Five Star Grout or approved equal.

Rails: Rails shall be southern yellow pine or douglas fir and treated after fabrication with preservatives to the requirements for a Above Ground , Exposed service condition (UC3B) in accordance with AWPA Standard Ul or ICC-ES Evaluation Reports.

Gates: The new gate shall be as indicated on the plans. Shop drawings and hardware samples shall be submitted to the Engineer for review and approval. All hardware shall be galvanized or corrosion resistant. Painted hardware shall not be considered corrosion resistant.

The opening of the gate shall accommodate the existing double driveway.

The wood for the gate shall be consistent with the specification for the rails. Gate posts shall be consistent with the specification for the posts.

Construction.
Erect the split rail fence to line up with and match the height of the existing bridge.
Offset the new fence from the driveway to reflect the offset of the existing fence from the driveway.
The overall height of the fence when erected is the height above the finished grade.

Repair or replace fence damaged by construction beyond the limits of the new fence installation shown on the plans.

Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage as recommended by the fence manufacturer. Adjust hardware for smooth operation. Gate shall open and close in the direction determined by the Town.

Method of Measurement.
Split rail fence and gate will be measured by the foot of fence and gate installed, repaired, replaced, or removed, measured along the bottom of the lower rail from centerline of post to centerline of post.

Basis of Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Method of Measurement" will be paid for at the unit price bid for Split Rail Fence. Price shall include all excavation, grout, materials, work and tools as necessary.

Pay Item	Pay Unit
Split Rail Fence	lf

910615A 6" X 6" BOX BEAM GUIDE RAIL

910616A 6" X 6" BOX BEAM GUIDE RAIL END ASSEMBLY TYPE I

910617A 6" X 6" BOX BEAM TRANSITION

Description: Work under this item shall consist of a box beam rail element fastened to steel posts and the appropriate treatment at fixed objects, bridge parapets and terminal ends as shown on the plans. It shall be erected in the locations sited and fabricated in conformity with the designations, dimensions and details shown on the plans or as ordered by the engineer.

Materials:

1. **Steel:** All steel posts, back-up rails, splice plates and rubrails which are to be used as "Weathering Steel", shall meet the requirements of ASTM A847. The fabricator shall notify the manufacturer that it is "Weathering Steel" (structural steel for use in bare, unpainted applications) and that the steel shall not be marked with paint or steel die stamped, but identification shall be stenciled with permanent ink. The dimensions of each component shall conform to the plans and ASTM A6. All steel posts shall be galvanized after fabrication to meet the requirements of ASTM A123 and conform to the galvanizing limits and tolerances shown on the plans..

2. **Fasteners:** Round head bolts shall be manufactured in accordance with the sizes designated on the plans, the geometric specifications included in ANSI B18.5.1.2.2 and the material specifications for ASTM A588 steel. All round head bolts shall be marked with the manufactures symbol and A588.

   Anchor bolts/threaded rods, nuts washers and plates in the concrete shall be hot-dipped galvanized in accordance with ASTM A153 Class C.

Construction Methods: The steel posts shall be driven. The Contractor shall use suitable caps and equipment to prevent damage to the posts during driving. Where rock or boulder is encountered in driving the posts, the material shall be removed to make a hole of sufficient size to permit the setting of the post. The hole shall then be backfilled and thoroughly compacted before the driving of the posts.

The Contractor is cautioned that within the limits of any project, buried utilities may be may be present.

The posts shall be located as shown on the plans, set plumb and in alignment with the rail or rail treatments. The rail elements shall then be erected to produce a smooth continuous rail as shown on the plans.

Whenever rail or rail treatments are being constructed adjacent to roadways open to traffic, the Contractor shall complete the installation to and including the designated terminal treatment at the close of each day's work.

On long runs or other locations where it is not practical to complete the installation to and including the designed terminal treatment by the end of each day's work, the Contractor shall use temporary methods for terminating the beam rail so as to minimize any hazard caused by leaving the end of the beam rail exposed to traffic. Temporary methods for terminating the beam rail shall include lowering the rail end to the ground and providing adequate anchorage of the rail end by bolting, securing, burying, etc.

The Contractor shall submit to the Engineer for approval details of his proposed methods for temporary terminating the end section. No work shall be performed adjacent to the areas open to traffic until approval is given.

The Contractor shall be required to furnish extra length posts at transition areas or where field conditions warrant. These posts shall be of such length that the minimum depth in the ground, as shown on the plans, is maintained.

Before final erection, all galvanized elements which have been cut or worked so as to destroy the zinc coating and cause the base metal to be exposed shall have the exposed base metal thoroughly cleaned and brush coated with zinc rich touch up material.

Method of Measurement: The length of Box Beam Guiderail measured for payment will be the number of linear feet of accepted rail of the type or designation installed, measured along the top of the rail between centers of end posts in each continuous section.

"Box Beam Guiderail End Assembly Type ()" shall be measured for payment by the actual number of each assembly installed in accordance with the plans.

"Box Beam Transition" shall be measured for payment by the actual number of each assembly installed in accordance with the plans.

Basis of Payment: Box Beam Guiderail will be paid for at the contract unit price per linear foot for the type or designation indicated on the plan or ordered by the Engineer, complete in place. Box Beam Guide Railing End Assembly Type () shall be paid for at the contract unit price each for type designated on the plans, complete in place. The prices shall include all materials, fittings, back-up rail, posts, delineators, equipment, and tools and labor incidental to the installation of the items.

"Box Beam Transition" to parapets or barriers will be paid for at the contract unit price each as shown on the plans or as ordered by the Engineer, complete and in place. The price shall include all materials, fittings, back-up rails, posts, anchor bolts, attachment brackets, drilling and grouting, chemical anchoring material, delineators, equipment, removal and disposal of surplus material, removal of existing rail, tools and labor incidental to the installation of the rail.

Pay Item	Pay Unit
6" X 6" Box Beam Guide Rail	l.f.
6" X 6" Box Beam Guide Rail End Assembly Type I	ea.
6" X 6" Box Beam Transition	ea.

ITEM # 0921001A CONCRETE SIDEWALK

This item shall conform to the Town of West Hartford's Section B-1 Technical Specification for Sidewalks.

ITEM #0945060A PINE BARK MULCH

Description: The work covered by this Section consists of furnishing all labor, equipment, and materials, and performing all operations in connection with the installation of mulch in accordance with the lines, grades, design and dimensions shown on the drawings and as specified herein.

Materials: The materials for this work shall conform as follows:

Shredded bark mulch shall be a natural forest product of 98% bark containing less than 2% wood or other debris. It shall be Pine bark of uniform grade with no additives or any other treatment. Size of bark shall be from 5/8" to 1-1/4". The PH factor should range from 5.8 to 6.2. Samples shall be submitted to and approved by the Engineer prior to use.

Construction.
Pine bark mulch shall be applied to the surface, as shown on the Contract Drawings or as directed by the Engineer. Mulch shall be applied to a uniform depth of four (4) inches over shrub bed areas and four (4) inches over groundcover beds, and shall be so directed as to create a smooth level cover over exposed soil.

Method of Measurement.
This work will be measured for payment by the number of square yards surface measurement of the specified thickness for the area which mulch has been completed and accepted.

Basis of Payment.
This work will be paid for at the contract unit price per square yard for mulch complete in place.

Pay Item	Pay Unit
Shredded Pine Bark Mulch	s.y.

ITEM #0950005A –TURF ESTABLISHMENT - LAWN

Work under this item shall conform to the requirements of Section 9.50 of the Standard Specifications Form 816, supplemented and amended as follows.

Materials: The materials for this work shall conform to the following:

Delete the requirement for Partridge Pea (Chamaecrista Fasciculata) Certified Variety and replace with Bewitched Kentucky Bluegrass

Construction Methods: The seed shall be applied by approved hydroseeding methods. Mulch shall be applied at a rate of 25-40 pounds per 1000 square feet. (40 lbs. per 1000 square feet for slopes greater than 2 to 1). After establishment of the turf, one application of weed control shall be applied per the manufacturer's recommendation. The Contractor is responsible for two mowing at the direction of the Engineer. Fertilizer, seed, and mulch shall be applied using an acceptable hydroseeding distribution method approved by the Engineer.

Basis of Payment: This work will be paid for at the contract unit price per square yard (square meters) for "Turf Establishment Lawn," which price shall include all materials, maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 60% may be made for work completed, but not accepted.

Pay Item	Pay Unit
Turf Establishment Lawn	sq.y (sq.m)

ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

This item shall conform to the Town of West Hartford's

A POLICY
REGARDING THE
MAINTENANCE AND PROTECTION OF TRAFFIC AND PEDESTRIANS DURING
CONSTRUCTION WITHIN STREET RIGHTS OF
WAY
(REVISED MARCH 2010)

And in accordance with Form 816 and as indicated below.

Article 9.71.01 – Description: is supplemented by the following:

The Contractor shall maintain and protect traffic as follows:

North Main Street
The Contractor shall maintain and protect existing traffic operations.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least one lane of through traffic in each direction on a paved travel path as shown on the plans or as directed by the Engineer.

All Other Roadways
The Contractor shall maintain and protect the existing number of lanes of traffic, including turning lanes at intersections, each lane on a paved travelpath not less than 10 feet in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect one lane of traffic on a paved travelpath not less than 11 feet in width.

Article 9.71.03 - Construction Methods: is supplemented as follows:

General
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.

When the installation of all intermediate courses of bituminous concrete pavement is completed for the entire roadway, the Contractor shall install the final course of bituminous concrete pavement.

If applicable, when an existing sign is removed, it shall be either relocated or replaced by a new sign during the same working day.

The Contractor shall not store any material on-site which would present a safety hazard to motorists or pedestrians (e.g. fixed object or obstruct sight lines).

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

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.

Temporary Traffic Signals
The temporary traffic signal system shall be constructed in accordance with the plans, pay item specification and as directed by the Engineer.

Pavement Markings During Construction
The Contractor shall install pavement markings during construction, as shown on the plans for different stages of construction.

Interim Pavement Markings
The Contractor shall install hot applied pavement markings on the finished bituminous concrete pavement immediately after completion of paving operations.

Final Pavement Markings
In accordance with the contract plans, the Contractor shall install permanent Epoxy Resin Pavement Markings on the final course of bituminous concrete pavement after all of the final pavement is constructed on the bridge, thereby restoring the lane lines and other pavement markings that exist prior to the commencement of the construction.

NOTE: Painted pavement markings will not be allowed as a substitution for the permanent Epoxy Resin Pavement Markings on the final course of bituminous concrete pavement.

TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

TRAFFIC CONTROL PATTERNS

Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

Speed and volume of traffic Duration of operation Exposure to hazards.

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

If a lane reduction taper is required to shift traffic, the entire length of the taper should be installed on a tangent section of roadway so that the entire taper area can be seen by the motorist.

Any existing signs that are in conflict with the traffic control patterns shall be removed, covered, or turned so that they are not readable by oncoming traffic.

When installing a traffic control pattern, a Buffer Area should be provided and this area shall be free of equipment, workers, materials and parked vehicles.

Typical traffic control plans 19 through 25 may be used for moving operations such as line striping, pot hole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns will not be required when vehicles are on an emergency patrol type activity or when a short duration stop is made and the equipment can be contained within the shoulder. Flashing lights and appropriate trafficperson shall be used when required.

Although each situation must be dealt with individually, conformity with the typical traffic control plans contained herein is required. In a situation not adequately covered by the typical traffic control plans, the Contractor must contact the Engineer for assistance prior to setting up a traffic control pattern.

PLACEMENT OF SIGNS

Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs shall be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

ALLOWABLE ADJUSTMENT OF SIGNS AND DEVICES SHOWN ON THE TRAFFIC CONTROL PLANS

The traffic control plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans whenever possible.

The proper application of the traffic control plans and installation of traffic control devices depends on actual field conditions.

Adjustments to the traffic control plans shall be made only at the direction of the Engineer to improve the visibility of the signs and devices and to better control traffic operations. Adjustments to the traffic control plans shall be based on safety of work forces and motorists, abutting property requirements, driveways, side roads, and the vertical and horizontal curvature of the roadway.

The Engineer may require that the traffic control pattern be located significantly in advance of the work area to provide better sight line to the signing and safer traffic operations through the work zone.

Table I indicates the minimum taper length required for a lane closure based on the posted speed limit of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the traffic control plans cannot be achieved.

TABLE I – MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE
30 OR LESS	180
35	250
40	320
45	540
50	600
55	660
65	780

SECTION 1. WORK ZONE SAFETY MEETINGS

1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of Town, Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the project. Other work zone safety meetings during the course of the project should be scheduled as needed.

1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. Any issues that can't be resolved at these meetings will be brought to the attention of the District Engineer and the Office of Construction. The agenda should include:

1. Review Project scope of work and time
2. Review Section 1.08, Prosecution and Progress
3. Review Section 9.70, Trafficpersons
4. Review Section 9.71, Maintenance and Protection of Traffic
5. Review Contractor's schedule and method of operations.
6. Review areas of special concern: ramps, turning roadways, medians, lane drops, etc.
7. Open discussion of work zone questions and issues

8. Discussion of review and approval process for changes in contract requirements as they relate to work zone areas

SECTION 2. GENERAL

2.a) If the required minimum number of signs and equipment (i.e. one High Mounted
Internally Illuminated Flashing Arrow for each lane closed, two TMAs, Changeable Message Sign, etc.) are not available; the traffic control pattern shall not be installed.

2.b) The Contractor shall have back-up equipment (TMAs, High Mounted Internally Illuminated Flashing Arrow, Changeable Message Sign, construction signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. The only exception to this is in the case of sudden equipment breakdowns in which the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.

2.c) Failure of the Contractor to have the required minimum number of signs, personnel and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for loss time.

2.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

3.a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.

3.b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advanced warning signs.

3.c) Stopping traffic may be allowed:

- As per the contract for such activities as blasting, steel erection, etc.
- During paving, milling operations, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.
- To move slow moving equipment across live traffic lanes into the work area.

3.d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or State Police, traffic may be briefly impeded while installing and/or removing the advanced warning signs and the first ten traffic cones/drums only. Appropriate measures shall be taken to safely slow traffic. If required, traffic slowing techniques may be used and shall include the use of Truck Mounted Impact Attenuators (TMAs) as appropriate, for a minimum of one mile in advance of the pattern starting point. Once the advanced warning signs and the first ten traffic cones/drums are installed/removed, the TMAs and sign crew shall continue to install/remove the pattern as described in Section 4c and traffic shall be allowed to resume their normal travel.

3.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.

3.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travelpath prior to merging/exiting with/from the main line traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.

3.g) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.

3.h) On limited access roadways, workers are prohibited from crossing the travel lanes to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

SECTION 4. USE OF HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

4.a) On limited access roadways, one Flashing Arrow shall be used for each lane that is closed. The Flashing Arrow shall be installed concurrently with the installation of the traffic control pattern and its placement shall be as shown on the traffic control plan. For multiple lane closures, one Flashing Arrow is required for each lane closed. If conditions warrant, additional Flashing Arrows should be employed (i.e.: curves, major ramps, etc.).

4.b) On non-limited access roadways, the use of a Flashing Arrow for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Flashing Arrow.

4.c) The Flashing Arrow shall not be used on two lane, two-way roadways for temporary alternating one-way traffic operations.

4.d) The Flashing Arrow board display shall be in the "arrow" mode for lane closure tapers and in the "caution" mode (four corners) for shoulder work, blocking the shoulder, or roadside work near the shoulder. The Flashing Arrow shall be in the "caution" mode when it is positioned in the closed lane.

4.e) The Flashing Arrow shall not be used on a multi-lane roadway to laterally shift all lanes of traffic, because unnecessary lane changing may result.

SECTION 5. USE OF TRUCK MOUNTED IMPACT ATTENUATOR VEHICLES (TMAs)

5.a) For lane closures on limited access roadways, a minimum of two TMAs shall be used to install and remove traffic control patterns. If two TMAs are not available, the pattern shall not be installed.

5.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to utilize the TMAs.

5.c) Generally, to establish the advance and transition signing, one TMA shall be placed on the shoulder and the second TMA shall be approximately 1,000 feet ahead blocking the lane. The flashing arrow board mounted on the TMA should be in the "flashing arrow" mode when taking the lane. The sign truck and workers should be immediately ahead of the

second TMA. In no case shall the TMA be used as the sign truck or a work truck. Once the transition is in place, the TMAs shall travel in the closed lane until all Changeable Message Signs, signs, Flashing Arrows, and cones/drums are installed. The flashing arrow board mounted on the TMA should be in the "caution" mode when traveling in the closed lane.

5.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs shall be positioned at each additional work area as needed. The flashing arrow board mounted on the TMA should be in the "caution" mode when in the closed lane.

5.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to the specification entitled "Type 'D' Portable Impact Attenuation System". Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) should be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.

5.f) TMAs should be paid in accordance with how the unit is utilized. When it is used as a TMA and is in the proper location as specified, and then it should be paid at the specified hourly rate for "Type 'D' Portable Impact Attenuation System". When the TMA is used as a Flashing Arrow, it should be paid at the daily rate for "High Mounted Internally Illuminated Flashing Arrow". If a TMA is used to install and remove a pattern and then is used as a Flashing Arrow, the unit should be paid as a "Type 'D' Portable Impact Attenuation System" for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove), and is also paid for the day as a "High Mounted Internally Illuminated Flashing Arrow".

SECTION 6. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

6.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.

6.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.

6.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.

6.d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

SECTION 7. USE OF (REMOTE CONTROLLED) CHANGEABLE MESSAGE SIGNS (CMS)

7.a) For lane closures on limited access roadways, one CMS shall be used in advance of the traffic control pattern. Prior to installing the pattern, the CMS shall be installed and in operation, displaying the appropriate lane closure information (i.e.: Left Lane Closed - Merge Right). The CMS shall be positioned ½ - 1 mile ahead of the lane closure taper. If the nearest Exit ramp is greater than the specified ½ - 1 mile distance, than an additional CMS shall be positioned a sufficient distance ahead of the Exit ramp to alert motorists to the work and therefore offer them an opportunity to take the exit.

7.b) CMS should not be installed within 1000 feet of an existing CMS.

7.c) On non-limited access roadways, the use of CMS for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the CMS.

7.d) The advance CMS is typically placed off the right shoulder, 5 feet from the edge of pavement. In areas where the CMS cannot be placed beyond the edge of pavement, it may be placed on the paved shoulder with a minimum of five (5) traffic drums placed in a taper in front of it to delineate its position. The advance CMS shall be adequately protected if it is used for a continuous duration of 36 hours or more.

7.e) When the CMS are no longer required, they should be removed from the clear zone and have the display screen cleared and turned 90° away from the roadway.

7.f) The CMS generally should not be used for generic messages (ex: Road Work Ahead, Bump Ahead, Gravel Road, etc.).

7.g) The CMS should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs (Examples include: Exit 34 Closed Sat/Sun - Use Exit 35, All Lanes Closed - Use Shoulder, Workers on Road - Slow Down).

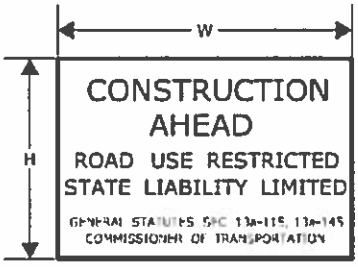
7.h) Messages that need to be displayed for long periods of time, such as during stage construction, should be displayed with construction signs. For special signs, please coordinate with the Office of Construction and the Division of Traffic Engineering for the proper layout/dimensions required.

7.i) The messages that are allowed on the CMS are as follows:

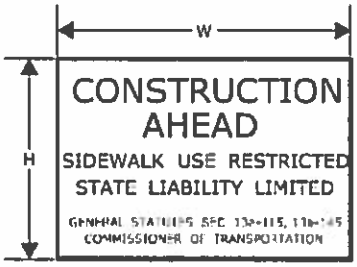
Message No.	Frame 1	Frame 2	Message No.	Frame 1	Frame 2
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	WORKERS ON ROAD	REDUCE SPEED
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	WORKERS ON ROAD	SLOW DOWN
5	RIGHT LANE CLOSED	MERGE LEFT	13	EXIT XX CLOSED	USE EXIT YY
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	EXIT XX CLOSED USE YY	FOLLOW DETOUR
7	RIGHT LANE CLOSED	REDUCE SPEED	15	2 LANES SHIFT AHEAD	USE CAUTION
8	2 RIGHT LANES CLOSED	REDUCE SPEED	16	3 LANES SHIFT AHEAD	USE CAUTION

For any other message(s), approval must be received from the Office of Construction prior to their use. No more than two (2) displays shall be used within any message cycle.

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"

THE 16-S SIGN SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHALL BE INSTALLED ON ANY MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHALL BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMPS PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

THE LOCATION OF SERIES 16 SIGNS CAN BE FOUND ELSEWHERE IN THE PLANS OR INSTALLED AS DIRECTED BY THE ENGINEER.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS, AND MAJOR TOWN/CITY ROADWAYS.

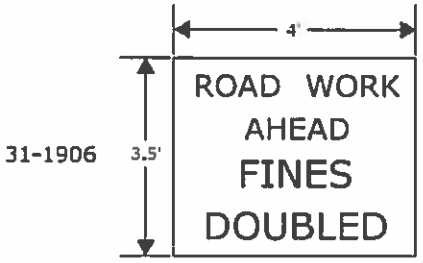
SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHERE THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.

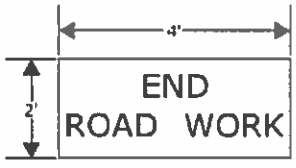
THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL NOT BE INSTALLED ON TOWN ROADS.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.



"END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN MUST BE THE "END ROAD WORK" SIGN.



SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
REQUIRED SIGNS

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

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

TABLE 1 - MINIMUM TAPER LENGTHS

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

METRIC CONVERSION CHART (1" = 25mm)

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

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

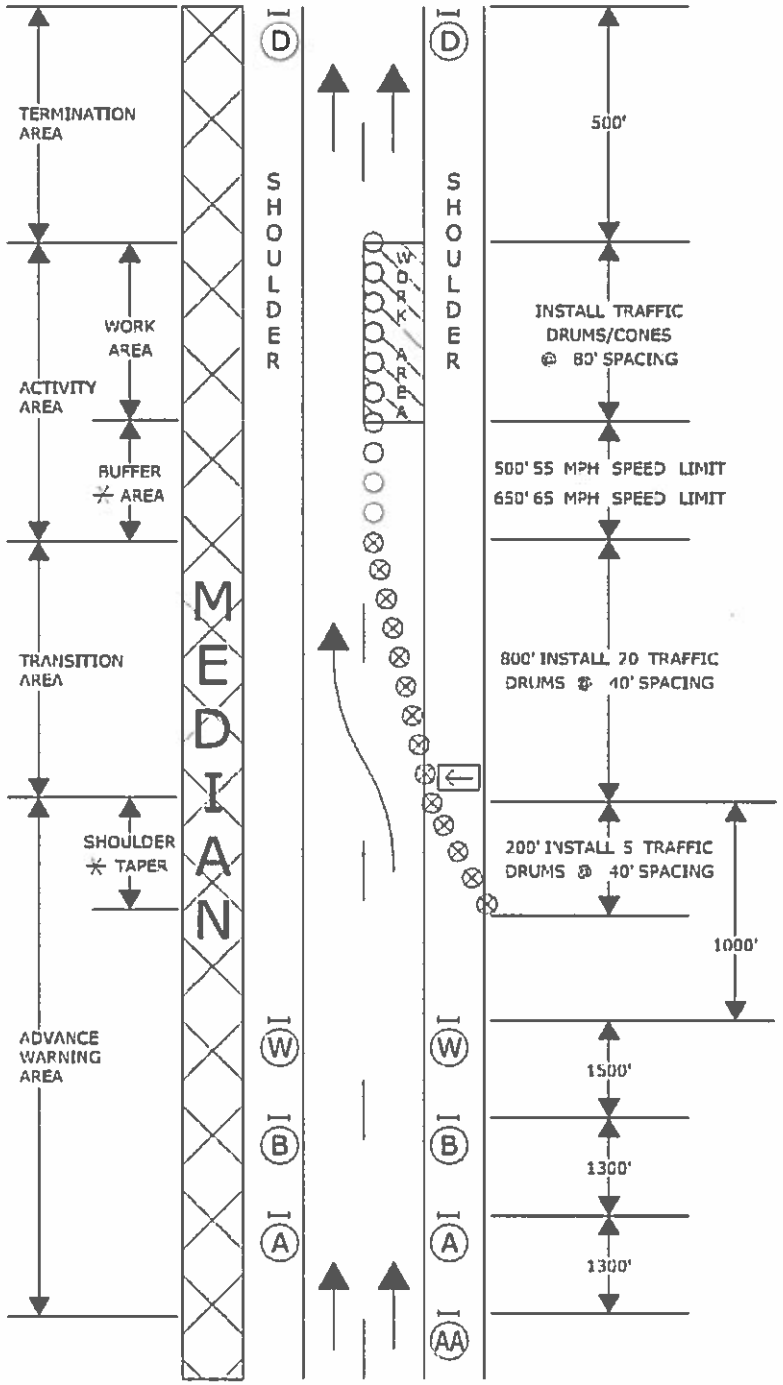
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

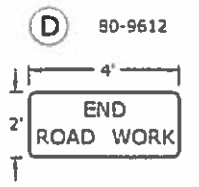
APPROVED _____ PRINCIPAL ENGINEER

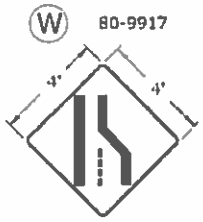
Charles S. Hartlow
2013.08.15 10:50:35-04'00'

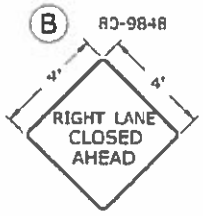
WORK IN RIGHT LANE - MULTILANE HIGHWAY

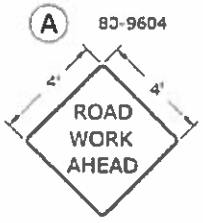
SIGN FACE
126 SQ. FT (MIN.)

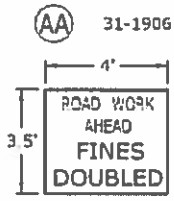












○ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢ PORTABLE SIGN SUPPORT
⇦ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 1

SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

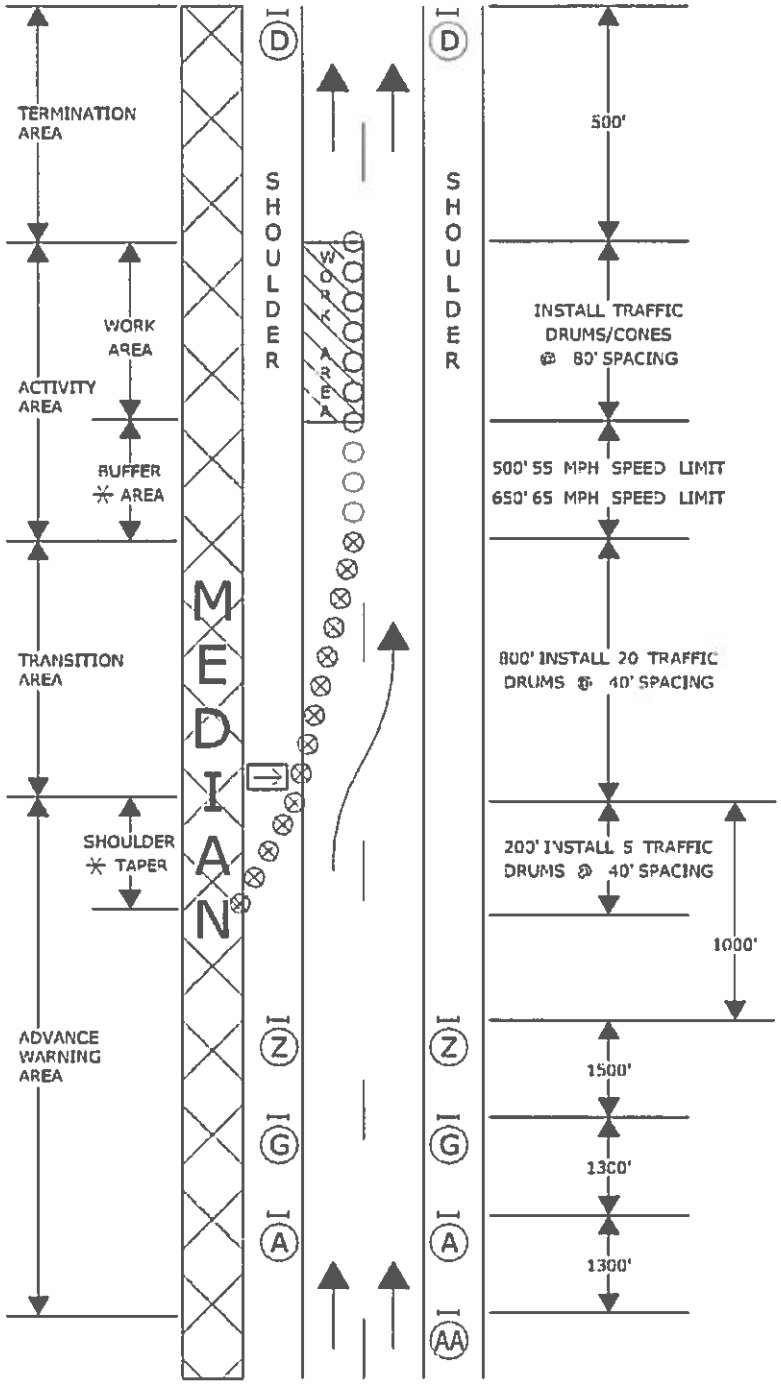
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

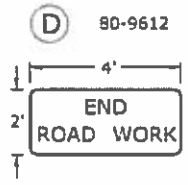
APPROVED _____
PRINCIPAL ENGINEER

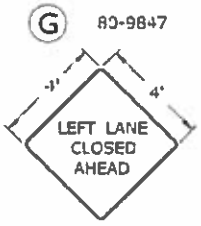
Charles S Hardy
2012.09.05 15:51:00-04'00'

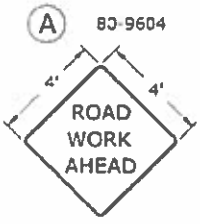
WORK IN LEFT LANE - MULTILANE HIGHWAY

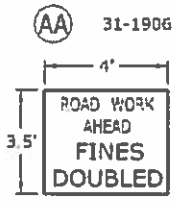
SIGN FACE
126 SQ. FT (MIN.)











TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL ⊗ TRAFFIC DRUM ⊢ PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 3
SEE NOTES 1, 2, 3, 4, 5, 6, 8, 9

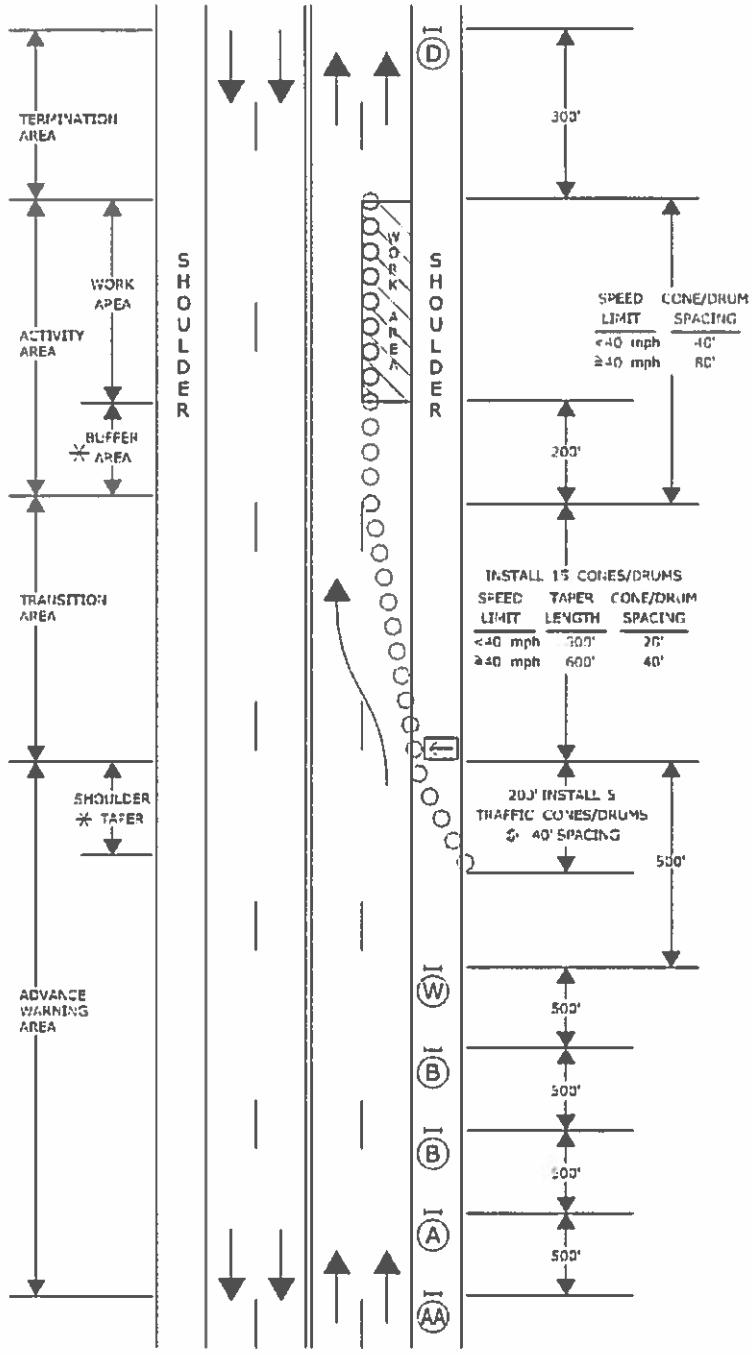
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED _____ PRINCIPAL ENGINEER

Charles S. Narrow
2012.09.06 15:51:43-0400

WORK IN RIGHT LANE - 4 LANE UNDIVIDED HIGHWAY

SIGN FACE
86 SQ. FT (MIN.)



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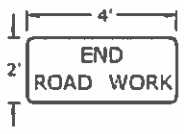

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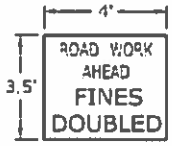

TRAFFIC CONE **OR** TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 10

SEE NOTES 1, 2, 3, 4, 5, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

Charles S. Harlow
2012.06.26 15:54:15-04'00'

PRINCIPAL ENGINEER

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

If there is no method of payment for the temporary transition in those areas where a traverse dropdown exists, then the contract lump sum price for the "Maintenance and Protection of Traffic" shall also include furnishing, installing and removing the material for the temporary transition.

ITEM #974001A - REMOVAL OF EXISTING MASONRY

Section 9.74 of the Standard Specifications is supplemented and amended as follows:

9.74.01 - Description:

Delete the entire article and replace with the following:

Work under this item shall include the removal and satisfactory disposal of existing parapets, spandrel walls, arch, stems, footings, and the portion of the slab as shown in the plans and as directed by the Engineer. Portion of the abutment backwall removal if required by the Engineer shall also be included under this item. Removal of existing railings, beams and any utility conduits embedded in masonry shall also be included in this item. The use of the term "masonry" within this specification is of a generic nature and shall refer to the concrete material used for construction to be removed within the limits described above and on the plans.

9.74.03 - Construction Methods:

Add the following:

Due precaution shall be taken to avoid injury to new construction, portions of the existing structure to remain. Blasting shall not be used.

The concrete shall be removed to the limits shown on the plans. The concrete shall be saw cut to delineate the removal limits. Pneumatic hammers or any other method approved by the Engineer may be used to remove the concrete. Maximum 25 lb hammers shall be used near reinforcing steel that is to remain. Pneumatic tools shall not be placed in direct contact with the reinforcing steel that is to remain.

Loose and small concrete fragments shall be cleaned from the reinforcing steel required to be left in place.

The Contractor shall take necessary precautions to prevent any damage to the portions of the structure to remain. Any damage shall be repaired by the Contractor, as directed by the Engineer, and at no cost to the Town.

When removing the concrete and reinforcing steel, the Contractor shall take necessary precautions to prevent debris from dropping into the stream.

All debris shall be disposed of, from the site, by the Contractor.

9.74.05 - Basis of Payment:

Add the following:

Removal of all loose concrete from reinforcement, wire brushing and straightening of the reinforcement, as directed by the engineer, shall also be included under this item.

ITEM NO. 0980001A – CONSTRUCTION STAKING

9.80.03—Construction Methods:

Delete the first paragraph.

Add the following after the last paragraph:

The Contractor shall provide as built red lined drawings showing the following information:

- Location of all underground utilities uncovered during construction,
- Location of the replace waterline,
- Outside edges of the bridge,
- Contours of the new slopes ,
- Contours of the area on the southwest corner of the bridge showing the final lawn grading,
- Top of footing elevations
- Top of Cellular Concrete Mattresses For Erosion Control
- Final streambed elevations within the project limits.
- One reference elevations on each corner of the bridge,

ITEM 1118051 A TEMPORARY SIGNALIZATION (SITE NO. 1)

DESCRIPTION

The work under this Item shall conform to the relevant special provisions of Section 10. and Section 11. of the Standard Specifications and the 2009 Manual on Uniform Traffic Control Devices (MUTCD) and the following:

The work under this Item shall include the furnishing and installation of part or all of the following items: temporary powered traffic signal control; conduit; vehicle detectors; traffic controller; foundations, poles, all cable and wiring; equipment grounding and bonding; and all other equipment, labor, materials and incidental costs necessary to provide a complete, fully operational traffic control signal system as specified herein and as shown on the plans. Also included is all work necessary to prepare the site for each traffic signal support, including but not limited to creating a suitably level surface for the support and/or building a platform where the support is to be located and upon completion of the work returning the site to its original condition.

MATERIALS

Within 15 days following execution of the Contract, the Contractor shall order the proposed traffic signal equipment and submit proof of this order to the Engineer. .

The Contractor shall deliver to the Engineer a certificate of compliance from the manufacturer for all materials purchased.

The temporary traffic control signals shall be used during the three phases of bridge construction. The Contractor shall own, operate and maintain the temporary signal during the entire construction period and upon completion of the work remove the traffic signal control equipment from the site.

The temporary signal supports may be wooden poles, metal poles or portable systems. .

The traffic signal shall operate in conformance with the traffic signal permits issued by the State. Any changes from these setups shall be pre-approved by the State.

Installation

Where new conduits are installed in existing grass areas, the work shall include the placement of a minimum of 4 inches of topsoil and seed to restore the disturbed are to their original condition.

CONSTRUCTION METHODS

The signal systems shall be constructed in conformance to the plans and as directed by the Engineer. This shall include modifications as necessary for each stage of the work.

Vehicle Detection

Video vehicle detectors (VVD) shall be installed for vehicle detection. The VVD shall be a true presence detector. It shall be suitable for mounting on roadside poles and provide presence indication of moving or stopped vehicles in its detection zones, provided by contact closure to the controllers.

The VVD shall be mounted "forward looking" on poles or sign structures at the specified locations. The mounting assembly shall incorporate a ball-joint, or other approved mechanism, which can be tilted in both axes, then locked into place, to provide the optimum area of coverage. The Contractor shall install the detector unit at the height of 16 - 20 feet above the road surface so that the masking of vehicles is minimized and that all detection zones are contained within the specified elevation angle as suggested by the manufacturer.

Emergency Operation

When the traffic signal installation malfunctions or switches over into flashing operation, the control unit shall immediately alert the Contractor's designee and the Town of West Hartford Police Department by automatically placing a call, sending a pre-programmed SMS message and an e-mail to the designated phone number(s).

METHOD OF MEASUREMENT

The complete operational system at the intersection shall be measure as a single unit. No individual measurements for payment shall be made. This item shall include resetting, modifications, all tool, material and work necessary to install, operate, maintain, remove and restore the site.

BASIS OF PAYMENT

Payment will be at the Contract Price Bid per each site and includes furnishing and installing all materials described above to complete the work. Furnishing, installing and removing traffic control devices associated with the operation of the signal shall be considered incidental to this item.

No separate payment will be made for this work associated with the conduit and all costs in connection therewith, including the creation of a level surface for the units by grading and/or a platform, the removal of the temporary materials and returning the areas to their original condition and the loaming and seeding shall all be included in the contract lump sum bid price for this item.

Item	Units
Temporary Signalization (Site No. 1)	each.

ITEM #1301083A – 10" DUCTILE IRON PIPE (WATER MAIN)

Description: The Contractor shall furnish and install ductile iron pipe, of the sizes indicated, and all the fittings and appurtenances to the lines and grades shown on the Contract Drawings, complete as shown, specified or directed, including but not limited to; pressure reducing valves, vaults, bends, restraint, blow off assemblies, gate/butterfly valves, air valves, sterilization fittings, tapping sleeves, tapping gates, RCP sleeve, gate boxes, tees, thrust blocks and anchors, polystyrene, transporting materials, digging test pits, the clearing, trenching, disposing of unused excavated materials, removing and disposing of sections of the present water mains and concrete anchors, furnishing installing and field testing the pipelines complete with lacings and harnessing, concrete anchor/thrust blocks and utility identification tape, all trenching, rock removal, refilling trenches, filter fabric, furnishing additional material for refilling, trench compaction/testing, temporary and permanent surface restoration, miscellaneous grading, sheeting, bracing, pumping and all incidental work where required, to the specifications and details of the District, except as otherwise herein provided for.

Reference to "District" in this Item refers to "The Metropolitan District".

Materials: All materials used shall be from manufacturers and models as specified in the MDC "Approved Materials List For Water Main Installations" unless otherwise approved by the Engineer

Ductile Iron Pipe - Submittals: Six (6) sets of the manufacturer's literature and/or shop drawings for the materials of this section shall be submitted for approval. The Contractor shall furnish detailed drawings as follows and no work shall be fabricated until they have been approved by the Engineer:

1. Dimensions and general details for typical length of pipe.

2. Detail of joint between pipes for both push-on and restrained joints together with installation instructions.

3. Dimensions and general details for all fittings including joint details for both mechanical and restrained joints.

4. Location plans or lists showing number of pipes and fittings and other such information as needed for installation.

Prior to pipe-laying, the Contractor shall dig test pits where the new pipe connects to the present water main to ascertain the location, elevation and cross sectional dimensions of the present mains.

Pipe Specifications: All ductile iron pipe with push-on joints shall be the 60-42-10 grade cast in revolving molds in full accord with the following American National Standard, except for details

for the joints and other modifications stated herein: "Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids".

ANSI/AWWA C151/A 21.51, furnished in 18-foot or 20-foot lengths. Push-on joints for such pipe shall be in accordance with ANSI/AWWA C111/A 21.11.

All requirements of the American National Standards Institute Specifications will be rigidly enforced and the foundry shall submit regularly to the Engineer, single copies of the report of tensile tests and low temperature impact tests as required in Section 51-12 and 51-13 of the ANSI/AWWA C151/A 21.51.

The Contractor shall submit to the Engineer a certified statement that the inspection and all of the specified tests have been made and met as required in Section 511.4.2 of ANSI/AWWA C151/ A21.51.

The ductile iron pipe to be furnished under this Contract shall conform to the following dimensions:

Size (Inches)	Thickness (Inches)	Thickness (Class)
4	0.35	54
10	0.41	54

Where shown, specified or ordered, the pipe shall have push-on joints of the type which employs a single elongated, grooved rubber gasket to affect a watertight joint seal. The joints shall conform to the latest American National Standard for "Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings", ANSI/AWWA C111/A21.11, except as otherwise specified herein. The rubber gaskets shall be manufactured from high quality rubber satisfactory to the Engineer and shall be similar to the gaskets used in the Tyton joint as manufactured by the United States Pipe and Foundry Company or the Fastite joint as manufactured by the American Cast Iron Pipe Company or the Grip-Tite joint as manufactured by Griffin Pipe Products Co. or approved equal.

Where shown, specified or ordered, the pipe shall have restrained joints of a type which employs a single elongated, rubber gasket to affect a watertight joint seal. The joints shall conform in general to ANSI/AWWA C111/A21.11. The rubber gaskets shall be manufactured from high quality rubber satisfactory to the Engineer. The restrained joint pipe shall be as manufactured by the American Cast Iron Pipe Company, McWane, Super Lock, TR Flex, or approved equal.

The grooved rubber gaskets and joint lubricant shall be furnished with the pipe and shall be considered included in the price bid per linear feet of pipe. The gasket shall be plainly identified as to pipe size and packaged in a suitable and satisfactory manner for shipment.

Each pipe shall have cast or stamped on it the maker's name or mark, the year in which the pipe is cast, and the letters "DI" or "DUCTILE" as required by the American National Standards

Institute Specifications. The weight and thickness class shall be painted on each pipe, as required by the American National Standards Institute Specifications, and a record of weight for each pipe before the application of a lining or coating shall be submitted to the Engineer.

Fitting Specifications: All ductile iron fittings to be furnished under this Contract shall conform to the American National Standard for "Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch, for Water and other Liquids", ANSI/AWWA C110/A21.10. In addition to the marking required by the American National Standards Institute Specifications, the year of casting shall be cast on all fittings. Single copies of the results of tests required by the ANSI/AWWA C110-A21.10 shall be submitted to the Engineer.

Bolt holes in the mechanical joint bells of all fittings shall straddle the vertical centerline of the fitting (fitting laying in horizontal position).

Unless otherwise shown, specified or ordered, all fittings shall be mechanical joint (MJ).

Joint Accessories: All joint accessories shall be furnished with each pipe and fitting and shall be plainly identified as to pipe size. A certified statement that all required tests on the joint accessories have been made and met as specified shall be submitted to the Engineer.

Lining and Coating: All pipe and fittings, except sleeves, caps and plugs shall be lined with cement mortar in accord with the American National Standard for "Cement Mortar Lining for Ductile-Iron Pipe and Fittings for Water", ANSI/AWWA C104/A21.4. However, linings with thickness twice those specified in Section 4-10.1 shall be furnished. Thickness determinations, in accord with Section 4-9, shall be made on at least one fitting of each type.

All pipe and fittings, including steel sleeves, caps, plugs, tees, bends and reducers, shall be coated inside and outside with an approved bituminous material, neither sufficiently soft to flow when exposed to the summer sun, nor brittle enough to crack and scale off when exposed to temperatures below freezing.

Coating may be applied by painting, dipping or spraying, but in no case are the pipe fittings or the coating material to be heated to a high enough temperature to be detrimental to the cement lining. In addition, the coating of the interior shall conform to the requirements of ANSI/AWWA C104/A21.1.

The Contractor shall submit to the Engineer a certified statement that the inspection and all of the specified tests have been made and met.

THE FOLLOWING ARE ACCEPTABLE PIPE MANUFACTURERS:

Atlantic States Pipe (McWane)
United States Pipe & Foundry Co.
Griffin Pipe Products, Inc.
Clow Corp. (McWane)
ACIPCO

Inspection: All pipe and fittings shall be subject to inspection by the Engineer after delivery to the job site and may also be subject to inspection at the foundry by a representative of the District.

Harnessing Specifications: Eyebolts and lacing rods shall be of A-36 steel as manufactured by Star National Products, Columbus, Ohio or approved equal. All components shall be hot -dipped galvanized.

Retainer glands for mechanical joints shall conform to ANSI/AWWA C111/A21.11 and the following additional requirements:

1. All retainer glands shall be ductile iron and all retaining devices shall be heat treated ductile iron.

2. All retainer glands shall have a minimum rated working pressure of 250 psi.

The retainer glands shall be Megalug Series 1100 as manufactured by EBAA Iron Sales, Inc. Eastland, Texas or approved equal.

Components of the harnessing system for push-on joint ductile iron pipe shall be in general accord with the above requirements for lacing rods and retainer glands. The harnessing system shall be the Series 1100HD Megalug Harness or Series 800 Coverall, both as manufactured by EBAA Iron Sales, Inc., Eastland, Texas or approved equal.

Trench Refill: Trench refill materials shall meet the following requirements:

Native Backfill: Native backfill shall consist of granular soil excavated on site meeting the approval of the Engineer. Materials shall be of such a nature that they will form a stable dense fill. Materials shall not contain stones larger than 6-inch, vegetation, masses of roots, individual roots more than 12-feet long or more than ½-inch in diameter, trash, clays, or plastic fines. Organic matter shall not exceed two percent (2%). Non-plastic fines (silts) shall not exceed 20 percent (20%).

Bank Gravel: Bank gravel shall conform to the requirements of Article M.02.01-2, CDOT Form 816.

Crushed Stone: Crushed stone shall conform to the requirements of Article M.02.01-1 Grading A, CDOT Form 816 and Sub article M.02.02-2(a), CDOT Form 816, for loss on abrasion.

Granular Base: Granular base shall conform to the requirements of Article M.02.03, Grading "C", CTDOT Form 816.

Sand: Sand shall conform to the requirements of Sub article M.11.04c, CDOT Form 816.

Utility Identification Tape: Utility identification tape shall be 6-inch wide non-detectable, designed to withstand extended underground exposure, colored blue and be durably imprinted with an appropriate warning indicating the presence of the buried pipe.

Ductile Iron Pipe and Fittings: Refer to the "Ductile Iron Pipe (Water Main)" specification.

Gate Valve, Extension Stem and Gate Box: Refer to MDC Detail.

Concrete anchor/ Thrust blocks: Anchors and thrust blocks shall be Class "A" concrete conforming to Article M.03.01.

Harnessing: Refer to MDC Detail.

Filter fabric: Fabric shall conform to Article M.08.01-26.

Utility Identification Tape: The tape shall be 4-inches wide, designed to withstand extended underground exposure, colored blue and be durably imprinted with an appropriate warning indicating the presence of the buried pipe.

Expansion fittings shall be as manufactured by EBAA Iron EX-TEND 200 or approved equal

Construction Methods:
Transporting and Distributing Pipe: The Contractor shall transport the pipe and fittings from the place of manufacture, shall secure all permits which may be necessary, and comply with the requirements of the Connecticut Bureau of Highways, Cities and Towns, concerning heavy transporting over State, City and Town highways.

During loading, transportation and unloading, more than ordinary care shall be taken to prevent injury to the pipes. Such work shall be done with each section of the pipe under full control at all times and under no condition shall a pipe be dropped on the ground. Pipes shall be placed on sand beds or other methods may be employed to avoid chances of pipe being frozen to the ground surface.

In distributing the pipe in the field, as permitted, each piece shall be placed as near as possible to the point where it is to be installed and faced in the proper direction. In case any pipe received damage from handling or other cause and made unacceptable to the Engineer, it shall be replaced

with a new pipe at the expense of the Contractor. The Contractor is cautioned that State, City, or Town authorities may not permit storing pipe, etc., within street or highway limits.

Clearing Trees and Bushes: No trees within streets and highways, or adjacent to the normal trench therein, shall be damaged or removed. In streets and highways where there is no permanent paving, the Contractor shall, unless otherwise directed, remove and dispose of only those trees, bushes or shrubs required for construction and approved by the Engineer. The unlimited removal of trees and brush will generally not be required or permitted. All trees, bushes or shrubs which are not to be removed shall be preserved and protected by the Contractor. Should any trees, bushes or shrubs, which are to be preserved and protected, become damaged by the conduct of the work, the Contractor shall replace them at his own expense. Brush, small branches, trash, large trunks, stumps and all other surplus material and debris shall be removed from the site of the work.

Trenching: Prior to any excavation, the Contractor shall notify all affected utilities in accord with Public Act 77-350 (CALL BEFORE YOU DIG 1-800-922-4455).

The trench for the pipe shall be 18-inches beyond the outside of the barrel of the pipe on each side, the top of the barrel of the pipe shall be as shown on the Contract Drawings or as directed by the Engineer; and the bottom of the trench shall be at the bottom of the pipe. The Contractor alone shall be responsible for the stability and safety of the trenches and adjacent structures, and shall use such trench support and bracing as necessary without additional payment therefor. Pavement cuts shall be made with the edges reasonably smooth and without cracking or damage to the pavement outside the limits of the portion excavated. The methods used and the location of such cuts shall conform to the requirements and specifications of the City or State. Repairs to pavement shall be made in accordance with the requirements and specifications of the City/Town or State.

In any area to receive fill, no pipe trench shall be excavated until the fill has been placed and compacted to a level at least 3-feet above the top of the pipe to be installed.

The Contractor may be required to excavate locally to determine the location and depth of existing underground structures on the lines of the pipe well in advance of the pipe laying. There will be no additional payment for this work, including backfilling and temporary surfacing.

Sheeting, Bracing and Pumping: The Contractor shall furnish and put in place such sheeting and bracing as may be necessary, to support the sides of the excavation, to prevent undermining of the pavement or to protect from possible injury any pipes, sewers, ducts, poles, conduits or other structures existing in the streets, or highways, and shall remove such sheeting and bracing as the trench is refilled unless the Engineer shall order it left in place.

The Contractor shall maintain all excavations in proper condition for carrying on the work, and to this end shall do all bailing, draining, or pumping which may be necessary to keep the trenches or other excavations free of water. No direct payment will be made for this work but

the cost thereof will be considered as having been included in the price bid per linear feet of pipe.

If the Contractor installs and operates wellpoints on any section of the work, the expense of the same shall be borne by the Contractor.

Protection of Pipes, Drains, Culverts, etc.: All existing gas pipes, water pipes, sewers, drains, manholes, catch basins, culverts, electrical conduits, telephone ducts, utility poles or other structures which are uncovered by the excavation, and which do not, in the opinion of the Engineer, require to be changed in location, shall be carefully supported and protected from injury by the Contractor; and in case of damage, they shall be restored by him without compensation; therefore, to as good condition as that in which they were found and shall be kept in repair during the existence of this Contract.

Laying Ductile Iron Pipe: Proper and suitable tools and appliances for safe and convenient handling and laying of pipe shall be used, and care shall be taken to prevent the coating of the pipe from being damaged, particularly on the inside of the pipes. The Contractor shall not start any pipe work until he has satisfied the Engineer that he has on hand and available the following minimum equipment:

1. Wheel pipe cutters, hydraulic pipe cutter or a pipe saw for the sizes of pipe to be laid;

2. Ratchet type socket wrenches for mechanical joint bolts and nuts;

3. At least two expandable pipe stops of the proper size for closing the end of the pipe being laid when not actually laying pipe.

All pipes shall be carefully examined for defects and no pipe or other casting shall be laid which is known to be defective, and should any defective pipe or other casting be discovered after being laid, it shall be removed and replaced with a sound casting at the expense of the Contractor.

Pipe located on the bridges shall be carefully cut to length and carefully installed to insure proper positioning of joints between pipe support assemblies.

The pipe shall be laid upon sound soil, cut true and even so that the barrel of the pipe will have a bearing for its full length. In the event the trench is excavated below the grade of the bottom of the pipe, the trench will be brought up to grade with acceptable crushed stone or processed gravel, pneumatically tamped, at the expense of the Contractor, before the pipe is laid.

The utility identification tape shall be place approximately two (2) feet above the top of the pipe.

When not actually laying pipe (e.g. overnight, weekends, holidays, etc.) the open ends of the pipe shall be kept plugged with approved watertight night caps furnished by the Contractor.

The Contractor shall take all necessary precautions to prevent water from entering the pipe during installation of the pipeline.

Unless shown otherwise on the Contract Drawings or directed otherwise by the Engineer, the pipeline shall be installed a minimum of four (4) feet - six (6) inches below finished grade. The pipeline shall also be installed to provide at least eighteen (18) inches of vertical clearance between the water pipe and storm drains or sanitary sewers.

Cutting Pipe: Whenever the pipes require cutting, an approved saw, wheel, or hydraulic type cutter shall be used. This work shall be done by the Contractor without extra compensation, in a manner satisfactory to the Engineer, and only experienced men shall be engaged thereon.

Joints: On pipe with rubber gasket push-on joints, the gasket shall be installed in the socket of the pipe previously laid and the gasket then lubricated. The plain end of the pipe being laid shall then be inserted and pulled or pushed to the full depth of the socket. An approved jack-type tool shall be used to assemble pipe 10-inchs and larger. Plain ends of cut pipe shall be filed or ground to a taper to prevent damage to the gasket during insertion.

On fittings, butterfly and gate valves with mechanical joints, the follower ring and rubber gaskets shall be placed on the plain end of the pipe being (or previously) laid and entered into the socket of the fitting. The gasket shall then be evenly seated in the socket, the follower ring moved up to the face of the gasket and the "T" bolts inserted and made finger tight. The "T" bolts shall then be tightened with a ratchet or torque wrench to between 60 and 80 foot-pounds. See S-1.19 for additional joint requirements.

Joint Restraints: Where and as shown on the Contract Drawings, or as directed by the Engineer, retaining glands or eye bolts and lacing rods shall be installed with the standard lacing details shown for mechanical joint pipe or fittings.

The retaining glands shall be installed in lieu of the standard mechanical joint gland. The "T" bolts shall be tightened with a ratchet or torque wrench to between 60 and 80 foot-pounds. Only then shall the set screws be tightened to a maximum of 70 foot-pounds, tightening 180 degrees apart and making a final check with the wrench to ascertain that all set screws have 70 foot-pounds. The joint is then complete. Torque settings shall be done with the pipe laid in the trench in place.

Retaining glands shall also be installed adjacent to the pipe bells. No "T" bolts will be installed; however, the set screws will be installed as above.

The standard mechanical joint gland placed behind the pipe shall be installed snugly against the back of the bell to preclude movement. No "T" bolts will be installed on this gland.

Other special lacing or harnessing, if shown on the Contract Drawings, or directed by the Engineer shall be installed by the Contractor to the satisfaction of the Engineer.

Refilling Trenches: As soon as practicable after the pipes have been laid, the trenches shall be refilled at least to a level 2-feet above the top of the pipe with approved gravel, deposited in layers no more than 6-inchs in depth and satisfactorily compacted with pneumatic hand tampers, each layer to be leveled and thoroughly compacted to the satisfaction of the Engineer before the next layer is deposited. There will be no additional payment for necessary borrow to refill to this level. Special care shall be taken to consolidate the gravel under the pipes and the whole work of refilling shall be done in a manner which will prevent subsequent settlement and injury to the pipe. Above this level except for the surfacing material, the Contractor may use approved material from the trench excavation.

Trench Backfill: Backfill above the 24-inch level will comply with and be paid for under the appropriate items included in this Contract.

Frost in Trench or Refill: Every effort shall be extended to eliminate the presence of frost in the bottom and sides of the trench and refill material. The Contractor shall cover and heat the trench or take such other means as necessary to eliminate the frost and chance of subsequent pipe settlement.

Cleaning: Prior to the installation of the pipeline, the Contractor shall clean the interior of the pipelines to the satisfaction of the Engineer, by such means as the Engineer approves.

Filling, Sterilizing and Flushing: At the location(s) as shown on the Contract Drawings or as ordered by the Engineer, the Contractor shall install an appropriately sized chlorination inlet, chlorination blow-off and sterilization sampling connection point on the crown of the pipe for sterilization testing. All costs for providing and installing said fittings shall be included in the unit price bid per foot of pipe or pipeline installed. As soon as practicable after the Contractor has completed installation of the pipeline to include a successful leakage and hydrostatic test, the District will fill, and flush the pipeline. The Contractor shall supply labor to assist the District in filling and flushing the pipeline. If the pipeline is not connected to an existing operating water main, the Contractor shall furnish all labor, materials, equipment, at no extra cost to the District or State, to temporarily connect a District water main to the pipeline to be tested. The Contractor will not be charged for the District water used in this operation. The Contractor shall be responsible for labor, equipment and material necessary for erosion control.

Subsequent to sterilizing and flushing the water main(s), the District will test the water in accord with required state regulations. Should the water fail to pass the required tests and it is determined that the failure was caused by the Contractor's operations, all costs for re-sterilization, re-flushing, re-testing, etc., shall be borne by the Contractor.

The Contractor will attempt to minimize any damage to the road work that may occur during the flushing operation; however, he shall repair any such minor damage and the cost thereof will be considered as included in the price bid per linear feet of pipe.

Disinfecting and Flushing Water Mains Continuous Hypochlorite Feed Method

The work specified in this section describes continuous feed method of disinfecting newly constructed potable-water mains. The Contractor installing water mains and appurtenances such as pipe, valves, fittings and accessories within the District service area is responsible for disinfecting the water main and pipe sections. The District requires the Contractor to adhere to the strict standards stipulated in latest edition of AWWA C651, "Standard for Disinfecting Water Mains" when performing disinfection procedures. The standards represent the physical, chemical and bacteriological parameters that must be satisfied prior to determining if newly installed water mains can be placed into service.

The Contractor installing water mains and appurtenances within the District service area is responsible for all operations related to disinfecting water mains and pipe sections except working on the existing water distribution system. The gates within the existing water distribution system shall be operated only by the District.
The Contractor shall be required to issue a submittal for the subcontractor that will be performing the chlorine injection. The submittal shall include a minimum of three disinfection jobs of equal size and scope within the last two years and three references with contact information to establish the minimum level of required experience to perform the chlorine injection on the project. The Contractor shall be allowed to proceed with the implementation of this Section only if the submittal has been approved by the District.

After flushing and subsequent to performing the disinfection operation, the District will collect and analyze two complete sets of water samples. The two sets of water samples will be collected approximately twenty-four hours apart from each other. The first sample will be taken 2 hours after flushing and the second sample 24 hours after the first sample. Anticipate approximately two business days for sampling and test results. The District will compare the results from the water samples collected to the maximum allowable limits for each parameter. If all parameters are satisfactory then the water main is considered to have passed and can now be opened for service. It is important to note that if any one parameter fails then two additional water samples will be collected twenty-four hours apart from each other. The parameters used to compare to the water sample results are listed in Table 1.

Use of District supplied water for flushing purposes may be limited during periods of high demand or when temperatures exceed 95 degrees Fahrenheit.

Submittals
The Contractor shall be responsible for developing a detailed plan that discusses at a minimum the scouring full pipe diameter flushing, methods for handling the volume of water from the flushing operation, disinfecting procedure with liquid sodium hypochlorite solution, de-chlorination procedure and sampling for each section of new water main to be tested. The Contractor shall provide a detailed submittal to the Engineer and District that outlines the specifics of the proposed procedures for each location.

SODIUM HYPOCHLORITE SOLUTION. Sodium hypochlorite conforming to ANSI/AWWA B300 is available in liquid form in glass, rubber-lined or plastic containers typically ranging in size from 1 quart to 5 gallons. Sodium hypochlorite contains approximately 5% to 15% available chlorine, and the storage conditions and time must be controlled to minimize its deterioration.

The sanitary handling of materials, the practices during construction, and the continual inspection of the work are the primary means for ensuring the sanitary condition of the water main. The effectiveness of disinfection depends on maintaining clean pipes and avoiding major contamination during construction activities.

PREVENTATIVE AND CORRECTIVE MEASURES DURING CONSTRUCTION. Heavy particles generally harbor bacteria and prevent elevated chlorine concentrations from contacting and killing these organisms. The procedures of this specification must be observed to assure that a water main and its appurtenances have been thoroughly cleaned for the final disinfection by chlorination. Also, any connection of a new water main to the active distribution system prior to the receipt of satisfactory physical and bacteriological sample results may constitute a cross-connection. Therefore, new water mains must be isolated until physical and bacteriological tests, immediately after and 24 hours following flushing of the water main, are satisfactorily completed and meeting District specifications.

A successful disinfection process begins at the early stages of construction. The Contractor must protect piping systems from contamination including interiors of pipes, fittings and valves. Pipe and appurtenances delivered for construction shall be capped or bagged to minimize the entrance of foreign material. All openings in the pipeline shall be closed with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons, such as rest breaks or meal periods. Rodent-proof plugs may be used when watertight plugs are not practicable and when thorough cleaning will be performed by flushing or other means. The sanitary handling of materials, the practices during construction, and the continual inspection of the work are the primary means for ensuring the sanitary condition of the water main.

Delay in placement of delivered pipe invites contamination. The more closely the rate of delivery is correlated to the rate of pipe laying, the lower the risk of contamination.

JOINTS. Joints of all pipes in the trench shall be completed before work is stopped. If water accumulates in the trench, the plugs shall remain in place until the trench is dry.

SEALING MATERIALS. No contaminated material or any material capable of supporting prolific growth of microorganisms shall be used for sealing joints. Sealing material or gaskets shall be handled in a manner that avoids contamination. The lubricant used in the installation of sealing gaskets shall be suitable for use in potable water and approved by the pipe manufacturer, and not contribute odors. It shall be delivered to the job in closed containers and shall be kept clean and applied with dedicated, clean applicator brushes.

CLEANING AND SWABBING. Each pipe section that is being readied for assembly in the field and just prior to installation, shall have the interior pipe surface swabbed with a 1% to 5% hypochlorite disinfecting solution using mechanical means like pulling a chlorine soaked mop or pigging device through the pipe or by power washing . If in the opinion of the Engineer, any dirt enters the pipe while being installed, the pipe will be swabbed again with 1% to 5%. The cleaning method used shall not force mud or debris into the interior pipe-joint spaces and shall be acceptable to the Engineer.

WET TRENCH CONSTRUCTION. If it is not possible to keep the pipe and fittings dry during installation, the water that may enter the pipe-joint spaces shall contain an available chlorine concentration of approximately 25 mg/L. This may be accomplished by adding calcium hypochlorite granules or tablets to each length of the pipe before it is lowered into a wet trench or by treating the trench water with hypochlorite tablets.

FLOODING BY STORM OR ACCIDENT DURING CONSTRUCTION. If the main is flooded during construction, it shall be cleared of the floodwater by draining and flushing with potable water until the main is clean. The section exposed to the floodwater shall then be filled with chlorinated potable water that, at the end of a 24-hour holding period, will have a free chlorine residual of not less than 25 mg/L. The chlorinated water may then be drained or flushed from the main.

PREFLUSHING OF SOURCE WATER. The source water used for disinfection and pressure testing shall be flushed prior to its use to ensure that normally occurring contaminants or debris are not introduced into the new water main pipe. The District will be responsible for operating gate valves in the street as necessary. Adequate drainage must be provided during flushing, away from the construction area. The contractor shall be responsible for constructing temporary discharge piping and/or materials as necessary, at no additional cost to the District.

CONTINUOUS FEED METHOD OF CHLORINATION. Hypo-chlorination utilizes a concentrated dose of chlorine solution, usually 25 ppm for a 24 hour period, to eradicate bacterial contamination. This is a critical operation that requires skilled personnel and therefore the District reserves his right to request the replacement of any Contractor / Subcontractor's personnel for lack of skills performing these tests The Contractor shall not be compensated for the replacement of his Subcontractor or its personnel if requested by the District as a result of lack of skills in performing these tests. The District has developed safe and effective hypo-chlorination procedures. These procedures allow for disinfecting a new section of the MDC water distribution system, minimizing the risk to the field crews, to customers and to the environment. These procedures are to be followed when disinfecting all new pipelines which utilize the injection of sodium hypochlorite.

FINAL FLUSHING. After the applicable retention period of 24 hours, heavily chlorinated water should not remain in prolonged contact with the pipe. In order to prevent damage to the pipe lining or to prevent corrosion damage to the pipe itself, the heavily chlorinated water shall be flushed from the main, fittings, valves and branches until chlorine measurements show that the concentration in the main is no higher than that generally prevailing in the distribution system.

The Contractor shall make arrangements with the District to flush the new water main following disinfection. District forces shall be responsible for operating the gate valves in the street as necessary. It is important to note here that the new water main shall be kept isolated from the active distribution system using a physical separation until disinfectant has been flushed and satisfactory bacteriological, physical and VOC testing has been completed. Operation of all valves used in filling and flushing the line shall be performed by District personnel.

The Contractor shall be responsible for supplying necessary materials, equipment and appurtenances for neutralizing the chlorine and to perform all flushing operations except the operating of gate valves within the existing water distribution system. The minimum materials and equipment required to flush and neutralize the water main are:

- Five 3-inch x 20-foot rubber hoses, each with 3-inch male x female Camlock Couplings.
- Dechlorination device, model 3M-CLA, manufactured by Measurement Technologies, Sammamish WA or approved equal.
- Standard hydrant wrench.
- 90-degree ductile iron elbow with retaining gland, either 4 or 6-inch depending on blow off size.
- Customized 4 or 6-inch, 3/8-inch thick metal plate that bolts on to the 90-degree ductile iron elbow with 2-1/2-inch male fire connection (NST) thread. 4 or 6-inch depends on the blow off size.
- Ascorbic acid powder supplied by Bran NU Labs in Meriden CT or approved equal.

The Contractor shall also be responsible for determining where the water will drain during the flushing operation so as not to cause localized flooding or cause damage to property or the environment. The environment to which the chlorinated water is to be discharged shall be inspected. Following neutralization of the chlorinated water, the level of chlorine shall be between 0.1 and 0.8 mg/l and in no case higher than the chlorine level in the distribution system. It is important to note that during the summer months water mains tend to take longer to disinfect due to higher ambient temperatures increasing the bacterial count. Usually, additional flushing will result in successfully disinfecting the water main.

DISINFECTION TESTS. Following disinfection and flushing, District forces will collect and analyze water samples from the new main utilizing a copper sterilization sampling fitting located no more than every 1,200 feet along the newly constructed water main. Two sets of water samples will be collected: the first approximately 2 hours following the flushing operation, and the second set of samples will be collected 24 hours after the first set of samples was taken. The results are available approximately two business days following collection. The analytical results for the samples will be compared to the maximum allowable limits for each parameter as established by the District shown in Table 1. If the parameters are satisfactory for BOTH sets of water samples, then the water main is considered passing and can be opened for service.

To ensure the water sample integrity, the District requires the person taking the sample to complete a "Chain of Custody" form, see attachment. This form must accompany the water sample when transporting to the District's laboratory at Reservoir 6 prior to analyzing.

Table 1
Physical, Chemical and Bacteriological Parameters for Water Mains

Parameter	Maximum Allowable Limit
pH	6.4 to 10
Color	15 units
Turbidity	1.0 NTU
Odor	2
Hardness	60 ppm.
Specific Conductance	150 microhms at 25 °C
Coliform Bacteria	0 per 100 milliliters
Standard Heterotrophic Plate Count	< 500 per milliliter at 35 °C
Chlorine Residual	<0.1- 0.8 ppm.
Volatile Organic Compounds (VOC)	See attached **Procedure**

RESAMPLING

If the initial disinfection fails to produce satisfactory physical and bacteriological results for EITHER set of water samples, the new main shall be re-flushed and re-sampled (two sets of water samples).

If the new water main fails two rounds of sampling, the District shall determine if re-disinfection is needed or if the new main should only be flushed.

ATTACHMENT-CHAIN OF CUSTODY FORM
MDC - Sample Collection \ Chain of Custody
Distribution Specials
New Mains

Project DVW (when applicable to Developer Permit Agreement): _____

Project Name (for all projects): _____

Town: _____

Sample I.D.	Location (street)	Size of Main	Length of Main
S1			
S2			
S3			
S4			

Is a VOC being submitted? YES / NO

Time Collected

S1	S2	S3	S4

Chlorine residual

S1	S2	S3	S4

Collected by: _____

Any observations that might affect the physical and bacteriological quality of the water should be noted below:

_____

_____

Relinquished By:	Date / Time:
Received By:	Date / Time:
Relinquished By:	Date / Time:
Received By:	Date / Time:

Air Valve Assembly:
All brass fittings shall be of standard design generally used by water utilities and be in accord with ASTM B62 and ANSI/AWWA C800.

The corporation stops and angle valves shall be of good, tough, composition bronze well-mixed and free from flaws and imperfections. The corporation stops shall be of a type suitable for use in ductile iron mains. The inlet end shall have an inlet taper thread type known as the "Mueller Taper Thread".

Compression fittings, valves, etc. shall be of the design employing the pipe clamp feature.

The gate valve box shall conform to the following requirements:

1. Cast iron shall conform to ASTM A48, Class 25.

2. Top section shall be of the top flange design and shall have no bead on the bottom.

3. The word "WATER" shall be cast with raised letters in the center of the cover.
4. Base section shall be of the Dwyer design which centers the operating nut for positive access to the valve.

5. For specific gate box details, see the MDC Details.

Inspection Before Installation: All tubing and fittings shall be carefully examined for defects and no material shall be installed which is known to be defective and should any defective tubing or fitting be discovered after being installed, it shall be removed and replaced with sound material at no additional cost to the District.

Installation: The air valves, chlorination valve and blow-off shall be installed according to the details and to the satisfaction of the Engineer. To properly receive the air valve or other assembly the ductile iron pipe shall be drilled and tapped. All tapped holes for corporation stops shall be tapped Mueller Thread.

All tapped holes in ductile iron pipe shall be cleaned by running the correct size tap into the hole immediately prior to installing the corporation.

Gate valve boxes shall be set plumb and centered on the fitting, etc. Earth fill shall be carefully tamped around the gate box to a distance of 4 feet on all sides of the box or to the undistributed trench face, if less than 4 feet.

Excavation and refill shall conform to the requirements under other applicable Contract Sections.

12-Inch and Smaller Gate Valves:
Quality Assurance: All gate valves, accessories and gate boxes shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured.

A certified statement that inspection and all of the specified tests have been made and met shall also be submitted.

All gate valves, accessories and gate boxes shall be subject to inspection by the Engineer after delivery to the job site and may also be subject to inspection at the foundry by a representative of the District.

In addition the District reserves the right to have any or all materials inspected and/or tested by an independent service at either the manufacturer's plant or elsewhere. Such inspection and/or tests shall be at the District's expense.

A certified statement that inspection and all of the specified tests have been made and met shall also be submitted.

Gate Valve: The gate valve shall conform to ANSI/AWWA C500, ANSI/AWWA C509 and the following additional requirements:

1. Valve shall be double disc or resilient sealed.

2. Bolts and nuts for connecting O-ring seal plates and bonnet to body shall either be copper-silicon alloy or stainless steel.

3. Valve shall be furnished with O-ring seals utilizing two O-rings, consistent with appropriate specifications.

4. Valve shall have mechanical joint ends, unless otherwise specifically indicated, which shall conform to ANSI/AWWA C111/A21.11. All joint accessories shall be furnished with each valve.

5. Direction to open (right-hand or left-hand) shall be as shown on the contract Drawings.

6. Operating nut shall be 2" square.

Gate Valve Box: The gate valve box shall conform to the following requirements:

1. Cast iron shall conform to ASTM A48, Class 25.

2. Top section shall be of the top flange design and shall have no bead on the bottom.

3. The word "WATER" shall be cast with raised letters in the center of the cover.

4. Base section shall be of the Dwyer design which centers the operating nut for positive access to the valve.

5. For specific gate box details, see the MDC Details.

Extension Stem: The extension stem shall be fabricated from steel conforming to ASTM A 36. Galvanizing shall conform to the latest edition of ASTM A 123.

Inspection Before Installation: The gate valve, gate box, etc. shall be subject to a careful inspection before being installed. The valve shall be run through a full open-close cycle to insure proper operation.

Installation of Gate Valve: The gate valve shall be installed according to the details shown and to the satisfaction of the Engineer.

All debris and foreign material shall be cleared from valve openings and seats. All mechanisms shall be checked and all nuts and bolts checked for tightness.

The valve box shall be set plumb and centered directly over the operating nut of the valves. Earth fill shall be carefully tamped around the valve box to a distance of 4 feet on all sides of the box or to the undisturbed trench face, if less than 4 feet.

Where and as shown on the Contract Drawings, or ordered, a valve extension stem shall be installed. An extension stem will be ordered when the valve-operating nut is more than 4.5 feet below finished grade.

Excavation and refill shall conform to the requirements under other applicable Contract Sections.

Blow-Off Assembly:
Quality Assurance: All blow-off assemblies including gate valves and fittings shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured.

All blow-off assemblies including valves and fittings shall be subject to inspection by the Engineer after delivery to the job site and may also be subject to inspection at the foundry by a representative of the District.

In addition, the District reserves the right to have any or all blow-off assemblies including valves, fittings and special castings inspected and/or tested by an independent service at either the manufacturer's plant or elsewhere. Such inspection and/or the tests shall be at the District's expense.

A certified statement that inspection and all of the specified tests have been made and met shall also be submitted.

Inspection Before Installation: Blow-off assemblies including gate valves, pipe, fittings, gate boxes, etc. shall be subject to a careful inspection before being installed. Valves shall be run through a full open-close cycle to insure proper operation.

Installation of Blow-off Assemblies: Blow-off assemblies including piping, gate valves, fittings, etc. shall be installed according to the details shown and to the satisfaction of the Engineer.

All debris and foreign material shall be cleared from valve openings. The blow-off assembly shall be set plumb. Blow-off assemblies and connecting pipe shall have at least the same depth of cover as the distributing main.

Special trench refill shall be placed over the pipe and fittings from the bottom of the trench to 2 feet above the top of the pipe and fittings.

Ductile iron pipe and harnessing shall be installed in accord with the specifications.

The utility identification tape shall be placed approximately two (2) feet above the top of the pipe.

Gate valves and gate boxes shall be installed in accord with the specifications.

Three-quarter inch (3/4") crushed stone, special trench refill and concrete shall be placed in accord with the specifications.

Excavation and refill shall conform to the requirements under other applicable Contract Sections. Temporary and permanent paved and unpaved surface restoration shall conform to the requirements under other applicable Contract Sections.

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

"10" Ductile Iron Pipe (Water Main)" which is considered to be the portion of pipe buried within the soil. Measurement shall be the actual number of linear feet of ductile iron pipe, in the sizes indicated, complete as shown, specified and directed. The length of pipe to be measured shall be the length of the line after the pipes have been installed, measured or computed along the center line of the pipe from the center line of the main line valves or face of the terminal pipe or fitting or change between buried installation and installation on the bridge, as shown on the Contract Drawings. For payment limits, the change between buried installation and installation on the bridge shall be considered to occur at the back face (roadway approach side) of the concrete thrust block. Measurement shall pass through and include all valves, bends and mainline fitting. Additional measurements shall be taken along branches for Blow-off Assemblies, regardless of their diameter.

Gravel fill from the bottom of the trench to the level 24-inches above the top of the pipe will not be measured for payment, but will be included in the cost of the pipe.

Basis of Payment: This work will be paid for at the contract unit price per linear foot for "10" Ductile Iron Pipe (Water Main)" complete and in place. The price shall also include the cost of digging test pits; transporting the materials; clearing, trenching; disposing of excavated materials, removing and disposing of the present water pipes and any appurtenances as needed; furnishing and installing the pipelines complete as shown on plans or as directed, with lacing and harnessing where required, including fittings, pressure reducing valves, vaults, bends, restraint, filter fabric, bank gravel, sand, blow off assemblies, gate/butterfly valves, air valves, sterilization fittings, tapping sleeves, tapping gates, RCP sleeve, gate boxes, tees, thrust blocks, anchors, expansion fittings, polystyrene, utility identification tape and fire hydrant assemblies; refilling trenches; furnishing the additional materials; temporary and permanent resurfacing; grading; sheeting; bracing; pumping and all incidental work, except as otherwise herein provided for. No claim will be allowed because the number of pipes and joints may be greater than estimated by the Contractor. The price shall also include all material, transportation, labor, including labor required to assist the District during the testing, and equipment necessary to construct the pipelines in accord with the Contract Drawings, the Specifications and the requirements of the Engineer there under.

The cost of all excavation, disposing of excavated material, except that which is suitable for refilling, and furnishing other materials for refilling, unless otherwise specified, will be considered as having been included in the price bid per linear foot of pipeline.

No direct payment will be made for any work done or materials used in making the pipeline tight.

Pay Item	Pay Unit
10" DUCTILE IRON PIPE (WATER MAIN)	L.F.

ITEM #1302931A – PIPE INSULATION (WATER MAIN)

Reference to the "District" in this item refers to "The Metropolitan District".

Description: The Contractor shall furnish and install the required pipe insulation and jacketing to enclose the insulation over pipe, mechanical joints, fittings, expansion joints, etc. as shown on the Contract Drawings, complete as shown, specified or directed, including but not limited to; transporting materials, cleaning and preparing pipe surfaces and furnishing and installing the insulation and jacketing to the specifications and details of the District, except as otherwise herein provided for.

Materials: Six (6) sets of the manufacturers' literature and/or shop drawings for the materials of this section shall be submitted for approval. The Contractor shall furnish details and no work shall be fabricated until they have been approved by the District and Engineer.

Pipe insulation shall be lightweight rigid inert insulation, resistant to moisture in a liquid or vapor form, with an average compressive strength of at least 100 psi. Insulation shall be a minimum of 2 inches thick unless otherwise shown on the drawings. Insulation shall be FOAMGLAS® cellular glass insulation manufactured in accordance with ASTM C552, "Standard Specification for Cellular Glass Thermal Insulation", by Pittsburgh Corning Corporation whose quality system for manufacturing, inspecting, and testing of FOAMGLAS® Insulation is certified to meet the requirements of ISO 9002 or approved equal. The FOAMGLAS® Insulation shall be fabricated in half sections wherever possible. The FOAMGLAS® Insulation shall be fabricated to accommodate the size and shape of all fittings to be insulated including bends, tees, expansion couplings and valves. For large diameter piping where half sections are not practical, curved sidewall segments are preferred. Insulation finish on insulation to be covered with soil shall be Pittwrap jacketing or approved equal. Insulation finish on sections not covered by soil shall be either fiber reinforced mastic or .02 thick inch non-corrosive metal jacket. Wherever possible, the insulation should be factory jacketed with the following protective membranes as recommended by the manufacturer or approved equal:

PITTWRAP® SS Jacketing - a 70 mil thick self-sealing high polymer asphalt membrane with an integral glass scrim and an aluminized Mylar film on the surface.

Pipe covering protection saddles shall be provided to prevent crushing of insulation at cradle installations. Protection saddles shall be Fig. 654 as manufactured by the PHD Manufacturing, Inc. of Columbiana, Ohio or approved equal.

Mastic shall be PITTCOTE® 300 Finish, an asphalt cutback mastic or approved equal.

Reinforcing Fabric shall be PC® Fabric 79 open mesh polyester fabric with a 6 x 5.5 mesh/inch configuration or approved equal.

Sealant shall be PITTSEAL® 444N sealant, a non-setting butyl sealant with a minimum 85% solids content or approved equal.

Construction Methods: Insulation shall be applied to piping with all joints tightly butted. Joint sealant shall completely fill spaces between sections. All sections of insulation shall be secured with at least two 0.75 inch wide by .002 inch thick stainless steel bands but should not be allowed to crush insulation. Cracked or broken sections shall be replaced. Spaces between sections, mechanical joints and expansion joints shall be packed with a light density fiberglass. Installation of insulation, jacket and finish shall be applied per manufacturers' recommendation.

Method of Measurement: The work for "Pipe Insulation (Water Main)" will be measured for payment by the actual number of linear feet, along the centerline of the pipe, of insulation and jacket installed, complete as shown, specified and directed.

Basis of Payment: This work will be paid for at the Contract unit price per linear foot for "Pipe Insulation (Water Main)" complete in place, which price shall include all transportation, material, labor and equipment necessary to complete the installation in accord with the Contract Drawings, Specifications and the requirements of the Engineer there under. No claim will be allowed because the number of pipes and joints may be greater than estimated by the Contractor.

Pay Item	Pay Unit
PIPE INSULATION (WATER MAIN)	L.F.

ITEM #1507001A- PROTECTION AND SUPPORT OF EXISTING UTILITIES (COMMUNICATION)

ITEM #1507002A- PROTECTION AND SUPPORT OF EXISTING UTILITIES (WATER)

ITEM #1507003A- PROTECTION AND SUPPORT OF EXISTING UTILITIES (SEWER)

ITEM #1507004A- PROTECTION AND SUPPORT OF EXISTING UTILITIES (GAS)

DESCRIPTION

The work shall consist of furnishing, installing, maintaining, and removing a temporary system to provide continuous support and protection for the existing underground utilities during excavation and backfilling operations. This item shall also include protection of utilities from damage, including but not limited to installation of temporary plates or other measures.

MATERIALS

All materials shall safely and adequately serve the purpose for which they are intended.

CONSTRUCTION METHODS

The utilities must be supported prior to extensive removal of any existing fill. The system shall securely support the utility from movement in any direction.The system shall be monitored by the contractor periodically and adjusted as necessary.

The contractor shall prepare shop drawings and calculations in coordination with the utility company. The drawings and computations shall be submitted to the engineer for approval.

The purpose of the support system is to maintain the existing geometry of the utilities. The support system shall be designed to accommodate all loads during construction.

The support system shall remain in place until the fill has been replaced.

The design of the actual support system shall be the responsibility of the Contractor. The Contractor shall furnish detailed working drawings, prepared, stamped and signed by a Professional Engineer licensed in Connecticut. These drawings should be detailed in such a way as to allow for the proper review by the utility company and Engineer and the drawings clear enough to allow for the proper erection of the system.

All work shall be done in accordance with the approved drawings. The Contractor must have approved drawings prior to the start of any support operations. Delays because of resubmission/s of the working drawings shall not constitute a claim for an extension of contract time.

All materials required for temporary support systems shall remain the property of the Contractor and shall be removed from the site after the work is completed, unless directed otherwise.

METHOD OF MEASUREMENT

The unit of measurement for the "Protection And Support Of Existing Utilities (Type)" shall be by each facility. Each type of utility shall be defined as the parent company that owns/operates the utility regardless of the number/types of facilities. For example: if AT&T has buried fiber optic lines and separate buried copper communications line, only one payment will be made for the support of AT&T utilities unless specified otherwise.

BASIS OF PAYMENT

Payment for this item will be made at the contract lump sum price for 'Protection And Support Of Existing Utilities (Type)" complete and accepted, which price shall include all tools, labor, material and equipment necessary to complete this work, including the removal from the project upon completion of the work. This item shall also include any resubmissions of the working drawings.

Milestones for payment are as follows:

Milestone	Percentage of Lump Sum
Engineering, Shop / Working Drawings submitted and approved.	20%
Erection of the Support system	30%
Dismantling and Removal Upon Completion	50%
Total	100%

ITEM		BASIS OF PAYMENT
Protection and Support of Existing Utilities	(Communication)	Each
Protection and Support of Existing Utilities	(Water)	Each
Protection and Support of Existing Utilities	(Sewer)	Each
Protection and Support of Existing Utilities	(Gas)	Each